CONTROL DATA CORPORATION

DATE ASSEMBLY NO CORPORATE FILE NUMBER SCMA PAGE 1

03/11/88 3B021 2043520012 102263

SOFTWARE/CONTROLWARE MOVEMENT AUTHORIZATION
(NOT AN INVOICE)

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NORRISTOWN, PA 19403

CUSTOMER P.O.	TRANSMIT NO	SALES REP	DEPT	ACCOUNT
		SWEENEY		

SELLING OFFICE	INSTALLING OFFICE	SYSTEM TYPE	SYSTEM SERIAL	DIVISION CODE	FACILITY CODE	PROJECT NUMBER
FXX	FXX	CY830	00618	0090/	PHAFAC	

PRODUCT NUMBER	RELEASE LEVEL	PRODUCT NAME	VER	PROD QTY
H830P-010	678	TIELINE/NP NOS 2	252	1

COMPONENT NUMBER	COMPONENT NAME	VER	COMP TY TYPE	MN	COMP QTY	UNIT PRICE	EXTND PRICE	EXTND QTY	CP AV	BACK-ORDER
P16004	TIELINE/NP*N2-678	252	600		1	0.00	0.00	1	S	
15190762AE	TIELINE/NP IHB		IH	M	1	0.00	0.00	1	L	
15190132AD	TIELINE OP GUIDE		OP	M	1	0.00	0.00	1	L	
ORDER PROCESSING CHARGE							0.00	3		
PRODUCT CHARGE							0.00			
TOTAL ORDER PROCESSING CHARGE							0.00	3		
TOTAL PRODUCT CHARGE							0.00	1		
TOTAL ORDER CHARGE							0.00	U.S. DOLLARS		

MISCELLANEOUS CONTENTS:

FREIGHT

SMD 1227-7240

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SOFTWARE/CONTROLWARE MOVEMENT AUTHORIZATION
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001 - 600

C O N T R O L D A T A C O R P O R A T I O N

DATE	ASSEMBLY NO	CORPORATE FILE NUMBER	SCMA	PAGE 1
03/11/88	3B020	2043520008	102262A	

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NORRISTOWN, PA 19403

CUSTOMER P.O.	TRANSMIT NO	SALES REP	DEPT	ACCOUNT
		MCSWEENEY		

SELLING OFFICE	INSTALLING OFFICE	SYSTEM TYPE	SYSTEM SERIAL	DIVISION CODE	FACILITY CODE	PROJECT NUMBER
		CY830	618	0150/	PHAFAC	

PRODUCT NUMBER	RELEASE LEVEL	PRODUCT NAME	VER	PROD QTY
53591952C	688	825/830/830A FK	008	1

COMPONENT NUMBER	COMPONENT NAME	VER	COMP TYPE	TY MN	COMP QTY	UNIT PRICE	EXTND PRICE	EXTND QTY	CP AV	BACK-ORDER
60456530R	MSL15X REF MAN		IH	P	1	0.00	0.00	1	L	
60457180AH	CIP USER'S HDBK		IH	M	1	0.00	0.00	1	L	
60469390L	MSL15X MI REF MAN		IH	P	1	0.00	0.00	1	L	
12361091AP	MSL151 EXEC PL		FICH	M	1	0.00	0.00	1	S	
12361110AR	MSL151 CATALOG MF		FICH	M	1	0.00	0.00	1	S	
12361113AK	LCN-NAD DOC		FICH	M	1	0.00	0.00	1	S	
12361116AP	CMSE COMMON PL		FICH	M	1	0.00	0.00	1	S	
19267182AP	MSL151 I1 DIAG PL		FICH	M	1	0.00	0.00	1	S	
19267186AL	EXCH PROG LIST		FICH	M	1	0.00	0.00	1	S	
21989638AL	MSL15X COMN MS PL		FICH	M	1	0.00	0.00	1	S	
21989639AP	MSL15X MI PL		FICH	M	1	0.00	0.00	1	S	
53140094AT	MALET DOCUMENT PL		FICH	M	1	0.00	0.00	1	S	
20298600	825 FCA CHART		FCO		1	0.00	0.00	1	S	
20298605	830 FCA CHART		FCO		1	0.00	0.00	1	S	
20298670	834/7255 FCA CHT		FCO		1	0.00	0.00	1	S	

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03/11/88 3B020 2043520008 102262A

SOFTWARE/CONTROLWARE MOVEMENT AUTHORIZATION
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PRODUCT NUMBER	RELEASE LEVEL	PRODUCT NAME	VER	PROD QTY
53591952C	688	825/830/830A FK	008	1

COMPONENT NUMBER	COMPONENT NAME	VER	COMP TY TYPE	MN	COMP QTY	UNIT PRICE	EXTND PRICE	EXTND QTY	CP AV	BACK-ORDER
22110266	698 FCA CHART		FCO		1	0.00	0.00	1	S	
22697034	7990 MASSTOR FCA		FCO		1	0.00	0.00	1	S	
53595810	836/7255 FCA CHT		FCO		1	0.00	0.00	1	S	
53595895	CDCNET FCA CHART		FCO		1	0.00	0.00	1	S	
67185379	639/7221 FCA CHT		FCO		1	0.00	0.00	1	S	
SMD800371	CIP SRB W/MSL		SSD		2	0.00	0.00	2	S	
53368864N	CIP825-830A W/MSL	008	PE	A	1	0.00	0.00	1	S	
ORDER PROCESSING CHARGE							0.00	23		
PRODUCT CHARGE							0.00			

TOTAL ORDER PROCESSING CHARGE	0.00	23	
TOTAL PRODUCT CHARGE	0.00	1	
TOTAL ORDER CHARGE	0.00	U.S. DOLLARS	

MISCELLANEOUS CONTENTS:

001 - 2400

C O N T R O L D A T A C O R P O R A T I O N

DATE	ASSEMBLY NO	CORPORATE FILE NUMBER	SCMA	PAGE 1
03/11/88	3B022	2043520008	102264	

SOFTWARE/CONTROLWARE MOVEMENT AUTHORIZATION
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		MCSWEENEY		

SELLING OFFICE	INSTALLING OFFICE	SYSTEM TYPE	SYSTEM SERIAL	DIVISION CODE	FACILITY CODE	PROJECT NUMBER
EXX	EXX	CY830	00618	0150/	PHAFAC	

PRODUCT NUMBER	RELEASE LEVEL	PRODUCT NAME	VER	PROD QTY
H830-160	688	UNIPLOT 3 LIB&EXE	3.2	1

COMPONENT NUMBER	COMPONENT NAME	VER	COMP TY TYPE	COMP MN QTY	UNIT PRICE	EXTND PRICE	EXTND QTY	CP AV	BACK-ORDER
REL83C	UV32R10	R10	600	1	0.00	0.00	1	S	
SMD131742	UNIPLOT SRB	R10	MEMO	1	0.00	0.00	1	S	
ORDER PROCESSING CHARGE						0.00	2		
PRODUCT CHARGE						0.00			

H830-162	688	UNI TEK 4XXX DD	3.2	1					
REL84C	TEK1087	R10	600	1	0.00	0.00	1	S	
SMD131578	TEKTRONIX DD UG		MEMO	1	0.00	0.00	1	S	
ORDER PROCESSING CHARGE						0.00	2		
PRODUCT CHARGE						0.00			

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DATE	ASSEMBLY NO	CORPORATE FILE NUMBER	SCMA	PAGE 2
03/11/88	3B022	2043520008	102264	

SOFTWARE/CONTROLWARE MOVEMENT AUTHORIZATION
(NOT AN INVOICE)

PRODUCT NUMBER	RELEASE LEVEL	PRODUCT NAME	VER	PROD QTY
H830-163	688	BENSON 92/93XX DD	3.2	1

COMPONENT NUMBER	COMPONENT NAME	VER	COMP TY TYPE	MN	COMP QTY	UNIT PRICE	EXTND PRICE	EXTND QTY	CP AV	BACK-ORDER
REL86C	MISC1087	R10	600		1	0.00	0.00	1	S	
ORDER PROCESSING CHARGE							0.00	1		
PRODUCT CHARGE							0.00			

TOTAL ORDER PROCESSING CHARGE	0.00	5
TOTAL PRODUCT CHARGE	0.00	3
TOTAL ORDER CHARGE	0.00	U.S. DOLLARS

MISCELLANEOUS CONTENTS:

003 - 600

CONTROL DATA CORPORATION

SOFTWARE AVAILABILITY BULLETIN

Distribution List For
CDC CYBER 180/170/70L/6000
SAB No. 664
July 26, 1988

ICEM IGES TRANSLATOR UNDER NOS 2 (Level 688B Release)

A. ABSTRACT

ICEM IGES Translator Version 2.23 has been updated to release level 688B and verified to execute under NOS 2.6.1 level 700. This release includes support for the 6000, CDC CYBER 70, 17X, 170, 180, A and E series systems. Depending upon the hardware mainframe, different product numbers will apply (Refer to tables 2 and 3 for appropriate product numbers.)

B. DESCRIPTION OF RELEASE

ICEM IGES Translator Version 2.23 is a product that allows you to read graphic and non-graphic data in a format that conforms with the Initial Graphic Exchange Specification (IGES) Version 2.0 and Version 3.0 and write that data in IGES Version 2.0 format. The IGES standard is published by the United States Government's National Bureau of Standards. The IGES standard allows three possible data formats - binary, compressed ASCII and ASCII. The IGES Version 2.23 product supports the ASCII version.

The software product is composed of two major programs with auxiliary programs and procedures, to support various user choice options. The Version 2.23 input program reads an IGES standard file, which has been converted from ASCII to 6/12 format, and outputs an IPARTD file suitable for ICEM DDN V1.65. The Version 2.23 output program reads an ICEM DDN V1.65 IPARTD file and outputs an IGES standard file in 6/12 format suitable for conversion to ASCII. Auxiliary programs and/or procedures convert the IGES Standard Files from ASCII to 6/12 or from 6/12 to ASCII. The user has little direct control over the processing other than choosing the option as the programs are intended for batch operation.

ICEM IGES Translator V2.23 has been verified to run with ICEM DDN V1.65.

C. PUBLICATIONS

There are no new or updated publications pertaining to this release.

D. ORDERING INFORMATION

These update materials are now available. These update materials will be sent automatically to existing licensed domestic customers with Support Service. International customers should reference the separately enclosed ordering instructions for details on how to order these updates. Licensed software products and update materials are available only to customers who have entered into a contractual agreement with Control Data for the use of these products.

Customers not currently licensed for these update products, who place new orders through their sales representative at this time, and who wish to receive level 688B as their initial delivery, should specify the desired level in their order. New software orders must be covered by a license agreement which lists each product explicitly.

TABLE 1. SUMMARY LEVEL 688B

Product Name†	Nominal Release Level Identifier††	Level of Latest Available Media	PSRs at Level	New Features
ICEM IGES TRANSLATOR	688B	688B	688	No

†Refer to Tables 2 and 3 for applicable product numbers. Contact your Control Data sales representative to ensure correct product number for appropriate mainframe.

The product listed in this table is BINARY only.

††This column indicates the latest release at which code and/or documentation changes have been made for each product shown.

TABLE 2. CDC CYBER 170-700, 170-800, AND 180-800 SERIES MAINFRAMES

	MAINFRAME																			
	720	730	740	750	760	176 -4XX	810	810A	815	825	830	830A	835	840	840A	845	850	850A	855	860	860A	865	870A	875	990	990E	995E
PRODUCT NAME	PRODUCT NUMBER																										
	D720 H720	D730 H730	D740 H740	D750 H750	D760 H760	D770 H770	D810 H810		D815 H815	D825 H825	D830 H830		D835 H835	D840 H840		D845 H845	D850 H850		D855 H855	D860 H860		D865 H865		D875 H875	D990 H990		
ICEM IGES TRANSLATOR	-122	-122	-122	-122	-122	-122	-122		-122	-122	-122		-122	-122		-122	-122		-122	-122		-122		-122	-122		

TABLE 3. CDC 6000, CYBER 70 AND 17X SERIES MAINFRAMES

	MAINFRAME							
	6000 CY70 171	172	173	174	175 -100	175 -200	175 -300	176 -XX
PRODUCT NAME	PRODUCT NUMBER							
	D521 H521	D521 H521	D521 H521	D521 H521	D521 H521	D521 H521	D521 H521	D521 H521
ICEM IGES TRANSLATOR	-560	-560	-560	-560	-560	-560	-560	-560

CONTROL DATA
CORPORATION

ARDEN HILLS PROGR. DIV
SW MANUFACTURING & DIST.

FIELD AVAILABILITY SUMMARY

FOR APPLICATIONS UNDER NOS 2

19-CONFIGURATION MANAGEMENT-88

NO. 77987679
REV. 078
DATE 07/11/88

PRODUCT DESCRIPTION	COMPATIBLE RELEASE LEVELS (by columns) AND ASSOCIATED VERSIONS						
SYSTEM SOFTWARE - Release Dates (Note 1)	04/87	09/87	04/88				
NOS 2 - Operating System	678 V2.5.2	688 V2.5.3	700 V2.6.1				
NOS 2 - Product Set	670	688	688				
NOS 2 - Networks Products	670	688	688				
APPLICATIONS UNDER NOS 2 (Note 2)							
5870 LASER PRINTER APPLICATION: HOST FORMS DESCRIPTION LANGUAGE (HFDL)	647 V2.1C	647 V2.1C	--- ---				
ELECTRONIC PRINTER IMAGE CONSTRUCTION (EPIC)	647 V3.0	647 V3.0	--- ---				
XEROX INTEGRATED COMPOSITION SOFTWARE (XICS)	647 V5.0	647 V5.0	--- ---				
ADAMS	630A V1.0	630A V1.0	630A V1.0				
ANSYS	664 V4.2B	664 V4.2B	664 V4.2B				
APEX IV	580 V1.0	580 V1.0	580 V1.0				
APT-IV	617A V2.2	617A V2.2	617A V2.2				
ASPEC	642 V8M7	642 V8M7	642 V8M7				
CADMOULD 2D	647A V1.0	647A V1.0	647A V1.0				
CADMOULD 3D	647A V1.0	647A V1.0	647A V1.0				
CALCOMP HCBS DEVICE DRIVER (PS)	664 V5.04	688 V5.04	688 V5.04				
CDC 721 POST PROCESSOR (TIGS)	617 V1.4.2	617 V1.4.2	617 V1.4.2				
CDC-CVIF	596A V1.1	596A V1.1	596A V1.1				
CDCNET PACER	--- ---	688 V4.4	--- ---				
CDCNET SUPPORT TOOLS	670 V2.1	670 V2.1	670 V2.1				
CHROMATICS 1599 PP (TIGS)	617 V1.4.2	617 V1.4.2	617 V1.4.2				
CONCURRENT VERSION RECORD MANAGER (PS)	647 V2.4.3	--- ---	--- ---				
CONNECT DISTRIBUTED APPLICATION DEVELOPER TOOLKIT	688 V1.2	688 V1.2	688 V1.2				
CONTOURING SYSTEM (PS)	664 V4.07	664 V4.07	664 V4.07				
CONTROL DATA CONNECT FOR IBM PC	688 V1.3	688 V1.3	--- ---				
CONTROL DATA CONNECT FOR MACINTOSH	664 V1.1	664 V1.1	700 V2.0				
CUTDATA	647A V3.0	647A V3.0	647A V3.0				
CYBIL (170 CODE GENERATOR)	617B V2.1	617B V2.1	617B V2.1				

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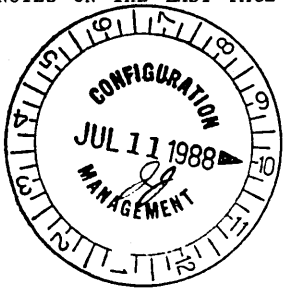

FIELD AVAILABILITY SUMMARY

FOR APPLICATIONS UNDER NOS 2

19-CONFIGURATION MANAGEMENT-88

PRODUCT DESCRIPTION	COMPATIBLE RELEASE LEVELS (by columns) AND ASSOCIATED VERSIONS						
SYSTEM SOFTWARE - Release Dates (Note 1)	04/87	09/87	04/88				
NOS 2 - Operating System	678 V2.5.2	688 V2.5.3	700 V2.6.1				
NOS 2 - Product Set	670	688	688				
NOS 2 - Networks Products	670	688	688				
APPLICATIONS UNDER NOS 2 (Note 2)							
CYBIL (P-CODE GENERATOR)	617B V2.1	617B V2.1	617B V2.1				
DI-3000 EXTENDED (PS)	664 V5.04	688 V5.05	688 V5.05				
DI-TEXTPRO (PS)	--- ---	688 V1.01	688 V1.01				
DRAM	664 V1.1	664 V1.1	664 V1.1				
DUCT	647A V4.2	647A V4.2	647A V4.2				
EDEN COMMON ACCESS SUPPORT SUBSYSTEM	678 V1.1	--- ---	--- ---				
EDEN GATEWAY SUBSYSTEM	678 V1.1	--- ---	--- ---				
EDEN STUDENT REGISTRATION SUBSYSTEM	678 V1.1	--- ---	--- ---				
EDEN BURSAR SUBSYSTEM	678 V1.1	--- ---	--- ---				
EDEN STUDENT AID MANAGEMENT SUBSYSTEM	678 V1.1	--- ---	--- ---				
EDEN ALUMNI SUBSYSTEM	678 V1.1	--- ---	--- ---				
GPSS V	642 V1.4	642 V1.4	642 V1.4				
GRAFMAKER (PS)	664 V4.03	664 V4.03	664 V4.03				
GTICES/STRUDL	617 V85.05	617 V85.05	617 V85.05				
GTTABLE	562 V81.02	562 V81.02	562 V81.02				
HASCO	664 V1.1	664 V1.1	664 V1.1				
HEWLETT-PACKARD 7221 PLOTTER (PS)	664 V5.04	688 V5.04	688 V5.04				
HEWLETT-PACKARD 7470A PLOTTER (PS)	664 V5.04	688 V5.04	688 V5.04				
HEWLETT-PACKARD 7550A PLOTTER (PS)	664 V5.04	688 V5.04	688 V5.04				
HOTSPOT (PS)	596 ---	596 ---	--- ---				
IBM PERSONAL COMPUTER DEVICE DRIVER (PS)	664 V5.04	688 V5.04	688 V5.04				
ICEM ADVANCED DESIGN UPGRADE	678B V1.64	688A V1.65	688A V1.65				
ICEM BEND	664 V1.2	664 V1.2	664 V1.2				
ICEM CAM-POST	678 V9.30	678 V9.30	678 V9.30				

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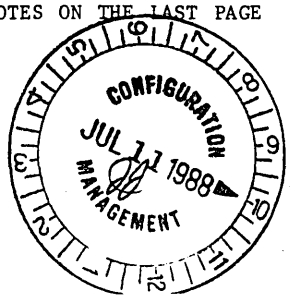

FIELD AVAILABILITY SUMMARY

FOR APPLICATIONS UNDER NOS 2

19-CONFIGURATION MANAGEMENT-88

PRODUCT DESCRIPTION	COMPATIBLE RELEASE LEVELS (by columns) AND ASSOCIATED VERSIONS						
SYSTEM SOFTWARE - Release Dates (Note 1)	04/87	09/87	04/88				
NOS 2 - Operating System	678 V2.5.2	688 V2.5.3	700 V2.6.1				
NOS 2 - Product Set	670	688	688				
NOS 2 - Networks Products	670	688	688				
APPLICATIONS UNDER NOS 2 (Note 2)							
ICEM CAM-PUNCH	647A V2.0	647A V2.0	647A V2.0				
ICEM DATA MIGRATION UTILITY	--- ---	688 V2.0.0	688 V2.0.0				
ICEM DESIGN/DRAFTING	678B V1.64	688A V1.65	688A V1.65				
ICEM DESIGN/DRAFTING/ADVANCED DESIGN/ NUMERICAL CONTROL PACKAGE	678B V1.64	688A V1.65	688A V1.65				
ICEM DESIGN/DRAFTING/ADVANCED DESIGN PACKAGE	678B V1.64	688A V1.65	688A V1.65				
ICEM ENGINEERING DATA LIBRARY	678 V1.2.6	688 V1.2.7	688A V1.2.7				
ICEM FACILITIES	678 V1.41	678 V1.41	678 V1.41				
ICEM HYDRAULICS	664 V1.3	664 V1.3	664 V1.3				
ICEM IGES TRANSLATOR	678 V2.21	688B V2.23	688B V2.23				
ICEM KINEMATICS	664 V1.0	664 V1.0	664 V1.0				
ICEM NUMERICAL CONTROL UPGRADE	678B V1.64	688A V1.65	688A V1.65				
ICEM PLASTIMOULD	664 V1.1	664 V1.1	664 V1.1				
ICEM SCHEMATICS	642A V1.15	642A V1.15	642A V1.15				
ICEM SOLID ANALYSIS	664 V1.13	664 V1.13	664 V1.13				
ICEM SOLID MODELER	664 V1.13	664 V1.13	664 V1.13				
ICEM TEKROUTE	--- ---	--- ---	--- ---				
IMSL V10	678 V10.0	678 V10.0	678 V10.0				
INFORMATION ANALYSIS SUPPORT TOOL (PS)	670 V1.2	670 V1.2	670 V1.2				
INFORMATION MANAGEMENT FAC 2	--- ---	--- ---	--- ---				
INFORMATION PROCESSING FAMILY	647 V2.6	647 V2.6	647 V2.6				
IPF/CDCS LINK	642 V1.0	642 V1.0	--- ---				
LINCAGES	664 V1.2	664 V1.2	664 V1.2				
METAFILE (Stand-alone) TRANSLATOR (PS)	664 V5.02	688B V5.03	688B V5.03				

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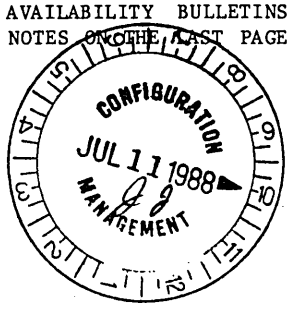

FIELD AVAILABILITY SUMMARY

FOR APPLICATIONS UNDER NOS 2

19-CONFIGURATION MANAGEMENT-88

PRODUCT DESCRIPTION	COMPATIBLE RELEASE LEVELS (by columns) AND ASSOCIATED VERSIONS						
SYSTEM SOFTWARE - Release Dates (Note 1)	04/87	09/87	04/88				
NOS 2 - Operating System	678 V2.5.2	688 V2.5.3	700 V2.6.1				
NOS 2 - Product Set	670	688	688				
NOS 2 - Networks Products	670	688	688				
APPLICATIONS UNDER NOS 2 (Note 2)							
METAFILE SYSTEM (PS)	664 V5.02	688 V5.03	688 V5.03				
MIDAS-BASE PACK	--- ---	--- ---	--- ---				
MIDAS-DESIGN VERIFICATION	--- ---	--- ---	--- --				
MIDAS DESIGNER WORKSTATION-BASE	--- ---	--- ---	--- ---				
MIDAS DESIGNER WORKSTATION-VLSI6260	--- ---	--- ---	--- ---				
MIDAS DESIGNER WORKSTATION-VLSI6261	--- ---	--- ---	--- ---				
MIDAS-GATE ARRAY LAYOUT	--- ---	--- ---	--- ---				
MIDAS LAYOUT WORKSTATION-APOLLO	--- ---	--- ---	--- ---				
MIDAS LAYOUT WORKSTATION-ORCATECH	--- ---	--- ---	--- --				
MIDAS-TEST GENERATION	--- ---	--- ---	--- ---				
MIDAS-VLSI6260 TECHNOLOGY LIBRARY	--- ---	--- ---	--- ---				
MIDAS-VLSI6261 TECHNOLOGY LIBRARY	--- ---	--- ---	--- ---				
MOLDCOOL II	647A V2.0	647A V2.0	647A V2.0				
MOLDFLOW 1 WORKSTATION	664 V4.0	664 V4.0	664 V4.0				
MOLDFLOW 2-9 LOCAL WORKSTATIONS	664 V4.0	664 V4.0	664 V4.0				
MOLDFLOW 10 OR MORE LOCAL WORKSTATIONS OR MIX OF LOCAL AND REMOTE WORKSTATIONS	664 V4.0	664 V4.0	664 V4.0				
MOLDSTAR	664 V3.0	664 V3.0	664 V3.0				
NETWORK JOB ENTRY FACILITY (PS)	678 V2.5.2	678 V2.5.2	700 V2.6.1				
NOS CHART	617B V2.1	617B V2.1	617B V2.1				
NOS CONTEXT	596 V2.2	--- ---	--- ---				
NOS DEFINE	617B V2.1	617B V2.1	617B V2.1				
NOS GRAPH	617B V2.1	617B V2.1	617B V2.1				
NOS TOOLS	670 V2.1	670 V2.1	670 V2.1				
PDS/MAGEN	596 V14B	596 V14B	596 V14B				

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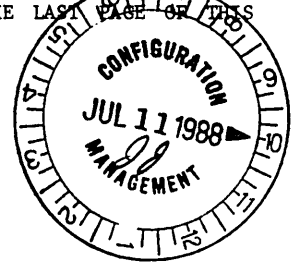

FIELD AVAILABILITY SUMMARY

FOR APPLICATIONS UNDER NOS 2

19-CONFIGURATION MANAGEMENT-88

PRODUCT DESCRIPTION	COMPATIBLE RELEASE LEVELS (by columns) AND ASSOCIATED VERSIONS						
SYSTEM SOFTWARE - Release Dates (Note 1)	04/87	09/87	04/88				
NOS 2 - Operating System	678 V2.5.2	688 V2.5.3	700 V2.6.1				
NOS 2 - Product Set	670	688	688				
NOS 2 - Networks Products	670	688	688				
APPLICATIONS UNDER NOS 2 (Note 2)							
PERT TIME	642 V2.2	642 V2.2	642 V2.2				
PICSURE (PS)	664 V1.00	664 V1.00	664 V1.00				
PLATO COURSEWARE DEVELOPMENT AND DELIVERY SYSTEM (PCD2)	678B R40.1	688A R40.1	--- ---				
PLATO LESSON DELIVERY AND AUTHORING 1	678B R40.1	688A R40.1	--- ---				
PLATO PUBLISHED COURSEWARE CATEGORY I, II & III	678B R40.1	688A R40.1	--- ---				
PLATO PUBLISHED COURSEWARE CATEGORY I,	678B R40.1	688A R40.1	--- ---				
PLATO PUBLISHED COURSEWARE CATEGORY II	678B R40.1	688A R40.1	--- ---				
PLATO PUBLISHED COURSEWARE CATEGORY III	678B R40.1	688A R40.1	--- ---				
PLATO PUBLISHED COURSEWARE CATEGORY IV	678B R40.1	688A R40.1	--- ---				
PRECISE*I/E IM/DM PIPE (PS)	670 V1.0	670 V1.0	670 V1.0				
PRECISE*I/E IMF2 PIPE (PS)	670 V1.0	670 V1.0	670 V1.0				
PRECISE*I/E NDMU (PS)	670 V1.0	670 V1.0	670 V1.0				
PRECISE*I/E SQL PIPE (PS)	670 V1.0	670 V1.0	670 V1.0				
RAMTEK 6212 DEVICE DRIVER (PS)	664 V5.04	688 V5.04	688 V5.04				
SIMSCRIPT II.5	647 V5.1	647 V5.1	647 V5.1				
SKELETON DEVICE DRIVER (PS)	664 V4.11	688 V4.11	688 V4.11				
TAPE MANAGEMENT SYSTEM (PS)	678 V2.5.2	688 V2.5.3	700 V2.6.1				
TEKTRONIX 4010 DEVICE DRIVER (PS)	664 V5.04	688 V5.04	688 V5.04				
TEKTRONIX 4014 DEVICE DRIVER (PS)	664 V5.04	688 V5.04	688 V5.04				
TEKTRONIX 4105 DEVICE DRIVER (PS)	664 V5.04	688 V5.04	688 V5.04				
TEKTRONIX 401X PP (TIGS)	617 V1.4.2	617 V1.4.2	617 V1.4.2				
TEKTRONIX 411X PP (TIGS)	617 V1.4.2	617 V1.4.2	617 V1.4.2				
TEKTRONIX 4107/4109 DEVICE DRIVER (PS)	664 V5.04	688 V5.04	688 V5.04				
TEKTRONIX 4113 DEVICE DRIVER (PS)	664 V5.04	688 V5.04	688 V5.04				

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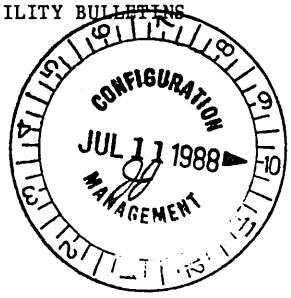

FIELD AVAILABILITY SUMMARY

FOR APPLICATIONS UNDER NOS 2

19-CONFIGURATION MANAGEMENT-88

PRODUCT DESCRIPTION	COMPATIBLE RELEASE LEVELS (by columns) AND ASSOCIATED VERSIONS						
SYSTEM SOFTWARE - Release Dates (Note 1)	04/87	09/87	04/88				
NOS 2 - Operating System	678 V2.5.2	688 V2.5.3	700 V2.6.1				
NOS 2 - Product Set	670	688	688				
NOS 2 - Networks Products	670	688	688				
APPLICATIONS UNDER NOS 2 (Note 2)							
TEKTRONIX 4114 DEVICE DRIVER (PS)	664 V5.04	688 V5.04	688 V5.04				
TEKTRONIX 4115/4125 DEVICE DRIVER (PS)	664 V5.04	688 V5.04	688 V5.04				
TEKTRONIX 4662 DEVICE DRIVER (PS)	664 V5.04	688 V5.04	688 V5.04				
TERMINAL CLUSTER FACILITY (PS)	647B V2.6	688 V2.6A	--- ---				
TIELINE/NP (PS)	678 V2.5.2	678 V2.5.2	--- ---				
TIGS 1	617 V1.4.2	617 V1.4.2	617 V1.4.2				
TIMESHARING INSTRUMENTATION (PS)	678 V2.5.2	678 V2.5.2	--- ---				
TOTAL EXTENDED 2	630 V2.1C	630 V2.1C	630 V2.1C				
TOTAL UNIVERSAL 2	617 V2.1C	617 V2.1C	617 V2.1C				
UNIPLOT V3 LIBRARY + EXECUTIVE	647 V3.2	688 V3.2	688 V3.2				
UNIPLOT BENSON 92XX/93XX DEVICE DRIVER	647 V3.2	688 V3.2	688 V3.2				
UNIPLOT CALCOMP 907 DEVICE DRIVER	647 V3.2	688 V3.2	688 V3.2				
UNIPLOT DEVICE DRIVER (PS)	664 V5.04	688 V5.04	688 V5.04				
UNIPLOT HEWLETT-PACKARD (HPGL) DEVICE DRIVER	664 V3.2	688 V3.2	688 V3.2				
UNIPLOT KMW DEVICE DRIVER	--- ---	688 V3.2	688 V3.2				
UNIPLOT TEKTRONIX 40XX/41XX/4510 DEVICE DRIVER	647 V3.2	688 V3.2	688 V3.2				
UNISTRUC	596A Version 15Aug84	596A Version 15Aug84	596A Version 15Aug84				

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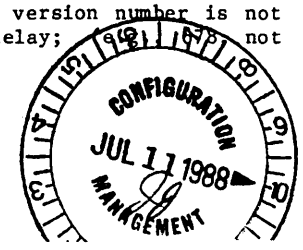
NOTE 1: For details on the compilers, data management, network, and other products included in System Software, see the NOS 2 SAB for any release level.

NOTE 2: Applications are generally released asynchronously from the System Software and from each other. An entry for an application in a column means that the level shown is available and has been announced for use with the level of System Software indicated at the top of the column.

NOTE 3: Applicable release level must be specified on the order. Ordering by version number is not compatible with the order processing system and will result in order delay; not V1.0).

--- Availability not announced.



CONTROL DATA CORPORATION

SOFTWARE AVAILABILITY BULLETIN

Distribution List For
CDC CYBER 180/170/70L/6000
SAB No. 588
January 20, 1988

ICEM IGES TRANSLATOR UNDER NOS 2 (Level 688 Release)

A. ABSTRACT

ICEM IGES Translator Version 2.22 has been updated to release level 688. This release includes support for the 6000, CDC CYBER 70, 17X, 170, 180, A and E series systems. Depending upon the hardware mainframe, different product numbers will apply (Refer to tables 3 and 4 for appropriate product numbers.) This product is now available.

B. DESCRIPTION OF RELEASE

ICEM IGES Translator Version 2.22 is a product that allows you to read graphic and non-graphic data in a format that conforms with the Initial Graphic Exchange Specification (IGES) Version 2.0 and Version 3.0 and write that data in IGES Version 2.0 format. The IGES standard is published by the United States Government's National Bureau of Standards. The IGES standard allows three possible data formats - binary, compressed ASCII and ASCII. The IGES Version 2.22 product supports the ASCII version.

The software product is composed of two major programs with auxiliary programs and procedures, to support various user choice options. The Version 2.22 input program reads an IGES standard file, which has been converted from ASCII to 6/12 format, and outputs an IPARTD file suitable for ICEM DDN V1.64. The Version 2.22 output program reads an ICEM DDN V1.64 IPARTD file and outputs an IGES standard file in 6/12 format suitable for conversion to ASCII. Auxiliary programs and/or procedures convert the IGES Standard Files from ASCII to 6/12 or from 6/12 to ASCII. The user has little direct control over the processing other than choosing the option as the programs are intended for batch operation.

- Version 2.22 now reads both IGES 2.0 and 3.0 formats.
- PSR corrective code has been added.

ICEM IGES Translator V2.22 has been verified to run with ICEM DDN V1.64.

C. PUBLICATIONS

There are no new or updated publications pertaining to this release.

D. ORDERING INFORMATION

These update materials are now available. These update materials will be sent automatically to existing licensed domestic customers with Support Service. International customers should reference the separately enclosed ordering instructions for details on how to order these updates. Licensed software products and update materials are available only to customers who have entered into a contractual agreement with Control Data for the use of these products.

Customers not currently licensed for these update products, who place new orders through their sales representative at this time, and who wish to receive level 688 as their initial delivery, should specify the desired level in their order. New software orders must be covered by a license agreement which lists each product explicitly.

TABLE 2. SUMMARY LEVEL 688

Product Name†	Nominal Release Level Identifier††	Level of Latest Available Media	PSRs at Level	New Features
ICEM IGES TRANSLATOR	688	688	688	Yes

†Refer to Tables 3 and 4 for applicable product numbers. Contact your Control Data sales representative to ensure correct product number for appropriate mainframe.

The product listed in this table is BINARY only.

††This column indicates the latest release at which code and/or documentation changes have been made for each product shown.

FIELD AVAILABILITY SUMMARY

FOR APPLICATIONS UNDER NOS 2

19-CONFIGURATION MANAGEMENT-88

PRODUCT DESCRIPTION	COMPATIBLE RELEASE LEVELS (by columns) AND ASSOCIATED VERSIONS						
SYSTEM SOFTWARE - Release Dates (Note 1)	09/86	12/86	04/87	09/87			
NOS 2 - Operating System	664 V2.5.1	670 V2.5.1	678 V2.5.2	688 V2.5.3			
NOS 2 - Product Set	650	670	670	688			
NOS 2 - Networks Products	664	670	670	688			
APPLICATIONS UNDER NOS 2 (Note 2)							
5870 LASER PRINTER APPLICATION: HOST FORMS DESCRIPTION LANGUAGE (HFDL)	647 V2.1C	647 V2.1C	647 V2.1C	647 V2.1C			
ELECTRONIC PRINTER IMAGE CONSTRUCTION (EPIC)	647 V3.0	647 V3.0	647 V3.0	647 V3.0			
XEROX INTEGRATED COMPOSITION SOFTWARE (XICS)	647 V5.0	647 V5.0	647 V5.0	647 V5.0			
ADAMS	630A V1.0	630A V1.0	630A V1.0	630A V1.0			
ANSYS	664 V4.2B	664 V4.2B	664 V4.2B	664 V4.2B			
APEX IV	580 V1.0	580 V1.0	580 V1.0	580 V1.0			
APT-IV	617A V2.2	617A V2.2	617A V2.2	617A V2.2			
ASPEC	642 V8M7	642 V8M7	642 V8M7	642 V8M7			
CADMOULD 2D	647A V1.0	647A V1.0	647A V1.0	647A V1.0			
CADMOULD 3D	647A V1.0	647A V1.0	647A V1.0	647A V1.0			
CDC 721 POST PROCESSOR (TIGS)	617 V1.4.2	617 V1.4.2	617 V1.4.2	617 V1.4.2			
CDC-CVIF	596A V1.1	596A V1.1	596A V1.1	596A V1.1			
CDCNET PACER	--- ---	--- ---	--- ---	688 V4.4			
CDCNET SUPPORT TOOLS	664 V2.1	670 V2.1	670 V2.1	670 V2.1			
CHROMATICS 1599 PP (TIGS)	617 V1.4.2	617 V1.4.2	617 V1.4.2	617 V1.4.2			
CONNECT DISTRIBUTED APPLICATION DEVELOPER TOOLKIT	647 V1.0	647 V1.0	--- ---	--- ---			
CONTROL DATA CONNECT FOR IBM PC	688 V1.3	688 V1.3	688 V1.3	688 V1.3			
CONTROL DATA CONNECT FOR MACINTOSH	664 V1.1	664 V1.1	664 V1.1	664 V1.1			
CUTDATA	647A V3.0	647A V3.0	647A V3.0	647A V3.0			
CYBIL (170 CODE GENERATOR)	617B V2.1	617B V2.1	617B V2.1	617B V2.1			
CYBIL (P-CODE GENERATOR)	617B V2.1	617B V2.1	617B V2.1	617B V2.1			
DRAM	664 V1.1	664 V1.1	664 V1.1	664 V1.1			
DUCT	647A V4.2	647A V4.2	647A V4.2	647A V4.2			

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FIELD AVAILABILITY SUMMARY

FOR APPLICATIONS UNDER NOS 2

19-CONFIGURATION MANAGEMENT-88

PRODUCT DESCRIPTION	COMPATIBLE RELEASE LEVELS (by columns) AND ASSOCIATED VERSIONS						
SYSTEM SOFTWARE - Release Dates (Note 1)	09/86	12/86	04/87	09/87			
NOS 2 - Operating System	664 V2.5.1	670 V2.5.1	678 V2.5.2	688 V2.5.3			
NOS 2 - Product Set	650	670	670	688			
NOS 2 - Networks Products	664	670	670	688			
APPLICATIONS UNDER NOS 2 (Note 2)							
EDEN COMMON ACCESS SUPPORT SUBSYSTEM	647 V1.0	--- --	678 V1.1	--- --			
EDEN GATEWAY SUBSYSTEM	647 V1.0	--- ---	678 V1.1	--- --			
EDEN STUDENT REGISTRATION SUBSYSTEM	647 V1.0	--- --	678 V1.1	--- --			
EDEN BURSAR SUBSYSTEM	647 V1.0	--- --	678 V1.1	--- ---			
EDEN STUDENT AID MANAGEMENT SUBSYSTEM	647 V1.0	--- --	678 V1.1	--- --			
EDEN ALUMNI SUBSYSTEM	647 V1.0	--- --	678 V1.1	--- --			
GPSS V	642 V1.4	642 V1.4	642 V1.4	642 V1.4			
GTICES/STRUDL	617 V85.05	617 V85.05	617 V85.05	617 V85.05			
GTTABLE	562 V81.02	562 V81.02	562 V81.02	562 V81.02			
HASCO	664 V1.1	664 V1.1	664 V1.1	664 V1.1			
H/I, NICOLET, ZETA, BENSON PP (UNI)	647 V3.2	647 V3.2	647 V3.2	647 V3.2			
ICEM ADVANCED DESIGN UPGRADE	664 V1.62	664 V1.62	678B V1.64	678B V1.64			
ICEM BEND	664 V1.2	664 V1.2	664 V1.2	664 V1.2			
ICEM CAM-POST	647A V9.21	647A V9.21	678 V9.30	678 V9.30			
ICEM CAM-PUNCH	647A V2.0	647A V2.0	647A V2.0	647A V2.0			
ICEM DESIGN/DRAFTING	664 V1.62	664 V1.62	678B V1.64	678B V1.64			
ICEM DESIGN/DRAFTING/ADVANCED DESIGN/ NUMERICAL CONTROL PACKAGE	664 V1.62	664 V1.62	678B V1.64	678B V1.64			
ICEM DESIGN/DRAFTING/ADVANCED DESIGN PACKAGE	664 V1.62	664 V1.62	678B V1.64	678B V1.64			
ICEM ENGINEERING DATA LIBRARY	642A V1.2.3	664 V1.2.5	678 V1.2.6	678 V1.2.6			
ICEM FACILITIES	664 V1.4	664 V1.4	678 V1.41	678 V1.41			
ICEM HYDRAULICS	664 V1.3	664 V1.3	664 V1.3	664 V1.3			
ICEM IGES TRANSLATOR	664 V2.2	664 V2.2	678 V2.21	688 V2.22			
ICEM KINEMATICS	664 V1.0	664 V1.0	664 V1.0	664 V1.0			
ICEM NUMERICAL CONTROL UPGRADE	664 V1.62	664 V1.62	678B V1.64	678B V1.64			

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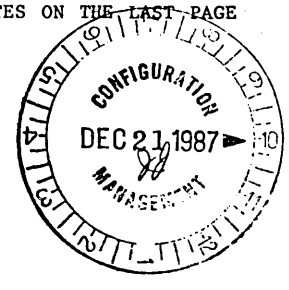

TABLE 3. CDC CYBER 170-700, 170-800, AND 180-800 SERIES MAINFRAMES

	MAINFRAME																			
	720	730	740	750	760	176 -4XX	810 810A	815	825	830 830A	835	840 840A	845	850 850A	855	860 860A	865	875 870A	990 990E 995E
	PRODUCT NUMBER																			
PRODUCT NAME	D720 H720	D730 H730	D740 H740	D750 H750	D760 H760	D770 H770	D810 H810	D815 H815	D825 H825	D830 H830	D835 H835	D840 H840	D845 H845	D850 H850	D855 H855	D860 H860	D865 H865	D875 H875	D990 H990
ICEM IGES TRANSLATOR	-122	-122	-122	-122	-122	-122	-122	-122	-122	-122	-122	-122	-122	-122	-122	-122	-122	-122	-122

TABLE 4. CDC 6000, CYBER 70 AND 17X SERIES MAINFRAMES

	MAINFRAME							
	6000 CY70 171	172	173	174	175 -100	175 -200	175 -300	176 -XX
	PRODUCT NUMBER							
PRODUCT NAME	D521 H521	D521 H521	D521 H521	D521 H521	D521 H521	D521 H521	D521 H521	D521 H521
ICEM IGES TRANSLATOR	-560	-560	-560	-560	-560	-560	-560	-560

PRODUCT DESCRIPTION	COMPATIBLE RELEASE LEVELS (by columns) AND ASSOCIATED VERSIONS						
SYSTEM SOFTWARE - Release Dates (Note 1)	09/86	12/86	04/87	09/87			
NOS 2 - Operating System	664 V2.5.1	670 V2.5.1	678 V2.5.2	688 V2.5.3			
NOS 2 - Product Set	650	670	670	688			
NOS 2 - Networks Products	664	670	670	688			
APPLICATIONS UNDER NOS 2 (Note 2)							
ICEM PLASTIMOULD	664 V1.1	664 V1.1	664 V1.1	664 V1.1			
ICEM SCHEMATICS	642A V1.15	642A V1.15	642A V1.15	642A V1.15			
ICEM SOLID ANALYSIS	664 V1.13	664 V1.13	664 V1.13	664 V1.13			
ICEM SOLID MODELER	664 V1.13	664 V1.13	664 V1.13	664 V1.13			
ICEM TEKROUTE	--- ---	--- ---	--- --	--- ---			
IMSL V10	642 V9.2	642 V9.2	678 V10.0	678 V10.0			
INFORMATION MANAGEMENT FAC 2	596 V2.0	--- ---	--- ---	--- ---			
INFORMATION PROCESSING FAMILY	647 V2.6	647 V2.6	647 V2.6	647 V2.6			
IPF/CDCS LINK	642 V1.0	642 V1.0	642 V1.0	642 V1.0			
LINCAGES	664 V1.2	664 V1.2	664 V1.2	664 V1.2			
MIDAS-BASE PACK	--- ---	--- ---	--- ---	--- ---			
MIDAS-DESIGN VERIFICATION	--- ---	--- ---	--- ---	--- ---			
MIDAS DESIGNER WORKSTATION-BASE	--- ---	--- ---	--- ---	--- ---			
MIDAS DESIGNER WORKSTATION-VLSI6260	--- ---	--- ---	--- ---	--- ---			
MIDAS DESIGNER WORKSTATION-VLSI6261	--- ---	--- ---	--- ---	--- ---			
MIDAS-GATE ARRAY LAYOUT	--- ---	--- ---	--- ---	--- ---			
MIDAS LAYOUT WORKSTATION-APOLLO	--- --	--- ---	--- ---	--- ---			
MIDAS LAYOUT WORKSTATION-ORCATECH	--- ---	--- ---	--- ---	--- ---			
MIDAS-TEST GENERATION	--- ---	--- ---	--- ---	--- ---			
MIDAS-VLSI6260 TECHNOLOGY LIBRARY	--- ---	--- ---	--- ---	--- ---			
MIDAS-VLSI6261 TECHNOLOGY LIBRARY	--- ---	--- ---	--- ---	--- ---			
MOLDCOOL II	647A V2.0	647A V2.0	647A V2.0	647A V2.0			

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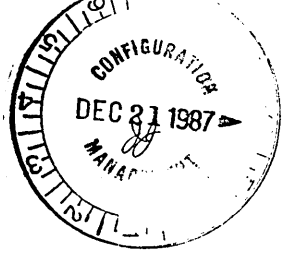
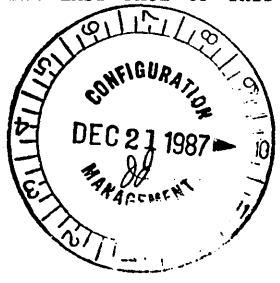


PRODUCT DESCRIPTION	COMPATIBLE RELEASE LEVELS (by columns) AND ASSOCIATED VERSIONS						
SYSTEM SOFTWARE - Release Dates (Note 1)	09/86	12/86	04/87	09/87			
NOS 2 - Operating System	664 V2.5.1	670 V2.5.1	678 V2.5.2	688 V2.5.3			
NOS 2 - Product Set	650	670	670	688			
NOS 2 - Networks Products	664	670	670	688			
APPLICATIONS UNDER NOS 2 (Note 2)							
MOLDFLOW 1 WORKSTATION	664 V4.0	664 V4.0	664 V4.0	664 V4.0			
MOLDFLOW 2-9 LOCAL WORKSTATIONS	664 V4.0	664 V4.0	664 V4.0	664 V4.0			
MOLDFLOW 10 OR MORE LOCAL WORKSTATIONS OR MIX OF LOCAL AND REMOTE WORKSTATIONS	664 V4.0	664 V4.0	664 V4.0	664 V4.0			
MOLDSTAR	664 V3.0	664 V3.0	664 V3.0	664 V3.0			
NETWORK JOB ENTRY FACILITY	664 V2.5.1	--- ---	678 V2.5.2	--- ---			
NOS CHART	617B V2.1	617B V2.1	617B V2.1	617B V2.1			
NOS CONTEXT	596 V2.2	596 V2.2	596 V2.2	--- ---			
NOS DEFINE	617B V2.1	617B V2.1	617B V2.1	617B V2.1			
NOS GRAPH	617B V2.1	617B V2.1	617B V2.1	617B V2.1			
NOS TOOLS	664 V2.1	670 V2.1	670 V2.1	670 V2.1			
PDS/MAGEN	596 V14B	596 V14B	596 V14B	596 V14B			
PERT TIME	642 V2.2	642 V2.2	642 V2.2	642 V2.2			
PLATO COURSEWARE DEVELOPMENT AND DELIVERY SYSTEM (PCD2)	664C R39.1	670C R40.1	678B R40.1	688A R40.1			
PLATO LESSON DELIVERY AND AUTHORING 1	664C R39.1	670C R40.1	678B R40.1	688A R40.1			
PLATO PUBLISHED COURSEWARE CATEGORY I, II & III	678A R39.1	678A R39.1	678A R39.1	--- ---			
PLATO PUBLISHED COURSEWARE CATEGORY I,	678A R39.1	678A R39.1	678A R39.1	--- ---			
PLATO PUBLISHED COURSEWARE CATEGORY II	678A R39.1	678A R39.1	678A R39.1	--- ---			
PLATO PUBLISHED COURSEWARE CATEGORY III	678A R39.1	678A R39.1	678A R39.1	--- ---			
PLATO PUBLISHED COURSEWARE CATEGORY IV	678A R39.1	678A R39.1	678A R39.1	--- ---			
SIMSCRIPT II.5	647 V5.1	647 V5.1	647 V5.1	647 V5.1			
TEKTRONIX 401X PP (TIGS)	617 V1.4.2	617 V1.4.2	617 V1.4.2	617 V1.4.2			
TEKTRONIX 411X PP (TIGS)	617 V1.4.2	617 V1.4.2	617 V1.4.2	617 V1.4.2			

THIS DOCUMENT SUMMARIZES AVAILABILITY INFORMATION ANNOUNCED IN SOFTWARE AVAILABILITY BULLETINS (SABs). IT IS NOT A STANDALONE ANNOUNCEMENT DOCUMENT. PLEASE REFERENCE THE NOTES ON THE LAST PAGE OF THIS FIELD AVAILABILITY SUMMARY.



FIELD AVAILABILITY SUMMARY

FOR APPLICATIONS UNDER NOS 2

19-CONFIGURATION MANAGEMENT-88

PRODUCT DESCRIPTION	COMPATIBLE RELEASE LEVELS (by columns) AND ASSOCIATED VERSIONS						
SYSTEM SOFTWARE - Release Dates (Note 1)	09/86	12/86	04/87	09/87			
NOS 2 - Operating System	664 V2.5.1	670 V2.5.1	678 V2.5.2	688 V2.5.3			
NOS 2 - Product Set	650	670	670	688			
NOS 2 - Networks Products	664	670	670	688			
APPLICATIONS UNDER NOS 2 (Note 2)							
TIELINE/NP	664 V2.5.1	--- ---	678 V2.5.2	--- ---			
TIGS 1	617 V1.4.2	617 V1.4.2	617 V1.4.2	617 V1.4.2			
TOTAL EXTENDED 2	--- ---	630 V2.1C	630 V2.1C	630 V2.1C			
TOTAL UNIVERSAL 2	617 V2.1C	617 V2.1C	617 V2.1C	617 V2.1C			
UNIPLOT V3 LIBRARY + EXECUTIVE	647 V3.2	647 V3.2	647 V3.2	688 V3.2			
UNIPLOT CALCOMP 907 DEVICE DRIVER	647 V3.2	647 V3.2	647 V3.2	688 V3.2			
UNIPLOT HEWLETT-PACKARD (HPGL) DEVICE DRIVER	664 V3.2	664 V3.2	664 V3.2	688 V3.2			
UNIPLOT KMW DEVICE DRIVER	--- ---	--- ---	--- ---	688 V3.2			
UNIPLOT TEKTRONIX 40XX/41XX/4510 DEVICE DRIVER	647 V3.2	647 V3.2	647 V3.2	688 V3.2			
UNISTRUC	596A Version 15Aug84	596A Version 15Aug84	596A Version 15Aug84	596A Version 15Aug84			

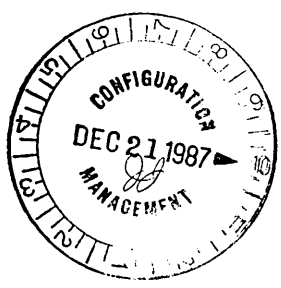
THIS DOCUMENT SUMMARIZES AVAILABILITY INFORMATION ANNOUNCED IN SOFTWARE AVAILABILITY BULLETINS (SABs). IT IS NOT A STANDALONE ANNOUNCEMENT DOCUMENT.

NOTE 1: For details on the compilers, data management, network, and other products included in System Software, see the NOS 2 SAB for any release level.

NOTE 2: Applications are generally released asynchronously from the System Software and from each other. An entry for an application in a column means that the level shown is available and has been announced for use with the level of System Software indicated at the top of the column.

NOTE 3: Applicable release level must be specified on the order. Ordering by version number is not compatible with the order processing system and will result in order delay; (e.g., 678, not V1.0).

--- Availability not announced.



CPILLIB, CPI1

CONTROL DATA CORPORATION

ICEM DDN VERSION 1.60
INSTALLATION INSTRUCTIONS
Operating System Level: NOS 2 Level 642A

Date: 4/7/86

DISCLAIMER

NOS and its product set are intended for use only as described in this document. Control Data cannot be responsible for the proper functioning of undescribed features or parameters.

SMD131060

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I. Release Description

ICEM DDN is a computer-aided design and computer-aided manufacturing (CAD/CAM) system that runs under the NOS and NAM/IAF communications package.

ICEM Design/Drafting

The ICEM Design/Drafting file contains overlays for Basic Geometry, ANSI Mechanical Drafting, and Geometric Analysis. For International Drafting Standards, see Appendix A.

ICEM Advanced Design

The ICEM Advanced Design consists of all the overlays in the ICEM Design/Drafting plus additional overlays for Advanced Design.

ICEM Numerical Control

The ICEM Numerical Control consists of all overlays in ICEM Design/Drafting and ICEM Advanced Design, plus additional overlays for Numerical Control.

ICEM GPL

ICEM GPL is a high level computer language designed to provide a user with features of the ICEM DDN product. The features are provided parametrically from within algorithms.

The ICEM GPL system consists of two parts: an interpreter located within the standard ICEM DDN and a stand-alone compiler. Source GPL programs must first be compiled before those programs can be interpreted by ICEM DDN.

The ICEM GPL compiler is provided with the purchase of any portion of ICEM DDN (Design/Drafting, Advanced Design, or Numerical Control).

Hardware Requirements

ICEM DDN requires the minimum hardware configuration for NOS and NAM/IAF. A field length of 162,000 octal is required for execution. The user station is a Tektronix 4014 or 4016 with Extended Graphics, Tektronix 4105, 4107, 4109, 4113, 4114, or 4115, and Control Data Corporation 721.

II. Tape Formats and Files

All tapes are nine-track made with a density of 1600 cpi (D=PE) .
All tapes are ANSI-labeled and in INTERNAL format (LB=KL,F=I) .

VSN=REL68 L=ICEMDD	VSN=REL68A L=ICEMAD	VSN=REL68B L=ICEMNC	VSN=REL68C L=ICEMGPL
#1 INSTALL	#1 INSTALL	#1 INSTALL	#1 INSTALL
#2 ICEMDDN	#2 ICEMAD	#2 ICEMNC	#2 GPL
#3 DDNSRB	#3 COPYLDR	#3 COPYLDR	#3 GTGT
#4 DDNVER		#4 PPFULL	#4 GOLIB
#5 DDNVIT			
#6 DDNUTIL			
#7 OPTIM			
#8 VERUTIL			
#9 TAPE9			

Description of Files

(I) Indirect Access File (D) Direct Access File

COPYLDR (I) is a copy utility used in the integration of the Advance Design or Numerical Control overlays into ICEM DDN Design/Drafting.

DDNSRB (D) is a text file containing the Software Release Bulletin. This document explains the new features and provides general information regarding this release.

DDNUTIL (I) is the relocatable binary for the interface between ICEM DDN draw files and UNIPLOT/UNIPOST.

DDNVER (I) is a CCL verification procedure file for the installation test of ICEM DDN.

DDNVIT (I) is a verification script input file for ICEM DDN.

GOLIB (D) is the absolute binary for the ICEM GPL interface.

GPL (D) is the absolute binary of the ICEM GPL Compiler. The execution of the compiler has changed, see Appendix C.

GTGT	(D)	is the GRAPL-to-GPL Translator. See Appendix C for information on how to use this translator.
ICEMAD	*	is the module of Advanced Design overlays only. It is integrated into ICEMDDN upon the execution of the INSTALL Procedure on tape REL68A.
ICEMDDN	(D)	is the absolute binary for ICEM DDN zero overlay and the primary overlays.
ICEMNC	*	is the module of Numerical Control overlays. It is integrated into ICEMDDN upon the execution of the INSTALL procedure on tape REL68B.
INSTALL	*	is a CCL procedure to transfer the files on tape to the user number currently logged into. The files are store as either Direct (D) access files or as INDIRECT (I) access file depending of file size. All files are unloaded as public READ-ONLY files.
PPFULL	(I)	is a text file containing expounded PP word library.
VERUTIL	(I)	is a CCL verification procedure file for the installation test of ICEM DDN plotter interface.

* These files are temporary files used during the execution of the INSTALL procedure.

III. Installation Instructions

Installation of ICEM DDN Design/Drafting

Two tapes are needed to install the complete ICEM DDN Design/Drafting product. They are REL68 and REL68C. The tapes can be installed on any user number, however, it is recommended they be installed on user number APPLLIB from the console. The instructions assume the tapes are being installed from the console. If not, begin at the LABEL command and disregard the DROP at the end.

```
X.DIS
SUI,377774.

LABEL,TAPE,VSN=REL68,L=ICEMDD,D=PE.
COPYBF,TAPE,INSTALL.
INSTALL.

DROP.
```

Informational notes are displayed on the screen during the installation.

See section IV for ICEM DDN Verification instructions.
See section V for ICEM DDN Plotter Interface Verification.

Installation of ICEM DDN Advanced Design

Three tapes are needed to install the ICEM DDN Advanced Design. They are REL68, REL68A and REL68C. The tapes can be installed on any user number, however, it is recommended they be installed on user number APPLLIB from the console. If not, begin at the LABEL command and disregard the DROP at the end.

```
X.DIS
SUI,377774.

LABEL,TAPE,VSN=REL68A,L=ICEMAD,D=PE.
COPYBF,TAPE,INSTALL.
INSTALL.

DROP.
```

Informational messages are displayed on the screen as necessary. The INSTALL procedure for REL68A will prompt the user when REL68 needs to be mounted on the tape drive.

See section IV for ICEM DDN Verification instructions.
See Section V for ICEM DDN Plotter Interface Verification.

Installation of ICEM DDN Numerical Control

Four tapes are needed to install ICEM DDN Numerical Control. They are REL68, REL68A, REL68B and REL68C. The tapes can be installed on any user number, however, it is recommended they be installed on user number APPLLIB from the console. The instructions assume the tapes are being installed from the console. If not, begin at the LABEL command and disregard the DROP at the end.

```
X.DIS
SUI,377774.

LABEL,TAPE,VSN=REL68B,L=ICEMNC,D=PE.
COPYBF,TAPE,INSTALL.
INSTALL.

DROP.
```

Informational messages are displayed on the screen as necessary. The INSTALL procedure for REL68B will prompt the user when REL68A and REL68 needs to be mounted on the tape drive.

See section IV for ICEM DDN Verification instructions.
See section V for ICEM DDN Plotter Interface Verification.

IV. Verification of the ICEM DDN (all packages)

Log into NOS using one of the valid terminal types. Valid terminal types and set-up information can be found in APPENDIX B. In the instructions below, the use of 'username' should be replaced with the user number where the files were installed. The use of 'baudrate' should be replaced by the first digit of the baud rate of the communications line. For example, 3 is the baud rate of 300, 1 is the baud rate of 1200, etc.

```
GET,DDNVER/UN='username'.
DDNVER,'baudrate','username'.
```

Ignore the request for input. It is being supplied by the verification input file. The output is emulating a Tektronix 4014 terminal. The result should match the display in figure ICEM DDN-1.

V. Verification of the ICEM DDN Plotter Interface

Log into NOS using one of the valid terminal types. Valid terminal types and set-up information can be found in APPENDIX B. In the instructions below, the use of 'username' should be replaced with the user number where the files were installed and where UNIPLOT/UNIPOST files reside. It is assumed ICEM DDN plotter interfacer files are installed on the same user number as UNIPLOT/UNIPOST.

```
GET,VERUTIL/UN='username'.
VERUTIL,'username'.
```

The procedure VERUTIL executes UNIPOST. UNIPOST will prompt you in the following manner.

	AUTOMATIC HARDCOPY (Y/N) ?	Specify Y if a hardcopy is desired and is available; specify N if not.
2.	4010 ASYNCHRONOUS	Specify 6 as Tektronix terminal type.
4.	4014 ASYNCHRONOUS	
6.	4014 EGM ASYNCHRONOUS	
	ENTER BAUD RATE ?	Enter the baud rate of the communication line (example 1200, 9600, etc).

The screen will display the CDC logo (ICEM DDN-1). When the logo is drawn, crosshairs will appear. Press any key (A through Z) and the screen will clear and return you to NOS.

NOTE: Refer to the UNIPLOT Reference Manual for additional information.

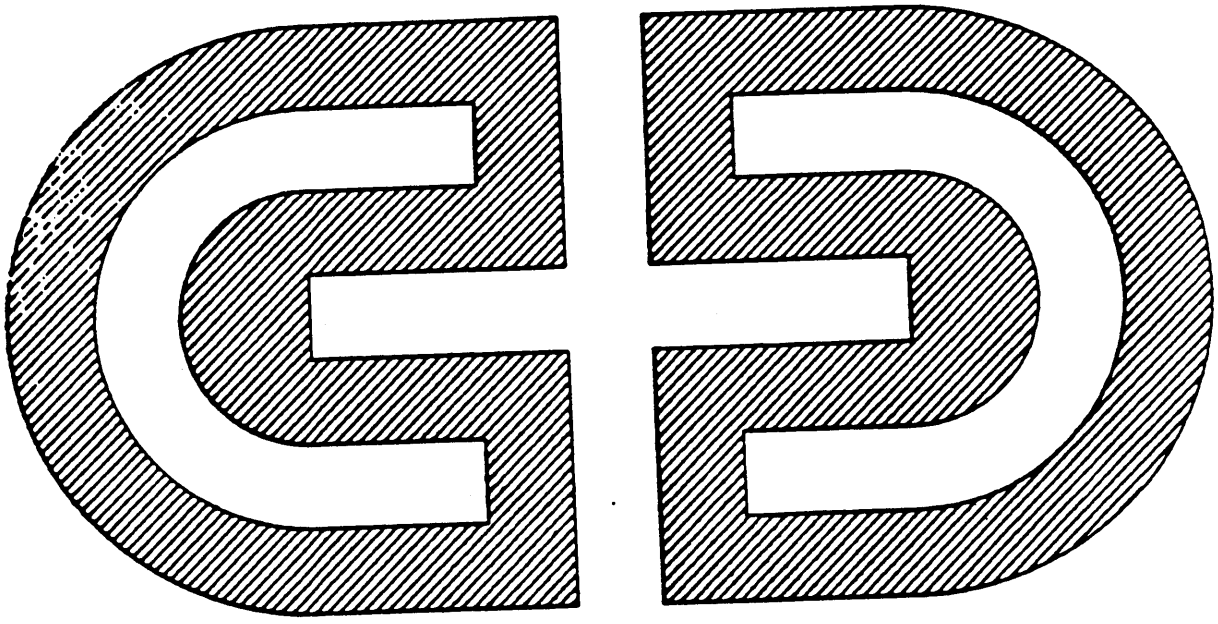

FIGURE ICEM DDN - 1

APPENDIX A
INSTALLATION INSTRUCTIONS

International Drafting Standards

- German Drafting Standard (DIN) library and installation instructions are available by contacting the Control Data CAE software development manager in Frankfurt, Germany.

  - Control Data GMBH
  - Stresemannallee 30
    6000 Frankfurt AM Main 70
    West Germany

- French Drafting Standard library is unavailable. Questions may be answered by the Control Data CAE software development manager, Paris.

  - Control Data France
    27 Cours Des Petites Ecuries
    B.P. 139
    7715 Marne LaVallee, Cedex 2
    France

- British Drafting Standard library is unavailable. Questions may be answered by the Control Data design/drafting analyst in London.

  - Control Data Limited
    Control Data House
    179/199 Shaftesbury Avenue
    London WC2H 8AR

- Swedish Drafting Standard library and installation instructions are available by contacting the design/drafting analyst in Goteborg, Sweden.

  - Control Data AB
    CAD/CAM Applications
    Box 10, Baldersgatan 4
    401 20 Goteborg
    Sweden

o Japanese Drafting Standard library and installation instructions are available by contacting the design/drafting analyst in Tokyo, Japan.

- Control Data Japan, LTD.
  Sunshine Bldg., 27th F.
  1-1 Higashi-Ikebukuro 3-Chome
  Toshima-Ku
  Tokyo, Japan

o Chinese Drafting Standard Library and installation instructions are available by contacting the design/drafting analyst in Tokyo, Japan.

- Control Data Japan, LTD.
  Sunshine Bldg., 27th F.
  1-1 Higashi-Ikebukuro 3-Chome
  Toshima-Ku
  Tokyo, Japan

APPENDIX B

TERMINAL SET UP PROCEDURES

The terminal used for the installation of ICEM DDN must be initialized. Instructions for initializing the 4014, 4016, 4105, 4107, 4109, 4113, 4114 and 4115 Tektronix terminals follow.

TEKTRONIX 4014 and 4016 TERMINALS.

1. The following terminal strapping options are for initial terminal installation.

   a. ECHO - ON
   b. GIN terminators - CR only
   c. CR effect - CR
   d. LF effect - LF

2. Turn the terminal power on. The 4014 POWER switch is on the front lower right corner of the pedestal stand. The 4015 POWER switch is located on the right side of the terminal head. The green POWER indicator, located on the keyboard, will light when power is switched on.

3. Allow the terminal to warm up. Warm up is complete when pressing the RESET PAGE key completely clears the screen.

4. Set the ASCII/ALT switch to the ASCII position.

5. Initialize the OPTION 1 or OPTION 20 according to the procedure below, as applicable.

6. To obtain the small character size, set the terminal to LOCAL mode. Press the ESC key and the ; (semicolon) key together and return to LINE mode.

7. Dial the appropriate telephone number, if applicable.

8. Press the RETURN key to obtain the login FAMILY message.

OPTION 1 INITIALIZATION

1. Select the appropriate baud rate switch setting using the BAUD RATE switch located at the rear of the pedestal stand.

2. Set the HALF/FULL DUPLEX switch to FULL.

3. Set the INTF/OFF/AUX switch to INTF.

4. Set the TTY LOCK key.

OPTION 20 INSTALLATION

- - NOTE - -
If the terminal is equipped with both the OPTION 1 and the OPTION 20, set the INTF/OFF/AUX switch of the OPTION 1 to OFF

(Asynchronous lines only). Place the terminal in LOCAL mode. Press the SHIFT key and the CNTL key together. While both the SHIFT and CNTL keys are depressed, press and release the RESET key; then press the P key and release all keys. Place the terminal in LINE mode. Set the CODE EXPANDER switch to OFF.

TEKTRONIX 4105, 4107, 4113, 4114 and 4115 TERMINALS

Complete the following to set up the Tektronix 4113, 4114 or 4115 terminal.

1. Turn the terminal power on by pushing the POWER button, which is located above the keyboard on the base pedestal.

2. Allow the terminal to initialize (some keys on the keyboard remain lit until the terminal has completed its initialization).

3. Press the SET UP key so the terminal operating modes can be changed at the keyboard. An asterisk (*) should appear to the left of the cursor.

4. Enter:

   STA

   to display the released terminal status settings.

5. Ensure the terminal has the following settings. The remaining Tektronix 4105, 4107, 4109, 4113, 4114 and 4115 terminal status settings will either be set by ICEM DDN or will not affect the operation of ICEM DDN. To change a setting, reenter the new setting.

Status	4105, 4107, 4109	4113, 4114, 4115
TBSTATUS emulation only	Not Applicable	Out for 4014
TBHEADER CHARS emulation only	Not Applicable	Out for 4014
RLINE LENGTH	140	140
ECHO	Yes	Yes
LOCK KEYBOARD	No	No
SNOOPY	No	No
BAUDRATE	Applicable Baud Rate	Applicable Baud Rate
FLAGGING	INPUT	INPUT
EOLSTRING	Not Applicable	Not Applicable
BLOCKMODE	No	No
BREAKTIME	100	100

Status	4105, 4107, 4109	4113, 4114, 4115
QUEUESIZE	8100	8100
DUPLEX	Not Applicable	Full
MTDELAY	0	0
XMTLIMIT	Applicable Baud Rate	Applicable Baud Rate
BYPASS CANCEL		
Without Echoplex	NL	NL
With Echoplex	LF	LF

APPENDIX C

Using the GPL Compiler

Log into NOS using one of the valid terminal types. Valid terminal types and set-up information can be found in APPENDIX B. In the instructions below, the use of 'username' should be replaced with the user number where the file were installed. In addition, 'source program' should be replaced by the file name of your GPL program; 'grapl program' should be replaced by your translated GRAPL program file name; 'output file name' should be replaced by our output file name (default is OUTPUT); 'list file name' should be replaced by the file name you wish the translated program to be put on.

To create a new GPL object library:

```
ATTACH,GPL/UN='username'.
GET,'source program'.
GPL,I='source program',L=GPLLIST.
DEFINE,GPLLIB.
LIBEDIT,B=GPLLIB,Z./*BUILD GPLD.
REWIND,*.
```

To add additional compiled programs to an existing GPL object library:

```
ATTACH,GPL/UN='username'.
GET,'source program'.
GPL,I='source program',L=GPLLIST.
ATTACH,GPLLIB/M=W.
LIBEDIT,B=GPLOBJ,P=GPLLIB,C,Z./*BUILD GPLD.
REWIND,*.
```

Using the GRAPL to GPL Translator GTGT

Example:

```
ATTACH,GTGT/UN='username'
GET,'grapl program'
GTGT,I='grapl program',O='output file',L='list file'
```

--NOTE--

THE TRANSLATION IS NOT ALWAYS 100%.
CHECK FOR REMARKS IN THE GPL SOURCE OUTPUT.
(For more information, see appendix F of the ICEM GPL Reference Manual.)

APPENDIX D

CYBER 800 TUNING GUIDE

FOR ICEM DDN

1.0 INTRODUCTION:

BACKGROUND - PROBLEMS

The tuning of 800 Systems has not been explored to the extent we would like. This guide will explore possible solutions to some of the common tuning situations.

The main problem is that users are expecting to setup and run the hardware/software with no adjustments. This practice causes the site to run with the default setup parameters which were built for a small job environment. ICEM DDN is usually overlay bound and has a rather large field length. Depending on the disk configuration, the site is usually disk bound due to overlay loading and swapping ICEM DDN to disk. In the cases where the site has a lot of memory, the memory is not being utilized because no one has designated it as a "DE" equipment for ICEM DDN overlays and/or a swap device.

Because system analysts do not have a quantitative method of ascertaining what tuning functions cause improvements, tuning is not attempted. By using CPD, CTIME, RTIME, and ICEM DDN trace files, an objective index of performance can be obtained and improvements made.

2.0 OVERVIEW OF CYBER 800

2.1 800 FEATURES

The 800 has the following features:

* The 800 has a high speed central processing unit that runs with a memory that can be very large - 2 to 128 megabytes (262 thousand to 16 Million central memory words).

* The cache memory speeds up effective memory cycle.

* Peripheral processors operate at 4 times the original PPU speed.

* The 800 microcoded instruction set allows both NOS and NOS/VE operating systems to exist and run in the same machine (dual state).

* The range of ability for each machine has more than one dimension. As you go up the line in CPU power, the memory size can also be upgraded.

The following chart shows the different models and the allowed memory size options and multiple CPU option:

MODEL	MEMORY SIZE OPTION (Megabytes)									
	2	4	8	12	16	32	64	96	128	Dual CPU
810	X	X	X	X	X	X				NO
815	X	X	X	X	X	X				NO
825	X	X	X	X	X	X				NO
830	X	X	X	X	X	X				YES
835		X	X	X	X					NO
840					X	X	X	X	X	NO
845		X	X	X	X	X				NO
850					X	X	X	X	X	NO
855		X	X	X	X	X	X	X	X	YES
860					X	X	X	X	X	YES

It is the memory expansion characteristic that is most interesting for large applications like ICEM DDN. It has been observed that customers are overlooking the ability of the 800 to use this memory in many different ways.

2.2 800 MEMORY USE

The 800 memory can be used in the following ways:

1) Job area - the job execution area is normally about 262K but can be bigger or smaller.

2) Swap area - Rather than roll the job to disk, it can be swapped from memory to memory and avoid the disk accesses.

3) System resident - specific overlays and/or PPU programs can be stored and retrieved from memory and also avoid disk accesses.

4) NOS/VE execution area.

All the above memory allocations are controlled by deadstart parameters in the CMR, EQP, and IPR decks.

3.0 TUNING METHODS

3.1 STEPS FOR TUNING

The following is a summary of the steps you can go through to tune 800s for ICEM DDN:

1) Run CPD - Find what the bottlenecks are. Tune by making NOS configuration changes such as system resident and channel/disk configuration (see section 3.5).

Check disk use percentages from the CPD run. 50-60% is pretty high. Moving overlays to CM (Central Memory) or UEM (Unified Extended Memory) and/or allowing ICEM DDN to run as system resident will help speed up the product and decrease disk access. Also, try to arrange your configuration so that equal access is occurring across all disk channels. Avoid channel 0 because it cannot be alternated in each mass storage device Equipment Status Table (EST) entry.

2) Run ICEM DDN with the T option on and collect overlay load numbers (CT file) for a given script. The IT file resulting from the T option run is used for input (I=lfn) so that the run can be repeated for comparison after each tuning attempt (base timing). A program included on page C-14 of this Tuning Guide appendix counts and sorts the counts by overlay for each overlay that was loaded during the script execution.

3) Based on CPD and the CT counts, move selected overlays into CM (Central Memory) and/or UEM (Unified Extended Memory). In level 630 of NOS a limited number of overlays can be put in CM, and near 400K the system hangs. The workaround is to put additional overlays in UEM. At this level of the system, there does not seem to be any performance difference between overlay loading from CM or UEM.

4) Recheck response time by running a script in a quiet system with CTIME and RTIME control cards on each side of the ICEM DDN call. These numbers will tell you the amount of CPU time and real time used to make the run. Also, rerun CPD to check what is happening to the system resources. There is a Timesharing Instrumentation Package which measures response time, think time and transaction rates of IAF (LDS Publication number 15190016). This package will show how tuning has affected response time.

3.4 ICEM DDN SYSTEM RESIDENT

The advantage of having ICEM DDN system resident is that when it is in the system, more than one copy of the code is available from multiple disk channels. Also, selected overlays can be resident in CM.

Do not bother moving ICEM DDN to the system if you have only one channel to disk and you do not want to move overlays to CM or UEM. Also, remember that ICEM DDN will increase your system file by about 70K PRUs on each device that is designated as a system device.

On small capacity disk systems put ICEM DDN on the deadstart tape rather than on a permanent file which is SYSEDITed after deadstart. This will save 70K PRUs of permanent file space.

GPL overlays must be on a local file at execution time for GPL users. It currently does not run any other way.

3.3 ICEM DDN OVERLAYS IN CENTRAL MEMORY

The problem with NOS 800 performance is caused by ICEM DDN having to load overlays from the disk. Generally, if the most frequently called overlays can reside in memory, the disk accesses will be much lower. If all the overlays that are called are put in memory, a script will run as well as it would on NOS/VE (virtual environment). Of course, the data caching will not be as good as VE but the performance should be considerably better than before the overlays were put in CM.

Following is an example of the performance improvement on an 855 with the overlays in CM and other numbers showing relative performance:

SYSTEM	Running time	CPU time	Comment
760 NOS	374	13	DDN153 on 844s (System file)
855 NOS/VE	18	12	DDN153 on FMD's
830 NOS/VE	78	48	" " "
810 NOS/VE	138	78	" " "
760 NOS	371	7	DDN157 on 844s (System file)
760 NOS	291	7	DDN157 on FMDs (Local file)
855 NOS	267	9	DDN157 on Disk (System file)
855 NOS	160	9	3 overlays in CM+System file

The 100 second improvement for the 855 NOS is caused by reducing disk accesses. In theory, if all the overlays that are called are put in memory, the script would run as well as the 855 NOS/VE (18 seconds).

Also, notice the CPU time for each of the above machines. The CPU time requirement for DDN157 is less than DDN153. The 830 and 810 is 4 and 6 times less capable than the 760 or 855. If the site is CPU bound, the moving of the overlays into memory may not help response time during periods of CPU saturation.

The following table summarizes the overlay situation with a typical script:

Overlay	Load Count	Field Length of Overlay*	Accumulated Sum*
CL04	276	53040	54K
CL52	247	52551	126K
CL02	136	43215	171K
CL72	135	23066	215K
CL270	97	44031	261K
CL75	88	60042	340K
CL51	62	54513	415K
CL14	56	41300	457K
CL54	48	30441	507K

* Field length and sum are in octal.

These 9 overlays were loaded 1145 times. There were 1442 overlay loads in all with a total of 32 overlays used.

After the 4th or 5th most frequently loaded overlay, the payoff from having the overlay in Central Memory (CM) goes down. The rest of the CM can be used for swap area. Both of these uses take away some CPU usage that would be normally available to user programs. But because most sites are disk bound, the swapping and overlay loading from memory to memory saves on disk access and speeds up the user response time.

If CPD runs and RTIME and CTIME control cards are used around a script run before and after these tuning suggestions, the effect can be measured. With less disk access the product (ICEM DDN) will speed up and will make more use of the CPU so that swapping and overlay loading will occur faster. This can have a secondary effect of causing more CPU utilization due to more jobs (through CPU swapping) having access to the CPU and less disk access due to overlay loading from memory to memory loading. This secondary effect may necessitate a reduction in the the job switch delay so that the CPU is shared better between competing jobs. In any case, the above tuning should have a positive effect on response time for the average ICEM DDN user.

3.4 CPU BOUND 800

If your site is CPU bound (95-99%) , the moving of overlays to Central Memory may cause the individual ICEM user to run a lot faster but when a large terminal load is present the total throughput may decrease. You may take steps to decrease the CPU usage to optimize. Because the CPU is used to move overlays around in memory, the moving of overlays to disk may decrease CPU usage. This will slow down the terminal response for the user at lightly loaded times but should make the user at CPU bound times run better. This situation seems to be rather rare and is found only on the 825s and lower machines. In determining if your site is CPU bound do not be misled by maintenance jobs or batch jobs which use the CPU when the time-sharing jobs are not running.

3.5 CPD READING

CPD or TRACER (NOS System Maintenance Reference Manual - 60459300) and PROBE are used for statistical analysis of your system performance. The data is used to determine areas where problems occur and where improvements in design and system tuning can be made. These products work by periodically gathering data about the system and writing the data to a file.

TRACER is made up of 4 programs:

1) ICPD - Starts up CPD PPU program

2) CPD - CPD is a dedicated PPU program which monitors system activity. Data is written to a direct access permanent file for future analysis.

3) ACPD - A post-processor program which generates an output report from the direct access permanent file written by CPD.

See the NOS Maintenance Manual (60459300) for details of calling parameters for TRACER. The following sequence will start and complete TRACER operation:

1) ICPD,p1,p2,...pn. (starts CPD up)
2) ENDCPD. (ends CPD data gathering)
3) ACPD,p1,p2,...pn. (processes the CPD data and generates a report)

The ACPD report is in three sections -

1) System parameters and EST configuration.

2) System Control Information.

3) Interval Samples.

3.5.1 SYSTEM PARAMETERS AND EST CONFIGURATION

The System Parameters relate such things as the start date and time, report interval, memory size, UEM, number of PPUs and various lengths of software tables. The EST table is dumped showing the channel and disk connections.

3.5.2 SYSTEM CONTROL INFORMATION

The System Control Information relates what the priority is for each job class. The BC, TS, and DI classes are especially important to good system response. The BC and DI should have a lower PR (CPU priority) than the TS class. This will allow time-sharing to always get the CPU before BC or DI can get it.

The other important parameters are the UP (upper priority limit) and LP (lower priority limit). These parameters are set based on how often batch jobs are rolled in and out without ever getting executed. If there is usually a lot of CM available, the UP and LP can be lower for batch and detached jobs than for time-sharing jobs. These parameters control the rolling out of batch or detached jobs when a time-sharing job requests more memory than is currently available. If the execution memory is small in comparison to the field length requests, the batch and detached jobs should have the same UP and LP so that jobs are not rolled in and out without doing any work. The NJ parameter can help this situation. By controlling the number of batch jobs that can execute at the same time, the batch field length can be controlled. The NJ parameter for time-sharing controls the number of users allowed.

The FL and AM parameters for each job class can be designated to limit by job and/or job class how much Field Length (FL) may be used and when to schedule the job to CM. These parameters can be used to partition the memory by job class and run specific jobs at a selected time of the day.

The CM parameter controls how long the UP priorities are in effect. With faster CPUs a short duration (4-5 seconds) is desired so that users that are running batch jobs in time-sharing mode are dropped down to the batch priority (assuming that batch priority is the same as the time-sharing lower bound priority). Thus, short duration time-sharing tasks will get the most attention.

3.5.3 INTERVAL SAMPLE

The following table shows some of the parameters and what action might be taken to improve performance when a high percentage of use is shown:

Parameter (high percentage)	Cause/Information
PPUS ACTIVE	Not enough Disk Channels or PPUs.
NO PPU AVAILABLE	Same as PPUS ACTIVE.
CHANNEL ACTIVE	40 + up means there are not enough disk channels.
CPU USAGE -	
IDLE	High idle percent means the CPU is not being used - could be caused by the system being disk bound.
SYSTEM	System Software using excessive CPU.
SUB-SYS	Same as SYSTEM.
SYS ORG	Same as SYSTEM.
USER	You are getting as much as you can out of the system. Application CPU usage may be excessive.
FL AVAILABLE	Large percent is good - lots of room to run jobs.
IAF USERS	Number of users.
TRACKS AVAILABLE	When a device has only 10% of its tracks available the system automatically does not use this device for TEMP files.
TOTAL ROLLOUTS SECONDARY ROLLOUTS TOTAL SECTORS ROLLED SECONDARY SECTORS ROLLED	The statistics on total and secondary rollouts will tell you if your secondary rollout threshold is large enough and how much your secondary rollout device is being used.
INSUFFICIENT CM	Number of times no CM was available to bring in a job.
NO CONTROL POINT	This number will tell you if you have enough control points defined.

3.6 PROBE

SECONDARY ROLLOUTS
TOTAL SECTORS ROLLED
SECONDARY SECTORS ROLLED will tell you if your secondary rollout threshold is large enough and how much your secondary rollout device is being used.

3) The number of PP requests to CPUMTR by function number.
4) The number of MTR requests to CPUMTR by function number.
5) The statistical data accumulated in low central memory - includes such items as number of sectors rolled and number of rollouts.

PROBE data gathering is enabled at deadstart time by an IPRDECK entry.

SYSEDIT resets the PROBE data tables to zero.

PROBE is useful in moving PP routines to CM when they are called

frequently enough, thus improving system performance.

3.7 CONSOLE WATCHING

Many times all the various tools are not as useful as just watching the system console for signs of thrashing and/or particular user abuse. The following items are worth watching for:

1) Users running batch jobs in time-sharing mode.

2) Batch jobs that are being rolled in but not getting the CPU before they are rolled out again.

3) Jobs that have excessive resource requests over extended periods.

4) Maintenance jobs running at too high a priority and/or too many of them running. One job (CT7) is probably enough. Too many maintenance jobs cause a forced rollout every time a time-sharing job is brought in.

5) Permanent file dumping and loading during the prime shift will slow down or stop any PF requests by your users.

6) NOS/VE running in a dual 800 can have a default priority that allows NOS/VE to take the CPU away from NOS.

4.0 PERMANENT/TEMP FILE ALLOCATION

We have found that allowing the temporary and permanent files to be allocated on every device seem to be the best strategy to spread the load onto as many units as possible.

5.0 EDL TUNING

In many sites the Engineering Data Library (EDL) runs with ICEM DDN and can contribute to excessive resource use. The following EDL file (IMF2STF/UN=IMF) should have the following values for best performance:

```
3 NUMBER OF USER PROCESSES TO CHECK FOR EACH MTR LOOP
2 SEMI-IDLE RECALL TIME (MILLISECONDS)
1 ACTIVE RECALL TIME (MILLISECONDS)
1 K-DISPLAY REFRESH CYCLE
50 MAX NUMBER OF TIMES IDLE BEFORE SCP SWAP-OUT
30 MAX NUMBER OF CONNECTED USERS
10 MAX NUMBER OF OPEN DATA-BASES
170 MAX NUMBER OF ATTACHED FILES
3 NUMBER OF ALLOCATED USER STACKS
5 NUMBER OF INPUT BUFFERS
1 NUMBER OF INPUT QUEUE ENTRIES
3 NUMBER OF I/O BUFFERS
0 NUMBER OF TRANSACTION FILES ON ECS
1 NUMBER OF LONG WAKE-UP WAITS ALLOWED AT STACK
2 NUMBER OF SHORT WAKE-UP WAITS ALLOWED AT STACK
6000 LONG WAKE-UP WAIT SWAP-OUT DELAY
4000 SHORT WAKE-UP WAIT SWAP-OUT DELAY
30 PARCEL STACK PREEMPTION DELAY
30 SINGLE READ STACK PREEMPTION DELAY
0 TRACE
```

The file DEFSTF/UN=IMF (installation file for IMF) should be used as a model. The default values which have been changed above are:

```
ACTIVE RECALL TIME = 30
TRACE = 1
```

Also, journal logging may be turned off for the EDL database. This will save considerable overhead. However, if the system crashes with the database open, the database file may have to be reloaded from the last permanent file backup, instead of being recovered to the point of failure.

To turn off journal logging, log into the account where the EDL database file E120DDB resides, and type the following commands:

```
GET,CHLOG21/UN=IMF
CHLOG21,OFF,E120DDB,E120LOG.
```

6.0 CONCLUSION

Due to the many ways ICEM DDN is used, and considering the many other applications that are run on 800s, the tuning recommendations may or may not be applicable. Please send any additions or deletions to the CIM Hotline.

CIM Hotline Numbers: (U.S.) 800-227-9999
(Minnesota and International) 612-639-4040

7.0 TUNING GUIDE APPENDIX

The following procedure and program will count the times each overlay is called and the total number of overlays called by processing the CT file which is output from a ICEM DDN run with the T option on:

```
.PROC,SORTCT.
PACK,CT,TAPE2.
FILE,TAPE2,BT=C,RT=U.
FTN5,I=SORTC,B=LGO,L=L,OPT=2.
LGO.
NOTE./ RESULTS ON FILE LIST.
.DATA,SORTC.
      PROGRAM SORTCT(INPUT,OUTPUT,TAPE2,LIST,TAPE1=LIST)
      INTEGER IBUF,INUM(512)
      REWIND 1
      REWIND 2
      ITOTAL = 0
 5    READ(2,END=15)IBUF
      IF(IBUF .GT. 512)GO TO 5
      IF(IBUF .LT. 0)GO TO 5
      INUM(IBUF) = INUM(IBUF)+1
      ITOTAL = ITOTAL+1
      GO TO 5

C     DONE READING CT.

 15   WRITE(1,3000)
      DO 30 J=1,512
      K = 0
      LASTBG = 0
      DO 20 I=1,512
      IF(INUM(I) .GT. LASTBG) THEN
         LASTBG = INUM(I)
         K = I
      ENDIF
 20   CONTINUE
      IF(LASTBG .EQ. 0)GO TO 9000
      WRITE(1,1000) K,INUM(K)
      INUM(K) = 0
 30   CONTINUE
 9000 WRITE(1,2000) ITOTAL
 1000 FORMAT (' CL - ',03,3X,I10)
 2000 FORMAT (' SUM = ',I10)
 3000 FORMAT ('1','OVERLAY NUMBER','   COUNT')
      END
```

SOFTWARE RELEASE BULLETIN

ICEM DDN VERSION 1.60

NOS 2.4.2 LEVEL 642

******** URGENT **********

Please make this document available to all ICEM DDN users!

** This document describes new features and changes to ICEM DDN. Some of this information is not yet available in the V1.6 ICEM DDN Reference Manuals and can be found only in this document. Also included are replacement pages for the V1.6 ICEM DDN Reference Manuals to correct and supplement the released manuals.

** This document also contains a list of known and outstanding system problems (PSRs) and a list of resolved system problems.

INTRODUCTION

This SOFTWARE RELEASE BULLETIN (SRB) is designed to inform site analysts and ICEM DDN users of:

* New features,
* Menu revisions,
* Operational changes and enhancements,
* Known, outstanding system problems and suggested work arounds, and
* Resolved system problems which existed in previous versions.

In addition, this SRB contains a set of replacement pages to correct and supplement the ICEM DDN V1.6 Reference Manuals. It is important that the V1.6 manuals be updated with these pages so that they are current and accurate.

The review of new features, menu revisions and enhancements is organized by menu section (see Table of Contents for the menu sections of particular interest).

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GENERAL ICEM DDN SYSTEM NOTES

PATTERN UPDATE

To provide increased pattern flexibility, old "Local" patterns will no longer be stored on TAPE3. They must be copied to a new Pattern Library file before they can be used. Upon entering ICEM DDN you will be prompted to update these patterns. By selecting UPDATE - REMOVE, the patterns will be updated to a file name of your choice. If the "Local" patterns are not removed from TAPE3, you will be prompted to update them each time you enter ICEM DDN.

ENTITY SELECTION

Entity Selection has been completely rewritten to offer increased flexibility in all selections. Several new selection methods were added to general selection from those available on the former DELETE and BLANK menus as well as some new methods for selecting entities. Chain select now allows you to select an entity and the direction to chain from that entity, as before, or a first and second entity, the direction being defined by the direction from the first to second entity.

You can also create constraint sets, or filters, which isolate particular types of entities for selection according to their level, pen, color, type, or font.

When entity selection is invoked, you will be prompted to select an entity by the default selection method. Unless this is changed by 1.11.10 SELECTION METHOD, the default selection method is screen select. If you desire an alternate method of selection, you can enter E or CTRL-E to have the Entity Selection menu displayed. The menu is as follows:

```
---ENTITY SELECTION
 1. SCREEN SELECT
 2. CHAIN
 3. REGION IN
 4. ALL DISPLAYED
 5. ENTIRE PART
 6. OTHER SELECTION METHODS
 7. MODALS
 8. USE NAMED CONSTRAINT SET
 9. CLEAR CONSTRAINTS
10. DEFINE CONSTRAINTS
```

The E or CTRL-E can be entered to return you to the Entity Selection menu any time you want to change selection methods.

A number of selection controls are modally selectable, including chain select modals, selection modification, and constraint set duration. Entities can be added to or removed from a set of selected entities when the selection modification modal is on (E.7.3).

FRACTIONS

Fractions have been improved. You can now have fractional tolerances (they still must be entered as decimal unless the user is in feet/inches and fractions) in a dimension. Also, resize works correctly with fractional dimensions. Once a dimension is created with the fraction modal set, that dimension will always be fractional, with one exception: if you convert the part to metric. (However, if you convert back to English units, the dimensions that were created with the fraction modal on will be in fractional form).

FEET AND INCHES

Parts can now be created with Feet and Inches as the unit of measure. At part creation, Feet and Inches has been added to the units of measure menu in addition to metric and inches.

This unit of measure will cause data display and dimensions to be shown with feet(') and inch(") symbols. Data entry is done using feet and inch symbols also.

Feet and Inches puts you in fraction mode. Fraction rounding is modally controlled in both system and drafting modals.

Three restrictions apply to this feature:
1. it is not in GRAPL or GPL,
2. unit conversion is available to metric but not from metric to Ft/In or Inches to Ft/In, and
3. it is only available in ANSI 73 or 82.

FACETTING

Facetting is a new feature in this release, providing a capability to paint with shaded colors. It aids you in the viewing of surfaces.

TABLET ARTWORK

Graphic design.

Black header bars with white text improve the visibility of functional groupings. Color reinforces the grouping. Grey

header bars show subcategories. Medium weight lines form the boundary of squares that belong to a subheader.

Symbols have been redrawn for clarity and some new symbols were added.

Functional groupings.

Few changes have been made to the Point, Line, and Arc menus, and the alphabet area. Most other areas on the main tablet have been completely redesigned.

New features on the main overlay (top third, BFU, BFL):

- o One pick activates small overlay pages.
- o Note is on the top third of the tablet.
- o Change level/pen and Change color are on the top third of the tablet.
- o Filing operations have a new menu. File/Quit automatically packs your file.
- o Pan.
- o GPL.
- o Changes to Entity Selection have required changes to the Delete, Blank, Unblank and Selection Methods functions.
- o Constraint Sets for Entity Selection.
- o Trim/Extend Curves by screen position.
- o Modals have been expanded.
- o Pattern Management tablet squares reflect the substantial changes and improvements made to the pattern management function.

Existing features that have been modified or moved to new locations:

- o Other Curves. New location.
- o Entity Manipulation. Square locations for some selections have been changed.
- o Canon has been added to Data Verify.
- o Fillet menu has been altered.

Changes to standard overlays:

Advanced Design (formerly Extended Geometry).

- o Restructured for better grouping.

Drafting

- o Completely redesigned.

Numerical Control

- o Completely redesigned.

Database Management

- o New menus in Tablet Management, Attribute Management,

Pattern Management.

Display Control

- Changes have been made to Layouts and Color Control menus.

The Special Functions(SF) overlay has been discontinued.

MENU TRACE ENHANCEMENT

Menu tracing capability means that you can have the system generate a file of menu commands even if the input is via tablet. When ICEM DDN is run with tracing on, the system will now generate four trace files: IT, OT, CT and MT. The IT file is an exact copy of the system input. All tablet input is recorded as graphics input whether it is for menu or screen selections. Script files of this form duplicate the performance of the original input. An input file of this form is difficult for people to read, however. A readable file, named MT for menu trace, is also generated when tracing is on.

As before, the T parameter turns tracing on. The MT parameter is used to specify the name of the menu trace file. MT is the default menu trace file name.

GENERAL ICEM DDN SYSTEM WARNINGS

ICEM DDN System Warnings

MSTRING Warning

Due to the great number of menu changes in V1.60, many MSTRINGs written for V1.57 will have to be updated for V1.60.

Overlay Size Warning

V1.6 overlay sizes exceed the overlay sizes of previous versions of ICEM DDN. (The largest overlay size is 162K octal.) These overlay sizes may cause users with small memory configurations problems with loading and executing ICEM DDN V1.6. Contact your CDC sales representatiive or site analyst, if the overlay sizes are a problem for you.

Large Tablet Digitizer

Large tablet digitizing is not supported in ICEM DDN V1.6. Contrary to the reference manual description, a large digitizer cannot be enabled internally or through control card parameters.

Restore Retrieval Modals Warning (Menu 6.2.1.2)

This menu sets the rotation axis to be the X/XT axis in place of the Z/ZT axis. The Z/ZT axis was the default axis in previous versions of ICEM DDN. You should be aware of this condition if you use this modal to set up MSTRINGS for pattern retrieval. The default axis will be changed back to Z/ZT for ICEM DDN V1.65.

Plot Warnings (Menu 7.2)

If you exit from the PLOT menu before completing all the steps to generate a plot file (i.e entering an op complete or op reject), the system will display the PLOT COMPLETE message in error even though no data has been written to the plot file. The PLOT COMPLETE message is accurate only if the system generated a plot file--this happens after you answer the SCALE FOR PLOTTING prompt.

If you are doing a PLOT ENTIRE PART, the system assumes that everything in the entire part has been displayed at least once. If an entity was created but never displayed, an incorrect SCALE FOR PLOTTING will be calculated. PLOT ENTIRE PART, when used

correctly, allows you to ZOOM up on a large part to do detail work and when you have finished, plot the entire part without redisplaying everything.

Fillet Surface/Surface Intersection Warning

For fillet surfaces along surface intersections with sharp corners, the intersection curve created by the fillet surface feature will yield a better surface than the intersection curve created by the surface-surface intersection feature, 15.2.3. The latter intersection curve has been optimized for N/C operations.

3D Analysis Warnings

The values for ZT FRONT and ZT BACK cannot be equal, when performing projected analysis.

Analyzing an arc bounded by a line and rotated about an axis will give incorrect results for moments of inertia and radii of gyration. There may be other figures with curved boundaries which give incorrect results when rotated about an axis.

Machining Curves Created by Draft Curve Function Warning

When a set of connected straight lines are drafted to a depth, a machining curve with one point at each corner of the set of lines is produced. The machining curve is evaluated using double circular interpolation algorithm which linearly blends two arcs. The two arcs are constructed using four consecutive points in the machining curve. One arc through the first three points and one arc through the last three points. This evaluation algorithm will cause the intersection point between the machining curve and another line not to fall on the machining curve.

A work around for this problem that is documented in PSRs AD22271 and AD2A775 is to draft each curve individually. In the example of connected lines described above, draft each line one by one.

Numerical Control Entity Names

Names of entities used in pre-generation inserts, display and edit, generation parameter groups, and N/C macros must be alpha-numeric only. This means that these names can only contain alphabetic characters and numeric characters and must start with an alphabetic character. This is especially important to realize for named points, tool names, and holder names.

Examples of alpha-numeric names:
MILLONE
MILL1

DRILL75
POINT2
P1D2

Example of non-alpha-numeric names:
MILL-ONE
.75DRILL
75DRILL
DRI$;,
PT. TWO

ICEM DDN will allow you to define tools, holders, and named points with non-alpha-numeric names, but if they are used in one of the areas listed above they will not be recognized as entity names.

Numerical Control Display and Edit Warning

The matrix copy command, from another file or from another toolpath, in command mode does not function properly. Matrix copy functions normally in menu mode and it is suggested that menu mode be used when using this command.

The repaint (R), zoom (Z), and help (?) commands all function in both modes of display and edit.

GPL System Warnings

GPL RTRIEV Statement Warning

The retrieval of patterns in GPL does not have a means for distinguishing between the primary and secondary pattern libraries. Pattern retrieval in GPL will first search the primary library for the pattern and, if not found, will then search the secondary library.

GPL Section Lining

There is an incompatibility between the GPL section lining code and the interactive ICEM DDN section lining code. A different algorithm is used for GPL and it does not take into full account aligning section lines with previously created section lines. You cannot set an alignment factor when creating section lines in GPL; you can, however, align the angle of the sectioning and the distance between section lines.

GPL '73 ANSI vs. '82 ANSI Implementations

There is a difference in the way that the origin of the text for

dimensions in '82 ANSI is calculated compared to the way it is calculated in '73 ANSI. In '82 ANSI for angular dimensions, when only coordinates are given for the origin, they are absolute x,y coordinates rather than an x,y distance from the intersection of the two lines being measured. The same applies to radius (circular) dimensions, diameter dimensions, and linear dimensions.

Statements Supported for Both 1973 and 1982 ANSI Standards

There are some dimensioning and other statements (e.g. the CDIMEN statement) that are supported in GPL for both the 1973 and the 1982 ANSI Standard implementations. You should refer to chapters 17 and 18 of the GPL Reference Manual to determine the statements that are supported for the 1973 ANSI standard and the proper parameters associated with these statements. The statement descriptions that appear in chapters 19 and 20 of the GPL Reference Manual are those that are supported under 1982 ANSI GPL. Parameter descriptions for statements that are supported in both the 1973 and 1982 ANSI standards will differ. Refer to the approporiate GPL Reference Manual chapters to obtain the parameter descriptions for the ANSI standard of interest.

GPL BULK Statement Warning

The GPL BULK statement is not supported in ICEM DDN V1.6. Contrary to the GPL Reference Manual description, the BULK statement is not supported in V1.6 and should not be referenced in V1.6 GPL programs.

VERSION 1.60 REVIEW BY MENU SECTION

This section of the system release bulletin provides a detailed description of changes outlined in the overview. The descriptions are organized by menu section. Refer to the table of contents to quickly locate the full description of changes for a particular menu section.

INTRODUCTION AND SYSTEM CONTROLS

Entities Defined Off Screen

When entities are defined off of the screen during single view display, the former question, RESCALE? will no longer appear by default. The following message will appear instead:

ENTITIES DEFINED OFF SCREEN

No response is necessary. Your input stream is not interrupted and you may continue as desired.

If you prefer that the RESCALE question appear as it did in previous versions, then enter at the keyboard the following menu string to turn off the rescale prompt suppression:

F.6.7.1.Y.1.7.17.17].1]

or program a tablet square with the following string:

f.6.7.1.Y.1.7.t17t.t17]t.t1]t

Other Options Function (CNTL-V or 'V' KEY)

Other Options is a new control key which has been added for interrupting a function in order to set modals or for displaying a menu bypassed due to a default modal setting. The Other Options key is 'V' or 'CTRL-V'. The following are descriptions of the usage of the Other Options function:

1. PATTERNS

a. 6.2.3 RETRIEVE

At the 'INDICATE PATTERN ORIGIN' prompt during the retrieve process a V or CTRL-V will bring you to the Pattern Retrieve Modals. You can then modify the setting of these modals, examples: the ORIGIN METHOD, or SCALE FACTOR. When finished modifying the modals, an] will return you to the 'INDICATE PATTERN ORIGIN' prompt and you can continue to retrieve the pattern with these new settings in effect.

c. 6.2.6.2 PRIMARY TO SECONDARY - ALL
   6.2.6.4 SECONDARY TO PRIMARY - ALL

If, while copying all patterns from the primary to the secondary library, or from the secondary to the primary library with the copy overwrite mode set to PROMPT, you encounter patterns that have the same name on both libraries, you will be asked whether you would like the pattern overwritten. If you no longer wish to be

prompted, you can enter V or CTRL-V to change the copy overwrite mode as in menu 6.2.1.3. After you have made your choice, you then continue to copy the patterns to the other library according to the new setting of the copy overwrite mode.

2. GLOBAL FILE SAVE/RESTORE

a. 6.1.1.2 ALL

If, while saving all parts onto the global parts file with part overwrite mode set to PROMPT, you encounter parts that have the same name on both TAPE3 and the global parts file, you will be asked whether you would like the part overwritten. If you no longer wish to be prompted, you can enter V or CTRL-V to change the part overwrite mode as in menu 6.1.1.6. After you have made your choice, you then continue saving parts onto the global parts file according to the new setting of the part overwrite mode.

b. 6.1.2.2 ALL

If you encounter parts that have the same name on both TAPE3 and the global parts file while restoring all parts to TAPE3, you will be asked whether you would like the part overwritten if you are in PROMPT mode. If you no longer wish to be prompted, you can enter V or CTRL-V to change the part overwrite mode as in menu 6.1.2.6. After you have made your choice, you then continue restoring parts to TAPE3 according to the new setting of the part overwrite mode.

3. DISPLAY AND EDIT

a. A CTRL-V at the copy range menu displays the copy options menu. This menu gives you the capability of copying lines from an existing file or toolpath.

```
COPY RANGE
1. START  =
2. END    =
3. AFTER  =
4. REPEAT =

COPY OPTIONS
1. FROM ANOTHER FILE
2. FROM ANOTHER TOOLPATH
```

b. A CTRL-V at the matrix copy range displays the matrix copy options menu. This menu gives you the capability of copying and transforming lines, with the matrix you defined, from an existing file or toolpath.

```
MATRIX COPY RANGE
1. START  =
2. END    =
3. AFTER  =
```

4. REPEAT =

MATRIX COPY OPTIONS
1. FROM ANOTHER FILE
2. FROM ANOTHER TOOLPATH

c. When editing a toolpath, a CTRL-V at the insert text prompt displays the goto point menu. This menu gives you the capability of entering a goto point by screen position, entering coordinates, or by existing point.

GOTO POINT
1. SCREEN POSITION
2. ENTER COORDINATES
3. EXISTING POINT

A CTRL-V at the insert text prompt when editing a text file does not display the goto point menu.

4. TABLET MANAGEMENT

In general, CTRL-V is valid at any tablet management menu. It may do one of three things:
a. allow you to change the tablet management modals
b. allow you to change the tablet file
c. redisplay the currently displayed tablet page

5. FAN POINTS and INCREMENTAL POINTS

There are several ways of specifying the start (or end) conditions for creating fan points and incremental points. Using other options allows you to use a different start (or end) condition method at a particular instance rather than the condition specified by the modal setting.

This is true for creating fan points (F.9.17) and for creating incremental points (F.9.18) in any of the following three ways: ALONG XT AXIS, ALONG YT AXIS and ALONG ONE CURVE. INCREMENTAL POINTS BETWEEN TWO POINTS does not allow for a variety of methods.

For example, when the FAN START CONDITION modal is set to 1.SPECIFY ANGLE, you will get the following prompt during FAN POINTS creation:

START ANGLE = n.nnnn

You can at this time enter "CTRL-V" and get the FAN START CONDITION menu and select any option 1 through 4. The modal setting does not change and the next time you do FAN POINTS the START ANGLE prompt will appear. The FAN START CONDITION menu is shown below:

FAN START CONDITION
1. SPECIFY ANGLE
2. SCREEN POSITION

3. EXISTING POINT
4. OPEN

TERMINAL/HARDWARE SUPPORT

Terminal Type Changes

ICEM DDN V1.6 operates on the following graphics terminal types:

1. TEKTRONIX 4014
2. TEKTRONIX 4105
3. TEKTRONIX 4107
4. TEKTRONIX 4109
5. TEKTRONIX 4113
6. TEKTRONIX 4114
7. TEKTRONIX 4115
8. TEKTRONIX 4125
9. CDC VIKING 721
10. CDC IEW 790 WITH TEKEM

NOTE! The Tektronix 4016 and the CDC IST III graphics terminals are no longer supported by ICEM DDN V1.6.

Menu Area Selection Changes

If you are using a Tektronix terminal type 4113, 4114, 4115, or 4125, you can direct the menu to be displayed either on the graphics terminal or on a CDC 722 terminal.

NOTE! The ADM-3A, ALPHA-3, REFRESH BUFFER, and INTERACTIVE BUFFER menu area selection options are no longer supported by ICEM DDN V1.6.

Large Tablet Digitizer

Large tablet digitizing is not supported in ICEM DDN V1.6. Contrary to the reference manual description, a large digitizer cannot be enabled internally or through control card parameters.

The menu selections designed to enable a Tektronix Option 14 or 4954 large digitizer from within ICEM DDN will appear blanked and cannot be selected.

Graphics Terminal - Bit Planes Parameter Setting

When Tektronix 4115, 4125, or CDC 790 graphics terminals are selected, a menu for the NUMBER OF BIT PLANES is presented so that you can enter the appropriate number of bit planes for the graphics terminal.

Tablet - Terminal Tablet Parameter Setting

If you are using a Tektronix 411X or 4125 terminal, the tablet size is automatically set to small for a Tektronix Option 13/14 tablet and is set to extra large for a Tektronix 4957 tablet. All the tablet windows and viewports are cleared and reset appropriately. Thus, if you have an application that uses tablet size, window and viewport, you must reset them to the required size before you run that application.

CONTROL CARD PARAMETERS

A parameter of UM=FI for feet/inches units of measure has been added. When UM=FI is specified, the DS (drafting standard) parameter is limited to DS=A73 or DS=A82.

The number of bit planes in Tektronix 4115 and 4125 and CDC 790 graphics terminals may be entered via the control card parameter BP, e.g. BP=8 specifies that the graphics terminal has 8 bit planes.

Large Tablet Digitizer

Large tablet digitizing is not supported in ICEM DDN V1.6. Contrary to the reference manual description, a large digitizer cannot be enabled through control card parameters.

The tablet control card parameters (TB options), OPT14 and T4954 which are documented in the manual will not enable Tektronix Option 14 or Tektronix 4954 large tablet digitizers. If you attempt to enable a large tablet digitizer with either of these options, the following message will be displayed:

INVALID TB PARAMETER ON THE CONTROL CARD TB = OPT14

At this point you are provided with the tablet option menu from which you may select one of the supported tablet types. The menu selections designed to enable a Tektronix Option 14 or 4954 large digitizer from within ICEM DDN will appear blanked and cannot be selected.

1. MODALS AND FONTS **new features, changes**

1.1.2 DISPLAY INTERMEDIATE HEADINGS **new feature**

Intermediate menu headings are optionally displayed when the type ahead buffer or tablet strings are processed. You can change the display of intermediate menu headings by switching the modal 1.1.2 INTERMEDIATE MENU HEADINGS. This is done so that you do not have to see menu headings scrolling by on your terminal screen. You can see where the system stopped and is waiting for further input by reading function messages. For instance if you enter:

```
16.2.1
```

the system responds with

```
HORIZONTAL DIMENSION
INDICATE ENTITY
```

when intermediate headings are suppressed, or

```
---DRAFTING
---DIMENSION
HORIZONTAL DIMENSION
INDICATE ENTITY
```

when headings are displayed.

An additional advantage of this feature is better system response time because of reduced system output.

1.2 CONSTRUCTION MODALS **new feature, changes**

1.2.1 CONTINUE OPERATION MODE is the new name for the former CONSTRUCTION MODAL, which allows you to remain in the same operation so it may be performed again.

1.2.2 POINT MODALS pre-set various prompts encountered in menu 9.POINT. At this time, only FAN START CONDITION, FAN END CONDITION, INCREMENTAL START CONDITION, and INCREMENTAL END CONDITION appear in this menu.

1.4 SYSTEM DECIMAL PLACES

When the unit of measure is feet/inches, you can choose whether data display will be in decimal or fractions. If decimal is chosen, you can set the number of decimal places. If fractions is chosen, you can set the fractions rounding mode.

1.11 ENTITY SELECTION CONTROL **enhancement**

A number of modals have been added to this menu to increase the flexibility of selection. In particular, the Selection Modification modal allows entities to be added to or removed from a set of selected entities. Note also that the default selection method can be modally changed (1.11.10) from screen select to name, pointer, sequence number, or it can be set when used.

Following is the new Entity Selection Control menu:

```
---ENTITY SELECTION CONTROL
 1. DISPLAY MODAL STATUS
 2. CHAIN SELECT MODALS
 3. SINGLE SELECT FROM GROUP
 4. DISPLAY ATTENTION POINTS OF LINES
 5. IMPLICIT POINT MODALS
 6. SET SELECT TARGET
 7. REPEAT INCLUDE/EXCLUDE
 8. CONSTRAINT SET DURATION
 9. SELECTION MODIFICATION
10. SELECTION METHOD
```

1.14.4 RESTORE TERMINAL PARAMETERS **new feature**

With this menu choice you can reinitialize the Tektronix 41XX terminal from within ICEM DDN. If the terminal locks up due to a momentary power failure or any other cause, you can now have ICEM DDN send the terminal initialization sequence downline without leaving the program and re-entering it. You may now manually reset the terminal and then select this menu choice to reinitialize the terminal. Previously selected terminal parameters will be restored with this function.

1.14.5 LOCAL DISPLAY FILE (LDF) **new feature**

This function allows you to select whether to use the two-dimensional local display file (LDF). When you turn the LDF on, all subsequentially created entities are placed in the LDF. When you turn the LDF off, all subsequentially created entities are sent to the terminal screen. If you are working with a part that exceeds the size of the LDF, you can now turn the LDF off and continue working. You no longer have to leave ICEM DDN and return if the LDF becomes full.

1.16 ACTIVATE PAGE/CHANGE TABLET FILE **menu changes, enhancements**

This menu was expanded as follows:

```
ACTIVATE PAGE/CHANGE TABLET FILE
1.ACTIVATE UPPER PAGE          BFU
```

```
2.ACTIVATE LOWER PAGE          BFL
3.CHANGE TABLET COMMAND FILE   TFILE     (NEW)
4.CHANGE MSTRING FILE          MSTRING   (NEW)
```

The currently assigned page and file names are displayed to the right of the menus.

The "tablet command file" is the file from which pages are obtained for activation in the lower or upper region of the tablet. This file can now be changed from within ICEM DDN. If the file names are not local, ICEM DDN will search your permanent file catalog and obtain a permanent file of the name entered. Either standard system pages or user pages may be activated through this menu.

For selections 1.16.1 and 1.16.2, if "LIST" is entered at the prompt to enter a page name, a list of pages in the current command file is displayed.

2. BLANK/UNBLANK ** menu changes, enhancements**

This restructured menu clearly defines all blanking/unblanking options and allows maximum control over selection of entities. The new menu for BLANK/UNBLANK is:

```
---BLANK/UNBLANK
 1. BLANK - SELECT
 2.       - LEVEL RANGE
 3.       - ALL OF A TYPE
 4.       - ALL
 5. UNBLANK - SELECT
 6.         - LEVEL RANGE
 7.         - ALL OF A TYPE
 8.         - ALL
```

Note that if 2.1 BLANK-SELECT is chosen, you can change the selection method or create constraint sets for entity selection by entering E or CTRL-E. Please refer to the General ICEM DDN System Notes for more information on selection features.

3. DELETE ** menu changes, enhancements**

The new DELETE menu is as follows:

```
---DELETE
 1. SELECT
 2. LEVEL RANGE
 3. ALL POINTS
```

Please note that the full range of entity selection capabilities are available under 3.1 SELECT. If you desire an alternate selection method, enter E or CTRL-E. The Entity Selection menu will then be displayed. For more information on entity selection, refer to General ICEM DDN System Notes.

4. FILE CURRENT PART/EXIT ICEM DDN **new menu, new feature**

The old FILE/TERMINATE process has been replaced with a new menu displaying a number of filing and exiting options within ICEM DDN. There are a few new capabilities in this menu. One is the automatic packing of parts when 4.3 FILE - QUIT SESSION is selected. Another is the ability to abandon all work done since you last filed your current part and continue with the last filed version. This is available through 4.5 DO NOT FILE - CONTINUE FROM LAST FILE. In addition, you can suspend execution of ICEM DDN to perform operating system tasks and return to ICEM DDN as if you had never left. The menu appears below:

```
FILE CURRENT PART/EXIT ICEM DDN
1. FILE - CONTINUE CURRENT PART
2.      - GET DIFFERENT PART
3.      - QUIT SESSION
4.      - SUSPEND SESSION
5. DO NOT FILE - CONTINUE FROM LAST FILE
6.             - GET DIFFERENT PART
7.             - QUIT SESSION
8.             - SUSPEND SESSION
```

4.4 FILE - SUSPEND SESSION

This option saves all work that has been done on the current part and allows you to file the part and then temporarily suspend ICEM DDN execution.

In order to suspend ICEM DDN, start a new session (e.g.to observe GPARTS), terminate the new session, and then resume the initial ICEM DDN session, the swap and data files must be renamed as follows:

```
ICEMDDN,9.
   -suspend-
RENAME,T3=TAPE3,T31=TAP31,T32=TAP32,Z=ZZZSWAP.
ATTACH,TAPE3=
ICEMDDN,9.
   -observe GPARTS-
   -terminate-
RETURN,TAPE3,TAP31,TAP32.
RENAME,TAPE3=T3,TAP31=T31,TAP32=T32,ZZZSWAP=Z.
ICEMDDN.
   -resumed-
```

4.8 DO NOT FILE - SUSPEND SESSION

This option saves all work done on the current part and allows you to temporarily suspend ICEM DDN execution to the operating

system without first filing the part.

Each suspend option returns control to the operating system, where you may execute any application, procedure (EDL, if present), or system command available. You may continue your ICEM DDN session from the state left when the suspend session menu was chosen by using the ICEM DDN execution control statement. Terminal configuration, part name, standards, and units prompts do not appear but are automatically reloaded to their previous settings and you return to the ICEM DDN main menu.

5. SPECIAL FUNCTIONS

5.5 LEVEL TABLE MANAGEMENT

Level management has been reworked to provide for more complete and comprehensive level documentation. The following enhancements have been made:

1. Menus have been reworded and rearranged into a more logical order.

2. In previous releases, only 64 levels could be named. All levels may now have level descriptions.

3. In previous releases, levels could only be defined in sequential order. Levels can now be defined in any order by providing the level number.

4. In previous releases, level names could be at most 31 characters. Levels can now have 12 character names and 50 character descriptions.

5. In previous releases, levels could be listed only in sequential order. Levels can now be listed by name or by number in any order.

5.6.2.2 GLOBAL ATTRIBUTE MODIFICATION **new feature**

The new global attribute modification feature lets you modify attribute/subattribute data that is common to several entities.

The feature works in the following way: you are prompted to enter an attribute name, then a subattribute name and a subattribute value. Attributes with no subattributes, or only subattribute names or values, can be specified by pressing carriage return only for the prompts that should not have values. A limited "wild card" search capability is available; you may enter an asterisk in response to the attribute and/or subattribute name prompts to have the system find all attribute and/or subattribute names.

The system will then find entities that have the required attribute information, and mark them with attention indicators. Any entities found that are currently offscreen or blanked are brought to your attention via messages. You have the option of pressing operation reject at this point and rescaling and unblanking as necessary if you want to include these entities for modification. After the entities are found, you are prompted for information used in modifying the entities. You can replace attributes, insert new attributes before or after the searched-for attributes, or delete attributes. In addition, you can choose to globally modify the located entities- that is, to modify all of them according to

one set of modification data- or, to have the system to prompt you separately for each entity that had the searched-for attribute in it.

5.13 GPL **changes, new features**

GPL Control Statement and Library Format Under NOS

The GPL control statement in V1.60 is considerably different from the V1.57 control statement. The GPL control statement, which is entered from NOS, calls the compiler with a set of parameters enclosed in parentheses. The parentheses are special symbols which are used to indicate the start and end of the parameters. You may use a comma and a period instead of parentheses. The parameters in the control statement are order independent. Parameters cannot be repeated in a control statement. If the statement is entered in interactive mode, a carriage return is sufficient to end the statement.

Statement format:

```
GPL(I=input,L=list,B=objfil,E=errfil,LO,EL,ET,PS,IL)
```

where

I = The file name (1 to 7 characters) that contains the source input text.

L = The file name (1 to 7 characters) that contains listable compiler output.

B = The file name (1 to 7 characters) that contains the object code output.

E = The file name (1 to 7 characters) that contains the faulty statements and error messages.

LO = List options.

EL = Level of error messages put on output file.

ET = Error Terminate Flag.

PS = The page size in number of lines of the output listing.

IL = The source input line length to be scanned.

For a more complete description see section 24 of the V1.60 GPL Reference Manual.

The source code to be compiled must be available in a local, sequential

file. (The NOS utility MODIFY may be used both to maintain the source code of larger program packages or to select one or more of the decks used for compilation under control of a procedure.) The object code delivered by the compiler must be put into a standard format library before ICEM DDN can execute it. Achieve this by using the NOS utilities GTR or LIBEDIT.

The local files TAPE15, TAPE16, TAPE17, and GPLOBJ are required for proper compilation.

The following commands are an example of compiling a program on file FN.

```
GET,FN.                          Get the GPL source program.
ATTACH,GPL.                      Attach the GPL compiler.
GPL,I=FN,L=GPLLIST.              Compile programs on FN
                                 with listing on GPLLIST
                                 and object code on the
                                 default file GPLOBJ.
ATTACH,GPLLIB/M=W.               Attach GPL library.

LIBEDIT,B=GPLOBJ,P=GPLLIB,$Z./*BUILD GPLD    Place compiled
                                 programs on GPL library.
REWIND,NEW,GPLLIB.
COPY,NEW,GPLLIB.
```

Unlike the V1.57 GPL compiler, which kept source and object code together in a library in a special format, the new compiler does not do any library handling. Therefore, do not insert the object code from the new compiler into libraries created prior to V1.60. GPL programs compiled with the V1.60 compiler will NOT execute correctly on versions of ICEM DDN created prior to V1.60.

GTGT: GRAPL-To-GPL-Translator

The GRAPL-To-GPL-Translator, or GTGT, will execute, external to ICEM DDN, via a typical control language program call from within a batch job or procedure, or interactively from the terminal.

```
Example:  GTGT.
```

GTGT will have the capability of substituting local file names for the input, output, and list files.

```
Example:  GTGT (I=infile, O=outfile, L=lstfile)
```

If these local file names are not supplied, as in the previous example, the default local file names GRAIOF, COMPILE, and OUTPUT will be assumed for input, output, and list respectively. (GRAIOF and COMPILE are also the default input file names for GRAPL and GPL source, respectively, in ICEM DDN and the GPL compiler.)

The input file (default GRAIOF) may be a multi-record file. Each record of GRAIOF contains one GRAPL program preceded by a header (the program name) of from one to six alphanumeric characters. This header will be translated to a "PROC/progname" statement in GPL, where "progname' is the header, and written to the output file as line 1. Line 2 written to the output file will contain the remark: $$CAUTION-IF PROGRAM, CHANGE "PROC" TO "MAIN".

GPL Variable Declaration, RTL I/O, and File Statements

The following changes/additions have been made to the GPL Variable Declaration, RTL I/O, and File statements for V1.6.

CHAR **modified statement**

The CHAR statement declares a text variable. The name of a text variable can be referenced in any statement that allows text variables. Character arrays may now have up to two dimensions.

ENTITY **modified statement**

The ENTITY statement reserves storage for local subscripted entity names created during the GPL run. Once the entity is defined, its name can be referenced in any subsequent statement within the same routine that allows entity names. For V1.6 the maximum size of one array is limited to 65,534 and entity arrays may have up to three dimensions.

REAL **modified statement**

The REAL declaration statement reserves storage space for calculated real variables. The size of the real array is limited to 2,097,152 and real arrays may have up to three dimensions for V1.6.

COMMON **new statement**

The COMMON statement defines a common block of data that can be used by the GPL programs. This must be declared after the MAIN or PROC statements and before the program. The COMMON block can only be initialized using the DATA statement in a MAIN program.

The common block is defined by the modal words COMMON and ENDCOM. All declarations between these words obtain their addresses in common block, that is, the declarations can use the same addresses in different programs and procedures.

The same declarations from COMMON to ENDCOM must appear at the start of any MAIN or PROC program in order to use the same data. Common blocks are recommended to ensure identical specification of data between programs and procedures.

CONST **new statement**

The CONST statement assigns numerical values to symbolic names. The symbolic name can be used as a real or integer constant. This is useful when declaring arrays and specifying limits of a FOR loop.

DATA **new statement**

The DATA statement initializes real, integer, or character variables or arrays. The DATA statement comes after all declarative statements and before any executable code. If more than one DATA statement is used to declare the elements of the same array, the indices must be entered in ascending order. The replication factor duplicates the same value for the number of elements specified. The replication factor can only be used with arrays.

GPL Branching and Conditional Statements

IF **modified statement**

The IF statement conditionally transfers control of the GPL program or assigns a name to an expression. The IF statement contains a logical condition to be evaluated as either true or false. If the logical expression is true, the conditional transfer or variable assignment is executed. If the logical expression is false, the conditional action is ignored, and execution continues with the next statement.

The IF statement has been modified for V1.6 to accomodate
a. The condition expression can also be any number of logical expressions using the .OR. and .AND. operators.
b. The IF...THEN statements can be formatted to be more readable.
Refer to the GPL Reference Manual for examples of these modifications.

GPL Two Dimensional Curve Statements

SPLINE **new features**

New features in the 2-D spline are optional parabolic start and end conditions and a spline tolerance option. The spline start or end condition can be either circular (default) or parabolic. As in the past, specified slopes are optional for circular start or end conditions. The new optional parabolic start and end conditions provide for a starting or ending parabolic segment (similiar to APT) in the spline.

The new spline tolerance option allows the user to specify the maximum discontinuity in the curvature of the spline without leaving GPL. Acceptable values are positive and greater than or equal to 0.000001. Smaller values (closer to the 0.000001 limit) slow the creation of the spline, and, depending on the particular

points, values very much smaller may prevent the spline from being created. The GPL spline tolerance option only affects the spline being currently created. The default spline tolerance, set by an interactive modal, will be used with subsequent splines which do not have the GPL spline tolerance option specified. The GPL spline tolerance option has no effect on splines created interactively.

ANSI 1982 STANDARD: Drafting Modal Statements in GPL

ANGCTL **new statement**

The ANGCTL modal statement controls the angle at which the text of an interactive note or label is written. ANGCTL has no effect on GPL created notes and labels.

ANUNIT **new statement**

This modal is the ANSI 82 equivalent to the TXTANG modal in the 1973 Drafting Standards. The ANUNIT statement sets the method in which the angle in angular dimensions is represented.

ARAUTO **new statement**

The ARAUTO modal statement is used to automatically determine the placement of arrows according to the placement of text and the available space. ARAUTO cancels the effect of the ARIN and AROUT modals.

ATAIL **new statement**

The ATAIL modal statement controls the method of tail location while creating or modifying the origin of drafting entities with tails. If set to ON, the minor words START and END will be ignored in notes, labels and dimensions and the tail will be placed automatically.

AUTOD **modified statement**

The AUTOD modal statement has been changed to turn automatic dimensioning both on or off. It is therefore comparable to the combination of AUTOD and KEYIN in ANSI 73 Drafting Standards. This statement affects only those dimensions created interactively.

CDISPL **modified statement**

The CDISPL modal statement can now also set the character tolerance ratio. The tolerance ratio is the ratio between the character size for tolerance and fraction characters and the character size for main characters in dimensions.

CRES **new statement**

The CRES modal statement is a partial replacement of the CSET modal in ANSI 73 Drafting Standards. CRES selects a method of output representation for standard set type characters. The CSET statement may also be used to set the method of output regeneration along with its primary task of selecting a character set, thus existing program CSET statements do not require modification.

DECMAL **modified statement**

The DECMAL modal statement contains a new feature to allow setting the value of the alternate unit decimal places.

DIMORG **new statement**

The DIMORG modal statement is used to set which side, if any, of a generated dimension specifies a dimension origin.

DSCALE **modified statement**

A new feature has been added to the DSCALE modal statement. The user can now not only change the drafting scale factor by specifying it directly, but also by specifying a ratio to the current drafting scale factor.

DUAL **modified statement**

The DUAL modal statement has been expanded. Now a user can specify the type of dual dimensioning desired (brackets, separating line, or both).

LEADER **new statement**

The LEADER modal statement is used to determine the placement of the label leader with respect to the label text. The first text line or the middle text line may be selected. LEADER does not affect existing labels.

MATERL **modified statement**

The MATERL modal statement selects the type of section lining. Two new material types, GLASS and PLASTC are now selectable for section lining.

PREFIX **new statement**

The PREFIX modal statement is used to change the character used to prefix a special symbol character set.

SECALN **new statement**

SECALN is a drafting modal statement which is used to control the alignment of new section lining to existing section lining. SECALN affects only section lining created interactively. (Use the

YES, entity parameters with SECTON for aligning section lining in GPL).

SECVIS **new statement**

With the SECVIS drafting modal statement, the user determines whether to display section lining in all views or only in the view in which the section lining is defined.

TXTORG **new statement**

The TXTORG drafting modal statement is used to set the method of indicating the position of text. TXTORG is similiar to the ANSI 1973 modal statement DORIG, which does not exist in ANSI 1982 Drafting. Dimensions, notes and labels created interactively are affected by this modal statement. This modal affects only dimensions created in GPL.

ANSI 1982 Standard: Dimensioning and Other Statements in GPL

BALOON **new statement**

With the BALOON statement, a balloon with an arrow pointing to an entity in the current drawing can be drawn. A detail number and a sheet number can be displayed in the balloon.

CURARR **new statement**

The CURARR statement will enable you to draw an arrowhead at any position along an existing curve. There are two methods for positioning the arrow and they are 1) at the curve end, and 2) on a curve at a parameter.

DATFEA **new statement**

The DATFEA statement displays a datum feature symbol and associated text within a feature frame on the drawing. It can also have a leader line connected to it pointing to another entity.

DATUM **new statement**

The DATUM statement defines a datum target symbol. There are five kinds of datum target symbols that can be created using GPL. These are a point without an area, a point with an area, a line, a circle, and an existing entity as being the target.

GEOTOL **new statement**

The GEOTOL statement allows the creation of geometric tolerance and composite geometric tolerance symbols and associated text within a feature frame on the drawing. They can stand alone or be connected to an entity with a connecting leader line.

LABEL **modified statement**

This is an existing feature with the V1.6 enhancement of being able to enter a parameter for determining the termination point, on the entity being labelled, of the leader line. The coordinate method, the slope method, and the midpoint method (which is the default if none is specified) are also methods for determining the termination point of the leader line.

LDIMEN **modified statement**

The LDIMEN statement creates linear dimensions. Linear dimensions are horizontal, vertical, or parallel. When specifying the YES parameter in linear dimensions, an entity must also be given. This will align the vertical or horizontal dimension being created with an existing dimension of the same type. If the dimension is not of the same alignment, an error message will be given stating such.

MAGNFY **new statement**

The MAGNFY statement produces a magnified drawing of a circular area of your drawing.

MODDFT **new statement**

The MODDFT statement allows certain modifications of dimensions without having to redefine the dimension. A rectangle or parenthesis can be added or deleted from around the text in a dimension and tolerances/limits can be added to the text.

SECARR **new statement**

With the SECARR statement, cross section arrows can be created for declaring details or cutouts for drafting.

SECTON **modified statement**

This is an existing GPL statement, with the V1.6 enhancement of enabling you to select a previously defined section lining entity to align with the new section lining entity. An angle and a distance can still be specified but these values are overridden if the YES parameter followed by an entity is used.

SRFTEX **new statement**

The SRFTEX statement is used for drawing the standard basic symbol for surface texture. The symbol can be drawn attached to an entity or connected to an entity or entities with arrow(s).

TAPER **new statement**

The TAPER statement creates a slope or taper dimension drawn to two lines. Either a flat or conical taper dimension can be specified.

THIKNS **new statement**

The THIKNS statement produces a thickness dimension between two curves. This dimension measures the distance between two curves from a point on one curve to the perpendicular intersection of a second curve.

GPL Numerical Control Statements

SETGPG **new statement**

The SETGPG statement provides the capability of modifying the Generation Parameter Group (GPG) settings. These GPG settings are used when generating toolpath entities. The statement accepts GPG settings residing on a user specified local file or with an existing toolpath. This feature is only available for LATHE contouring, drilling, or threading operations.

TLPATH **new statement**

The TLPATH statement provides the ability to define toolpath entities for LATHE contouring, drilling, or threading operations. Contouring and threading toolpaths are generated along part geometry (specified as a list of entities). Drilling toolpaths do not require any geometric entities. Each toolpath reflects the current GPG settings for that operation.

GPL INPUT AND OUTPUT

Fixed Format Input/Output **new statements**

When a file is opened for input or output, text items can be read or written in fixed rather than free format.

In fixed format, the length of a text item is no longer determined by the single quotes that surround it, but by the length of the character variable in the I/O list of the statement. To distinguish fixed from free format, you must precede the count for the number of items in the statement with a minus sign.

On input, as always when a character variable is a target location, the length is the maximum length specified in the CHAR declaration.

On output, as always when a character variable is a source location, the length is the current length, which may be smaller than the maximum, depending on previous use of the variable.

If fixed format is also required for reals on input, then the line must be read into a text variable, the part of the line that contains the number must be moved into a different field, and this field must be converted into a real variable. On output of reals, this must be done in reverse order.

GPL SYSTEM I/O COMMANDS **new statements**

CAUTION! The System I/O commands that have been implemented for V1.6 are recommended for experienced users only. If these statements are used improperly, you could destroy the TAPE3 part file. Refer to Appendix E of the GPL Reference Manual for specifics on the System I/O Commands statements and refer to the ICEM DDN System Programmer's Reference Manual for information about the ICEM DDN COMMON arrays that are accessible by means of the GPL System I/O Commands.

6. DATA BASE MANAGEMENT **new menu, enhancements**

6.1.1 GLOBAL FILE SAVE

6.1.2 GLOBAL FILE RESTORE

The global file management menus have been enhanced to provide a modal which is used when you save or restore all parts. Because this can be a very time consuming process, the system displays a prompt when you select 2. ALL, allowing you to return to the Save/Restore menu without saving or restoring all parts. The new menus are:

GLOBAL FILE SAVE	GLOBAL FILE RESTORE
1. SINGLE	1. SINGLE
2. ALL	2. ALL
3. LIST	3. LIST
4. EDIT	4. EDIT
5. CHANGE FILE NAME	5. CHANGE FILE NAME
6. PART OVERWRITE MODE	6. PART OVERWRITE MODE

Part Overwrite mode allows you to determine the course of action the system takes if

a) you are saving all parts and a part with the same name already exists on the global parts file, or
b) you are restoring all parts and a part with the same name already exists on TAPE3.

The menu for Part Overwrite Mode is:

PART OVERWRITE MODE
1. PROMPT IF PART ALREADY EXISTS
2. OVERWRITE ALL EXISTING PARTS
3. DO NOT OVERWRITE EXISTING PARTS

6.2 PATTERN MANAGEMENT **new menu, enhancements**

All menu choices below this function have changed.

Pattern Management has been rewritten for V1.6 to greatly enhance its functionality.

Feature highlights:

- A greater number of entity types are now supported. New entities include Groups, Surfaces, Bezier Curves, and NC Tools.

- Entity names and colors are now stored with the pattern.

- Entities defined in non-standard views can now be selected for patterns.

- Patterns are retrievable to the Work Plane or to Model Space. Rotation of the Pattern may be specified around the Y or Z axis as well as the X axis.

- Retrieve parameters are now modalized to allow a more streamlined procedure for pattern retrieval.

In order to achieve these enhancements it will be necessary to update old patterns to the new Pattern Data Base. Patterns will no longer be stored on TAPE3. Each Pattern Library is stored on its own file. An update procedure will automatically move all old patterns from "Local" TAPE3 and "Global" Pattern Files to the new Pattern Library Files. This Update procedure will be invoked at the time an old pattern file is to be used.

The two active Pattern Libraries (files) are now called the Primary Library and Secondary Library. These Libraries are identical in structure and are interchangeable. Patterns are created on or deleted from the Primary Library, but are retrieved from both.

The new Pattern Management menu has been restructured to emphasize pattern functions. The Copy Function now moves patterns from one Library to the other. A menu choice has also been added for pattern modals.

7. INPUT/OUTPUT/REGENERATION

7.2 PLOT **menu changes, enhancements**

The PLOT user interface was rewritten for V1.6 to make PLOT easier to use and to correct various problems with scaling and offsets.

Two new capabilities were added to PLOT during the rewrite. It is now possible to position the origin of the plotter device at the lower right corner. In the past, only the lower left was used as a reference. Also, PLOT now displays a paper size menu that conforms to the characteristics of your part, either:

U.S. PAPER SIZES (ENGLISH UNITS),
U.S. PAPER SIZES (METRIC UNITS), or
INTERNATIONAL PAPER SIZES (METRIC UNITS).

7.10 BULK DATA INPUT

Text rotation angle on notes has been corrected so BULK DATA INPUT will once again accept and process angles instead of defaulting to 0 degrees.

7.13 TABLET MANAGEMENT **new menu, enhancements**

The tablet management menu was expanded and altered considerably. See the DATA MANAGEMENT section of the reference manual for details. The new tablet management main menu is displayed below:

```
EDIT FILE=TFILE
TABLET MANAGEMENT
 1.MODALS          (NEW)
 2.CREATE PAGE     (ALTERED)
 3.MODIFY PAGE     (ALTERED)
 4.RENAME PAGE     (NEW)
 5.DELETE PAGE     (NEW)
 6.DISPLAY PAGE    (NEW)
 7.LIST PAGES IN EDIT FILE        (NEW)
 8.CHANGE EDIT FILE               (NEW)
 9.PACK EDIT FILE                 (NEW)
10.COPY PAGES FROM ANOTHER FILE   (NEW)
```

Three files are used for tablet functions:

EDIT FILE

This is the file in which created tablet pages are saved and from which pages are retrieved for modification or editing. This file may be changed via menu 7.13.8 CHANGE EDIT FILE. The current edit file in use is displayed at the top of the tablet management menu.

COMMAND FILE

This is the file from which pages are retrieved for the execution of strings. Activated pages are obtained from this file. This file may be changed via menu 1.16.3 CHANGE COMMAND FILE.

NOTE:

By default, and upon entry to the system under a new part, the command file and the edit file are equal, in other words, they are the same file. 'TFILE' is the default name for both the EDIT FILE and the command file. If modal 7.13.5 TABLET FILE STATUS is set to 'NOT EQUATED' then the tablet edit file and command file are separate. Under this mode, the EDIT FILE is not changed if the command file is changed and the COMMAND FILE is not changed if the EDIT FILE is changed.

MSTRING FILE

This file contains named command strings called MSTRINGS. MSTRING names may be stored with any page in any tablet file. When a square of an activated page that contains an MSTRING name is selected, the string is obtained from the current MSTRING file and executed. The default name for the MSTRING file is 'MSTRING'. This file can now be changed by using menu 1.16.4 CHANGE MSTRING FILE.

Feature highlights

Creating pages:

After 7.13.2 CREATE PAGE is selected the following page of create options is displayed:

```
EDIT PAGE=userpag
CREATE PAGE
1.USE BLANK PAGE
2.USE COPY OF STANDARD PAGE
3.USE COPY OF USER PAGE
```

The name for the created page is displayed at the top of the CREATE PAGE menu.

- The method of creating a tablet page was improved to speed string definition and provide verification of definition.

- If 'LIST' is entered at any prompt to enter a tablet page name, a list of pages in the current edit file is displayed.

- When a tablet edit file is changed, if the new edit file is not local, ICEM DDN will search the user's permanent file catalog for the entered name and obtain the file if found.

- The page to be edited is displayed on the screen. The strings representing the defined squares on the page are displayed to the extent possible. The displayed page corresponds directly to the tablet overlay on a tablet so that squares may be indicated either by their location on the screen or by location on the tablet overlay itself. If a tablet is not attached, squares may be picked by using the terminal graphics cursor device.

- As squares are defined, string definitions are displayed in the squares. MSTRING assignments are indicated by a box in the lower right corner of the assigned square.

- Strings may be displayed in packed or unpacked format. In the packed format, periods and menu selection numbers 10-19 are represented by single character equivalents 0,!,",#,$,%, etc. . This format is controlled by mode 7.13.1.4 STRING DISPLAY FORMAT.

Editing pages:

The tablet page editing menu was expanded as follows:

```
EDIT PAGE=editpag
EDIT/SAVE PAGE
1.DEFINE STRING  (ALTERED)
2.ASSIGN MSTRING NAME TO SQUARE
3.LIST SQUARE
4.MOVE SQUARE    (NEW)
5.COPY SQUARE
6.DELETE SQUARE
7.DISPLAY PAGE
8.SAVE PAGE AND CONTINUE (NEW)
9.SAVE PAGE AND EXIT     (NEW)
```

- The secondary menu for MSTRING and direct string definitions was removed to improve productivity. The current edit page is displayed in the status line at the top of the menu.

- When tablet command strings are defined under 1.DEFINE STRING, the command string is entered prior to selecting squares for definition. The row column configuration necessary to store the entered string is provided.

- Squares which are already defined can be overwritten either automatically or by user choice. This option is available under the tablet management mode menu 7.13.1 OVERWRITE MODE.

- If V is entered (or CONTROL-V at data entry) anywhere within this menu except for MOVE SQUARE, COPY SQUARE, and

DELETE SQUARE, the modal menu is displayed. Modals may be changed and control is returned directly to interrupted function. For the first prompt in MOVE SQUARE, COPY SQUARE, AND DELETE SQUARE, a V or control-V entry causes the updated tablet page to be displayed.

- o A check is provided so that the edited page is not lost after leaving this menu. If a] or [is executed at the EDIT/SAVE PAGE menu, an operation confirmation prompt is provided to determine if the edited page should be saved.

Tablet command string programming format:

The function of the special tablet string characters 's' and 'e' were separated so that they now function according to the following definitions:

s --substitute input from keyboard or tablet

During the FIRST cycle of the repeated portion of a tablet string, tablet or keyboard input must be provided at each occurrence of 's' following 'r' in the string.

For all FOLLOWING repeats, the previous input is AUTOMATICALLY SUBSTITUTED.

e --variable input from keyboard or tablet

During ALL cycles of the repeated portion of a tablet string, tablet or keyboard input must be provided at each occurrence of 'e' following 'r' in the string.

Note that the 's' and 'e' characters function identically everywhere except within a repeat string. The repeat function was improved so that lowercase text can be used within a repeat string and so that the repeat character 'r' is recognized across functions.

8. DISPLAY CONTROL

8.7 VIEW LAYOUT CONSTRUCTION

8.7.12 VIEW ALIGNMENT **new feature**

View Alignment is a new feature for V1.6 which allows accurate automatic alignment of views in a multiview drawing. This feature is of primary interest to those persons constructing parts in 3-D. When the drawing layout is formed and the views have been positioned, View Alignment can be used to accurately align an auxiliary view to a reference view.

9. POINT

9.17 FAN POINTS **new menu, enhancements**

FAN POINTS was rewritten to include additional capabilities and correct existing problems. The following enhancements were made:

- Curve selection was improved. Additional curve types are now selectable, namely composite curves, strings, and point sets. Multiple curves may be selected--they may be connected curves or random.

- Fan points specification has been expanded. It is now possible to provide an end condition (i.e. END ANGLE) as well as the start condition. The start condition, end condition, number of points, and delta angle make four possibilities. Any three are needed to define fan points. The start condition and end condition may be subdivided further into entering an angle, indicating a position, selecting an existing point, or leaving a condition open-ended. Modals (1.2.2 POINT MODALS) are used to pre-set the start and end conditions so the appropriate prompt is displayed. OTHER OPTIONS (CONTROL-V) is supported so that a different start or end condition may be used at a particular instance without changing the modal settings.

- Default angles corresponding to the start and end of selected curve(s) are displayed, showing the angular range of the curve(s). Defaults are not provided for multiple curves selected randomly.

9.18 INCREMENTAL POINTS

See the description of 9.17 FAN POINTS. All the changes incorporated into FAN POINTS also affect INCREMENTAL POINTS. Additional comments are made in the following paragraphs.

- The order of operation was modified to match FAN POINTS. A fourth type of INCREMENTAL POINT was added to this menu, 9.18.4 BETWEEN TWO POINTS. This allows points to be created at regular intervals between two existing points.

- Multiple curves are supported fully within types 9.18.1 ALONG XT AXIS and 9.18.2 ALONG YT AXIS. The curves must be connected and selected in order.

- Composite curves were added to 9.18.3 ALONG ONE CURVE.

10. LINE

No feature enhancements.

11. ARC/CIRCLE/FILLET

11.10 ARC TANGENT 3 CURVES **menu change, enhancement**

Arc Inscribed in 3 Lines has been replaced with Arc Tangent to 3 Curves for V1.6. With this option, an arc may be drawn tangent to lines or arcs, and through points. The arc starts at the point of tangency with the first curve, passes through the point of tangency with the second curve, and ends at the point of tangency with the third curve. Any combination of three points, lines, or arcs may be chosen.

12. OTHER CURVES

12.8 TRIM/EXTEND CURVES **new menu, enhancements**

12.8.1 ONE END - SCREEN POSITION
12.8.2 - CURVE
12.8.3 TWO ENDS - SCREEN POSITION
12.8.4 -CURVE
12.8.5 MIDDLE - SCREEN POSITION
12.8.6 - CURVE
12.8.7 TWO CURVES AT INTERSECTION

Screen Position Trim has been added for V1.6 to enhance the trim functions under 12.8 TRIM/EXTEND CURVES. Curves may now be trimmed to one end, two ends, or middle using screen position boundaries. The screen position trim operation performs similarly to trim by point. A normal is dropped from the screen position to the curve to determine the trim point of the curve. 20 curves may be selected for either screen position trim or trim by boundary point or trim by boundary curve.

13. ENTITY MANIPULATION

No feature enhancements.

14. DATA VERIFY

No feature enhancements.

15. ADVANCED DESIGN **menu changes, new features, enhancements**

15.1 ADVANCED DESIGN MODALS **new feature**

Advanced Design Modals is a new feature. Currently, there are three modals: the created curve type, the same point tolerance, and the four surface path variables. The curve type modal applies wherever curves are created in Advanced Design functions. The same point tolerance is used only by the intersection curve feature. The surface path modal was moved from menu 1.8. The surface path modal values apply to any new surfaces. To change the surface path variables of an existing surface, a different menu 15.3.18.2 must be used.

15.2.1.2 OFFSET SURFACE CURVE **new feature**

This new feature allows you to manipulate spatial curves that lie within a given surface. You have the option of 'offsetting' curves along; the surface normal vectors, in a direction controlled by the curve and oriented by the surface, normal toward a 2nd surface, or offsetting the curve within the boundaries of the same surface. The offset distance may be constant or variable. The resulting curves will be either Machining Curves or 3-D Splines, as determined by the Advanced Design modals in menu 15.1.

This feature is accessed through the new menu item 15.2.1 SURFACE CURVES. This menu contains the SURFACE EDGE CURVE feature as item 15.2.1.1, while OFFSET SUFACE CURVE is 15.2.1.2.

NOTE:

> This feature was originally conceived for use in the design of automotive sheet metal, where the surfaces possess a relatively low degree of curvature. When used with high curvature surfaces, Offset Surface Curve may require excessive processing time, and/or give unpredictable results.

15.2.3 SURFACE-SURFACE INTERSECTION CURVE **enhancement**

The intersection curve feature has been completely redone. There are now fewer selections required to perform an intersection and different variables are used to control the accuracy and precision of the intersection curve. To intersect two surfaces, the only input required is the selection of the two surfaces. After the intersection has been attempted, there is the choice to stop, to search again for an intersection using a better surface approximation, or to refine the existing curve(s) by using a smaller curve tolerance. The tolerance adjustments are performed

internally by the algorithm. The only adjustments to the algorithm by the user are the created curve type, machining curve or 3-D spline, and the same point tolerance. These are found in the Advanced Design Modals of menu 15.1. The algorithm for Cross-Section Slice of menu 15.5 has not been affected.

The intersection of two surfaces may result in multiple curves when only one curve was expected. After the operation, the "MULTIPLE CURVES FOUND" message may be displayed in place of the "INTERSECTION CURVE FOUND" message. You may also see multiple intersection curves displayed. Many times, a few, extra, smaller segments are created on top of the correct intersection curve. These segments may be deleted with the Delete menu or you may try the intersection operation again. By decreasing the Same Point Tolerance in the Advanced Design modals and/or choosing menu choice "3. REFINE EXISTING CURVE", multiple curves will most likely not be created. The current intersection curves will be deleted and new curves will be defined when you choose "3. REFINE EXISTING CURVE".

15.2.5 COMPOSITE CURVE **enhancement**

Composite curves have been enhanced as follows:

- Composite curves become displayable entities and can be assigned display attributes.

NOTE:

Since the composite curve has become displayable with its own attributes, the attributes of the subcurves (e.g. curve font, entity level, pen number, and color number) will be changed to those of the composite curve. Even when the composite curve is deleted, the subcurves retain these four attributes of the composite curve. These original four attributes of the subcurves are lost.

- When defining a composite curve, all subcurves will be removed from display, and then the composite curve will be displayed with its own color and curve font; also, the system will display the message: "COMPOSITE CURVE WITH xxx SUBCURVES CREATED" to indicate the completion of creating a composite curve.

- Composite curves behave as a single entity when they are manipulated in BLANK/UNBLANK functions or DELETE function with ALL DISPLAYED AND ALL NOT DISPLAYED, as well as the operations of TRANSLATE, ROTATE, MIRROR, SCALE, DUPLICATE, and any combination of these.

- Subcurves within the composite curve are made dormant (i.e. nondisplayable entities).

- Composite curves are selectable entities but the individual entities incorporated in them cannot be selected.

- "SINGLE SELECT FROM GROUP' modal will no longer be valid for composite curves.

- Composite curves can be deleted without deleting the subcurves in them. When the composite curve is deleted, the subcurves retain the display attributes of the composite curve. The original display attributes of the subcurves are lost.

- When deleting a composite curve,
  1. If it is deletable, you will be prompted with: "DELETE CURVES IN COMPOSITE CURVE?"
     Answer Yes: the composite curve and all subcurves will be deleted and removed from display.
     Answer No: the composite curve is deleted but not the subcurves. A host repaint is required to remove the composite curve from display and redisplay the subcurves.

  2. If it is non-deletable (for example, the composite curve is used to define another entity), the system will prompt you with "CAUTION DELETE ENTITY?"
     Answer Yes: the composite curve will become a dormant entity. All the subcurves will remain the same: dormant and non-deletable. No further prompt will be given.
     Answer No: nothing will be changed.

- When updating a part with composite curves, the properties of the composite curve such as blank status, curve font, entity level, pen number and color number will be changed to those of the first sub-curve.

15.2.7.1.4 BEZIER CURVES CONVERSION **new menu**

The 15.2.7.1.4 BEZIER CURVES CONVERSION menu has been modified for V1.6 to prompt you for the order of the curve after you enter 1.ENTIRE CURVE or after you are prompted for the END PARAMETER of the 2.PART OF CURVE menu choice. A default order is given that varies by curve type. You can accept the default value or you can enter an appropriate value. If the selected curve is a line, the order is 2. For other types of curves the minimum order is 4.

15.2.13 COMPOSITE SURFACE **enhancement**

The number of subsurfaces that are allowed in a composite surface has been increased from 20 to 150 for the ICEM DDN V1.6 release.

15.3.18.1 SURFACE FACETTING **new feature**

With this menu, you can display surface entities in shaded color (facetting). Facets are displayed in the same color as the surface of which the facets are part. Facet color on a surface may be changed by changing the color of the surface entity prior to facetting. Surface entities to be facetted are selected via the entity selection method.

15.3.18.2 MODIFY SURFACE PATHS **new menu, enhancement**

The menu 15.3.18.2 is similar to the old menu 1.8. After selecting one or more surfaces, you set the surface path variables. These new variables are used to define new surface paths on the selected surface(s). With one surface, the default variables are set to the current values for the surface. With multiple surfaces, the surface path modals are used as default values.

16. DRAFTING FUNCTIONS

16.1.4.2.2 FRACTIONS **new feature, new menu**

When the unit of measure is feet/inches, a new menu to set feet/inches rounding is displayed.

16.1.4.3 DIMENSION TEXT PREFIX (1982 ANSI)
16.1.4.3 DIMENSION TEXT SUFFIX (1973 ANSI)

16.1.4.3.1 AUTOMATIC LINEAR DIMENSION SYMBOL

This modal has three settings: 1.NONE, 2.DIAMETER SYMBOL (this was 16.1.4.3 AUTOMATIC DIAMETER SYMBOL in V1.57), and 3.RADIUS SYMBOL. The symbol chosen is added by the system to all automatic linear dimension texts. It is added to the beginning of 1982 ANSI dimensions and to the end of 1973 ANSI dimensions.

16.1.4.3.2 SPHERICAL DIAMETER/RADIUS SYMBOL **new feature**

This modal has two settings: 1.ON and 2.OFF. When it is on, all automatic diameter and radius dimensions have the letter S or the word SPHER (depending on the standard in effect) added to their texts, indicating that the feature being dimensioned is spherical. It is added to the beginning of 1982 ANSI dimensions and to the end of 1973 ANSI dimensions.

16.1.4.3.3 REPETITIVE FEATURES **new feature**

This modal has two settings: 1.ON and 2.OFF. When it is on, you are prompted for the number of features each time a dimension is created. This number indicates how many features present are identical to the one being dimensioned. The text "nX" is added to the dimension text to indicate that the feature occurs n times. This is available only in 1982 ANSI.

16.1.4.5 AUTOMATIC TOLERANCE/LIMITS **new feature**

This new drafting modal allows you to specify a tolerance to be added to all subsequent dimensions or to have the system prompt for the tolerance at the time of creation. You can also specify whether to use Tolerance or Limits, or choose to be asked each time.

16.1.4.6 DIMENSION TEXT ORIENTATION (Above the line dimensioning)
new feature

Two modals control the orientation of the text and provide the controls necessary for "above the line dimensioning."

16.1.4.6.1 Text Angle
1. Horizontal
2. Parallel - Linear Dimension Only

16.1.4.6.2 Placement
1. Middle
2. Above
3. Below

Text Angle controls whether the text will always run parallel to a dimension line (for linear dimensions) or will be horizontal in the work space (the current and default method).

Placement of the text can now be set to above or below the dimension line. Middle placement is the current and default method. If text is placed above or below, then the line will be solid.

These two modals work together to produce "above the line dimensions", which are generally acceptable to AEC users.

16.1.4.7 FOOT SYMBOL ON VALUE **new feature**

This menu appears when the unit of measure is in feet/inches. It enables you to specify when the foot symbol is displayed. Values greater than or equal to this modal setting will be displayed with the foot symbol; any value less than this modal setting will be displayed in inches.

Examples :
If this modal is set to 2 (feet), then
15 inches is displayed as 15"
25 inches is displayed as 2'1"
If this modal is set to 0 (foot), then
15 inches is displayed as 1'3"
25 inches is displayed as 2'1"

16.7.2 COMPOSITE GEOMETRIC TOLERANCE **new feature**

Composite geometric tolerance is a new feature in ICEM DDN Version 1.6. This new feature can be found under 16.7 GEOMETRIC TOLERANCE FRAMES. Geometric tolerance is now menu choice F.16.7.1.

16.2.9 CHAMFER DIMENSION **new feature**

A chamfer dimension is a measurement of length along the longitudinal direction of a 45 degree chamfer. This new feature works similar to the way label works.

16.2.10 ARC LENGTH **new feature**

An arc length dimension is the measurement of length along the circumference of an arc. The length is measured from one end of the arc to the other.

16.2.11 RECTANGULAR COORDINATE DIMENSIONING **new feature**

This is a new entry under 16.2 DIMENSION. A Rectangular Coordinate dimension specifies the distance from a given datum (origin) to a given position in either a horizontal or vertical orientation. The menu has choices for defining an origin, or creating horizontal or vertical coordinate dimensions. See the diagram in the reference manual for an example of this type of dimensioning.

16.3 SECTION LINING **menu changes**
16.3.1 MODALS
16.3.2 DEFINITION

The three section lining modals have been moved from menu 16.1.14 to this section. Section lining creation has been moved down one level. The current value of the modals is now displayed in the menu listing.

16.13.2 BASIC BOX **enhancement**

A basic box can now be put around a note. The distance the box is from the note is the current text-dimension distance. This distance is not stored with the note, so when the modal for text-dimension distance is changed, the size of a basic box around a note will change.

16.13.6 MODIFY TEXT

16.13.6.4 ADD PREFIX TEXT (1982 ANSI) **new feature, new menu**
16.13.6.4 ADD SUFFIX TEXT (1973 ANSI)

You can now add certain symbols to automatically generated dimension text without affecting its automatic status. The following symbols can be added:

1. DIAMETER SYMBOL
2. RADIUS SYMBOL
3. SPHERICAL DIAMETER SYMBOL
4. SPHERICAL RADIUS SYMBOL
5. SQUARE SYMBOL (1982 ANSI only)
6. REPETITIVE FEATURES TEXT (1982 ANSI only)

16.13.6.5 REMOVE PREFIX TEXT (1982 ANSI) **new feature, new menu**
16.13.6.5 REMOVE SUFFIX TEXT (1973 ANSI)

This choice allows you to remove certain symbols from automatically generated dimension text without affecting its automatic status. The following symbols may be removed:

1.DIAMETER SYMBOL
2.RADIUS SYMBOL
3.SPHERICAL DIAMETER SYMBOL
4.SPHERICAL RADIUS SYMBOL
5.SQUARE SYMBOL (1982 ANSI only)
6.REPETITIVE FEATURES TEXT (1982 ANSI only)

As in the past, any text may be added with 16.13.6.1 DELETE LINE, 16.13.6.2 INSERT LINE, and 16.13.6.3 REPLACE STRING. However, dimensions with changes made in this way are marked keyed in (as they were in the past) and thus become ineligible for some operations.

COUNTERBORE AND COUNTERSINK SYMBOLS **new feature**

Counterbore and countersink symbols were implemented for V1.6. They work similar to the way diameter symbol works. They can be entered with \B (for counterbore) and \C (for countersink), where \ represents the current prefix character.

16.13.18 DIMENSION NOT TO SCALE **new feature**

Dimension not to scale is used to mark a dimension on a drawing that is not to scale. ANSI Y14.5M-1982 specifies that a line drawn under the dimension indicates that the dimension is not to scale.

16.1.14 ISOMETRIC DRAFTING **new feature**

The ability to create isometric drafting entities has been added. Isometric drafting entities are created in the current work plane. The current work plane must be positioned correctly prior to the creation of the isometric drafting entities.

To control drafting entity placement while in Isometric Drafting, you can do two things. The simplest is to change the depth of the current work plane. This is easily done with the "D" or Depth command key. This will move you along the ZT axis of the work space.

The second method is to change the work space itself. Use Menu 8.11, CHANGE WORK SPACE, to change from "front" to "top", for example. This will work for all views that have been created. This operation automatically resets the depth to the last depth used in that workspace (zero for a workspace that has not been modified). You must then change the depth to the appropriate

value.

Use Menu 8.12, DEFINE NEW WORK SPACE, when a new work space is required. You may need to do this for models that have skewed or diagonal lines that do not fall on orthogonal planes.

Joint use of depth control and implicit points

The default mode for Depth Control requires you to enter a value for the new depth. There will be many times when you will not know what new depth value to enter, so you will need to use other modes for changing depth. These other modes are: (1) indicating a point and, (2) delta from a curve end. Indicating a point will change the depth to the ZT value of that point. This allows you to change depth by screen selecting points. Implicit point mode could be used to further enhance this capability.

Implicit Point Mode, Menu 1.11.5, automatically defines points at curve ends, the middle of curves and circle centers. Using Depth Control and Implicit Points together allow you to screen select curves and points to reset depth.

Change work space

Most Isometric Drafting will be done on the three model axes: front, right and top. A combination of changing between these three axes and setting correct depth will be the most common method for controlling the placement of drafting entities.

Define new work space

You will need to define a new work space if you have entities that do not exist on one of the standard eight work spaces automatically defined by the system. Use Menu 8.12, define work space, when you need to define a new work space. Menu 8.12 provides many ways to define new work spaces.

17. N/C MANUFACTURING

--Glossary--

GPG - (generation parameter group) a group of statements used to create a toolpath. This group contains items needed for creating each type of toolpath. The information stored on this group can be prompted for or preset.

Easy Generation - the term used for generating toolpaths using a GPG.

Current GPG - each type of GPG (i.e. pocket, profile...) can only have one file active in the system at any given time. You can change this file by reading a file, picking an existing toolpath that contains a GPG of the correct type, or modifying the current parameters.

N/C Database Update

Major enhancements have been made to the N/C database for the V1.6 release of ICEM DDN. The maximum length of the toolpath has been significantly increased. Multiple toolpath entities for a single operation have been eliminated. Most N/C statements are stored as text data instead of CL file word codes. This allows a more robust post processor word library that can include synonyms.

N/C Toolpath Macro

ICEM DDN V1.6 replaces the previous PP MACRO and N/C MACRO features with a new toolpath macro feature called N/C macro.

N/C macros are stored on text files external to ICEM DDN and can be written either inside ICEM DDN in DISPLAY AND EDIT (17.11), or in an editor external to ICEM DDN. N/C macros can be called from the N/C editor, insert, or in the execute macro menu pick, 17.10.3.

The N/C macro language consists of N/C macro statements, post processor commands, and the statements necessary to define and call N/C macros. An interpreter executes these source commands.

The N/C macro statements provide structures for

1. Conditional branching and looping;
2. Access to run time library variables;
3. Substitution of
   N/C macro calling parameters,
   local N/C macro variables, and
   named points;
4. comments; and
5. variable substitution for INSERT, PARTNO

and PPRINT statements.

There are three different types of CALL statements that can be used in DISPLAY AND EDIT. They are:

1) CALLX - This call statement executes the macro and inserts all of the statements into the toolpath. These statements remain in the toolpath and are always displayed.

2) CALL - This call statement executes the macro and inserts all of the statements into the toolpath. These statements remain in the toolpath and are displayed only when the macro display modal is on.

3) #CALL - This call statement executes the macro and inserts all of the statements into the toolpath. These statements remain in the toolpath and are displayed only when the macro display modal is on. When a CLFiles are created all #CALL macro statements are discarded.

Old PP macros and N/C macros from previous releases may be translated into new N/C macros using the menu pick UPDATE PRE-V1.6 MACROS, 17.10.2.

Numerical Control Tablet Overlay

The NUMERICAL CONTROL tablet overlay has been updated for ICEM DDN V1.60. The changes to the numerical control tablet overlay consist of adding the numerical control features not included on the old tablet overlay as well as a new color and text scheme. The new features on the V1.60 numerical control overlay include:

- Easy Generation
- New editor in Display and Edit
- New CLFILE/CLPRINT and CLFILE modals
- Lathe contouring, drilling and threading
- N/C macros
- Tool Management
- Updated N/C modals

Two of the new features on the numerical control tablet overlay, easy generation and display and edit, require explanation.

Easy Generation

The easy generation feature affects the following toolpath types:

17.2 POINT-TO-POINT

17.3 PROFILE

17.4 POCKET

17.9.2 LATHE CONTOURING

17.9.3 LATHE DRILLING

17.9.4 LATHE THREADING

Under each easy generation toolpath type are six choices on the tablet overlay. Five of these are the standard menu picks common to each easy generation toolpath type. The choice labeled READ GPG "xxx" where "xxx" is PTP for point to point, PRO for profile, POC for pocket, LC for lathe contour, LD for lathe drill and LT for lathe thread, performs a read GPG "xxx". This square will read a GPG with the name "xxx" from the current GPG file. This allows the most frequently used GPG, if saved under name "xxx", to be recalled quickly by selecting this tablet choice.

Example: The tablet choice under PROFILE labeled READ GPG "PRO" will read a GPG off of the current GPG file with the name PRO.

Display and Edit

When using the editor from the numerical control tablet overlay there are facts to be aware of. When selecting the tablet choice labeled "Cmd Mode", the editor modal "EDITOR TYPE" will be set to command mode. Command mode is not supported from the numerical control tablet overlay.

NOTE:

An important fact to remember when editing using the tablet, selecting any tablet choice other than an editor modal or command will abort the current edit session and perform the selected function. This means that ALL EDITING SINCE THE LAST UPDATE COMMAND WILL BE LOST! Selecting a non-editor tablet choice while editing would be the same as selecting QUIT from the UPDATE/QUIT menu without performing the UPDATE command.

The last fact to be aware of is the control U character. While in the editor entering a control U will return you to the main editor menu containing the editor commands. In command mode a control U will prompt for a new command.

17.1 N/C MODALS **enhancement**

N/C modals for ICEM DDN V1.6 have been expanded to include circular interpolation, 3-D toolpath space, generation parameter group (GPG) file name and the editor (display and edit) modals.

17.1.11 CIRCULAR INTERPOLATION **enhancement**

CIRCULAR INTERPOLATION has a new mode that allows CIRCLE statements to be followed by only one GOTO statement. This feature significantly reduces the length of toolpaths with many circles.

17.1.12 3-D TOOLPATH SPACE **new feature**

3-D TOOLPATH SPACE is a new mode that allows toolpath coordinates of 3 and 5 axis toolpaths to be stored and output in any work or view space defined.

17.1.13 GENERATION PARAMETER GROUP FILE **new menu**

The generation parameter group file, also called GPG file, contains the current generation parameter groups. The generation parameter group file modal sets the file name that the system uses when reading or storing generation parameter groups.

17.1.14 EDITOR MODALS (DISPLAY AND EDIT MODALS) **new menu**

The eight modals found in display and edit are the same modals found in menu 17.1.14. Upon setting an editor modal from either location, the change will immediately be in effect in display and edit. For more information refer to 17.11 DISPLAY AND EDIT.

17.2,17.3,17.4,17.9.2,17.9.3,17.9.4 EASY GENERATION INTERFACE **new menu**

This feature makes the creation of toolpaths easy and allows you to tailor the prompts you want to see. This is done by grouping the menu prompts and the modals that are normally used in the creation of a toolpath into a Generation Parameter Group (GPG). The items in this file can then be set to:

1) prompt for the values,
2) prompt using preset values, or
3) do not prompt but use the preset values.

This flexibility allows you to be prompted for items that change frequently, prompted with preset values for those items that change infrequently and to use preset values that rarely change. This feature is incorporated into the Point-To-Point, Profile, Pocket, Lathe Contouring, Lathe Drilling and Lathe Threading menu areas in the 1.60 version of ICEM DDN. Other areas of the N/C package will be added in later versions.

For each machining type there will be one and only one active GPG at any time. All GPGs are similar in operation, but the statements

might have different parameters and syntax. See the appropriate section of the manual for full details.

The first menu you will see when entering any of the affected areas will be:

1.GENERATE TOOLPATH
2.MODIFY GENERATION PARAMETERS
3.READ PARAMETERS FROM TOOLPATH
4.READ PARAMETERS FROM FILE
5.WRITE PARAMETERS TO FILE

1. GENERATE TOOLPATH

This option will require you to select geometry that is appropriate for that area (i.e. points for Point-to-Point area) and answer those prompts that you set in the GPG. The default values for the current GPG are set up to prompt you for those items that you used to be prompted for. The modals that you used to have to set in the N/C Modals section will have default values and will not be prompted for unless you ask to be prompted for them. The default values for the current GPG are set up that way for a novice or first time user who wants to become familiar with the all of the options in a particular area. Once familiar with the prompts you can then modify the current file to meet your needs. The default settings will appear only upon creation of a new part. Once the current file is modified it stays modified until the next time it is changed.

2. MODIFY CURRENT GENERATION PARAMETERS

Each item in the current GPG can be changed using this menu. The menus to change items in the GPG will be similar to the current Regeneration menus for Pocket and Profile. See the specific area in the manual for complete menu descriptions.

3. READ PARAMETERS FROM TOOLPATH

This option is used to select a toolpath that is same type and has a GPG. Then this GPG can be read into the current GPG. The items that were used to create the selected toolpath will be used to create a new toolpath. This option is similar to the current Regeneration feature. One of the differences is that the geometry used to create the selected toolpath will not be retained for creating the new toolpath. You must select the geometry for every toolpath that is created. The one exception is Point-to-Point. See the Point-To-Point manual section. The existing toolpath will contain only the values used in creation. Whether or not you were prompted for the values or used preset values is not known once the toolpath is created. If you wish to be prompted for certain values you must modify the current GPG.

4. READ PARAMETERS FROM FILE

This option will allow you to read a fixed formatted file into the current GPG. This file can be created inside ICEM DDN by writing out the current GPG and then editing the file using the new N/C editor or outside the system using an existing editor. The file need not contain all of the items needed to generate a given type of toolpath. The system will retain the current GPG settings for the items which do not appear in the file. The two items every GPG needs is the first line (STRGPG/name,type) that defines what kind of toolpath the GPG will be used for, and the last line (ENDGPG) that ends the GPG.

When a file is to be read into the current GPG, the system will look in the file name that is in the main N/C Modals section. The default name will be GPGFIL. This name can be changed using 17.1.13 GENERATION PARAMTER FILE.

If errors are found during the reading of a GPG you must then go to the N/C editor or a system editor to look at the file GPGERR. The statements on this file were found to be in error. There are no real error diagnostics in this release. In order to find out what is wrong with the statement see the syntax description in the manual. If there are errors encountered while reading in a GPG from a file, none of the items are updated. That means that whatever values the current GPG had before reading are still there.

5. WRITE PARAMETERS TO FILE

This option will write the current GPG out to the current file containing GPGs. This file then can be edited or saved for later use. The system will check the name of the current GPG to make sure that no other GPG on that file has the same name and type.

These are the syntax rules that control GPGs. Uppercase words that appear before the slash are parameter keywords. Uppercase words that follow the slash are options for that keyword. Lowercase words that follow the slash represent a value that appears as input to the option selected. Words that are encased in brackets are optional. An example is the word PROMPT. If prompt is encased in brackets the user has the option to set default values and be prompted for that item with the default value. Some keywords have the word STAT as an option. If this option is selected the APT statement that is associated with the keyword will appear in the toolpath. For example, if the STOLER keyword has the STAT option turned on the APT statements INTOL/intol and OUTTOL/outtol will appear in the toolpath. If the word STAT does not appear in the STOLER keyword statement those APT statements will not appear in the toolpath. The system will still use the values 'intol' and 'outtol' in the calculation of toolpath points. The GPG is a fixed format structure. That means that if a minor word needs a value that value must follow the minor word. Example: SDEPTH/ABS,z not SDEPTH/z,ABS. Any geometry that is used, such as points for the From position, must be named. GPGs will not store pointers to entities only names of entities. See manual for complete statement descriptions.

Files external to ICEM DDN can be used. These files need to be 'local' for the CYBER 170 environment. For the CYBER 120 or 180 environment they need only exist in the catalog. If changes are made to these files you must replace the 'local' copy on the CYBER 170. Changes made on the CYBER 120 or 180 are permanent. A new entity type will be created to store the easy generation information in a toolpath.

17.9.1 LATHE ROUGHING **enhancement**

Lathe Roughing has not changed substantially from V1.57. The user interface works the same as previously (not a GPG style interface). The major changes are in the way Pre-generation Inserts are entered and the terminology for Check and Drive lines.

17.9.2 LATHE CONTOURING **new feature**

Lathe Contouring is new for V1.6 and is a replacement for the pre-V1.6 operations of Finish and Semi-finish. The Lathe Contouring operation has the new Generation Parameter Group (GPG) style user interface (See Easy Generation description). The major functional enhancements are:

- Single entity cut - you now have control over the direction of cut on a single entity
- Tool Insert Compensation - toolpath processing takes into account the shape of the tool insert to avoid gouging the part
- Improved Containment - Check and Drive lines have expanded options and flexibility
- Entry and Exit motions - ability to enter or exit the cut by either (or both) a straight line move or an arc move, and add a cut path extension before making the motion
- Intermediate Retract Moves - added options of existing points, auto x,y move, or single move back to the next pass

17.9.3 LATHE DRILLING **enhancement**

The functional capabilities of the drilling are the same as pre-V1.6. The major enhancement is the addition of the Generation Parameter Group style user interface. (See Easy Generation description for details).

17.9.4 LATHE THREADING **enhancement**

The major enhancement to Threading is the addition of the Generation Parameter Group style user interface, (see Easy Generation description for details). Other feature capability enhancements include the addition of Finish passes and

Pre-Generation Inserts. Finish passes come between the Cut and Spring passes, have their own approach angle, and are of a user-defined size. The inserts for threading have been changed to allow the addition of user defined statements between Spring passes. The system will no longer automatically add OPSTOP statements.

17.10.1 TOOL AND HOLDER IMAGE DEFINITION **enhancement**

Improvements were made for defining the displayed tool images. Previously, the image was defined by the default shape of the tool used to generate the toolpath. The new feature includes:

- Option of defining the tool and holder images with ICEM DDN curves (e.g. lines, arcs, conics, splines) or using default tool shapes.
- Creation of separate tool and holder images.
- Definition of tool and holder display geometry as either rotating (similar to a surface of revolution) or non-rotating.
- Selection of reference points on images.
- Selection of tool and holder image colors.

17.11 DISPLAY AND EDIT **enhancement**

Several enhancements made to Display and Edit include

- String searches and replacements.
- Copying from another file or toolpath.
- User defined tool and holder display.
- Trace lines.
- N/C statement verification.
- Macro execution.
- Toolpath transformation.
- Two modes of editing -- menu or command.
- Editing larger toolpaths.
- Resequencing line numbers.
- Text file editing.

Two features no longer in the editor are delete until an indicated

check curve, and proceed until an indicated check curve.

17.11.11 TOOL MOTION DISPLAY **enhancement**

Improvements were made to display the tool motion along the toolpath. Previously, the only tool motion display in ICEM DDN consisted of the default tool shape drawn at each point on the toolpath. The new feature includes:

- Option of creating a dynamic tool display by drawing and erasing the tool image or creating a static tool display by leaving all tool images on the screen. The dynamic option is limited to raster refresh terminals only.

- Option of drawing trace lines that connect tool images. This option is limited to the tool radius on parallel views.

- Option of drawing equally spaced tool images on the toolpath.

- Selection and display control of the tool and holder images with toolpath statements.

17.17 CLFILE/CLPRINT **enhancements**

- The use of the CLFILE/CLPRINT feature is now governed by modal settings. One part sets the general modes, another the postprocessing modes.

- The CL file editor is discontinued in V1.6. Editing must now be done at the toolpath level.

- The CL file create now also features a postprocessing submit capability.

- An APT IV processor compatible CL data output is added.

- A COMPACT II processor source data output is now available.

17.17.1 MODAL SETTINGS **enhancement**

The modal settings allow you to reduce to a minimum the interaction when creating or interpreting a CL file.

Some modes, previously set through user interaction at each run, now fully operate from the modal settings:

- Input and output formats

- Circle record formats

- o Display control
- o STOP commands

The other modes will, depending on their setting, result in user interaction. They include the added capability of name prompts for the input and output files used.

- o Input and output files
- o PARTNO prompt control
- o Translation and scale

17.17.2 CREATE **enhancement**

You create CL data output through first, (optionally) setting some parameters: PARTNO text, CLTAPE and CLPRINT file names, the postprocessor name and translate and scale parameters. Then you select the toolpath or toolpaths from which a CL file is desired. A message tells you then what output is selected. The CL data display, also modally controlled, is done in the current views, using the toolpath transform data.

17.17.3 INTERPRET **enhancement**

With this option you can display CL data from a local file. The prompt for the file name and the display are optional and modal. The display again uses the existing views. The CL data is transformed using the same data as for creating a toolpath at the moment of the interpretation. Then you are asked if you wish to generate a toolpath from the CL data.

17.17.4 COMPACT II **new feature**

This feature allows you to generate COMPACT II processor compatible data from a selection of toolpaths. The user interface is fixed and has no modal settings.

17.17.4 POSTPROCESSOR EXECUTION **new feature**

With this selection you set the modes used for the postprocessor job execution during a CL file create. The option can be set on or off. The postprocessor name can be modally set, prompted for, or read from the toolpath. A postprocessor library must be local and contains the information for the job submission.

18. ANALYSIS

18.1.6 EXTENDED ANALYSIS **enhancement**

The following changes have been made to EXTENDED ANALYSIS.

- Dashes will be printed in place of zeroes for items in the chart that are valueless (e.g. the previous segment slope for the first segment).
- Slope and alpha are redefined entirely and other angles are adjusted to be in the -180 to 180 range in place of the 0 to 360 range.
- Headings for the output of charts to the line printer (TAPE4) were revised and new I/O tools were implemented.

19. SI/US/RESIZE

No feature enhancements.

APPENDIX A: OUTSTANDING PROGRAMMING SYSTEM ERRORS (PSRs)

This section contains a list of known problems in ICEM DDN V1.6.

PRIORITY CODE: C=CRITICAL
U=URGENT
S=SERIOUS
M=MINOR

PSR NO.	PRIORITY	PROBLEM ABSTRACT
AD2A274A	S	(17.13) 3-AXIS FLANGE IS GENERATING INCORRECT TOOL PATHS FOR
AD2A275A	M	(7.1) TOOL PATHS SWITCHED FOR TWO VIEW DISPLAY
AD2A276A	S	(17.12) SURFACING WITH MULTIPLE ISLANDS FAILS
AD2A344B	M	(12.8.2) TRIM OF AN ARC IN A VIEW 1 TO ARC DOESN'T WORK
AD2A417A	M	(10.11&12) LINE FUNCTION FAILS WHEN IN VIEW DIFFERENT FROM CURVE.
AD2A433	M	*RESCALE ON NOTE FAILS (4114).
AD2A451	U	*SMALL CIRCLES CAUSE CIRCLE RECORD PROBLEMS IN CLFILE.
AD2A467	S	MULTI VIEWS AND OFFSCREEN ENTITY HAS PROBLEMS IN SELECTION.
AD2A471	S	SHIFT HOME DURING CURSOR-POISITIONING UNPREDICTABLE.
AD2A474	S	UNWRAPED FEATURE GENERATED OUTSIDE LAYOUT BOUNDARY.
AD2A475	U	CHANGING DATA BASE LIBRARY LOCAL FILE NAME CAN ABORT CD/2000.
AD2A476	U	(06.06) CY120-CY270 CAN'T SHARE PARTS CONTAINING FORMAT VIEW.
AD2A482	M	(TERMINAL) 4114/ADM3 THE < AND > MARKS GET INCREMENTED TO THE RIGHT
AD2A483	M	(6.1) PARTS WITH THREE AND FOUR DIGIT SHEET NUMBERS OVERPRINT.
AD2A488	U	(5.10) LDF NOT UPDATED WHEN NESTING TEMPLATE IS MODIFIED.
AD2A491	S	(17.1.13) INTERNAL CORNERS DOESN'T WORK.
AD2A492	S	(17.9) SEMI FINISHES LATHE FAILS TO FOLLOW BOUNDARY WHILE IN GROOVE.
AD2A506	S	(15.1.7.2) CLOSURE END CONDITION CAN LEAD TO INCORRECT.
AD2A507	U	(MANUAL)DESCRIPTION NON STANDARD AND CONFUSING IN 8.6.15 CHANGE PAGE.
AD2A513	U	(17.4) STEP-OVER IN POCKET LEAVES MATERIAL.
AD2A525	S	(17.2.2) PITCH DOES NOT WORK AS DOCUMENTED.
AD2A526	M	(12.3.6) AT INDICATE PT. FOR RHO -- OP REJECT WONT BACK YOU OUT.
AD2A529	M	(6.5.4) OP.REJECT BOUNCES TOO FAR
AD2A537	M	(5.2.3) WHEN AN ERROR OCCURS, MENUS GET TURNED OFF.
AD2A539	M	(5.2.3.2) ERROR MSSAGE ON 721--OUTPUT TOO BIG FOR UTF--OUTSIDE DIALOG
AD2A540	U	(17.11) BAD POINTER IN DISPLAY AND EDIT.
AD2A549	U	(15.2.13) (9.15) FILLET SURFACES CAN NOT BE USED IN THESE MENUS
AD2A551	S	(F.12.1.5.3) CHAIN SELECT
AD2A564	C	(11.9) BAD FILLET ARCS PRODUCED IN AUXILLARY WORK VIEW
AD2A567A	M	TRACE FILES FROM ONE TRMINAL DO NOT WORK ON OTHER TYPES
AD2A574	S	UNSUCCESSFUL AT MIRRORING OF A NOTE
AD2A586	M	NO RESCALE WHEN DISPLAYING ENTITIES WITH ATTENTION ON

AD2A587	M	MODIFY/REPLACE VECTOR, LDF NOT UPDATED
AD2A589	U	CURVED MESH SURFACES THAT ARE DEFINED WITH 30 VARIABLE CURVES ABORT
AD2A596	S	GPL INTOF RETURNS PT OF INTERSECTION BETWEEN PARALLEL LINES
AD2A597	S	RESIZE DOES NOT WORK RIGHT ON DIMENSIONS WITH FRACTIONS
AD2A599	S	MENU CHOICES LIKE 00, 111 AND 88 ARE ACCEPTED
AD2A602	S	RHO AND LOFT CONICS CANNOT BE CONSTRUCTED UNDER PRESENT CODE
AD2A603	M	AN [TO LEVEL CHANGE REQUEST RETURNS TO ENTITY SELECTION
AD2A612	M	NO HELP MESSAGES IN ANALYSIS AREA
AD2A614	C	TRANSLATION BY REGION FAILS TO MOVE ALL ENTITIES
AD2A616	M	MODIFY DRAFTING ENT. REPLACE STRING 'NO MATCH FOUND'
AD2A626	C	PART MERGE FAILS ON THE PART NAMED GM SHEET 1
AD2A627	C	VIEW 4 CAME UP ON A DIFFERENT SCREEN LOCATION EACH TIME
AD2A628	U	TEK 4105/7/9 TERMINALS DO NOT DISPLAY ALL LISTS CORRECTLY
AD2A629	S	SURFACES NOT BEING BLANKED WHEN CREATING COMPOSITE SURF
AD2A630	M	DIMENSION USING FRACTION MODAL IN GPL IS OFF-CENTER
AD2A631	S	GPL LINEAR DIMENSIONS HAVE INCORRECT ARROWS AND DIMENSION LINES
AD2A635	C	GET ERROR MESSAGE IN ROUGHING IN LATHE
AD2A636	S	MILLINGVIOLATES CONTAINMENT (PROBABLY AN OLD PROBLEM)
AD2A637	U	TRIM TWO ENDS WITH SPLINE AS BOUNDARY FAILS
AD2A647	S	THE EXIT ARC IS NOT TANGENT TO BOUNDARY IN PROFILE OPERATION
AD2A653	S	13.6 ROTATION OF A 3-D SPLINE DOES NOT WORK CORRECTLY
AD2A654	M	12.4.6 STING BEARING DEGREE ENTRY NOT TURNED ON
AD2A656	S	REPAINT INCORRECTLY DISPLAYS CLIPPED ENTITIES
AD2A658	S	F9.9 POINT AT INTERSECTION DOES NOT WORK WITH MACHINING CURVE
AD2A659	S	6.1.10 IPARTD RETRIEVE LOSES SELECTIVE VIEW BLANK INFO
AD2A660	S	POINTS OUTSIDE OF E-CLIP RANGE MAY BE SELECTED
AD2A661	M	MANUAL DON'T SPECIFY DEFAULT WORK VIEW WHEN DISPLAYING MULTIPLE VIEWS
AD2A667	M	REDUNDANT PARAMETER SPECIFICATION IS NOT HANDLED PROPERLY
AD2A6743	M	CURVE MESH SURFACE-CURVE LIMIT
AD2A6753	S	UAE ERROR WHEN DELETING ALL WITH A GROUP AND RECTANGULAR ARRAY
AD2A6847	M	TEK 4105 DOES NOT RUN TEST SCRIPT VERY WELL
AD2A6907	S	MAJOR DIAMETER CANNOT BE MODIFIED FOR LINE PASS THRU THE ORIGIN
AD2A6927	U	PART MERGE DOES NOT CONVERT ENGLISH TO METRIC UNITS
AD2A6937	M	ARROW ON A RADIUS DIMENSION DISPLAYS INCORRECTLY IN SPECIAL CASE
AD2A6947	M	LABEL USING SLOPE METHOD POINTS TO THIN AIR
AD2A6987	M	ARC THROUGH 3 PTS CREATES LINE WITHOUT WARNING USER
AD2A6997	S	VERTICAL LDIMEN DIMENSION LINES
AD2A7047	S	AUTO GRAPL GENERAT_ES BAD ENTITY NAME
AD2A7057	M	USER DEFINED SYMBOL LIST AND DISPLAY
AD2A7117	M	RETRIEVE NAMED ZOOM FROM DIFFERENT VIEW
AD2A7127	S	DOCUMENTATION OF CHANGE PAGE "OVERLAP"
AD2A7177	S	DOCUMENTATION OF ZOOM FROM HARD COPY
AD2A7197	S	LOWER LEFT AND SCALE MENU 8.6.5 DOESN'T WORK IF SCALE IS ACCEPTED
AD2A720	S	A CHECK CURVE LOCATED AT THE END OF AN ENTITY IS
AD2A721	S	IN LATHE ROUGHING, THE FACING OPTION IGNORES THE VALUE
AD2A723	C	LINES TO STRING CONVERSION RE-ORIENTS GEOMETRY TO CURRENT DEPTH
AD2A7267	M	F.8.10.1 Z-CLIP VALVES ARE INCORRECTLY DEFAULTED
AD2A7277	M	F.8.10.1 Z-CLIP REQUIRES VIEW REDEFINITION TO DISPLAY
AD2A728	S	USERS MAY INADVERTANTLY DEFINE PATTERN LIB FILES AS GLOBAL PART FILES
AD2A731	S	DUPLICATE/TRANSLATE AN HLR'D PART
AD2A732	U	MULTIPLE FORMAT VIEWS
AD2A7330	M	PLOT COMPLETE MESSAGE DISPLAY WHEN EXIT WITH NO PLOT
AD2A7340	M	PROBLEM WITH] AT END OF VIEW NAME
AD2A7350	S	COORDINATES OF A TEMPLATE IN A MERGED PART ARE NOT ALWAYS CORRECT

AD2A7360	S	TOOL AXIS IS INCORRECT WHEN SURFACE NORMAL IS CHOSEN
AD2A7420	S	SURFACE PIERCE POINT FAILS ON A HALF SPHERE
AD2A7430	M	IN OFFSET CURVE, OFFSET DISTANCE DATA REQ SHOULD BE SPELLED OUT
AD2A7440	M	DBM TABLET HAS REGENERATE ALL SQUARES DEFINED INCORRECTLY
AD2A7450	M	DC TABLET HAS MISLEADING LABEL FOR COLOR BY ENTITY TYPE
AD2A7460	M	DIFFERENCE IN DISPLAY 2 VIEWS BETWEEN MAIN AND DC OVERLAYS
AD2A7470	S	DC TABLET HAS ALIGNMENT SCALE SET TO REF SAME AS UNCHANGED
AD2A7480	M	ATTENTION INDICATORS DON'T GO AWAY AFTER DONE WITH FILLET
AD2A753	M	GTGT ISSUE WARNING FOR ASSIGNMENT
AD2A7540	M	GTGT WARNING MESSAGE FOR UNNECESSARY SUBSCRIPT
AD2A7550	M	GTGT DOESN'T CATCH ALL ATTRIB STATEMENTS THAT ARE VALID
AD2A7560	M	GTGT ISSUES UNNECCESSARY WARNING
AD2A7570	S	RESTORE RETRIEVE MODAL SETS THE DEFAULT ROTATION AXIS TO X
AD2A7580	M	DUAL DIMENSION TEXT BRACKETS ARE MISPLACED ON THE RIGHT
AD2A7590	M	SMALL FRACTIONAL TOLERANCES ARE BLANK, SHOULD READ ZERO
AD2A7600	S	ARC LENGTH IN BACK VIEW FAULTY
AD2A7610	S	ARC LENGTH DIM. DONE ON ARCS OF 180 DEG. ARE INCORRECT
AD2A762	C	UAE IN INCREMENTAL POINTS
AD2A7630	S	2D OFFSET CURVE DREW AN ERRATIC CURVE & CONTINUED NORMALLY
AD2A7640	S	FILLET CREATES ARC IN WRONG QUAD OF INTERSECTION
AD2A765	S	OFFSET CURVES WITH ZERO OFFSET DOES NOT WORK
AD2A7660	S	FILLET DOESN'T TRIM EXTEND PROPERLY
AD2A7670	S	SMALL FILLET IS CREATED IN WRONG QUADRANT
AD2A7680	S	TRIM TWO CURVES TRIMS OFF WRONG END OF ONE CURVE
AD2A7690	U	FILLET OF FILLETED ARCS SENDS USER TO DBM
AD2A7700	S	THE LARGE TABLET DIGITIZER DOES NOT WORK CORRECTLY
AD2A7710	M	EMBEDDED TEXT GETS ECHOED TWICE
AD2A7720	S	[AND] AREN'T HANDLED PROPERLY IN ATTRIBUTE REPORTS
AD2A7730	M	AUTO MAX/MIN CUTS OFF ARCS IN RECT ARRAY WHEN AT EDGE
AD2A7740	U	GAP IN OFFSET SURFACE CURVE
AD2A7750	U	INTERSECTION POINT BETWEEN DRAFT CURVE AND LINE IS INCORRECT
AD2A7760	U	SSI WILL NOT FIND AN INTERSECTION CURVE
AD2A7770	C	3D ANALYSIS RESULTS INCORRECT
AD2A7780	S	ALL 2D ANALYSIS IS DISPLAYED IN INCHES WHEN IN FT/IN STDS
AD2A7790	U	PRINCIPLE AXES ANGLES ERROR IN 2D ANALYSIS
AD2A7800	S	DATA VERIFY
AD2A7810	M	ATTENTION INDICATOR FROM THE BEGINNING OF STRING REMAINS
AD2A7820	C	DISPLAYING TEXT IN 4 STD. VIEWS BLOWS ZOOM SCALE TO INFINITY
AD2A7830	M	DRAFTING ENTITIES CHOSEN FROM VIEW8 DISPLAY INDICATORS WRNG
AD2A7840	M	DELETING A DIMENSION WITH ISO DRAFTING MODEL SET
AD2A7850	S	SPACING OF VERTICAL DIMENSIONS WRONG WHEN PAR LIN DIM
AD2A786	S	FT/INCHES NOT DISPLAYED OR CANNOT BE ENTERED
AD2A7870	S	SOME CORRESPONDING KEYS FOR USER DEF SYMBOLS ARE UNUSABLE.
AD2A7880	S	DIMENSION TEXT PLACEMENT ERRORS
AD2A7890	U	PROBLEM WITH CENTERING DIM TEXT WHEN MODIFY TEXT ORIGIN
AD2A7900	S	SPLINE PRINTOUTS HAVE BAD DATA FOR NORMAL AND ALPHA ANGLES
AD2A7910	M	WITH SINGLE SELECT FROM GROUP ON CONSTRNT SET SELECTS GROUP
AD2A7920	S	ZOOM WITH AUTO MAX/MIN
AD2A7930	C	9-DRILL. INCORRECT PULLOUT FEEDRATE WHEN MODIFIED IN GPG
AD2A7940	C	9-CONT. INCORRECT TOOLPATH WHEN ALL GPG VALUES ARE MODIFIED
AD2A7950	C	CONTOURING MODIFY GPG- TOOLSIDE COORDS LOST
AD2A7960	M	THREADING MODIFY GPG THREAD SIZE/PASSES HAS BAD PROMPT
AD2A7970	S	DRIVE LINE PROBLEMS IN LATHE CONTOUR
AD2A7980	S	COPY PASS LINE LIMIT CAUSE THE SYSTEM TO BLOW-UP

AD2A7990	C	TEXT DISPLAY IN DIALOG AREA AND DYNAMIC TOOL DISPLAY GIVE ERROR
AD2A8000	S	IN COMMAND MODE, MATRIX COPY FROM FILE AND TOOLPATH FAILS
AD2A8010	S	MACROS USING A LITERAL STRING INSIDE OF AN IF STATEMENT
AD2A8020	U	2-SURF.PRO. - 'PAR.DRI.SURF.' SHOULD ALLOW USER TO SELECT U OR V-PATH
AD2A8030	S	SYS-AID CALLED IN 3-D ANALYSIS (18.4.1.1)
AD2A8040	U	GPL BULK STATEMENT WILL NOT EXECUTE
AD2A8050	U	REOPENING PTR 60R694 - COPY OPTION IN DISPLAY AND EDIT
AD2A8060	U	F.15.3.13 COMPOSITE SURFACE RETURNS INCORRECT RESULT
AD2A807	U	F.15.3.13 COMPOSITE SURFACE SELECTION HANGS IN LOOP
AD2A808	U	DIMENSION LEADERS & WITNESS LINES MAY TRANSLATE AS NON-SOLID FONTED
AD2A809	S	LEADERS CREATED IN METRIC MODE W PART UNIT>TO ENGLISH UNIT EXTRA LONG
AD20330	U	(BAD PNTR) PROBLEMS WITH DELETED USED-IN-DEFINITION ENTITIES.
AD20395	U	(16.14)DETAIL MAGS APPEAR IN ALL VIEWS RATHER THAN SINGLE
AD20433	U	(15.2.7)FILLET SURFACE ONLY HALF GENERATED BETWEEN PLANE AND DRAFT SU
AD20457	M	(10.4/12.11)LINE TANTO 2 ARCS WOULD NOT HIDDEN LINE REMOVE: NO INTRS.
AD20460	S	(15.2.7)FILLET DID NOT COMPLETE BETWEEN TAB CYL AND RULED SURFACE.
AD20527	M	(12.3.5)LOFT CONIC THROUGH THREE POINTS INCONSISTENT.
AD20554	S	*(1.10/6.2.2) PATTERN PROBLEM WITH SELECTIVE BLANKING
AD20577B	U	(17.5) COMPOSITE SURFACES DO NOT MACHINE
AD20586	U	(7.9) REGENERATE ALL USING STRING, FILLET, CROSS HATCH GIVES
AD20638	M	(DIGITIZE) EVENTUALLY LOST THE ABILITY TO DIGITIZE CERTAIN ENTITIES.
AD20679	S	(18.2) MULTI-CURVE ANALYTIC AREA IS NOT CONSISTENT.
AD20803	C	(17)CD/2000 ABORTS DURING PATH OF RULED SURFACE.
AD20812	S	(5.2.3) VIEW CHANGES IN AUTO GRAPL ON CIRCS WITH YZ ROT OF 180.
AD20826	S	*(17.6/7.1) WRONG DIRECTION FOR CLFILE TOOL AXIS VECTOR.
AD20845	S	*BACKSPACE DOESN'T ERASE CHARACTER WITH TABLET, ALPHA, 4016,GTA-1.
AD20898	U	*DRAFTING - DETAIL MAG IS DISPLAYED IN ALL VIEWS, NOT JUST ONE.
AD20912	S	*NC - LATHE ROUGHING FACE CUT ORIGIN IS AMBIGUOUS.
AD20961	S	*16.12-BOLT CIRCLE WILL NOT DISPLAY PROPERLY ON A MIRRORED CIRC.ARRAY
AD21002	U	*(3.3.3.1)ENTITIES OUTSIDE OF REGION PICKED FOR DELETION.
AD21026	S	(7.2)PLOT-UNIPLOT-5"GAP CAUSES PLOT INACCURACIES RELATED TO USE OF
AD21033	U	*SURFACE PIERCE PT DOES NOT ALWAYS FUNCTION.
AD21042	S	*GRAIOF INPUT GUTF/TEK 4014 NO ERROR OUTPUT DURING COMPILE.
AD21063	S	*SYMBOL DEFINE OR REPLACE.
AD21064	S	*BLANK AND UNBLANK ENTITIES FROM A MERGED DRAWING.
AD21071	S	CD-2000 NC LATHE AND MILLING PROBLEMS.
AD21075	S	*PLATE NESTING DOES NOT WORK.
AD21076	S	*PROBLEMS DURING ROTATION OF SURFACES.
AD21086	S	DEGREE SYMBOLS CHANGED TO DASH AFTER MERGE
AD21087	C	*TRUE INTERSECTION POINT OF TWO LINES F.9.9.4.
AD21106	S	*PACK 6.1.8 PREVIOUS TO IGES IN/OUT.
AD21133	U	*(16.3) CROSSHATCHING.
AD21152	U	PART MERGE LOSES EXTENDED GEOMETRY (6.1.7)
AD21155	U	6.1.7 PART MERGE LOSES SOME EXTENDED GEOMETRY
AD21159	M	*CHANGE VIEWS - RIGHT/LEFT DOESN'T SCALE CORRECTLY.
AD21165	U	(10.4) LINE TANGENT TO 2 ARCS GO TO WRONG SIDE OF ARCS
AD21174	U	*PROGRAM STOPS ACCEPTING SCREEN POSITIONS.
AD21183	S	TITLE BLOCK OVERLAY
AD21193	U	CANNOT USE COMPOSITE CURVE AS DRIVE OR CHECK CURVE
AD21196	S	TERMINAL 4115B BAD CUT VECTORS IN LDF.
AD21198	U	LATHE ROUGH BORE PLACES ROUGH STOCK OFFSET ON WRONG SIDE(1.49X)
AD21203	U	BAD CLFILE OUTPUT OF AN ABSOLUTE TOOLPATH DATA BLOCK(1.49X)
AD21206	U	VARIOUS PROBLEMS WITH COMPOSITE SURFACES(1.49X)
AD21216	U	*"PACK PART" CAUSED DISPLAY TO DISAPPEAR WHEN REPAINT OR ZOOM.

AD21248	S	*FLAME CUTTING, MENU F.17.15 - DEFINED CIRCLES.
AD21250	U	*FLAME CUTTING, MENU F.17.15 - REZERO CUT.
AD21251	U	*FLAME CUTTING, MENU F.17.15, MARK AND FAST MARK.
AD21252	U	*ZOOM AUTO MAX/MIN DOES NOT WORK IF AN INFINITE LINE IS PRESENT.
AD21263	S	CIO MESSAGES ON NOS/BE SYSTEMS
AD21291	S	INCONSISTENT DEFINITION OF PARAMETER IN POINT ON A CURVE OPTION.
AD21335	C	*LOSS OF SCALE DURING LAYOUT CONSTRUCTION.
AD21341	U	(7.10) BULKIN DATA EXECUTION IS 10 TIMES SLOWER IN 1.50 THAN 1.45
AD21347	U	BAD MOVE AND FAULTY CIRCLE RECORDS IN CLFILE
AD21353	U	TRIMMING OF LINES AT ARC NORMAL TO VIEW IS WRONG.
AD21357	C	VIEW MATRICES ARE NOT CHECKED SUFFICIENTLY.
AD21359	U	*** TOO MANY "UNNECESSARY" OP COMPLETES REQUIRED ON DATA ENTRY
AD21362	S	*** SUBTRACTIVE COLOR TABLE MANIPULATION SEEMS AWKWARD/INCOMPATIBLE
AD21458	U	SPIKES ACROSS THE SCREEN ON 4115 TERMINAL
AD21472	S	CROSSHAIRS DO NOT RETURN TO ACTIVE IF TERMINAL LOCKS UP ON A 4115
AD21476	U	TRIM MULTIPLE CURVES TO A BOUNDARY PRODUCES IMPROPER RESULTS
AD21482	S	LATHE ROUGH FACING OFTEN FAIL
AD21486	U	BAD PATH USING BOUNDRY THAT HAS SOME SMALL (.0005") GAPS
AD21488	U	TEKTRONIX 4115 DISPLAY CHARACTER SIZE IS CHANGED WHEN CD2000 IS EXITE
AD21497	U	STRING MADE FROM TRANSLATED ENTITIES SCREWS UP REION SELECT
AD21499	C	TRIMMING OF INFINITE LINES IS WRONG.
AD22039	U	CONICS DISPLAY VLAUES AE INCONSISTANT BETWEEN METRIC AND ENGLISH
AD22046	U	RESULT OF PART MERGE IS INCOMPLETE (6.1.7)
AD22052	U	(F.17.9) ICEM N/C LATHE FINISH STOCK
AD22054	S	*CD2000 NC PROBLEMS.
AD22058	S	DUPLICATIONS OF NON-DELETABLE ARE FLAGGED AS NON-DELETABLE.
AD22060	C	DISPLAY PREVIOUS LAYOUT
AD22061	C	DELETABLE STATUS CHANGED INCORRECTLY
AD22065	U	HIDDEN LINE REMOVAL DOESNT WORK ON MACHING CURVES
AD22074	S	*SUPPORT OF TEK4109 WITH TABLET TEK4957 BY ICEM PRODUCTS.
AD22085	S	NO CIRCLE RECORD OUTPUTTED FOR LATHE ROUGHING
AD22112	U	DISPLAY TOLERANCE TO CIRCULAR ARRAY
AD22115	M	(17.15) FLAMECUTTING GENERATES WRONG TOOLPATH
AD22116	M	(7.1) N/C CIRCULAR INTERPOLATION FINDS WRONG RADIUS AND CENTER
AD22117	M	INCORRECT OUTPUT OF TOOLNO AND FEEDRATE VALUES AFTER 30 POINT CUT
AD22121	U	CD2000 REQUIRES EXTRA CARRIAGE RETURN W/L=0 AND TB=Y PARAMETERS
AD22123	C	"NC MODAL TOLERANCE" ADVERSELY AFFECTS TOOLPATH DISPLAY
AD22148	C	WEIGHT/UNIT LENGTH INCORRECT FOR SURFACES ROTATED ABOUT LINES
AD22155	M	SELECTION LINING WITH ELLIPSE AS A BOUNDARY NOT WORKING
AD22162	M	MIRROR OF TEXT TURNS TEXT UPSIDE DOWN
AD22182	C	THE INITIAL PAINT FOR SEVERAL OF THE PARTS ON MY TAPE3 BOMBS OUT
AD22183	S	*PROBLEM IN UNWRAP FEATURE
AD22189	U	CD2K SHOULD NOT ALLOW APPLICATION KEYWORDS IN GLOBAL FILENAMES
AD22190	C	3 - AXIS TOOLPATH IS WRONG
AD22193	U	ENTITY SELECTION IN VIEWS OTHER THAN THE WORKING VIEW
AD22195	U	LINES MODIFIED TO INFINITE LENGTH DON'T DATA VERIFY AS INFINITE
AD22198	U	MULTIPLE VIEW PLOTTING MODE IN MENU 7.2
AD22202	S	PROBLEM WITH 3-D ANALYSIS MENU 18.4
AD22204	U	PROBLEMS WITH ELLIPSES - GENERATION AND OFFSETS
AD22213	U	(F.8.7.11) UNABLE TO FORMAT A SINGLE VIEW.
AD22220	C	ENTITY MANIPULATION REQUIRES TOO MUCH REPEAT INPUT.
AD22225	U	CANNOT WORK AROUND GOTOER.MESSAGE IN DDN 1.5.0
AD22226	S	(F.17.15)FLAME CUTTING GENERATES WRONG ENTRY AND EXIT TOOL PATH
AD22227	U	(F.17.15)FLAME CUTTING GENERATES WRONG TOOL PATH.

AD22228	S	(F.17.15.)FLAME CUTTING GENERATES WRONG TOOL PATH.
AD22229	U	(F.7.1) PROBLEM WITH CIRCULAR-INTERPOLATION IN FLAME CUTTING.
AD22230	U	(F.7.1)PROBLEM WITH CIRCULAR INTERPOLATION IN FLAME CUTTING.
AD22240	U	SOLID LINES BECOME DASHED LINES
AD22241	S	CIRCULAR ENTRY/EXIT CUT WRONG (FLAME CUTTING).
AD22242	S	*UNCOMPLETE FILLET SURFACE.
AD22249	C	PART MERGE NOT WORKING PROPERLY
AD22251	S	INTERNAL CORNERS DOES NOT WORK
AD22254	S	TANGENTIAL CUTTING DOES NOT CHECK FOR GEOMETRY VIOLATION
AD22258	M	SCREEN BLANKS ON 4114 TERMINAL WHEN CREATING A PRINTR FILE IN CLFILE
AD22266	U	CANNOT GENERATE ROUGH LATHE TOOLPATH WITH .03 RAD AND DEPTH OF CUT .0
AD22272	U	3-SURFACE PROFILE TOOL AXIS PARALLEL TO DS GIVES BAD RESULTS.
AD22291	S	F.5.9.2 LINE TANTO CURVE HAS DISPLAY PROBLEM
AD22292	M	F.12.8.1 TRIM ONE END ON INFINITE LINES WORKS INCORRECTLY
AD22293	U	F.9.15 SURFACE POINTS PRODUCE ERRONEOUS VALUES USING NORMAL & PIERCE
AD22297	C	ICEM-DDN V1.53 BULKIN INPUT 10 TIMES SLOWER THAN IN V1.45 AND RESERVE
AD22299	U	16.13.4 MODE ERROR WHEN ADDING TOLERANCE TO A DRAWING
AD22300	U	BLANKED ENTITIES TRANSLATED/CHANGED LEVEL BY DUPL/TRANS OTHER ENTITIE
AD22302	U	GOTOER. CALLED MESSAGE WHEN TRYING TO REPAINT BY CHANGING ZOOM.
AD22303	C	SCREEN SELECT IS PICKING BLANKED ENTITIES NOT ELIGIBLE IN CURRENT TAS
AD22305	U	DATA CAPTURE CORRUPTS THE RUN TIME LIBRARY.
AD22309	U	PERFORMANCE PROBLEM WITH SURFACE MILLING
AD22311	S	NO "RESCALE?" REQUEST AFTER UNBLANKING
AD22312	C	FILLET W/SPLINE & LINE FILES
AD22314	C	2-D OFFSET OF A 2-D SPLINE
AD22315	C	DELETE BY LEVEL RANGE DELETES WHOLE PART
AD22317	C	FILLET SURFACE RADIAL GOES TO ZERO
AD22319	C	NC POCKET FAILURE
AD22321	U	ON 63-CHARACTER SET SYSTEM, A PERCENT SIGN IS CONVERTED TO A COLON.
AD22330	S	16.13.14.2 CHANGING RADIUS CHANGES THE ORIGIN OF THE WORDING.
AD22335	U	1.9.1.3 CHANGE THE DEFAULT COLOR FOR LEVELS 9 & 10.
AD22337	U	NON-COMPATIBLE SETS.
AD22338	U	HIDDEN LINE REMOVAL OF MACHINING CURVES WRONG
AD22339	C	USER DEFINED SYMBOLS F5.4
AD22340	M	PIPEWORK INTERFERENCE CHECK ABORTS
AD22353	C	CHAIN SELECT DOESN'T WORK FOR SMALL METRIC ENTITIES.
AD22354	M	16.1.16 DRAFTING MODALS SAY DIAMETER SYMBOL ON EVEN WHEN OFF
AD22355	S	UNABLE TO ADD FORMAT TO A SINGLE VIEW OF FRONT LAYOUT
AD22357	C	1.53 PROBLEMS EXIST WITH CHAIN SELECT ESPECIALLY WITH METRIC UNITS
AD22358	C	1.53 CROSSHATCHING
AD22359	U	1.53 MODIFYING PENS AND NOT LEVELS IN MULTI-PICKS IS A PROBLEM
AD22360	U	1.53 1982 ANSI STANDARDS PROBLEM
AD22362	U	1.53 IMPLICIT POINTS PROBLEM
AD22363	U	1.53 STRING NOT BEING CLOSED PROPERLY
AD22364	U	1.53 PLUS - NEED BETTER TERMINAL RECOGNITION
AD22365	U	1.53 PROBLEM WITH DETAIL MAGNIFICATION
AD22367	U	8.7 EXTENSIVE LAYOUT USAGE CORRUPTS DATA BASE
AD22368	U	(11.8)MODIFY ANGLES GIVES UNPREDICTABLE RESULTS
AD22370	U	1.53 VIEW LAY-OUT FUNCTION NOT WORKING PROPERLY
AD22371	U	1.53 VARIOUS PROBLEMS WITH 2-D ANALYSIS
AD22379	C	15.1.4 DRAFT CURVE DOES NOT WORK
AD22390	U	DRAGGING ENTITIES
AD22394	C	7.10 BULKIN INPUT DOESN'T ACCEPT TEXT ANGLES ANY MORE, WRITES.
AD22411	U	NOTE PARALLEL TO ARC NOT FUNCTIONING CORRECTLY WITH USER DEFINED CHAR

AD22416	C	F.6.1.7--PART MERGE "ORIGIN" AND "SCALE" FAILURE.
AD22427	U	MENU 11.9- CANNOT DEFINE A FILLET BETWEEN TWO COPLANAR CURVES
AD22432	C	F.16.3
AD22434	U	F.16.X DRAFTING
AD22438	C	UNRESTORABLE GPARTS.
AD22448	M	OPTIM (DDNUTIL) READS ONLY 1 PICTURE ON THE TAPE9
AD224513	S	CAN'T LOAD TAPE3 DATA OF SELECTED ENTITIES
AD22452	S	LARGE MSTRING FILES TAKE TOO LONG TO INITIALIZE.
AD22455	S	CANNOT SELECT SAME ENTITY FOR LABEL ENTITY AND ORIGIN DELTA ENTITY
AD22466	C	DDN UNABLE TO CREATE POINTS OF LINES IN ANY OTHER VIEW THAN 1.
AD22467	S	F.10.9 THROUGH POINT PERPENDICULAR TO LINE.
AD22470	C	TRASHED TAPE3 WON'T RETRIEVE EXISTING PARTS OR CREATE NEW ONES
AD22471	C	6.1.7 CHANGING SCALE AND ORIGIN ON PART MERGE DOES NOT WORK
AD22472	M	MIRROR & ROTATE WORKS ON X-PLANE BY NOT Y-PLANE.
AD22473	M	# OF ENTITIES PICKED, LIMITED WHEN SINGLE PICK THEN REGION PICK.
AD22480	U	ICEMDDN TRANSLATE DESTROYS DIMENSION ENTITY POINTERS
AD22484	U	(F.17.3) PROFILE TO ELLIPSOID SURFACE GIVES UNPREDICTABLE RESULTS
AD22487	U	(F.17.6) PROBLEMS RELATED TO MACHINING ELLIPSOID SURFACE WITH ISLAND
AD22488	C	SYS-1ST CALLED ERROR MESSAGE.
AD22489	S	CHANGE OF DEPTH PROBLEM.
AD22491	U	UNDEFINED ADDRESS ENCOUNTERED PROBLEM
AD22493	U	END MILL WITH CORNER RADIUS GOUGES SURFACE IN PROFILE
AD22495	U	ZOOM SCALE NAME FROM ENGLISH TO METRIC DOES NOT TRANSLATE CORRECTLY
AD22496	S	IEW WORKSTATION ONLY DRAGS 1 ENTITY
AD22497	S	(IEW)PICKS NEAR SCREEN EDGE WRAP AROUND TO OTHER SIDE OF SCREEN
AD22498	S	(IEW) DIALOG BUFFER CLEARED WITH ENTRY AFTER SCROLLING BACKWARD
AD22515	U	THE PARTS ON MY TAPE3 ARE NOT ACCESSIBLE
AD22518	U	(5.13)GPL TEXT COMMAND PUTS : IN CHARACTER STRING
AD22525	S	TYPE-AHEAD CAUSES STRANGE GRID PATTERNS.
AD22526	S	TYPE-AHEAD IN TRANSLATION GENERATES FALSE DISPLAY.
AD22528	U	PHANTOM LINES SHOW UP WHEN AUTO-ZOOMING.
AD22532	U	SURFACE MILLING CONTAINMENT DOES NOT WORK
AD22535	S	F.10.9 LINE THROUGH POINT-PERPTO LINE CREATES A LINE OF 0 LENGTH.
AD22536	S	GENERATED TOOLPATH OF ROTATED PART COMES OUT IN BEFORE ROTATED PLACE.
AD22542	C	UNDEFINED ADDRESS ENCOUNTERED AFTER DELETE LAST TOOLPATH.
AD22547	C	FILLET DOESN'T WORK BETWEEN AN ARC AND A 2-DEGREE LINE.
AD22550	M	NEW DISPLAY VALUES FOR LABEL DIM. WILL NOT CHANGE CORRECT MENU ITEM
AD22560	C	CANNOT CREATE A CORRECT RULED SURFACE BETWEEN A COMP CURVE & MACH CUR
AD22564	M	ICEMDDN CORRUPTS DISPLAY LIST AT BAUD RATES HIGHER THAN 4800 BAUD
AD22565	S	PART INTEGRITY DOESN'T FIND PROBLEM, BUT PART MERGE FIXES PROBLEM.
AD22566	S	RETRIEVED DWG ONLY PARTIALLY PAINTS, THEN LOCKS UP.
AD22567	U	IGES TRANSLATOR CREATES FONTED DIMENSION LINES
AD22568	S	LAST CHAR OF 14 CHAR PARTNAME TRUNCATED ON MOVE TO DATABASE
AD22570	U	DELETING TOOLPATH CAUSES FUTURE CHAIN SELECTS TO STOP INCOMPLETE.
AD22579	U	ENTITY DRAGGING
AD22594	U	ONE PART IN GPARTS IS NOT RETRIEVABLE
AD22595	C	18.4 DIFFICULTIES IN USE AND ERRONEOUS RESULTS.
AD22600	U	ICEMDDN CROSSHATCHING IMPOSSIBLE - OPEN BOUNDARY BUG.
AD22606	C	PP ABORT ON ICEMDDN TO IGES TRANSLATION
AD226070	U	IF LOCAL ASSIST/DISPLAY=YES,NO NOTES OF ANY KIND WILL BE DISPLAYED
AD22610	S	MENU 1.14.1 STORAGE/REFRESH DISPLAY DOESN'T WORK IN 1.57 OR 1.6
AD22612	C	F.11.8 MODIFY ANGLES CAUSES BAD ENTITIES
AD22613	C	ENTITIES NOT DISPLAYED AFTER BEING CREATED OR UNBLANKED
AD22614	M	F.16.2.6-7 TAIL LOCATION PROMPT INCONSISTENT

AD22619	S	F.16.2.3 PARALLEL DIMENSION IGNORES CONSTRUCTION MODAL
AD22620	U	F.16.8.2 FINISH MARK WITH NO VALUE CAUSES BAD ADDRESS
AD22622	U	F.16.13.6 MODIFY TEXT INCORRECT IF TWO "-" (MINUS'S) ARE USED.
AD226247	U	FORMAT OF DISPLY COMMAND IS NON-ANSI
AD226257	U	CLFILE-PARTNO BEING INSERTED BEFORE EVERYTHING ELSE.
AD226260	S	TOOLPATH DISPLAY DASHED BUT CANON SAYS SOLID

APPENDIX B: RESOLVED PROGRAMMING SYSTEM ERRORS (PSRs)

This section contains a list of system problems existing under previous versions which were resolved in ICEM DDN V1.6.

PRIORITY CODE: C=CRITICAL
U=URGENT
S=SERIOUS
M=MINOR

PSR NO.	PRIORITY	PROBLEM ABSTRACT
AD2A014	S	(15.1.3)SURFACE INTERSECTION CURVES NOT WORKING PROPERLY IN ALL CASES
AD2A243	S	(17.6)15-AXIS END CUTTING HANGS WHEN CONTAINMENT WITH ISLANDS AND TAN
AD2A248	U	(15.1.3.2) SURFACE INTERSECTION CURVE (SPLINE) HAS PROBLEMS.
AD2A251	S	(10.9) LINE THRU POINT PERPENDICULAR TO A LINE DOESN'T ALWAYS
AD2A257	S	(8.6.14) RETRIEVE ZOOM SCALE DOES NOT WORK PROPERLY DURING
AD2A278	S	(12.4.2) VARIOUS STRING - KEY INS CAN CAUSE ABORT AND LOSS OF
AD2A286	S	(1.11.5/R) ATTENTION INDICATORS DISAPPEAR AFTER REPAINT WHEN
AD2A298	S	(7.4) SEQUENCE NUMBERS ARE NOT DISPLAYED ON 4114
AD2A328	M	(11) REJECT AT RADIUS, STRT ANGLE, END ANGLE GETS ARC/CIRCLE
AD2A330	M	(11.12) BAD POINTER IN REPLACE/MODIFY ARC
AD2A342	M	(9.9.2) "[" AT INDICATE CURVE BACKS UP TO WRONG MENU
AD2A364	M	(8.3.1.1) DISPLAY SINGLE VIEW AT LAST SCALE USED AFTER MULTI
AD2A369	S	(15.3) HEXAHEDRON INCORRECT WHEN DEFINED OUTSIDE VIEW 1
AD2A376	S	(15.5.2) FEATURE DEVELOPMENT CANNOT HANDLE 3-D SPLINES
AD2A404	M	(15.1.5) COMPOSITE CURVE--SUBCURVES NOT CONTIGUOUS.
AD2A405	S	(5.5.3/6.6.1) DISPLAY TABLE EXITS PREMATURELY AND IT'S LOCATION ON SC
AD2A411	S	(6.6.1) LEVEL DISPLAY TABLE INCORRECT & UNDEFINED VIEW GIVES BAD PTR
AD2A418	U	*BAD PTR ON RETRIEVAL OF PART WITH COMPOSITE CURVE.
AD2A432	S	*USER'S MANUAL DESCRIPTION OF MENU 13.5 TRANSLATE IS MISLEADING.
AD2A440	M	*LEVEL TABLE INITIALIZE ERROR.
AD2A455	U	*LATHE NC MACRO NOT COMPATIBLE WITH OTHER NC MACROS.
AD2A458	U	*DELETE FUNCTION INDICATORS INCONSISTENT.
AD2A461	M	(4113) WRAP-AROUND PROBLEMS WHEN LISTING 80 CHARACTERS
AD2A462	S	(12.1) CHANGE VIEW WHEN AT ENTRY MODE GIVES BAD POINTER
AD2A463	S	(10.19) MODIFY PARAMETERS FOR CERTAIN LINES IS NOT WORKING.
AD2A469	U	THE SPIKE IS BACK ON ROCKY FLAT LATHE PATH P308.
AD2A470	U	POUND SIGNS ARE DISPLAYED IN STORAGE ON 4114.
AD2A477	M	(6.2.2) MENU OVERWRITE PATTERN RETRIEVE OF '<'
AD2A478	U	(MISC.) SELECT BY SEQ NUMBER IS NOT SETTING ATTN IND COUNT CORRECTLY
AD2A481	M	(5.1.3) CANON HAS INCONSISTENT ERROR MESSAGES-BOTH UAE AND ILLEGAL PT
AD2A493	S	(17.11.4) MIRRORING AN NC MACRO FAILS EVERYTIME.
AD2A496	S	(16.3) IMPOSSIBLE TO CREATE HORIZONTAL CROSS HATCHING.

AD2A500	U	(MANUAL) LEVEL TABLE NOT ASSIGNED ERROR MESS INCORRCTLY EXPLAINED.
AD2A502	M	(MISC) SECONDARY MESSAGE PATTERN BUNCHING TOGETHER COLUMN 4 AND 5
AD2A512	S	(TABLET) DOUBLE KEY-IN NAME ON 411X AND TABLET.
AD2A518	M	(5.1) F KEY OUT OF CANON WITH MENUS OFF TOGGLES MENUS ON.
AD2A519	S	(16.10) NOTE WITH TEST CONTROL WILL OVERWRITE DURING KEY-IN
AD2A532	M	(5.4) USER CHARACTER DEFINITION HANDLED INCORRECTLY ON 4114 TERM.
AD2A534	S	(5.10) GOTOERR. WHEN RUNNING NEST1 TRACE ON IST 3
AD2A544	S	(12.4) DELETE LST ENTITY IN STRING MENU CAUSES BAD POINTER
AD2A546	S	CAN'T INDEPENDENTLY SET X OR Y MIN/MAX OFFSET FOR PLOT
AD2A555	S	INCONSISTENCIES BETWEEN MENU OPTIONS--INCREMENTAL POINTS
AD2A557	S	INCREMENTIAL POINTS--WRONG PARAMETER VALUE FOR ARCS
AD2A562	U	(12.2) OFFSET CURVES
AD2A583	U	REDUCE MENU PROMPTS FOR ENTITY SELECT OPTION
AD2A591	S	V.A.E. ERROR WHEN MORE THAN 509 POINTS ENTERED
AD2A593	C	EXECUTE A GRAPL PROGRAM WITH ATTRIBUTES EXITS TO OP SYSTEMS
AD2A595	S	ERROR IN NAMING OF N/C TOOL
AD2A601	S	LARGE POINT MOVE ENTRIES PREVENT CONTROL POINT FIT
AD2A604	M	WHEN KEYING AHEAD BETWEEN PARTS THE BEEL SOUNDS
AD2A608	M	TEK 4105,7,9 TERMINALS PRINT GRAPL PROGRAM INFO ON ONE LINE
AD2A610	U	721 TERMINAL IS IMPROPERLY RESET AFTER LEAVING ICEMDDN
AD2A615	S	THE 721 VIKING TERMINL IS LEFT IN ERROR UPON EXIT
AD2A617	S	721 GRAPHICS TERMINALS RETURN TO GRAPHICS AFTER EXIT ICEMDDN
AD2A619	S	CAN CNTL-D TO DELETE A DATUM TARGET
AD2A620	S	MODIFY DECIMAL PLACES MESSES UP ON FRACTIONAL DIMENSIONS
AD2A621	M	ON 721 TERMINAL DDN LEAVES TERMINAL IN GRAPHICS STATE
AD2A622	U	CANT REGION SELECT NESTED GROUPS
AD2A624	S	LEADER BETWEEN BORDERS NOT SHOWING UP IF IT IS MAGNIFIED
AD2A632	M	GPL EVALS STATEMENT--RETURNING DATA ON POINT NOT ON SURFACE
AD2A633	U	PROBLEMS WITH CREATING FILLETS IN GPL BETWEEN ARCS & SPLINES
AD2A634	M	TERMINATING QUOTE GETS WRITTEN TO SCREEN AS PART OF NOTE
AD2A638	M	DISPLAY & EDIT OVERFLOW IN TOOL PATH DISPLAY
AD2A639	C	MODIFY DISPLAY VALUES CAN ABORT OR GIVE UAE
AD2A641	S	SECTION LINING VISIBILITY MODAL HAS NO EFFECT ON SECTIONING
AD2A651	S	15.2.12.1.1 LINE PICK POSITION UNUSED IN CONE CREATION
AD2A652	S	9.18.1 & 2 DELTA XT & YT ARE NOT WORKING AROUND FOR COMPOSITE CURVES
AD2A657	M	THE MANUAL DESCRIBING F.3.9 IS INCORRECT
AD2A662	S	15.2.4 CAN'T USE A DRAFT CURVE TO DEPTH FOR RULED SURFACE
AD2A663	S	WRONG TOTAL LENGTH OF COMPOSITE CURVE AFTER TRIM CURVE
AD2A664	M	THE SMOOTHING FACTOR IS RETAINED AFTER PRELIMINARY COMPUTATIONZHS
AD2A665	S	F.15.1.7.2.2 AFTER ADDING ONE CONSTRAIN (CURVE THRU THE END POINT)
AD2A668	S	MODIFY SURFACE PATHS OF OFFSET SURFACES
AD2A669	S	2-D ANALYSIS MENUS WORDING OF OPTIONS IN 18.3
AD2A672	S	INCREASE COMPOSITE SURFACE LIMIT FROM 20 TO 150
AD2A677	S	N/C DISPLAY & EDIT NOT PROCEEDING TO LAST LINE PROPERLY
AD2A678	S	GODLTA INSERT DOES NOT CREATE TOOL MOTION ALONG TOOL AXIS.
AD2A679	M	OP REJECT FROM 'ENTER DIRECTION' DOESN'T CLEAR ENTITY ATTN
AD2A680	M	A DISALLOWED CURVE CAN BE SELECTED WITH SEQ. NO./PTR/NAME
AD2A681	M	OP REJECT IS NOT PROCESSED CORRECTLY IN SINGLE SELECT
AD2A683	S	BLANK BY CHAIN WITH DISALLOW. CURVES ALSO BLANKS DIS. CURVE
AD2A685	M	IF #1 IS ENTERED FOR DEPTH, MESSAGE DISPLAYED IS IMISLEADING
AD2A686	M	] AT ACCEPT THIS TOOL ? TAKES USER BACK TO OPERATION PROMPT
AD2A687	S	[AT ENDING SEQUENCE DOES NOT TAKE USER TO PREVIOUS MENU
AD2A688	S	] FOR DEPTH INPUT BUMP USER TO NC MAIN MENU FOR LATHE DRILL
AD2A689	S	FACE THREAD FOR LATHE DOES NOT WORK TOO WELL ON LONG LINE

AD2A691	U	CYCLE DOES FUNCTION WITH INSERTED INFORMATION.
AD2A695	S	SECTION LINING DOES OT APPEAR IN ALL VIEWS AS IT SHOULD
AD2A696	S	DATUM TARGET USES A DIAMETER AS THOUGH IT IS A RADIUS
AD2A697	U	SECTION LINING BREAKS IF SAME ENTITY IS SELECTED TWICE IN A ROW
AD2A700	S	POINT SET CURVE
AD2A701	U	MACCRV/INTOF,,,EDGE WORKS INCORRECTLY
AD2A703	M	DOCUMENTATION
AD2A718	S	DOCUMENTATION OF MENU'S 8.6.4 AND 8.6.5 ARE REVERSED
AD20400	S	(13.10)STRETCH DOES NOT STRETCH LINES CONNECTED TO LINE TO BE
AD20477	M	(16.2/2.7)PROJECT ENTITY TO OTHER LEVEL, THEN BLANKING AFFECT HANGERS
AD20482	S	(6.2.1)CANNOT CREATE A PATTERN USING AN EXTENDED GEOMETRY ENTITY.
AD20530	M	(13.2)CIRCULAR ARRAYS PLOTTED AS LINE SEGMENTS BECOME OCTAGON.
AD20546	S	(9.17) FAN POINTS AND INCRMENTAL POINTS FAIL FOR POINTSETS.
AD20560	M	(15.1.3) INTERSECTION CURVE NOT FOUND FOR SURFACES THAT ARE
AD20591	S	(16.3)CROSSHATCH OF 1/4 CIRCLE SELECTS SAME QUADRANT ANY SEQUENCE.
AD20592	S	(16.3) CROSSHATCH OF 1/2 CIRCLE USING CIRCLE AND LINE HATCHES
AD20626	M	(8.6.11)AUTO MAX/MIN SETS SCALE TOO LARGE IF DEFINE AXIS (10.16)
AD20637	M	(8.6.11) VIEW NOT CENTERED ON AUTO MAX-MIN OF PART
AD20642	M	(13.5) ENTITIES NOT TRANSLATED CORRECTLY IN SOME VIEWS.
AD20662	S	(RESCALE) DOES NOT WORK CORRECTLY FOR METRIC PART.
AD20701	S	(6.2.6) GLOBAL PATTERN OVERFLOW.
AD20720	S	(3.7.5) 3 BALLOONS DELETED AS ARRAY AND GROUPS.
AD20768	U	(17.12)3-SURFACE PROFILE DOES NOT WORK; LOOPS THROUGH DRIVE, PART
AD20774	S	*(16.3) CROSSHATCHING SHOULD ONLY DISPLAY IN VIEW OF DEFINITION.
AD20822	S	(6.2.1) GROUPS ARE NOT LEGAL ENTITIES FOR PATTERNS.
AD20846	U	*TABLET/TERMINAL BECOME INACTIVE.
AD20928	U	*NC - DISPLAY & EDIT TOOL DISPLAY IS VERY BAD FOR ALL MILL USE.
AD20944	S	*(16.2) PROJECTED ENTITY NOT ON SAME LEVEL.
AD20956	U	*(15.22) SURFACE OF REVOLUTION DEGENERATES AT CENTER.
AD20962	M	*PLOT SCALING INPROPERLY CALCULATED WHEN TEXT IS IN DRAWING.
AD20996	S	*AFTER OP REJECT, SYSTEM WILL RE-PICK THE SAME ENTITY.
AD21020	S	*(16.13.5) MODIFY TEXT DISPLAY VALUES WILL NOT ALLOW FOR VARIABLES.
AD21022	S	*(6.2.1-GLOBAL) GLOBAL PATTERNS WITH THE NAMES WILL NOT RETRIEVE.
AD21024	S	*MENU #6.2.2 PATTERN RETRIEVE - PATTERN NAME DOES NOT MATCH PATTERN.
AD21031	U	*FAN POINTS HAVE INTEGRITY AND CONSISTENCY PROBLEMS.
AD21043	U	*GRAIOF DOES NOT SUPPORT LOWER CASE LETTERS IN CD2000.
AD21050	S	*(6.2.6) GLOBAL PATTERN DIRECTORY PROBLEMS.
AD21051	U	*(6.2.2) GLOBAL PATTERN DIRECTORY LIMITS.
AD21057	S	*(13.10) STRETCH BY SCREEN POSITION WILL NOT RESPOND TO GRID ACTIVATE
AD21065	U	LINES--CONSTRUCTION OF LINE PERP TO LINE THROUGH POINT IS UNRELIABLE.
AD21079	S	(11.10)ARC INSCRIBED IN 3 LINES IS INCORRECTLY DRAWN IN CERTAIN CASES
AD21107	U	*VIEW NUMBERING DURING DEFINITION OF AN AUXILIARY VIEW F.8.9.
AD21131	U	2-D SPLINES DO NOT WORK WELL AS TRIM BORDERS (12.8).
AD21137	S	TRANSFORM COORDINATES POINT DELTA DIFFERENT IN 1.47 THAN 1.45 (9.4).
AD21145	U	*ROTATE (13.6) FOR ARCS ABOUT AXIS CREATES THEM IN A NEW VIEW.
AD21150	S	*INCORRECT DEPTH OF LINE TANGENT TO AN ARC AT AN ANGLE.
AD21172	U	(5.7) DATA GRAPHS LINE FONT PROBLEMS.
AD21178	U	HYPERBOLA NOT DISPLAYED IN DETAIL MAGNIFICATION
AD21180	U	ELIMINATION OF UTF BY COMMON PATTERN LIBRARY
AD21182	U	TEXT MOVES INCORRECTLY WHEN TOLERANCE IS ADDED
AD21188	U	MIRROR ABOUT A POINT????????????????
AD21189	U	PROBLEM WITH FAN POINTS ON CURVE CONTAINING MULTIPLE ENTITIES
AD21190	U	NEED THE ABILITY TO TRIM USING SCREEN POSITION
AD21191	U	FAN POINTS OUTPUT INCOMPLETE SET OF POINTS

AD21192	S	ATTENTION BLIPS END UP IN STRANGE LOCATIONS FOR TRIMMING(POINT NEAR)
AD21194	U	DISPLAY AND EDIT IS AWKWARD AND TIME-CONSUMING.
AD21207	U	LATHE TOOL DISPLAY CANNOT BE CHANGED(1.49X)
AD21209	U	CANNOT TRIM CIRCLE USING TANGENT CIRCLES AS BOUNDARIES(1.49X)
AD21215	C	*F.1.11.3.1
AD21234	S	*CIRCULAR DIMENSION CAN ONLY BE PLACED IN VIEW ARC BEING DIMENSIONED
AD21246	M	MISTAKE IN VERS. 1.5 MAIN OVERLAY, CHANGE SCALE SHOULD BE CHANGE PAGE
AD21268	S	DISPLAYING MAIN MENU HEADER-NO CHECK IF HEADER FITS IN AVAILABLE SPAC
AD21273	C	*TOOL DISPLAY/CYCLE STATEMENTS.
AD21293	U	*VIEW LAYOUT: WHEN CHOOSE OPTION TO RESIZE INTO NEW WINDOW PROBLEM.
AD21295	U	*NEED TRIM TO SCREEN POSITION.
AD21296	S	*CROSSHATCH BOUNDARIES DIFFICULT.
AD21303	U	*MODIFY REGION SELECTIONS.
AD21307	M	*DATA VERIFY TO INCLUDE LEVEL/PEN.
AD21311	M	*DELIMITER FOR CENTERLINE.
AD21312	U	*INCLUDE BALLOONS IN PATTERNS.
AD21317	U	UNUSED CODE
AD21320	U	CHAIN SELECT USING TABLET. PRESELECT CHARACTERS-A,P,L-NOT RESET TO 'C
AD21321	U	TRIM USING TABLET. PRESELECT CHARACTER-A,P,L-DON'T GET RESET TO 'C'
AD21326	M	*IS THE RESCALE PROMPT NECESSARY?
AD21337	C	*VIEW ALIGNMENT IN A LAYOUT.
AD21345	U	SYSTEM REL/REV NUMBER
AD21360	U	ATTENTION INDICATORS DISAPPEAR BEFORE OPERATION IS COMPLETED.
AD21378	U	TRIM BY SCREEN POSITION NEEDED
AD21383	U	WANT ABILITY TO SELECT ENTITIES BY COLOR LEVELS OR ENTITY TYPES
AD21395	S	THE SELECTED CURVE PARAMETERS SHOULD BE DISPLAYED IN INCREMENTAL PTS.
AD21403	S	TP BLOCK EDITING/EDITING OF DIMENSIONS AFTER CREATION
AD21437	S	PLOTTING IGNORES TEXT IF IT IS TOPMOST OR RIGHTMOST ON DRAWING.
AD21438	M	ATTENTION MARKERS ARE NOT DROPPED WHEN SELECTION WAS CANCELED.
AD21440	U	ONE GRAPL ONLY
AD21445	S	COMMON. ALLOW GRAPL TO ACCESS COMMON FOR BOTH READ AND WRITE.
AD21460	U	CREATING A PATTERN CAUSED MODE ERROR
AD21465	S	NC DISPLAY AND EDIT WILL CHANGE LINE NUMBVERS DURING EDITING
AD21468	S	N/C - TOOL PATH EDITOR INSERT MOTION VECTORS DISAPPEAR
AD21470	S	LATHE DRILLING PRODUCES WRONG CENTERING MOTION
AD21471	S	LATHE DRILLING DOES NOT ALLOW CONTROL OVER DWELL
AD21480	M	RESCALE QUESTION DISRUPTS FLOW OF TRIM OPERATIONS
AD21481	M	GROUP IS NOT SELECTED IN SCREEN SELECT MODE FOR PATTERNS
AD21501	S	UNABLE TO DIMENSION PARTS UNDER DETAIL MAGNIFICATION.
AD21507	U	RELEASE PATTERN LIBRARY.
AD21508	U	INCREASE PATTERN NAME TO 16 CHARACTERS.
AD21525	S	RESCALE QUESTION AFTER EACH OPERATING WHEN SMALL AREA IS ZOOM
AD21527	S	PATTERN RETRIEVAL IS CUMBERSOME.
AD21544	M	(5.2.2.)DESIRE CENTERLINE FONT WITH GRAPL COMMAND.
AD21545	M	(5.2.5)ADD MESSAGE DISPLAY TO PAUSE/GRAPL COMMAND FOR ACKNOWLEDGEMENT
AD21547	S	(5.5.2)DESIRE ABILITY TO NAME ANY LEVEL (MRE THAN 62) ANY SEQUENCE.
AD21570	S	*(5.5) WOULD LIKE COMMAND TO MOVE ENTITIES BY LEVEL RANGE
AD21571	U	(1.7)WOULD LIKE TO MODIFY ENTITY LEVEL WITH ENTITY TYPE
AD21572	S	*(5.5.X) ALLOW 1024 LEVELS WITH NAME DESCRIPTION IN LEVEL
AD21576	S	(6.2.2)RETRIEVE PATTERN - CHECK FOR NEW INFO IN WORD (3).
AD21578	U	(6.1.8/4.N)MOVE PACK/FILE AWAY FROM FILE/NO/TERMINATE ON
AD21583	S	*(16.15)BALLOON DETAIL-NO. HAS ONLY 3 CHAR, INCREASE TO
AD21590	M	(6.1.5) WOULD LIKE DELETE PART TO REMAIN IN KEY IN NAME MODE.
AD21591	S	(6.1.2.1)WOULD LIKE GLOBAL RESTORE SINGLE TO REMAIN IN KEY

AD21601	U	(6.1/6.2)ACCESSING GLOBAL PART AND PATTERN FILES SHOULD BE
AD21616	S	(3.9)WOULD LIKE DELETE ALL OF A LEVEL BY REGION IN/OUT.
AD21617	S	(16.2)WOULD LIKE REGION SCREEN SELECT MODE FOR PROJECTED
AD21619	U	WOULD LIKE FILE/TERMINATE MOVED AWAY FROM DELETE LAST
AD21633	M	(12.8)NEEDED CHOICE OF SCREEN POSITION FOR BOUNDARY MODE FOR
AD21669	U	(3.2/2.1) ALLOW MORE ENTITY TYPES
AD21672	M	(16.13.5) MODIFY TEXT BY SINGLE/REGION AS WELL AS ENTITY.
AD21677	M	(16.13) MODIFY DRAFTING ENTITY NEEDS MULTIPLE ENTITY SELECT.
AD21702	U	(INIT)CHANGE METRIC/ENGLISH QUESTION TO A MENU.
AD21712	U	(6.1.9)DRAFTING STANDARD ON INDEPENDENT SAVE.
AD21713	U	(16.3)INCLUDE CURRENT DEPTH ON CROSSHATCHING.
AD21717	U	(16.3/8)DISPLAY CROSSHATCH IN VIEW OF DEFINITION.
AD21733	U	(13.5)ENHANCE WAY TRANSLATE AND SCALE OF PATTERN IMPLEMENTED.
AD21757	1	(6.6.1)ENHANCE GLOBAL PARTFILE/GLOBAL PATTERN FILE HANDLING.
AD21762	U	(REGION)REJECTED LAST REGION SELECTION NEEDS ENHANCEMENT.
AD21765	U	ADD OPERATION THAT RETURNS FILE TO BEFORE LAST OPERATION.
AD21794	S	(SCREEN SELECT) REGION IN AND OUT SHOULD BE IN ABOVE MENU
AD21804	S	(2)BLANK BY NAME.
AD21814	U	(2.7)ABILITY TO BLANK BY LEVEL.
AD21824	S	*WORKVIEW SHOULD REMAIN THE SAME IN MULTIPLE VIEWS.
AD21840	U	3D MANIPUL OF PATTERN TOOL PATH (DURING PATTERN RETRIEVE).
AD21865	U	*ATTENTIONS ARE NOT SET CORRECTLY AT SINGLE AND REGION SELECT.
AD21868	U	SELECTION OF DRAFTING STANDARD SHOULD BE CONSEQUENTLY A MENU OR
AD21886	U	(7.13) TABLET FILE HANDLING TOO RESTRICTED AND INSUFFICIENT.
AD21889	U	(4) CHANGE FILE/TERMINATE TO MENU CHOICES RATHER THAN Y/N.
AD21890	U	(REGION) SELECT ATTENTION BITS NOT SET.
AD21897	U	(CTRL-F) NOT RECOGNIZED DURING TABLET INPUT SEQUENCE.
AD21899	U	PFM23 CONTAINS ALSO LIST OF GLOBAL PATTERNS.
AD21900	U	(REGION) SECOND BOUNDARY INDICATOR NOT DISPLAYED AS USED.
AD21904	U	(5.4) USER-GENERATED CHARACTER NOT CENTERED DIMENSION TAIL.
AD21907	U	BAD POINTER AT ARC-3D ROTATION IF MORE THAN 84 ENTITIES IN PATTERN
AD21909	U	(I/1) LETTER I ENLARGED TO DISTINGUISH FROM DIGIT 1.
AD21911	U	(REGION) NO CHECK MADE FOR ATTENTION ON.
AD21914	U	(1.7) ATTENTION RESET NOT CORRECT AT MODIFY LEVEL/PEN.
AD21924	S	(16.4/.9) DROP LEADING ZEROES.
AD21928	S	*ENHANCEMENT DISPLAY AND EDIT TOOL DISPLAY
AD21929	U	*GRAPL: PRINT VARIABLES TO SCREEN.
AD21930	S	*GRAPL: BETTER ERROR CONTROL.
AD21932	S	*GRAPL: SCREEN CONTROL.
AD21937	S	*GRAPL: NUMERIC STRING VARIABLES.
AD21961	U	*NC - DISPLAY & EDIT ADD MENU CHOICE TO SKIP TO END OF PATH.
AD21971	M	*(7,13) THERE IS NO WAY TO DELETE A "TABLET" FROM TFILE.
AD21996	U	*ONLY 64 OF 1024 LEVELS MAY BE NAMED.
AD22011	U	*RESCALE? CAUSES PROBLEMS AND IS UNNECESSARY.
AD22015	M	*LEVEL MANAGEMENT.
AD22025	M	ADD "DELETE OLD TOOLPATH" PROMPT TO TOOLPATH REGENERATION
AD22028	S	TRIM OFFSET CURVES OF FILLET NOT WORKING CORRECTLY
AD22030	U	PART CHECK DOES NOT INCLUDE A CHECK FOR ZERO LENGTH LINES
AD22031	C	NO CONFIRMATION WHEN DELETING/OVERWRITING GLOBAL PATTERNS
AD22038	M	MENU 1.10 ON THE ICEM DDN OVERLAY STILL READS TOGGLE BLANK/UNBLANK.
AD22050	U	(F.17.9) CONSTANT SURFACE SPEED IN ICEM N/C LATHE, & MODAL SETTINGS
AD22064	S	DIAGONAL SCREEN POSITION DOES NOT WORK AFTER CREATING A LAYOUT
AD22071	C	*REPAINT REQUIRED TO SELECT ENTITIES.
AD22081	U	GROUPS IN PATTERNS

AD22086	S	LATHE TURNING OF A SINGLE ENTITY
AD22090	S	F.17.9 - GROOVING TOOLS WITH 0 TOOL NOSE RADIUS
AD22092	S	EXCHANGE FEEDRATE TRUNCATES UNIT PARAMETERS SUCH AS IPR
AD22094	M	F.5.8 - PPMACRO
AD22095	M	F.17.17 - NC MACRO EDITING
AD22096	U	F.17.11 - DISPLAY & EDIT
AD22097	S	F.17.9 - LATHE TOOL HOLDER DISPLAY
AD22099	S	F.17 SUPPORT OF APT CYCLE STATEMENTS IN ICEM N/C
AD22100	S	F.17.10 USER-DEFINED CYCLES.
AD22106	S	COMPACT II TRANSLATION WITHIN ICEM DDN
AD22113	S	ICEM DDN EXCLUDES THE OP-COMPLETE] IN THE TABLET STRING
AD22141	U	ENTITY SELECT OF CENTERLINES NEEDS IMPROVEMENT
AD22142	U	DATUM DIMENSIONING IS NEEDED
AD22147	S	OFFSET PLOT LEAVES VALUES IN X,Y REGISTERS
AD22153	U	NEED ABILITY TO CREATE A CIRCLE TANGENT TO THREE ENTITIES
AD22159	M	ENTITY FLAG SHOWN IN ODD LOCATION WHEN BLANKING
AD22164	S	PROVIDE AN OPTION TO LIST TABLET PAGE NAMES.
AD22165	S	A MASK KEY FOR PICKING ONLY CENTERLINES IS NEEDED.
AD22172	U	HORIZONTAL AND VERTICAL DIMENSIONS WILL NOT ACCEPT CENTERLINES
AD22188	C	CANNOT SELECT GEOMETRY FOR ANY OPERATION
AD22196	U	CHAIN SELECT OF INES AND AN ARC RESULTS IN ERROR--SEE DAYFILE
AD22206	C	ZOOM DISTORTS LAYOUT FRAMES SCALE TO PART SCALE
AD22210	S	N/C TOOLPATH EDITOR FAILS TO UPDATE VECTORS IN 4115 DISPLAY
AD22215	C	HARDCODING CLASS 2000 WORDS CAUSES INCOMPATIBILITY WITH G-POSTS
AD22224	S	CROSSHATCH IN A "DETAIL MAG." DOES WRONG AREA IF BALLOON LEFT
AD22231	C	MODIFICATION OF DIMENSIONING METHOD
AD22235	S	F.17.10 - GLOBAL TOOL LIBRARY
AD22250	U	BULKIN DATA ERROR IN ROTATING NOTES
AD22252	S	MANUAL IS INCORRECT ON TERMINAL SETUP
AD22253	M	NC MODALS SHOULD INCLUDE LATHE IPM/IPR MODE
AD22260	M	A REJECT AT SCREEN SELECT IN LATHE BACKS UP TO LATHE OPERATION
AD22262	S	CAN NOT BACK UP PAST STOCK AND CUT ANGLE PROMPT IN LATHE
AD22264	M	REJECT IN DISPLAY AND EDIT RETURNS TO NC MANUFACTURING MENU
AD22265	S	LATHE PACKAGE PICKS UP DEPTH SET IN SYSTEM
AD22273	U	THREE-SURFACE PROFILE CREATES TIME LIMIT PROBLEMS.
AD22278	S	A CNTL D ENTERED IN DISPLAY AND EDIT PRODUCES UNDEFINED ADDRESS
AD22294	U	F.7.2 PLOTTING ROUTINE CAUSES DATA BASE PROBLEMS IF SCALE IS NOT = 1
AD22296	S	ADD OPTION FONT/CENTERLINE IN GRAPL
AD22298	U	F.17.2 - POINT TO POINT PUNCHING
AD22301	U	NEW ORIGIN OF PATTERN DIMENSION TEXT GIVES WRONG ARROW LOCATION.
AD22304	S	BULKDATA CIRCLE,2 CAUSES MODE ERROR CREATES INCORRECT GEOMETRY
AD22318	C	FILLET BETWEEN POINT AND SPLINE FAILS
AD22322	U	THE NUMBER "1" AND THE LETTER "I" LOOK IDENTICAL IN TEXT.
AD22323	U	1.7 ENTITIES GO TO CURRENT LEVEL OR PEN NUMBER IF NOT CHANGED.
AD22328	C	DECIMAL PLACES IN DIMENSIONING METRIC PART
AD22329	C	DRAFTING ENTITY MODIFICATION IS INACCURATE
AD22346	U	(7.2) AUTO MAX/MIN REQUIRED WITH PLOT/SCALE FROM GEOMETRY.
AD22369	U	(16.2)LINEAR DIMENSION W/DUAL DIMENS.;0 DECIMAL PLCS HANGS DDN
AD22373	M	MODIFY ENTITY'S LEVEL/PEN NUMBER
AD22374	S	F.18.1 SLOPE VALUES FOR SPLINE ANALYSIS ARE QUESTIONABLE BY DEF.
AD22375	U	F.18.1.6 SPLINE ANALYSIS OMITS AND PRINTS ERRONEOUS INFORMATION
AD22376	S	F.18.1 BKC PREFERENCES FOR TAPE4 PRINTOUT OF SPLINE DATA
AD22378	C	15.1.4 DRAFT CURVE GIVES ARITHMETIC MODE ERROR
AD22381	M	CONSISTENT USE OF IMPLICIT POINTS.

AD22382	S	DRAFTING LABELS.
AD22383	M	(12.8) WOULD LIKE TO BE ABLE TO TRIM MORE THAN ONE CURVE AT POINT.
AD22388	C	16.5.4 DATUM TARGET, CIRCLE GIVES WRONG SIZE TARGET AREA.
AD22395	S	SIZING OF LOCAL PATTERN LIBRARY
AD22398	M	6.1.2.2. NOT CONSISTENT W/OTHER COMMANDS
AD22401	U	CREATE TOGGLES TO SPECIFY SCREEN OR ENTIRE DRAWING FOR BLANK & UNBLAN
AD22412	U	F.16.3-SECTION LINING BOUNDARY IS OPEN AT * DOES NOT APPEAR IMMED.
AD22413	U	F.16.7 "GEO TOL" DOES NOT PROVIDE A SPACE BETWEEN LEADER AND ENTITY
AD22414	U	F.16.8 SURFACE TEXTURE SYMBOL CANNOT BE DELETED.
AD22415	U	F.13.5/F.16.8-TRANSLATION OF SURFACE SYMBOL IS ERRATIC.
AD22417	S	F.16.1.3/F.16.13.1-AUTO-TAIL LOC INCOMPATIBLE W/NEW ORIGIN.
AD22421	S	BASE SCALE DOESN'T WORK PROPERLY WITHOUT ALIGNMENT OF VIEWS
AD22425	M	MODIFYING USER PAGE YOU ALWAYS HAVE TO GO THROUGH STORE PAGE
AD22429	S	PICKING CENTER LINE
AD22447	U	19.2 RESIZE ROUNDS OFF ALL FRACTIONAL DIMENSIONS.
AD22449	C	DATA GRAPHS DON'T FUNCTION
AD22454	U	DATUM TARGET DOESN'T GIVE YOU A SELECTABLE CENTERLINE.
AD22464	M	2 BLANK/UNBLANK HAS DOCUMENTATION ERRORS
AD22468	C	F.16.11 LABEL CREATES UNPICKABLE ENTITIES
AD22482	S	GPL COMPILER DOESN'T ABORT ON SUBROUTINE FATAL ERROR
AD22486	M	(F.17.6) SCALLOP HEIGHT DEFAULTS TO 0.05 IN BOTH METRIC AND INCHES.
AD22506	U	YOU SHOULD BE ABLE TO SCREEN SELECT TABLET SQUARES WHEN EDIT.
AD22514	M	CAN'T DO A FILE/SUSPEND FROM THE SUPPLIED TABLET OVERLAYS
AD22537	S	F.12.4.3[STRING BY POINTS CANNOT BE [OUT OF.
AD22541	U	F.12.8 TRIM USING TANGENT ENTITIES ERROR'S:INTERSECTION NOT FOUND.
AD22554	M	F.16.13.5 DRAWING LIMITS DUPLICATES TEXT THAT IS AFTER DIM. NUMBER
AD22558	S	SELECT VIEW UNBLANKING DOES NOT PERFORM PROPERLY
AD22569	U	THE (+/-) AND DEGREE (0) SQUARES ON THE TABLET DON'T WORK IN 1.57
AD22575	U	5.13.3 POSITION PICKS WHILE RUNNING GPL DO NOT GO TO GRID POSITION
AD22596	S	DEGREE SYMBOL ON TABLET DOES NOT WORK.
AD22599	M	COMPILATION ERROR ON SAVE COMMAND

APPENDIX C: 800 TUNING GUIDE FOR ICEM DDN

1.0 INTRODUCTION:

BACKGROUND - PROBLEMS

The tuning of 800 Systems has not been explored to the extent we would like. This guide will explore possible solutions to some of the common tuning situations.

The main problem is that users are expecting to setup and run the hardware/software with no adjustments. This practice causes the site to run with the default setup parameters which were built for a small job environment. ICEM DDN is usually overlay bound and has a rather large field length. Depending on the disk configuration, the site is usually disk bound due to overlay loading and swapping ICEM DDN to disk. In the cases where the site has a lot of memory, the memory is not being utilized because no one has designated it as a "DE" equipment for ICEM DDN overlays and/or a swap device.

Because system analysts do not have a quantitative method of ascertaining what tuning functions cause improvements, tuning is not attempted. By using CPD, CTIME, RTIME, and ICEM DDN trace files, an objective index of performance can be obtained and improvements made.

2.0 OVERVIEW OF CYBER 800

2.1 800 FEATURES

The 800 has the following features:

* The 800 has a high speed central processing unit that runs with a memory that can be very large - 2 to 128 megabytes (262 thousand to 16 Million central memory words).

* The cache memory speeds up effective memory cycle.

* Peripheral processors operate at 4 times the original PPU speed.

* The 800 microcoded instruction set allows both NOS and NOS/VE operating systems to exist and run in the same machine (dual state).

* The range of ability for each machine has more than one dimension. As you go up the line in CPU power, the memory size can also be upgraded.

The following chart shows the different models and the allowed memory size options and multiple CPU option:

MODEL	MEMORY SIZE OPTION (Megabytes)									
	2	4	8	12	16	32	64	96	128	Dual CPU
810	X	X	X	X	X	X				NO
815	X	X	X	X	X	X				NO
825	X	X	X	X	X	X				NO
830	X	X	X	X	X	X				YES
835		X	X	X	X					NO
840					X	X	X	X	X	NO
845		X	X	X	X	X				NO
850					X	X	X	X	X	NO
855		X	X	X	X	X	X	X	X	YES
860					X	X	X	X	X	YES

It is the memory expansion characteristic that is most interesting for large applications like ICEM DDN. It has been observed that customers are overlooking the ability of the 800 to use this memory in many different ways.

2.2 800 MEMORY USE

The 800 memory can be used in the following ways:

1) Job area - the job execution area is normally about 262K but can be bigger or smaller.

2) Swap area - Rather than roll the job to disk, it can be swapped from memory to memory and avoid the disk accesses.

3) System resident - specific overlays and/or PPU programs can be stored and retrieved from memory and also avoid disk accesses.

4) NOS/VE execution area.

All the above memory allocations are controlled by deadstart parameters in the CMR, EQP, and IPR decks.

3.0 TUNING METHODS

3.1 STEPS FOR TUNING

The following is a summary of the steps you can go through to tune 800s for ICEM DDN:

1) Run CPD - Find what the bottlenecks are. Tune by making NOS configuration changes such as system resident and channel/disk configuration (see section 3.5).

Check disk use percentages from the CPD run. 50-60% is pretty high. Moving overlays to CM (Central Memory) or UEM (Unified Extended Memory) and/or allowing ICEM DDN to run as system resident will help speed up the product and decrease disk access. Also, try to arrange your configuration so that equal access is occurring across all disk channels. Avoid channel 0 because it cannot be alternated in each mass storage device Equipment Status Table (EST) entry.

2) Run ICEM DDN with the T option on and collect overlay load numbers (CT file) for a given script. The IT file resulting from the T option run is used for input (I=lfn) so that the run can be repeated for comparison after each tuning attempt (base timing). A program included on page C-14 of this Tuning Guide appendix counts and sorts the counts by overlay for each overlay that was loaded during the script execution.

3) Based on CPD and the CT counts, move selected overlays into CM (Central Memory) and/or UEM (Unified Extended Memory). In level 630 of NOS a limited number of overlays can be put in CM, and near 400K the system hangs. The workaround is to put additional overlays in UEM. At this level of the system, there does not seem to be any performance difference between overlay loading from CM or UEM.

4) Recheck response time by running a script in a quiet system with CTIME and RTIME control cards on each side of the ICEM DDN call. These numbers will tell you the amount of CPU time and real time used to make the run. Also, rerun CPD to check what is happening to the system resources. There is a Timesharing Instrumentation Package which measures response time, think time and transaction rates of IAF (LDS Publication number 15190016). This package will show how tuning has affected response time.

3.4 ICEM DDN SYSTEM RESIDENT

The advantage of having ICEM DDN system resident is that when it is in the system, more than one copy of the code is available from multiple disk channels. Also, selected overlays can be resident in CM.

Do not bother moving ICEM DDN to the system if you have only one channel to disk and you do not want to move overlays to CM or UEM. Also, remember that ICEM DDN will increase your system file by about 70K PRUs on each device that is designated as a system device.

On small capacity disk systems put ICEM DDN on the deadstart tape rather than on a permanent file which is SYSEDITed after deadstart. This will save 70K PRUs of permanent file space.

GPL overlays must be on a local file at execution time for GPL users. It currently does not run any other way.

3.3 ICEM DDN OVERLAYS IN CENTRAL MEMORY

The problem with NOS 800 performance is caused by ICEM DDN having to load overlays from the disk. Generally, if the most frequently called overlays can reside in memory, the disk accesses will be much lower. If all the overlays that are called are put in memory, a script will run as well as it would on NOS/VE (virtual environment). Of course, the data caching will not be as good as VE but the performance should be considerably better than before the overlays were put in CM.

Following is an example of the performance improvement on an 855 with the overlays in CM and other numbers showing relative performance:

SYSTEM	Running time	CPU time	Comment
760 NOS	374	13	DDN153 on 844s (System file)
855 NOS/VE	18	12	DDN153 on FMD's
830 NOS/VE	78	48	" " "
810 NOS/VE	138	78	" " "
760 NOS	371	7	DDN157 on 844s (System file)
760 NOS	291	7	DDN157 on FMDs (Local file)
855 NOS	267	9	DDN157 on Disk (System file)
855 NOS	160	9	3 overlays in CM+System file

The 100 second improvement for the 855 NOS is caused by reducing disk accesses. In theory, if all the overlays that are called are put in memory, the script would run as well as the 855 NOS/VE (18 seconds).

Also, notice the CPU time for each of the above machines. The CPU time requirement for DDN157 is less than DDN153. The 830 and 810 is 4 and 6 times less capable than the 760 or 855. If the site is CPU bound, the moving of the overlays into memory may not help response time during periods of CPU saturation.

The following table summarizes the overlay situation with a typical script:

Overlay	Load Count	Field Length of Overlay*	Accumulated Sum*
CL04	276	53040	54K
CL52	247	52551	126K
CL02	136	43215	171K
CL72	135	23066	215K
CL270	97	44031	261K
CL75	88	60042	340K
CL51	62	54513	415K
CL14	56	41300	457K
CL54	48	30441	507K

* Field length and sum are in octal.

These 9 overlays were loaded 1145 times. There were 1442 overlay loads in all with a total of 32 overlays used.

After the 4th or 5th most frequently loaded overlay, the payoff from having the overlay in Central Memory (CM) goes down. The rest of the CM can be used for swap area. Both of these uses take away some CPU usage that would be normally available to user programs. But because most sites are disk bound, the swapping and overlay loading from memory to memory saves on disk access and speeds up the user response time.

If CPD runs and RTIME and CTIME control cards are used around a script run before and after these tuning suggestions, the effect can be measured. With less disk access the product (ICEM DDN) will speed up and will make more use of the CPU so that swapping and overlay loading will occur faster. This can have a secondary effect of causing more CPU utilization due to more jobs (through CPU swapping) having access to the CPU and less disk access due to overlay loading from memory to memory loading. This secondary effect may necessitate a reduction in the the job switch delay so that the CPU is shared better between competing jobs. In any case, the above tuning should have a positive effect on response time for the average ICEM DDN user.

3.4 CPU BOUND 800

If your site is CPU bound (95-99%) , the moving of overlays to Central Memory may cause the individual ICEM user to run a lot faster but when a large terminal load is present the total throughput may decrease. You may take steps to decrease the CPU usage to optimize. Because the CPU is used to move overlays around in memory, the moving of overlays to disk may decrease CPU usage. This will slow down the terminal response for the user at lightly loaded times but should make the user at CPU bound times run better. This situation seems to be rather rare and is found only on the 825s and lower machines. In determining if your site is CPU bound do not be misled by maintenance jobs or batch jobs which use the CPU when the time-sharing jobs are not running.

3.5 CPD READING

CPD or TRACER (NOS System Maintenance Reference Manual - 60459300) and PROBE are used for statistical analysis of your system performance. The data is used to determine areas where problems occur and where improvements in design and system tuning can be made. These products work by periodically gathering data about the system and writing the data to a file.

TRACER is made up of 4 programs:

1) ICPD - Starts up CPD PPU program

2) CPD - CPD is a dedicated PPU program which monitors system activity. Data is written to a direct access permanent file for future analysis.

3) ACPD - A post-processor program which generates an output report from the direct access permanent file written by CPD.

See the NOS Maintenance Manual (60459300) for details of calling parameters for TRACER. The following sequence will start and complete TRACER operation:

1) ICPD,p1,p2,...pn. (starts CPD up)
2) ENDCPD. (ends CPD data gathering)
3) ACPD,p1,p2,...pn. (processes the CPD data and generates a report)

The ACPD report is in three sections -

1) System parameters and EST configuration.

2) System Control Information.

3) Interval Samples.

3.5.1 SYSTEM PARAMETERS AND EST CONFIGURATION

The System Parameters relate such things as the start date and time, report interval, memory size, UEM, number of PPUs and various lengths of software tables. The EST table is dumped showing the channel and disk connections.

3.5.2 SYSTEM CONTROL INFORMATION

The System Control Information relates what the priority is for each job class. The BC, TS, and DI classes are especially important to good system response. The BC and DI should have a lower PR (CPU priority) than the TS class. This will allow time-sharing to always get the CPU before BC or DI can get it.

The other important parameters are the UP (upper priority limit) and LP (lower priority limit). These parameters are set based on how often batch jobs are rolled in and out without ever getting executed. If there is usually a lot of CM available, the UP and LP can be lower for batch and detached jobs than for time-sharing jobs. These parameters control the rolling out of batch or detached jobs when a time-sharing job requests more memory than is currently available. If the execution memory is small in comparison to the field length requests, the batch and detached jobs should have the same UP and LP so that jobs are not rolled in and out without doing any work. The NJ parameter can help this situation. By controlling the number of batch jobs that can execute at the same time, the batch field length can be controlled. The NJ parameter for time-sharing controls the number of users allowed.

The FL and AM parameters for each job class can be designated to limit by job and/or job class how much Field Length (FL) may be used and when to schedule the job to CM. These parameters can be used to partition the memory by job class and run specific jobs at a selected time of the day.

The CM parameter controls how long the UP priorities are in effect. With faster CPUs a short duration (4-5 seconds) is desired so that users that are running batch jobs in time-sharing mode are dropped down to the batch priority (assuming that batch priority is the same as the time-sharing lower bound priority). Thus, short duration time-sharing tasks will get the most attention.

3.5.3 INTERVAL SAMPLE

The following table shows some of the parameters and what action might be taken to improve performance when a high percentage of use is shown:

Parameter (high percentage)	Cause/Information
PPUS ACTIVE	Not enough Disk Channels or PPUs.
NO PPU AVAILABLE	Same as PPUS ACTIVE.
CHANNEL ACTIVE	40 + up means there are not enough disk channels.
CPU USAGE -	
IDLE	High idle percent means the CPU is not being used - could be caused by the system being disk bound.
SYSTEM	System Software using excessive CPU.
SUB-SYS	Same as SYSTEM.
SYS ORG	Same as SYSTEM.
USER	You are getting as much as you can out of the system. Application CPU usage may be excessive.
FL AVAILABLE	Large percent is good - lots of room to run jobs.
IAF USERS	Number of users.
TRACKS AVAILABLE	When a device has only 10% of its tracks available the system automatically does not use this device for TEMP files.
TOTAL ROLLOUTS SECONDARY ROLLOUTS TOTAL SECTORS ROLLED SECONDARY SECTORS ROLLED	The statistics on total and secondary rollouts will tell you if your secondary rollout threshold is large enough and how much your secondary rollout device is being used.
INSUFFICIENT CM	Number of times no CM was available to bring in a job.
NO CONTROL POINT	This number will tell you if you have enough control points defined.

3.6 PROBE

SECONDARY ROLLOUTS
TOTAL SECTORS ROLLED
SECONDARY SECTORS ROLLED will tell you if your secondary rollout threshold is large enough and how much your secondary rollout device is being used.

3) The number of PP requests to CPUMTR by function number.
4) The number of MTR requests to CPUMTR by function number.
5) The statistical data accumulated in low central memory - includes such items as number of sectors rolled and number of rollouts.

PROBE data gathering is enabled at deadstart time by an IPRDECK entry.

SYSEDIT resets the PROBE data tables to zero.

PROBE is useful in moving PP routines to CM when they are called

frequently enough, thus improving system performance.

3.7 CONSOLE WATCHING

Many times all the various tools are not as useful as just watching the system console for signs of thrashing and/or particular user abuse. The following items are worth watching for:

1) Users running batch jobs in time-sharing mode.

2) Batch jobs that are being rolled in but not getting the CPU before they are rolled out again.

3) Jobs that have excessive resource requests over extended periods.

4) Maintenance jobs running at too high a priority and/or too many of them running. One job (CT7) is probably enough. Too many maintenance jobs cause a forced rollout every time a time-sharing job is brought in.

5) Permanent file dumping and loading during the prime shift will slow down or stop any PF requests by your users.

6) NOS/VE running in a dual 800 can have a default priority that allows NOS/VE to take the CPU away from NOS.

4.0 PERMANENT/TEMP FILE ALLOCATION

We have found that allowing the temporary and permanent files to be allocated on every device seem to be the best strategy to spread the load onto as many units as possible.

5.0 EDL TUNING

In many sites the Engineering Data Library (EDL) runs with ICEM DDN and can contribute to excessive resource use. The following EDL file (IMF2STF/UN=IMF) should have the following values for best performance:

```
3 NUMBER OF USER PROCESSES TO CHECK FOR EACH MTR LOOP
2 SEMI-IDLE RECALL TIME (MILLISECONDS)
1 ACTIVE RECALL TIME (MILLISECONDS)
1 K-DISPLAY REFRESH CYCLE
50 MAX NUMBER OF TIMES IDLE BEFORE SCP SWAP-OUT
30 MAX NUMBER OF CONNECTED USERS
10 MAX NUMBER OF OPEN DATA-BASES
170 MAX NUMBER OF ATTACHED FILES
3 NUMBER OF ALLOCATED USER STACKS
5 NUMBER OF INPUT BUFFERS
1 NUMBER OF INPUT QUEUE ENTRIES
3 NUMBER OF I/O BUFFERS
0 NUMBER OF TRANSACTION FILES ON ECS.
1 NUMBER OF LONG WAKE-UP WAITS ALLOWED AT STACK
2 NUMBER OF SHORT WAKE-UP WAITS ALLOWED AT STACK
6000 LONG WAKE-UP WAIT SWAP-OUT DELAY
4000 SHORT WAKE-UP WAIT SWAP-OUT DELAY
30 PARCEL STACK PREEMPTION DELAY
30 SINGLE READ STACK PREEMPTION DELAY
0 TRACE
```

The file DEFSTF/UN=IMF (installation file for IMF) should be used as a model. The default values which have been changed above are:

```
ACTIVE RECALL TIME = 30
TRACE = 1
```

Also, journal logging may be turned off for the EDL database. This will save considerable overhead. However, if the system crashes with the database open, the database file may have to be reloaded from the last permanent file backup, instead of being recovered to the point of failure.

To turn off journal logging, log into the account where the EDL database file E120DDB resides, and type the following commands:

```
GET,CHLOG21/UN=IMF
CHLOG21,OFF,E120DDB,E120LOG.
```

6.0 CONCLUSION

Due to the many ways ICEM DDN is used, and considering the many other applications that are run on 800s, the tuning recommendations may or may not be applicable. Please send any additions or deletions to the CIM Hotline.

CIM Hotline Numbers: (U.S.) 800-227-9999
(Minnesota and International) 612-639-4040

7.0 TUNING GUIDE APPENDIX

The following procedure and program will count the times each overlay is called and the total number of overlays called by processing the CT file which is output from a ICEM DDN run with the T option on:

```
.PROC,SORTCT.
PACK,CT,TAPE2.
FILE,TAPE2,BT=C,RT=U.
FTN5,I=SORTC,B=LGO,L=L,OPT=2.
LGO.
NOTE./ RESULTS ON FILE LIST.
.DATA,SORTC.
      PROGRAM SORTCT(INPUT,OUTPUT,TAPE2,LIST,TAPE1=LIST)
      INTEGER IBUF,INUM(512)
      REWIND 1
      REWIND 2
      ITOTAL = 0
 5    READ(2,END=15)IBUF
      IF(IBUF .GT. 512)GO TO 5
      IF(IBUF .LT. 0)GO TO 5
      INUM(IBUF) = INUM(IBUF)+1
      ITOTAL = ITOTAL+1
      GO TO 5

C     DONE READING CT.

 15   WRITE(1,3000)
      DO 30 J=1,512
      K = 0
      LASTBG = 0
      DO 20 I=1,512
      IF(INUM(I) .GT. LASTBG) THEN
         LASTBG = INUM(I)
         K = I
      ENDIF
 20   CONTINUE
      IF(LASTBG .EQ. 0)GO TO 9000
      WRITE(1,1000) K,INUM(K)
      INUM(K) = 0
 30   CONTINUE
 9000 WRITE(1,2000) ITOTAL
 1000 FORMAT (' CL - ',03,3X,I10)
 2000 FORMAT (' SUM = ',I10)
 3000 FORMAT ('1','OVERLAY NUMBER','   COUNT')
      END
```

APPENDIX D: REPLACEMENT PAGES FOR ICEM DDN V1.6 MANUAL SECTIONS

The remaining pages of this document consists of replacement pages for the ICEM DDN V1.6 Reference Manuals. Reference information for ICEM DDN V1.6 is organized into eleven separate manuals. The replacement pages are grouped respectively under each of the separate manuals.

MANUAL	PUBLICATION NUMBER	MANUAL REVISION	SRB CHANGE PAGES?
ICEM Design Drafting: Introduction and System Controls	60457130	rev K	yes
ICEM Design Drafting: Data Management	60461410	rev D	no
ICEM Design Drafting: Basic Construction	60461420	rev C	no
ICEM Advanced Design	60461430	rev C	yes
ICEM Design Drafting: Drafting Functions	60461440	rev C	yes
ICEM Numerical Control	60461450	rev C	yes
ICEM Design Drafting GRAPL Programming Language Reference Manual	60461460	rev B	no
ICEM GPL	60462520	rev B	yes
ICEM DDN Instant	60457140	rev G	no
ICEM DDN User's Guide	60456940	rev F	no
ICEM DDN System Programmers Reference Manual	60458560	rev C	no

REPLACEMENT PAGES

MANUAL TITLE: ICEM Design/Drafting Introduction and System Controls

PUBLICATION NUMBER: 60457130

REVISION LEVEL: K

INSTRUCTIONS:

To update this manual, for which the previous revision was K, make the following changes:

Remove:	Insert:
3-17,18	3-17,18
4-1,2	4-1,2

1.8 Reserved for Future Use

1.9 Color Display

You can use the color display mode on any terminal, color or monochromatic. However, the colors appear only on the color terminals. When you are working on a color terminal, you must do a host repaint to view your changes. A host repaint uses the R key, as opposed to a local repaint, which uses the PAGE key. The modal menu is as follows:

```
COLOR DISPLAY
1.COLOR DISPLAY MODE
2.COLOR ENVIRONMENT
```

The following is information about the use of color:

- Group and change color display mode require host repaints to change the color.
- Groups (rectangular and circular arrays, balloons, and surface texture symbols) return to their base entity color after the group is deleted.
- The main header has a C = 0 to 15.
- The values entered for the color table use ICEM DDN's modal for the number of decimal places.
- To see your current color display mode, enter 1.12 DISPLAY MODAL STATUS.

The following sections describe the choices in this menu.

1.9.1 Color Display Mode

With this modal, you can assign colors to entities, pens, and levels and perform color management functions.

```
COLOR DISPLAY MODE
 1.COLOR BY ENTITY TYPE
 2.COLOR BY PEN NUMBER
 3.COLOR BY LEVEL NUMBER
 4.COLOR BY ENTITY COLOR
 5.CURRENT COLOR NUMBER
 6.MODIFY PEN NUMBER COLOR
 7.MODIFY LEVEL NUMBER COLOR
 8.COLOR SPECTRUM DISPLAY
 9.MODIFY ENTITY COLOR
10.TEMPORARY ENTITY COLOR
```

The following sections describe the choices in this menu.

1.9.1.1 Color by Entity Type

With this modal, entities are displayed by type. The color cannot be changed unless you change the color table. This is the default color display mode if you enter the system with a new part or you call up an old part that has this display mode saved.

Whether the color assignment was assigned by entity type or not (refer to table 3-1), the system changes the color assignment to entity type and displays:

```
COLOR BY ENTITY TYPE ON
```

You return to 1.9.1 COLOR DISPLAY MODE.

You must do a host repaint to view the color change in old entities. The newly created entities appear in the correct color.

Table 3-1. Default Color Numbers by Entity Type

Color Number	Entity Type
0	Points
1	Line, arc, conic, two-dimensional spline
2	Groups and arrays
3	Label and note
4	Linear, angular, diameter, and circular dimensions
5	Point to point, lathe, and grid
6	Three-dimensional spline, tabulated cylinder, and hexahedron
7	Section lining
8	Point set
9	Balloon, surface texture symbols, and composite curves
10	Template, vector, and data graphs
11	String
12	Tool
13	Surfaces and plane
14	True position and centerline
15	String

Menu 2: Blank/Unblank 4

Using Menu 2

This menu controls blanking of current parts. Blanking leaves an entity in a current part but does not display it. Unblanking makes it visible again.

1.10 BLANK/UNBLANK VIEW SELECT is used exclusively with this menu. Refer to Using 1.10 BLANK/UNBLANK VIEW SELECT for more information.

The menu for this section is:

```
BLANK/UNBLANK
1.BLANK-SELECT
2.      -LEVEL RANGE
3.      -ALL OF A TYPE
4.      -ALL
5.UNBLANK-SELECT
6.        -LEVEL RANGE
7.        -ALL OF A TYPE
8.        -ALL
```

The Blank/Unblank menu offers these features:

Menu Title	Description
2.1 BLANK-SELECT	In a current part, blanks selected entities.
2.2 BLANK-LEVEL RANGE	In a current part, blanks entities on selected levels.
2.3 BLANK-ALL OF A TYPE	In a current part, blanks all entities of the selected type(s).
2.4 BLANK-ALL	In a current part, blanks all entities.
2.5 UNBLANK-SELECT	In a current part, unblanks selected entities.
2.6 UNBLANK-LEVEL RANGE	In a current part, unblanks entities on selected levels.
2.7 UNBLANK-ALL OF A TYPE	In a current part, unblanks all currently blanked entities of the selected type(s).
2.6 UNBLANK-ALL	In a current part, unblanks all entities.

Using 1.10 Blank/Unblank View Select

Through the use of 1.10 BLANK/UNBLANK VIEW SELECT, you have the option of displaying or not displaying entities in specified views. This function is called selective view blank/unblank. It is independent of the blank/unblank function in that an entity can be blanked but not necessarily selectively blanked, and vice versa. For example, suppose you select a view in which an entity is to be selectively blanked. That entity is selectively blanked in that specified view and is not displayed in that view; however, the entity is still displayed in all other views, and is still unblanked. Changing the 1.10 BLANK/UNBLANK VIEW SELECT modal to ALL VIEWS and blanking that same entity causes it to be both selectively blanked and unblanked, and therefore not displayed in any view. Unblanking the entity causes it to be only selectively blanked again, and displayed in all views except the view you originally specified.

If the modal is turned on, the system displays the following when you choose a submenu from 2 BLANK/UNBLANK:

```
VIEW SELECTION
1.RANGE
2.VIEW NUMBER
```

Enter:

1 To select a range of views.

`FROM VIEW =` `TO VIEW =`	Enter the range of views (1 to 420) to be selectively blanked. Enter] or [to return to the VIEW SELECTION prompt.

If the sequence number of a group lies within this range, the subentities within this group will be blanked, even though the sequence numbers of the subentities do not lie within this range.

2 To select an individual view.

`VIEW NUMBER =`	Enter the individual view number. Enter [or] to return to the VIEW SELECTION prompt.

You continue to the blank/unblank choice you selected.

Selective view blanking is a cumulative function. If an entity is selectively blanked in two different views in separate operations, that entity is selectively blanked in both views. To reduce the number of views in which an entity is selectively blanked, use a selective unblank function. An entity may be selectively blanked or unblanked in views 1 through 420.

An unblank with the blank/unblank view select modal set to all displayed views does not unblank views that have been selectively blanked. These views must be selectively unblanked to be redisplayed.

Hexahedrons cannot be selected with the blank/unblank or selective view blank/unblank functions. Dimensions, notes, centerlines, and feature frame symbols may be selected, but are selectively blanked only if the view number entered corresponds with the entity's view of definition.

REPLACEMENT PAGES

MANUAL TITLE: ICEM Advanced Design

PUBLICATION NUMBER: 60461430

REVISION LEVEL: C

INSTRUCTIONS:

To update this manual, for which the previous revision was C, make the following changes:

Remove:	Insert:
3-21,22	3-21,22
3-27,28	3-27,28
3-39,40	3-39,40
4-25,26	4-25,26
5-3,4	5-3,4

15.2.5 Composite Curve

With this choice, you can create a composite curve from a set of contiguous curves. The curves of the composite curve must be selected end to end in sequential order. You cannot refer to the subcurves of a composite curve individually, but only as the whole composite curve. The allowable entities in composite curves are lines, arcs, conics, two-dimensional splines, three-dimensional splines, and Bezier curves.

Composite curves have these characteristics:

- Composite curves are single entities.
- Composite curves are displayable entities and can be assigned display attributes, such as level.
- A composite curve cannot be a member of another composite curve.
- The number of allowable entities incorporated in a composite curve ranges from a minimum of 2 to a maximum of 100.
- Composite curves are selectable entities but the individual entities incorporated in them cannot be selected.
- Composite curves can be deleted without deleting the individual entities incorporated in them (refer to 3 DELETE in the ICEM Design/Drafting Introduction and System Controls manual). When the composite curve is deleted, the individual entities retain the display attributes of the composite curve. The original display attributes of the individual entities are lost.
- Composite curves behave as single entities when these operations are applied to them: TRANSLATE, ROTATE, MIRROR, SCALE, DUPLICATE, or any combination of these operations.

When you begin using the Composite Curve operation, the system displays:

INDICATE ENTITY	Use the graphics cursor to screen select the curves to be selected.

If you want to use another method of selection, enter CTRL-E to receive the following menu:

ENTITY SELECTION 1.SCREEN SELECT 2.CHAIN ⋮	Use the entity selection procedure to select the contiguous curves that are to form the composite curve. Selected curves must be connected from end to end. You may select a maximum of 100 curves.

After you select the curves and enter], the system defines the composite curve and displays:

```
COMPOSITE CURVE WITH
XXX SUBCURVES CREATED.
```

You are then returned to the Screen Select Mode menu to continue with the composite curve operation.

If you have ended the curve selection procedure and fewer than two curves have been specified, the system displays:

```
COMPOSITE CURVE NOT DEFINED.
AT LEAST TWO CURVES REQUIRED.
```

If the selected curves are not contiguous, the system displays:

```
COMPOSITE CURVE NOT DEFINED.
CURVES ARE NOT CONTIGUOUS IN THE
ORDER OF SELECTION.
```

If the selected curves are members of groups, the system displays:

```
CURVES CANNOT BE IN GROUPS
```

If you selected fewer than two curves or the selected curves were not contiguous, you are returned to the Entity Selection menu to reselect the curves.

You are not allowed to select more than 100 curves for incorporation in a composite curve. If you select more than 100 curves, the system displays:

```
MAXIMUM OF 100 ENTITIES HAS
BEEN SELECTED.
```

15.2.6 Vector

With this choice, you can create new vectors or modify existing vectors. A vector is a single line segment that has magnitude and direction. Its length represents its magnitude. The direction of a vector is from its tail to its head, which has barbs on it. Vectors are always defined in model coordinate space.

The following menu is described in this section:

```
VECTOR
1.SCREEN POSITION
2.KEY-IN
3.2 POINTS
4.SURFACE UNIT NORMAL
5.SCALAR TIMES VECTOR
6.CROSS 2 VECTORS
7.NORMALIZE VECTOR
8.LENGTH AT GIVEN ANGLE
9.INTERSECTION OF 2 PLANES
10.SUM OR DIFF OF 2 VECTORS
11.PT AT ANGLE TO LINE/VECTOR
12.MODIFY/REPLACE
13.REVERSE SURFACE NORMAL
```

The choices in this menu are described next.

INDICATE 2-D CURVE	Use the graphics cursor to select an existing line or vector to use as the base for the angular measurement.
1.ANGLE = n.nnnn 2.LENGTH = n.nnnn	Enter new values for the angle and length of the vector.

NOTE

Vectors defined by these menus cannot be modified: 2 Points (15.2.6.3), Surface Unit Normal (15.2.6.4), Cross 2 Vectors (15.2.6.6), Normalize Vectors (15.2.6.7), Intersection of 2 Planes (15.2.6.9), Sum or Diff of 2 Vectors (15.2.6.10), and Reverse Surface Normal (15.2.6.13). If vectors defined by these menus are selected for modification, control will be returned to the Select Entry Mode menu.

15.2.6.13 Reverse Surface Normal

With this choice, you can create and display a unit surface normal vector. You can also reverse the normal direction of a specific surface. This is useful because some Numerical Control manufacturing operations require that the normal vectors point away from the material side of a surface. You can create a surface without regard to its normals and then confirm or change them later.

```
SURFACE NORMAL MODE
1.DISPLAY VECTOR
2.REVERSE NORMAL
```

Enter:

1 To define and display a unit surface normal vector on a selected surface.

```
INDICATE SURFACE
```

Use the graphics cursor to select a surface. Selecting the surface with the graphics cursor on the surface causes the system to define the unit surface normal vector at the graphics cursor location. Selecting the surface with the graphics cursor off the surface causes the system to define the vector at the surface parameters u,v = (0.5,0.5).

2 To reverse the normal direction of a surface.

```
REVERSE NORMAL MODE
1.INDICATE SURFACE
2.REV. LAST VECTOR
```

Enter:

1 To use the graphics cursor to indicate the surface for which the normal direction is to be reversed. The system indicates this surface by displaying a unit normal on the surface at u,v=(0.5,0.5). Previously created normal vectors are unchanged.

2 The surface whose normal direction is to be reversed is the one which is associated with the last normal vector created with 1. DISPLAY VECTOR under the SURFACE NORMAL MODE prompt. This vector is delected and replaced by a new reversed vector at the same location.

15.2.7.1.4 Conversion

With this choice, you can approximate curves (lines, arcs, conics, two-dimensional splines, three-dimensional splines, machining curves, point set, composite curve, Bezier curves) by using a Bezier curve. The approximation is an interpolation if the curve is a line.

INDICATE CURVE	Select a curve.
CURVE EXTENT 1.ENTIRE CURVE 2.PART OF CURVE	Enter: 1 To approximate the entire curve. 2 To approximate only part of the curve.

If you entered 2.PART OF CURVE, the system displays:

START PARAMETER 1.SCREEN POSITION 2.KEY-IN 3.EXISTING POINT 4.SELECT CURVE END	Enter: 1 To indicate a position near the desired point at which the new curve starts. If the position does not lie on the curve, the shortest two-dimensional normal is dropped from the position to the curve. 2 To enter the parameter value to define the start point. The system displays the parameter values of the start and endpoints of the curve. You can enter a value between those two values to define the point within the curve, or beyond them to define the point on the extended curve. 3 To select an existing point near the desired point at which the new curve starts. If the point does not lie on the curve, the shortest three-dimensional normal is dropped from the point to the curve. 4 To indicate one end of an existing curve.

Then you are prompted for the END PARAMETER having the same choices.

After entering 1. ENTIRE CURVE or after prompting END PARAMETER for 2. PART OF CURVE, the system displays:

ORDER = n	A default order is given that varies by the curve type. You can accept the value n or enter an appropriate value. If the selected curve is a line, the order is always 2. For other types of curves the minimum order is 4.

If the existing curve is an ellipse and the opening angle is larger than 180, two curves are generated in order to more closely match the ellipse.

15.2.7.1.5 Dupl&Trunc/Extend

With this choice, you can define a Bezier curve that is identical to part of the Bezier curve (segment) or that extends a Bezier curve (extension).

INDICATE BEZIER CURVE	Select a Bezier curve.
START PARAMETER 1.SCREEN POSITION 2.KEY-IN 3.EXISTING POINT 4.SELECT CURVE END	Enter: 1 To indicate a position near the desired point at which the new curve starts. If the position does not lie on the curve, the shortest two-dimensional normal is dropped from the position to the curve. 2 To enter the parameter value within the range from -1 to 2 to indicate where the starting point is to be. The parameter values 0 to 1 define points within the existing curve. The parameter values from -1 to 0, or from 1 to 2, define points on the extended curve. 3 To select an existing point near the desired point at which the new curve starts. If the point does not lie on the curve, the shortest three-dimensional normal is dropped from the point to the curve. 4 To indicate one end of an existing curve.

Then you are prompted for the END PARAMETER having the same choices.

15.2.7.2 Modification

With this choice, you can modify a Bezier curve. The menu described in this section is:

```
MODIFICATION
1.POLYGON
2.CONSTRAINTS
3.DEFORMATION
4.DEGREE
5.SEGMENT
6.PARAMETER
```

The choices in this menu are described next.

15.3.9 Sphere

With this choice, you can create a sphere. This surface is the set of points located at a specified distance from a center point. 15.1.3 SURFACE PATHS is used to construct the sphere with the desired number of surface paths.

```
CENTER POINT
1.SCREEN POSITION
2.KEY-IN
3.EXISTING POINT
```

Indicate the center point of the sphere.

Enter:

1 To use the graphics cursor to indicate a position.

2 To enter the xt-, yt-, and zt-coordinates.

3 To use the graphics cursor to select an existing point.

After you select a center point for the sphere, the system displays:

```
FULL EQUATOR?
```

Enter:

Y To construct the sphere with a full 180° equator. The equator rotates counter-clockwise from the positive x-axis of the work plane around the normal vector of the work plane. Furthermore, the equator angles can only range between 0 and 180 degrees.

N To construct the sphere with other than a 180° equator.

If you enter N, the system displays:

```
1.STARTING ANGLE = n.nnnn
2.ENDING ANGLE   = n.nnnn
```

Enter the starting angle and the ending angle of the equator. Default angles are 0° and 180°.

After you define the equator, the system displays:

```
FULL CIRCUMFERENCE?
```

Enter:

Y To construct the sphere with a full 360° circumference. The circumference rotates about the horizontal axis in the view of definition and is measured from the top out of the screen.

N To construct the sphere with other than a 360° circumference. End minus start angle must be less than or equal to 360 degrees.

If you enter N, the system displays:

```
1.STARTING ANGLE = n.nnnn
2.ENDING ANGLE   = n.nnnn
```

Enter the starting angle and the ending angle of the circumference. Default angles are 0° and 360°.

After you define the circumference, the system displays:

```
1.RADIUS = n.nnnn
```

Enter the sphere radius. Default is 6.35 mm (0.25 in).

The sphere in figure 4-5 has an equator of 30° to 170° and a circumference of 0° to 270°.

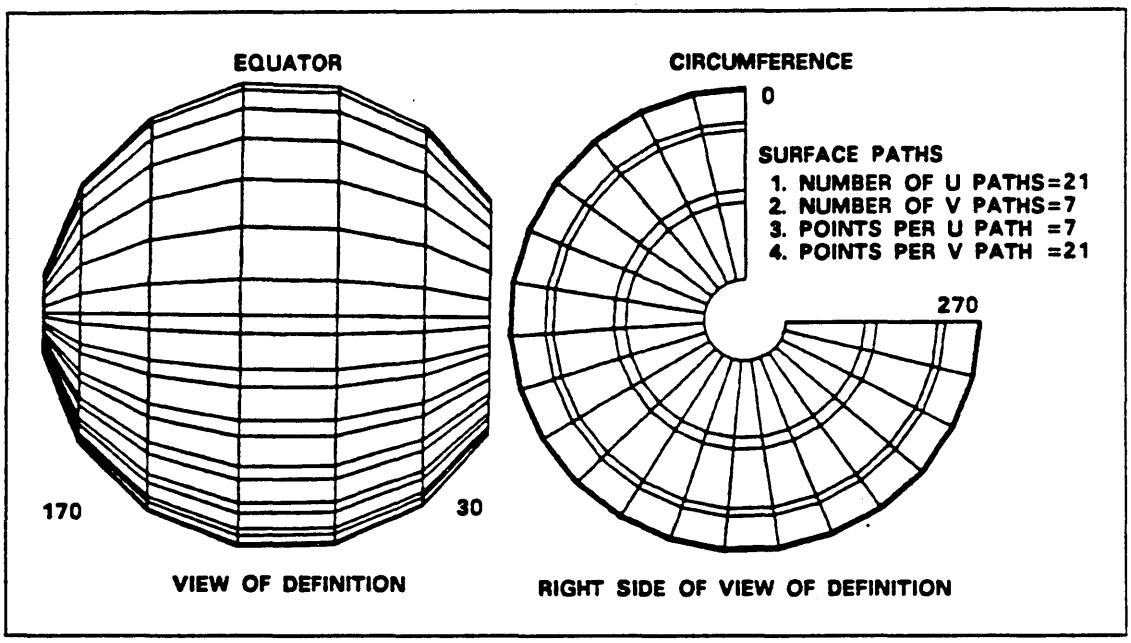

Figure 4-5. Sphere

15.3.10 Cylinder

With this choice, you can create a right circular cylinder. This surface is the set of points at a specified distance from a center axis line. A cylinder may be generated using one of two methods. With the first method, you specify an axis, radius, and start/end angles. With the second method, you specify an arc and a height. The system generates an axis normal to the arc and through its center. The cylinder is defined using the radius and angles describing the arc. 15.1.3 SURFACE PATHS can be used to construct the cylinder with the desired number of surface paths.

```
CYLINDER DEFINITION
1.AXIS
2.EXISTING ARC
```

Enter:

1 To specify an axis, radius, and starting and ending angles. Continue to AXIS.

2 To specify an arc and a height. Continue to EXISTING ARC.

The choices in this menu are described next.

Axis

If you select 1.AXIS from the Cylinder Definition menu, the system displays:

```
AXIS FORM
1.EXISTING LINE
2.EXISTING POINTS
```

15.4.1 Hexahedron

With this choice you can create a hexahedron, which is a solid bounded by orthogonal planes. Indicate the center point of the hexahedron.

```
CENTER POINT
1.SCREEN POSITION
2.KEY-IN
3.EXISTING POINT
```

Enter:

1 To use the graphics cursor to indicate a position.

2 To enter the xt-, yt-, and zt-coordinates.

3 To use the graphics cursor to select an existing point.

After you select a center point for the hexahedron, the system displays:

```
1.DXT = n.nnnn
2.DYT = n.nnnn
3.DZT = n.nnnn
```

Enter either the distances along the x-, y-, and z-axes from the center point to the hexahedron faces, or the normal distances from the center point to the orthogonal planes bounding the hexahedron.

15.4.2 Spheroid

With this choice, you can create a solid sphere. Indicate the center point of the spheroid.

`CENTER POINT`
`1.SCREEN POSITION`
`2.KEY-IN`
`3.EXISTING POINT`
	Enter:
	1 To use the graphics cursor to indicate a position.
	2 To enter the xt-, yt-, and zt-coordinates.
	3 To use the graphics cursor to select an existing point.

After you select a center point for the spheroid, the system displays:

`FULL EQUATOR?`	Enter: Y To construct the spheroid with a full 180° equator. The equator rotates about the vertical axis in the view of definition and is measured from the right to the left. N To construct the spheroid with other than a 180° equator.

If you enter N, the system displays:

`1.STARTING ANGLE = n.nnnn` `2.ENDING ANGLE = n.nnnn`	Enter the starting angle and the ending angle of the equator. Default angles are 0° and 180°.

After you define the equator, the system displays:

`FULL CIRCUMFERENCE?`	Enter: Y To construct the spheroid with a full 360° circumference. The circumference rotates about the horizontal axis in the view of definition and is measured from the top out of the screen. N To construct the spheroid with other than a 360° circumference. If you enter N, the system displays:
`1.STARTING ANGLE = n.nnnn` `2.ENDING ANGLE = n.nnnn`	Enter the starting angle and the ending angle of the circumference. Default angles are 0° and 360°. `End minus start angles must be less than or equal to 360 degrees.`

After you define the circumference, the system displays:

`1.RADIUS = n.nnnn`	Enter the radius of the spheroid. Default is 6.35 mm (0.25 in).

REPLACEMENT PAGES

MANUAL TITLE: ICEM Design/Drafting Drafting Functions

PUBLICATION NUMBER: 60461440

REVISION LEVEL: C

INSTRUCTIONS:

To update this manual, for which the previous revision was C, make the following changes:

Remove:	Insert:
2-21,22,23,24	2-21,22,23,24

Select the type of analysis to be performed.

```
SELECT ANALYSIS
 1.PERIMETER
 2.AREA
 3.CENTER OF GRAVITY
 4.AXIAL MOMENTS OF AREA
 5.AXIAL MOMENTS OF INERTIA
 6.PRINCIPAL MOMENTS OF INERTIA
 7.PRINCIPAL AXES ANGLES
 8.PRODUCTS OF INERTIA
 9.AXIAL RADII OF GYRATION
10.POLAR MOMENT OF INERTIA
11.POLAR RADIUS OF GYRATION
```

Enter:

1 To determine the perimeter of the figure.

2 To determine the area of the figure.

3 To determine the center of gravity of the figure.

4 To determine the axial moments of the area of the figure with respect to each coordinate axis.

5 To determine the axial moments of inertia (second moments of area) of the figure with respect to each coordinate axis.

6 To determine the principal moments of inertia of the figure with respect to the principal axes.

7 To determine the angles between the coordinate axes and the principal axes (in degrees).

8 To determine the products of inertia of the figure.

9 To determine the axial radii of gyration of the figure with respect to each coordinate axis.

10 To determine the polar moment of inertia with respect to the local origin of the figure.

11 To determine the polar radius of gyration of the figure.

The origin used in response to selections 3 through 11 is the origin indicated in response to the LOCAL ORIGIN FOR ANALYSIS prompt. The coordinate axes used in response to selections 4, 5, 6, and 9 are those that pass through this origin and are parallel to the bottom and left edges of the screen.

18.4 3-D Analysis

With this choice, you can calculate specific analytical properties of certain three-dimensional figures. These figures should be two-dimensional, closed shapes that will be projected to a depth, rotated about the XT-axis, rotated about the YT-axis, or rotated about a given line. If the figures are to be rotated about an axis, they may not cross the axis of rotation. Shapes in three-dimensional space may also be used, but only their projection onto the XT,YT plane will be considered. The following approximate analyses can be performed:

- **Surface area**
- **Volume**
- **Weight and/or weight per unit length**
- **First moment and center of mass**
- **Moment of inertia**
- **Radius of gyration**
- **Spherical moment of inertia**
- **Spherical radius of gyration**

The system displays the following menu choices:

```
3-D ANALYSIS
1.PERFORM ANALYSIS
2.DISPLAY ACCUMULATED RESULTS
```

Enter:

1 To perform analysis on a projected or rotated object.

2 To display the accumulated results of three-dimensional analysis on two or more distinct objects.

18.4.1 Perform Analysis

With this choice, you can specify the type of three-dimensional figures to be analyzed.

```
SELECT ANALYSIS TYPE
1.PROJECTED
2.ROTATED ABOUT THE XT-AXIS
3.ROTATED ABOUT THE YT-AXIS
4.ROTATED ABOUT A LINE
```

Enter:

1 To select projected two-dimensional entities.

```
1.ZT BOTTOM = n.nnnn
2.ZT TOP    = n.nnnn
```

Enter the bottom and top zt values of the projected figure to be analyzed. The default values are:

1.ZT BOTTOM = -1.0 in (-25.4 mm)
2.ZT TOP = 1.0 in (25.4 mm)

Enter:

[To return to the Select Analysis Type menu.

] To accept the default values and continue to the DENSITY prompt.

2 To select a two-dimensional figure to be rotated 360° about the xt-axis.

3 To select a two-dimensional figure to be rotated 360° about the yt-axis.

4 To select a two-dimensional figure to be rotated 360° about a line in the XT,YT plane.

```
INDICATE LINE
```

Use the graphics cursor to select an existing line as the axis of rotation for the two-dimensional figure. The line should be coplanar with the figure and both should be in the XT,YT plane. If they are not, the system projects them onto the XT,YT plane and uses the projections for analysis.

Enter:

[To return to the Select Analysis Type menu.

] To return to 18.4 3-D ANALYSIS.

For all types of figures, the system next displays:

```
1.DENSITY = n.n
```

Enter the density of the figure in grams per cubic millimeter (pounds per cubic inch). The default value is 1.0.

Enter:

[To return to the Select Analysis Type menu.

] To accept the default density.

Now select the entity you want to analyze.

```
INDICATE 2-D CURVE
```

Use the graphics cursor to screen select the edges of the figure. A maximum of 250 curves can be selected. The generating figure must be closed.

If you want to use another method of selection, enter E or CTRL-E to receive the following menu:

```
ENTITY SELECTION
1.SCREEN SELECT
2.CHAIN
3.REGION IN
  ⋮
```

Use the Entity Selection menu to identify the edges. For more information, refer to the ICEM Design/Drafting Introduction and Systems Controls manual.

Enter:

[To return to the DENSITY prompt.

] To return to the Select Analysis Type menu if you made no selections. If you made the selections, entering] sends you to the INDICATE 2-D CURVE prompt. In the case of a rotated figure, if the edges do not form a closed curve, perpendiculars from the ends of the curve are dropped onto the axis of rotation, thereby closing the curve.

REPLACEMENT PAGES

MANUAL TITLE: ICEM Numerical Control

PUBLICATION NUMBER: 60461450

REVISION LEVEL: C

INSTRUCTIONS:

To update this manual, for which the previous revision was C, make the following changes:

Remove:	**Insert:**
6-23,24	6-23,24
7-17,18	7-17,18
14-3,4	14-3,4
17-1,2,3,4,5,6,7,8,9,10	17-1,2,5,6,7,8,8.1,9,10
19-35,36,37,38	19-35,36,36.1,37,37.1,38
19-45,46	19-45,46
	20-5,6,7,8,9

GPG Statement

The SRTRCT statement sets tool motion from point to point.

Statement Format:

```
          (PROMPT)
SRTRCT/   (NONE  )
          (CLEAR )
          (RETRCT)
```

Parameter	Description
PROMPT	Prompts for the options at generation time.
NONE	Moves the tool directly with no retraction between points.
CLEAR	Moves the tool from point to point using the clearance distance from the next point. If the next point is lower or equal to the next point, the retract distance is that of the current point plus the clearance distance. If the next point is higher, the retract distance is that of the next point plus the clearance distance.
RETRCT	Moves the tool to the retract plane for motion between points.

Spindle

The spindle speed and direction is set using the following methods.

Generate

The prompts that appear at toolpath generation time are the same as for the Modify Current Parameters menu except that you do not select the prompting option.

Modify

If you selected Spindle from the Modify Current Parameters menu, you can set the spindle speed and direction.

```
SPINDLE SPEED
1.SPINDL SPD        50
2.DIRECTION         CLW
```

Enter [to return to the Modify Current Parameters menu with no changes.

Enter] to accept the values.

Enter:

1 To set the spindle speed.

```
1.SPINDL SPD        50
```

Enter the spindle speed.

Enter:

] To accept the value and return to the Spindle menu.

[To return to the Spindle menu with no changes.

2 To set the spindle direction.

```
SPINDLE DIRECTION
 1. CLOCKWISE
 2. COUNTERCLOCKWISE
```

Enter:

1 To indicate clockwise direction.

2 To indicate counterclockwise direction.

] To accept the value and return to the Spindle menu.

[To return to the Spindle menu with no changes.

Move Command (M)

The M command moves text from one point in the file to another point in the file.

Command	Description
?? M lp1 T lp2	Move line lp1 after lp2.
?? M lp1,lp2 T lp3	Move lines lp1 to lp2 after lp3.
?? M N n1 T lp2	Move n1 lines beginning with the current line after line lp2.
?? M lp1 N n1 T lp2	Move n1 lines beginning with line lp1 after line lp2.

NOTE

The text of the last line moved is the only line displayed.

Examples:

Entry	System Action
?? M X T 100	Move line X after line 100.
?? M G,G T G	Move the lines between the nearest toolpath points of two screen selections and insert them after the toolpath point of a third screen-selected point.
?? M 300,400 T 0	Move lines 300 to 400 to the beginning of the file.
?? M N3 T L	Move 3 lines beginning with the current line after the last line.
?? M 22 N10 T 200	Move 10 lines beginning with line 22 after line 200.

Copying and transforming lines from another toolpath.

Command	Description
?? C lp1 (S,M) T lp3	Copy and transform line lp1 from the selected toolpath after lp3.
?? C lp1,lp2 (S,M) T lp3	Copy and transform lines lp1 to lp2 from the selected toolpath after lp3.
?? C N n1 (S,M) T lp3	Copy and transform n1 lines beginning with the first line from the selected toolpath after lp3.
?? C lp1 N n1 (S,M) T lp3	Copy and transform n1 lines beginning with line lp1 from the selected toolpath after lp3.

NOTE

1) The letter 'S' must be included within the parentheses to indicate that the lines copied are from another toolpath. To choose the toolpath to copy from, follow the standard selection procedure for toolpath entities.

2) The letter 'M' must be included within the parentheses to indicate that a matrix copy operation is to be performed.

3) Line parameters C, X, Y, Z, G, line+num, and line-num cannot be used to specify the line range to copy.

4) The text of the last line copied is the only line displayed.

You can add a repeat parameter to the MATRIX COPY command which will allow you to copy and transform the same lines multiple times.

The form of the repeat parameter is

R r1

where r1 indicates the number of times the lines will be copied.

Command	Description
?? C lp1 (M) T lp3 R r1	Copy and transform line lp1 after lp3. Repeat r1 times.
?? C lp1,lp2 (S,M) T lp3 R r1	Copy and transform lines lp1 to lp2 from the selected toolpath after lp3. Repeat r1 times.
?? C N n1 (fname,M) T lp3 R r1	Copy n1 lines beginning with the first line from the file fname after lp3. Repeat r1 times.

Example:

Entry	System Action
?? C 100,200 (M) T 10	Copy and transform lines from 100 to 200 after line 10.
?? C A (FRED,M) T L	Copy and transform all lines from file FRED after the last line.
?? C F N3 (S,M) T G	Copy and transform 3 lines beginning with the first line after the nearest screen selected goto point.
?? C 10,100 (M) T C R2	Copy and transform lines 10 to 100 after the current line. Repeat the operation twice.

Matrix Copy Command (C)

The C command can also copy and transform lines from one place to another, either within the edited toolpath, or from another file or toolpath.

Copying and transforming lines within the edited toolpath.

Command	Description
?? C lp1 (M) T lp3	Copy line and transform lp1 after lp3.
?? C lp1,lp2 (M) T lp3	Copy and transform lines lp1 to lp2 after lp3.
?? C N n1 (M) T lp3	Copy and transform n1 lines beginning with the current line after lp3.
?? C lp1 N n1 (M) T lp3	Copy and transform n1 lines beginning with line lp1 after lp3.

NOTE

1) The letter 'M' must be included within the parentheses to indicate that a matrix copy operation is to be performed.

2) Line parameters C, X, Y, Z, G, line+num, and line-num cannot be used to specify the line range to copy.

3) The text of the last line copied in the only line displayed.

Copying and transforming lines from another file.

Command	Description
?? C lp1 (fname,M) T lp3	Copy and transform line lp1 from file fname after lp3.
?? C lp1,lp2 (fname,M) T lp3	Copy and transform lines lp1 to lp2 from file fname after lp3.
?? C N n1 (fname,M) T lp3	Copy and transform n1 lines beginning with the first line from file fname after lp3.
?? C lp1 N n1 (fname,M) T lp3	Copy and transform n1 lines beginning with line lp1 from file fname after lp3.

NOTE

1) The file name must be included within the parentheses.

2) The letter 'M' must be included within the parentheses to indicate that a matrix copy operation is to be performed.

3) Line parameters C, X, Y, Z, G, line+num, and line-num cannot be used to specify the line range to copy.

4) File name 'S' cannot be copied. See copying and transforming lines from another toolpath.

5) The text of the last line copied is the only line displayed.

Copying lines from another toolpath.

Command	Description
?? C lp1 (S) T lp3	Copy line lp1 from the toolpath selected after lp3.
?? C lp1,lp2 (S) T lp3	Copy lines lp1 to lp2 from the toolpath selected after lp3.
?? C N n1 (S) T lp3	Copy n1 lines beginning with the first line from the toolpath selected after lp3.
?? C lp1 N n1 (S) T lp3	Copy n1 lines beginning with line lp1 from the toolpath selected after lp3.

NOTE

1) The letter 'S' must be included within the parentheses to indicate that the lines copied are from another toolpath. To choose the toolpath to copy from, follow the standard selection procedure for toolpath entities.

2) Line parameters C, X, Y, Z, G, line+num, and line-num cannot be used to specify the line range to copy (lp1 or lp2).

3) The text of the last line copied is the only line displayed.

You can add a repeat parameter to the COPY command which will allow you to copy the same lines multiple times.

The form of the repeat parameter is

R r1

where r1 indicates the number of times the lines will be copied.

Command	Description
?? C lp1 T lp3 R r1	Copy line lp1 after lp3. Repeat r1 times.
?? C lp1,lp2 (S) T lp3 R r1	Copy lines lp1 to lp2 from the toolpath selected after lp3. Repeat r1 times.
?? C N n1 (fname) T lp3 R r1	Copy n1 lines beginning with the first line from the file fname after lp3. Repeat r1 times.

Example:

Entry	System Action
?? C A (FRED) T L	Copy all lines from file FRED after the last line.
?? C 100,200 (S) T 0	Copy lines 100 to 200 from the toolpath that is selected to the beginning.
?? C N3 T 100	Copy 3 lines beginning with the current line after line 100.
?? C F,C T C R5	Copy the lines from the first line to the current line after the current line. Repeat the operation five times.

Copy Command (C)

The C command copies text from one place to another, either within the edited file, or from another file or toolpath.

Copying lines within the edited file.

Command	Description
?? C lp1 T lp2	Copy line lp1 after lp2.
?? C lp1,lp2 T lp3	Copy lines lp1 to lp2 after lp3.
?? C N n1 T lp1	Copy n1 lines beginning with the current line after lp1.
?? C lp1 N n1 T lp2	Copy n1 lines beginning with line lp1 after lp2.

NOTE

The text of the last line copied is the only line displayed.

Copying lines from another file.

Command	Description
?? C lp1 (fname) T lp3	Copy line lp1 from file fname after lp3.
?? C lp1,lp2 (fname) T lp3	Copy lines lp1 to lp2 from file fname after lp3.
?? C N n1 (fname) T lp3	Copy n1 lines beginning with the first line from file fname after lp3.
?? C lp1 N n1 (fname) T lp3	Copy n1 lines beginning with line lp1 from file fname after lp3.

NOTE

1) The file name is to be included within the parentheses.

2) Line parameters C, X, Y, Z, G, line+num, and line-num cannot be used to specify the line range to copy.

3) File name 'S' cannot be copied. See copying lines from another toolpath.

4) File name 'M' cannot be copied. See matrix copy.

5) The text of the last line copied is the only line displayed.

Replace Command (R)

The R command replaces one string of characters for another string of characters.

Command	Description
?? R /t1/t2/	Replace t1 with t2 in the first line found. The search for t1 begins with the current line and ends when either t1 is found or the end-of-file was reached.
?? R lp /t1/t2/	Replace t1 with t2 in the first line found. The search for t1 begins at line lp and ends when either t1 is found or the end-of-file was reached. If lp = A, then replace all occurrences of t1 with t2.
?? R lp1,lp2/t1/t2/	Replace all occurrences of t1 with t2 from line parameter lp1 to lp2.
?? R N n1 t1 t2	Replace t1 with t2 in n1 lines with the search beginning with the current line.
?? R lp N n1 "t1"t2"	Replace t1 with t2 in n1 lines with the search for t1 beginning at line lp.

NOTE

All lines that contain the string in the range are displayed.

Examples:

Entry	System Action
?? R/text1/text2/	Replace the occurrence of text1 with text2 in the first line found beginning with the current line.
?? R25/text1/text2/	Replace the occurrence of text1 with text2 in the first line found beginning with line number 25.
?? RF,G/text1/text2/	Replace all occurrences of text1 with text2 from the first line to the line of the nearest screen-selected toolpath point.
?? RA'text1'text2'	Replace all occurrences of text1 with text2.
?? R100N3"text1"text2"	Replace in three lines the occurrence of text1 with text2 starting at line 100.

17.9.2 Contouring

You can use this menu to generate a lathe contouring N/C machining toolpath.

The lathe contouring operation removes excess material left from a roughing operation, casting, or forging. The cutting passes are run parallel to the finish part geometry. This operation may produce a finished part, or may leave small amounts of stock for other operations, such as grinding.

The menu for this chapter is:

```
CONTOURING
1.GENERATE TOOLPATH
2.MODIFY GENERATION PARAMETERS
3.READ PARAMETERS FROM TOOLPATH
4.READ PARAMETERS FROM FILE
5.WRITE PARAMETERS TO FILE
```

The choices in this menu are described more fully in chapters 3, 5, and 7.

1.GENERATE TOOLPATH	Refer to the following section for a listing of the prompt sequence. Refer to chapter 3 for a general overview of the generation sequence. Refer to chapters 5 and 7 for specific operations.
2.MODIFY GENERATION PARAMETERS	Refer to the following section for a listing of the menu. Refer to chapter 3 for a general overview of the modify sequence. Refer to chapters 5 and 7 for specific operations.
3.READ PARAMETERS FROM TOOLPATH	Refer to chapter 3 for a description of this sequence.
4.READ PARAMETERS FROM FILE	Refer to chapter 3 for a description of this sequence.
5.WRITE PARAMETERS TO FILE	Refer to chapter 3 for a description of this sequence.

The system then asks you to define the step size.

1.FIRST STEP=	Enter the size of each cut in the first set of cuts in millimeters (inches).

The system asks you to define a step size for the rest of the zone.

USE LAST SIZE FOR REST OF ZONE?

Enter:

Y To use the first step size on all subsequent steps of the contour.

N To define another step size for subsequent steps.

1.STEP COUNT=	Enter the number of steps to be made with the current step size.
1.NEXT STEP =	Enter the step size for each cut in the next set of steps in millimeters (inches).

The system returns to the USE LAST SIZE FOR REST OF ZONE? prompt until you enter Y.

The system then asks you if you want to follow the shape or not.

1.FOLLOW SHAPE 2.DON'T FOLLOW	Enter: 1 To indicate that the tool is to follow the shape of the entire contour before lifting. 2 To indicate that the tool is to lift as soon as it reaches the stock distance from the part.

PRE-GENERATION INSERTS 1.ENTER STATEMENTS 2.NONE	Enter: 1 to use display and edit to insert statements. 2 to proceed with out inserts.

At this point the system displays GENERATING TOOLPATH. If an error occurs during generation an error message is displayed. If no errors occur the system displays:

CURRENT COMPOSITE IS name NAME/APPEND TOOLPATH 1.NAME AND APPEND TO CURRENT COMPOSITE 2.DEFINE CURRENT COMPOSITE 3.NAME, DO NOT APPEND 4.DO NOT NAME, DO NOT APPEND	You can name or append the toolpath just defined to the current composite toolpath. Refer to the termination sequence in chapter 1.

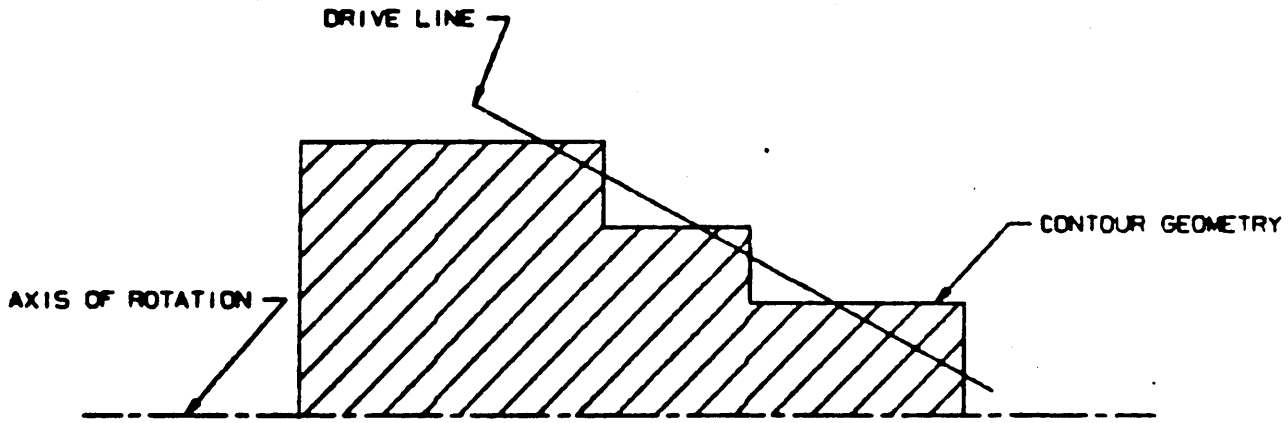

FIGURE 17-3. DRIVE LINE

ENTER TOOL NAME:

Enter the name of the tool to be used to generate the toolpath. The tool is checked for correct type. If the tool type is incorrect or the tool does not exist you are prompted for another name. Refer to table 1-1 for a list of available tool types. If the tool is valid the system displays:

```
TOOL PARAMETERS
 TOOL NAME:  name
 TOOL TYPE:  LATHE TURNING
 TOOL IMAGE: NON-ROTATING
 1.TOOL NUM=1
 2.NOSE RAD=0.0625
 3.ANGLE 1 =45.000
 4.ANGLE 2 =90.000
 5.X GAGE LEN=0.0000
 6.Z GAGE LEN=0.0000
 7.OFFSET NO.=1
ACCEPT THIS TOOL?
```

Enter:

Y to use this tool to create the toolpath.

N or] or [to reject the tool and return to the enter tool name prompt.

SELECT BLANK
INDICATE ENTITY

Select the curve or curves forming the outside of the blank.

INDICATE TOOLSIDE

Use the graphics cursor to indicate the outside of the blank. The indication can be along any entity selected.

SELECT CONTOUR
INDICATE ENTITY

After the blank material is is defined for the rough cut, define the outline of the part to be finished machined.

INDICATE TOOLSIDE

Use the graphics cursor to indicate on which side of the contour geometry that the material will be removed.

The system then asks you to define check lines. Check lines are lines that intersect the contour geometry. The contour geometry will be intersected with the start check line and the end check line. When the toolpath is generated, it will follow the contour geometry from the intersection of the start check line to the intersection of the end check line. If only an end check line is desired, a start check line can be selected that does not intersect the contour geometry. Check lines should only intersect the contour geometry once.

CHECK LINES?

Enter:

Y to define check lines.

N to not define check lines and continue to the drive line prompt.

SELECT STARTING CHECK LINE
INDICATE ENTITY

Use the graphics cursor to select the line to be used for the starting check line.

SELECT ENDING CHECK LINE
INDICATE ENTITY

Use the graphics cursor to select the line to be used for the ending check line.

You are then prompted for a drive line. A drive line is used to skip grooves and contours that are not wanted in a toolpath. When the drive line is further from the axis of rotation than the contour geometry, the toolpath will follow the drive line. Refer to figure 17-3 for an example drive line.

DRIVE LINE?

Enter:

Y to select a drive line.

N to not select a drive line and continue at the first step prompt.

Lathe rough operation uses the rough feed rate value from 17.1.5 FEED RATES.

The system then prompts for the cut type.

CUT TYPE
1.FACE
2.TURN
3.BORE

Enter:

1 To cut perpendicular to the axis of rotation.

2 To cut parallel to the axis of rotation.

3 To cut on the internal surface of the part.

] or [to return to the cutting mode prompt.

DIRECTION
1.AWAY FROM HEAD
2.TOWARD HEAD

The direction chosen is the direction of tool travel during a facing operation, and it is the direction of the cut vectors during a turning or boring operation.

Enter:

1 To select away from the headstock.

2 To select toward the headstock.

1.STOCK
2.CUT ANGLE

Select the amount of stock or the angle of the tool.

Enter:

1 To indicate the amount of stock (excess material) to be left on the part.

2 To indicate the angle of the tool as it cuts the part.

1.ENGAGE ANG=n.nnnn
2.LIFT ANGLE=n.nnnn
3.ENGAG DIST=n.nnnn
4.LIFT DIST =n.nnnn

Select the angles and distances of the tool.

Enter:

1 To select the engage (entry) angle.

Defaults:

Engine	225
Turret	315

2 To select the lift (retract) angle.

Defaults:

Engine	45
Turret	135

3 To select the engage distance.

Default: 6.35 mm (0.250 in)

4 To select the lift distance.

Default: 6.35 mm (0.250 in)

17.9.1 Roughing

You can use this menu to generate a lathe roughing N/C machining toolpath.

The lathe roughing operation removes large amounts of material in preparation for a another operation like threading or contouring.

If you select 1. ROUGHING from the lathe menu, the system displays:

"FROM" DESIRED ?	Refer to the initialization sequence in chapter 1. The lathe roughing initialization sequnce is the same as described in chapter 1 except a point needs only XT and YT coordinates.
"RAPTO SETPT" DESIRED ?	

LATHE TYPE 1.HORIZONTAL 2.VERTICAL	Enter: 1 To define a horizontal lathe that spins around a line parallel to the x-axis. 2 To define a vertical turrent lathe that spins around a line parallel to the y-axis.] or [to return to the "RAPTO SETPT" prompt.

The system asks for the headstock origin. The headstock is the part of the lathe to which the part is attached. The origin should be at the left of the blank for an engine lathe and at the bottom of the blank for a vertical turrent lathe. Refer to figure 17-1.

HEADSTOCK ORIGIN 1.SCREEN POSITION 2.KEY-IN 3.EXISTING POINT 4.NAMED POINT	Enter: 1 To use the graphics cursor to select a screen position as the headstock origin. 2 To enter the x and y coordinates of the headstock origin. 3 To use the graphics cursor to select an existing point as headstock origin. 4 To use the coordinates of a named point as the coordinates of the headstock origin.] or [to return to the "HEADSTOCK ORIGIN" prompt.

The system prompts for the cutting mode. The cutting mode is the method used to calculate feedrates.

CUTTING MODE 1.IPR 2.IPM	Enter: 1 To select a feedrate based on inches per revolution. The feedrate is calculated by $\frac{\text{17.1.5 FEED RATE}}{\text{17.1.6 SPINDLE SPEED}} = \frac{\text{x in/min}}{\text{y rev/min}} = \frac{\text{x in}}{\text{y rev}}$ 2 To select a feedrate based on inches per minute.

If metric units are being used the system displays:

CUTTING MODE 1.MMPR 2.MMPM	Enter: 1 To select a feedrate based on millimeters per revoluton. The feedrate is calculated the same way as english units desribed above. In this calculation millimeters would be used inplace of inches. 2 To select a feedrate based on millimeters per minute.

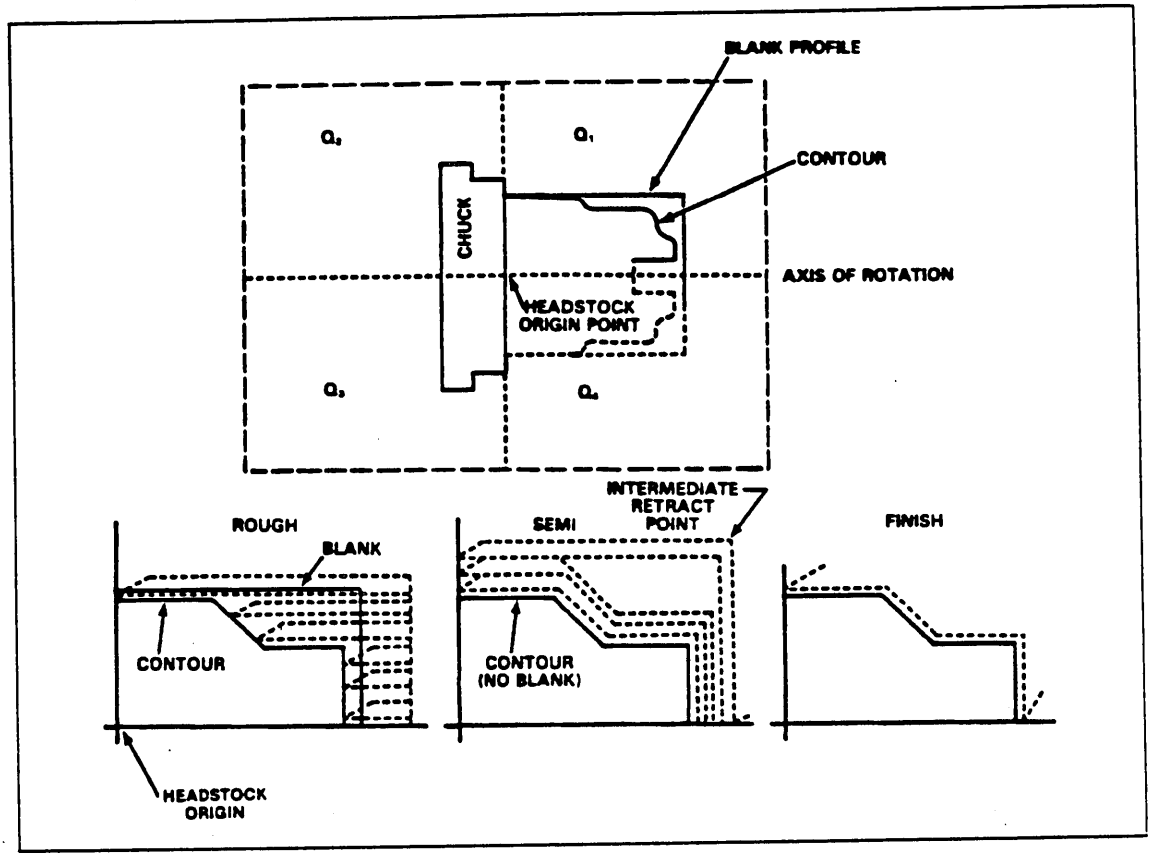

Figure 17-2. Lathe Profile

Menu 17.9: Lathe 17

You can use this menu to machine surfaces of revolution. Refer to figures 17-1 and 17-2.

Although the produced part is three-dimensional, the data used to generate lathe paths onsists of a two-dimensional profile in a quadrant. The lathe operation can be used with engine lathes and vertical turret lathes. The available operations are rough, semifinish, and drill.

Only half the profile requires definition all in one quadrant. The x-axis is used for the axis of rotation for an engine lathe and the y-axis for the turret lathe. The generated toolpath is two-dimensional, defined at the current depth.

To ensure that no spikes occur in offsetting geometry, all entities selected should be contiguous.

The retract plane and clearance distance modal values control the positions of the first two GOTO/ points in a lathe drilling toolpath. The first GOTO/ point is at a retract plane value away from the indicated start position. The second GOTO/ point is at a clearance distance away from the indicated start position. (At this position, the FEDRAT is changed from the rapid value to the finish feed value.) If the first GOTO/ point is not desired, the retract plane should be set to a smaller value than the clearance distance. The clearance distance also controls the distance the drill is withdrawn during reciprocating moves and how close the drill approaches the bottom of the hole before switching to finish feed from rapid.

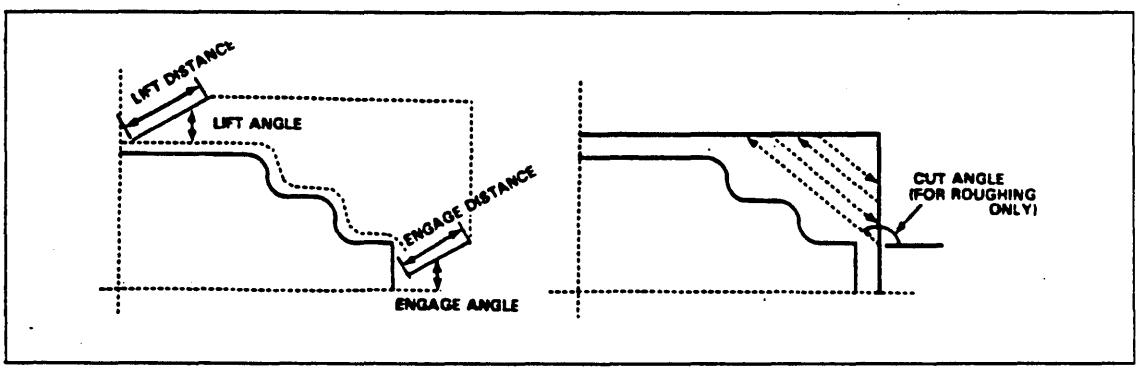

Figure 17-1. Lathe Parameters

The lathe operations contouring, drilling, and threading use the Easy Generation User Interface feature. For more information on the Easy Generation User Interface feature refer to chapters 3, 4, 5, and 7.

Indicate the start and end of the first cut.

`INDICATE START OF 1ST CUT`	Use the graphics cursor to select a position near a corner of the surface to be machined that is the position of the tool at the start of the first cut.
`INDICATE END OF 1ST CUT`	Use the graphics cursor to select a position near a corner of the surface to be machined that is the position of the tool at the end of the first cut.

If milling to a depth, specify the pass preparation parameters.

`PASS PREPARATION` `1.NUMBER OF CUTS`	Enter the number of cuts desired to be equally spaced over the surface.
`2.SCALLOP HT`	Enter the maximum scallop height permissible between cuts.
`3.STEP OVER`	Enter the amount that the center of the tool is to step over for each consecutive path.

Select the containment type. Refer to figure 14-1.

```
CONTAINMENT TYPE
1.DRIVE
2.STOP
3.JUMP
4.NONE OR NO MORE
```

Enter:

1 To drive the tool along the containment curve.

2 To stop the tool motion when the containment motion comes to the end of a cut and redirect it to the next cut path.

3 To have the tool stop at the containment, retract to a position that allows the tool to clear the containment, move across the containment, and then resume cutting on the other side.

4 To terminate the containment selection sequence. This series of prompts continues until the maximum number of selections is achieved or this choice is made.

`1.ZT MINIMUM= n.nnnn`	Enter values for the zt containment. Defaults: 1270 mm (50.00 in).

By specifying a minimum z-clip value, the toolpath points are generated such that the tool does not travel below the z-clip value. The tool center point does not necessarily lie on the z-clip value. However, the tangent point of the tool is at the clipped value. The tool maintains the same orientation that it had with no z-clip value specified. Refer to figures 14-2 and 14-3.

Select the method of controlling the cutting depth of the tool.

```
CONTROL SURFACE
1.SURFACE
2.DEPTH
```

Enter:

1 To mill to a surface, the system displays:

INDICATE SURFACE	Use the graphics cursor to select a surface.

When a surface is chosen, the screen will display a message stating the current retract height and the highest displayed surface point. The user must then use discretion as to whether the retract value should be increased.

2 To mill to a specific depth, the system displays:

```
DEPTH   = n.nnnn
```

Select the method of controlling the direction of the cut.

```
CUT DIRECTION
1.DIRECTION IN DEGREES
2.INDICATE LINE
3.PARALLEL SURFACE DISPLAY PATH
```

Option 3 is displayed only when a surface is used to control the cutting depth.

Enter:

1 To enter the direction of the cut by specifying the degree departure from the 3 o'clock position (for example, for a vertical cut, enter 90°, -90°, 270°, or -270°).

1.ENTER DEGREES = n.nnnn	Enter the degrees.

2 To use the graphics cursor to indicate a line to be used to provide the direction.

INDICATE LINE	Use the crosshairs or tablet to select the line.

3 To have the tool cut parallel to the surface display.

Headstock Origin (Drilling and Threading Only)

The origin point of the headstock is set using the following methods.

Generate

The prompts that appear at toolpath generation time are the same as for the Modify Current Parameters menu except that you do not select the prompting option.

Modify

If you selected Headstock Origin from the Modify Current Parameters menu, you can set the headstock origin point.

```
HEADSTOCK ORIGIN
1.SCREEN POSITION
2.ENTER COORDINATES
3.EXISTING POINT
4.NAMED POINT
5.PROMPT
```

Enter:

1 To indicate a screen position.

`INDICATE POSITION`	Select a screen position as the headstock origin using the graphics cursor.

2 To enter the coordinates of the headstock origin point.

`ENTER COORDINATES`
`1.XT = 0.0000`
`2.YT = 0.0000`
	Enter the coordinate values of the headstock origin point.

3 To indicate an existing point.

`INDICATE POINT`	Select an existing entity as the headstock origin using the graphics cursor.

4 To enter the point name of the headstock origin point.

`ENTER POINT NAME:`	Enter the name of the headstock origin point.

5 To be prompted for the headstock origin point at generation time.

GPG Statement

The SDEPTH statement sets the final depth mode for drilling.

Statement Format:

```
        ⎧PROMPT
        ⎪n.nn
SDEPTH/ ⎪ptname,thru
        ⎪DELTA,n.nn
        ⎪CDIA,dia,pldia
        ⎩CDPTH,depth,pldia
```

Parameter	Description
PROMPT	Prompts for the final depth calculation options at generation time.
n.nn	Sets the final depth to the axis coordinate n.nn.
ptname,thru	Uses a named point as the thru amount. Thru amount is the amount drilling is to go past the named point.
DELTA,n.nn	Uses a delta distance (n.nn) to calculate the final depth for each point.
CDIA,dia,pldia	Countersinks to a diameter, with a pilot diameter as the second parameter.
CDPTH,depth,pldia	Countersinks to a depth with a pilot diameter.

Message	Condition
COMMAND PARAMETERS NOT RECOGNIZED.	An illegal character appears in the COMMAND PARAMETERS command, or the command format is incomplete. Example: ?? PC*5,L The * (asterisk) is invalid. ?? L.FRED. The . (period) is invalid. ?? C 100,200 (S,N) T 900 Parameter N is illegal within the parentheses. ??MATRIX/TRANSL,3,3 The MATRIX command is missing the z parameter.
LINE PARAMETERS OVERLAP.	The location to move or copy text is within the range specified. This only applies to moving or copying data within the same file. Example: ?? C 100,200 T 150 You cannot copy lines into the same range as the lines themselves. M F,C T F+1 You cannot move lines into the same range as the lines themselves.

Table 19-1 shows the basic formats of the commands.

Table 19-1. Command Editor Formats

Function	Command
EDITOR MODALS	E
PRINT	P P lp P lp1,lp2 P N n1 P lp N n1
DELETE	D D lp D lp1,lp2 D N n1 D lp N n1
INSERT	I I lp
LOCATE	L /text/ L lp /text/ L lp1,lp2 /text/ L N n1 /text/ L lp N n1 /text/
REPLACE	R "text1"text2" R lp text1 text2 R lp1,lp2 /text1/text2/ R N n1 'text1'text2' R lp N n1 'text1'text2'
COPY	C lp1 T lp2 R r1 C lp1,lp2 T lp3 R r1 C N n1 T lp R r1 C lp1 N n1 T lp2 R r1
COPY from another file fname	C lp1 (fname) T lp2 R r1 C lp1,lp2 (fname) T lp3 R r1 C N n1 (fname) T lp R r1 C lp1 N n1 (fname) T lp2 R r1
COPY from another toolpath	C lp1 (S) T lp2 R r1 C lp1,lp2 (S) T lp3 R r1 C N n1 (S) T lp R r1 C lp1 N n1 (S) T lp2 R r1
MATRIX COPY	C lp1 (M) T lp2 R r1 C lp1,lp2 (M) T lp3 R r1 C N n1 (M) T lp R r1 C lp1 N n1 (M) T lp2 R r1
MATRIX COPY from another file fname	C lp1 (fname,M) T lp2 R r1 C lp1,lp2 (fname,M) T lp3 R r1 C N n1 (fname,M) T lp R r1 C lp1 N n1 (fname,M) T lp2 R r1
MATRIX COPY from another toolpath	C lp1 (S,M) T lp2 R r1 C lp1,lp2 (S,M) T lp3 R r1 C N n1 (S,M) T lp R r1 C lp1 N n1 (S,M) T lp2 R r1

(Continued)

2 - Surface Profile

Tool axis control for parallel to drive surface condition

Since the tool axis is not fully defined by this condition, a second condition is set. The tool axis in case of a toolpath or the curve normal in case of a machine curve is generated parallel to the V ruling of the drive surface at the contact point.

Example :

A toolpath is generated with a horizontal cylinder as part surface and a vertical cylinder as a drive surface. The multi axis condition parallel to drive surface is used. In the first case the vertical cylinder is defined as a surface of revolution, through the cylinder definition or by rotating a line. Figure 20.01 shows that the tool axis is horizontal, thus parallel to the V ruling. In the second case, the cylinder is defined as a ruled surface, between two congruent arcs in parallel planes. Figure 20.02 now shows a vertical tool axis, again parallel to the V ruling.

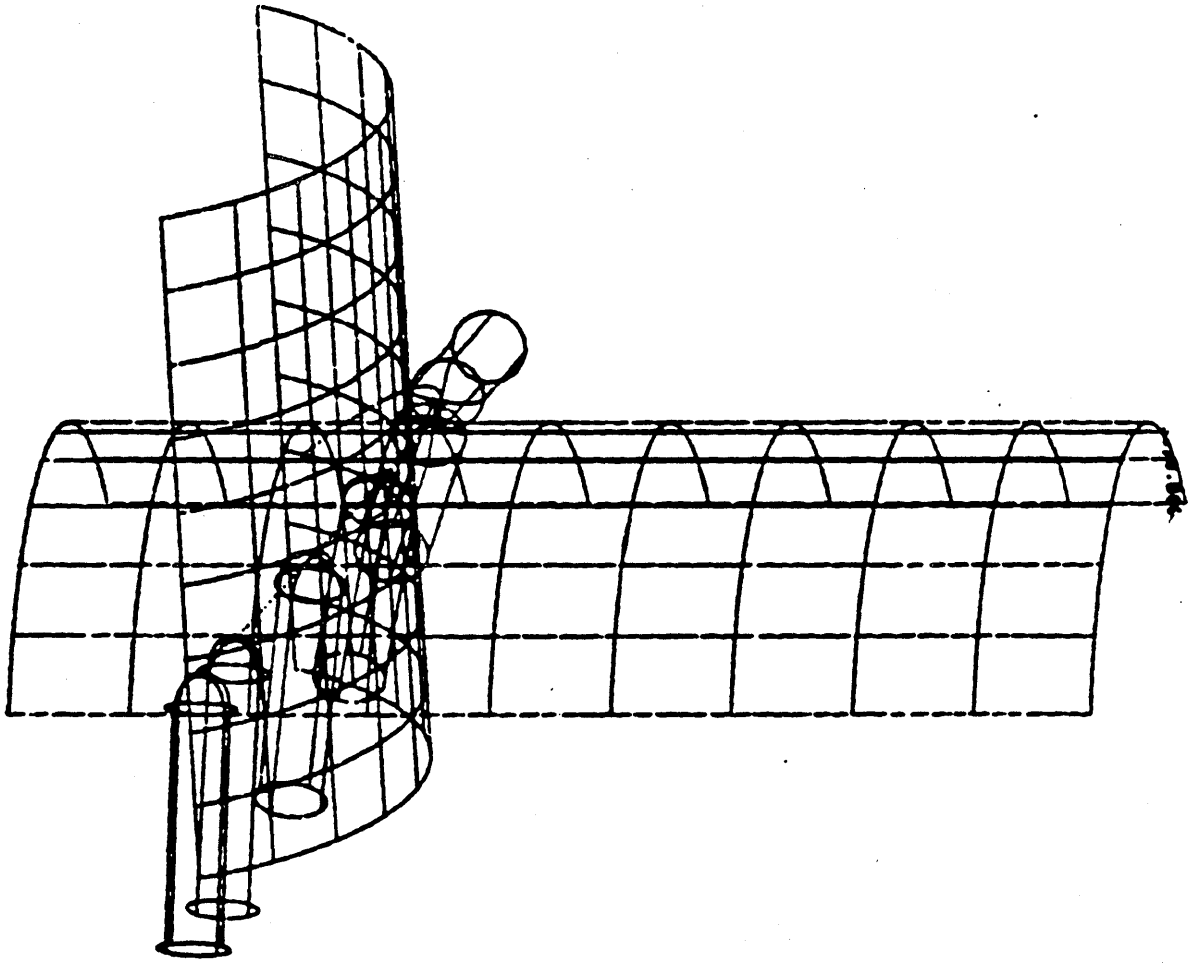

Figure 20.01

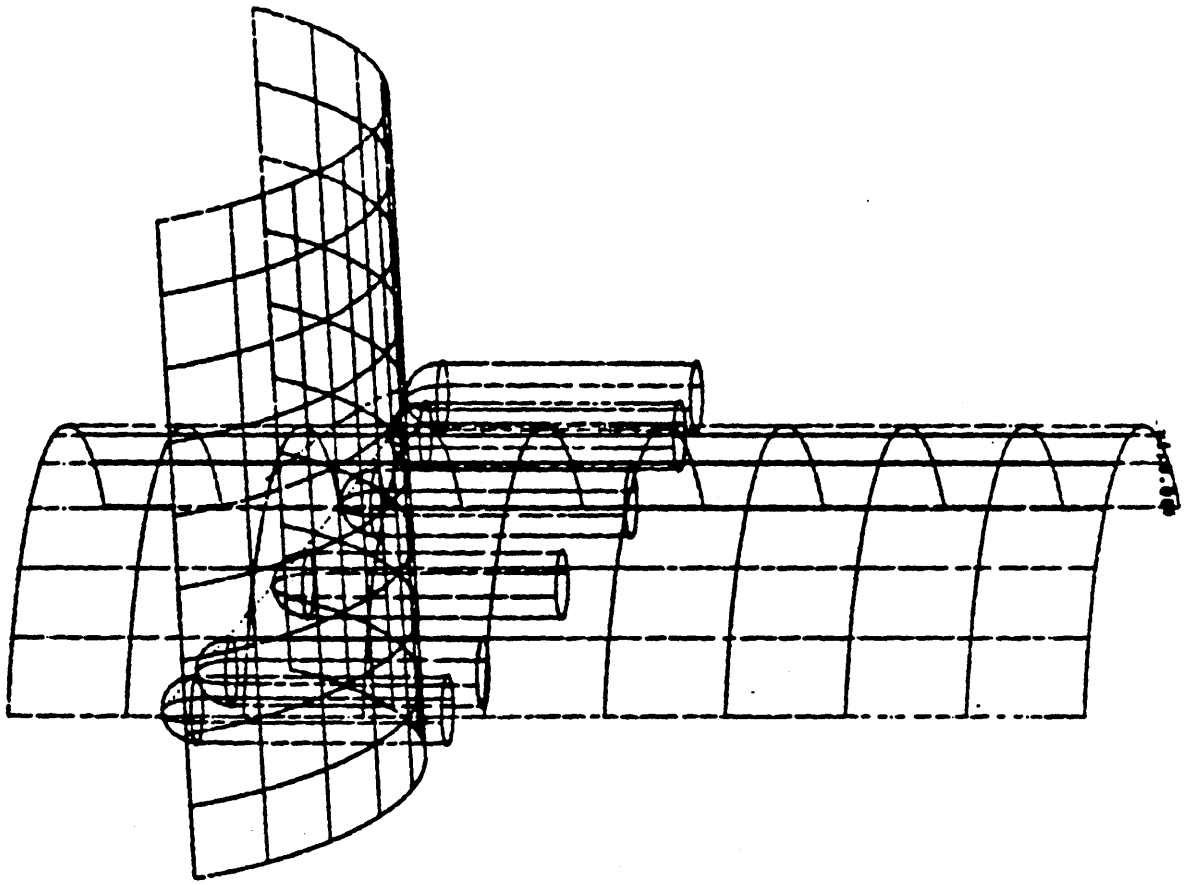

Figure 20.02

WARNING MESSAGES FROM 2 SURFACE PROFILE MODULE

1. S.I. FROM START POSITION NOT FOUND

"Tool Tangent Surfaces and Edges" was indicated.
The system searches for any Surface Intersection point from a selected 3-D start position. If the intersection point is not found, then the message is displayed.

2. OFFSET S.I FROM START POSITION NOT FOUND

"Tool Tangent Surfaces" was indicated.
The system searches for any Surface Intersection point of offset surfaces with the offset distance equal to the radius. The search process is started from a selected 3-D position. If the offset S.I. is not found, then the message is displayed.

3. USE SMALLER TOOL

3.1 "Tool Tangent Surfaces" was indicated.
The radius of the surface curvature is smaller than the tool radius. The calculation is stopped and the calculated path is displayed.

The user can start the calculation of a second path from the opposit direction. To avoid the undercutting the Machine Curves can be generated and then trimmed by using Trim Curves. By chaining these curves together by selection in Absolute Tool Motion the tool path is generated.

3.2 "Tool Tangent Surfaces and Edges" was indicated.
The radius of the surface curvature in the interval where the tool maintains tangency with both surfaces is smaller than the tool radius (= undercutting). The calculation of the tool path continues.

The "undercutting" is not eliminated from the calculated and displayed path.

4. USE SMALLER TOOL (TYPE 4)

"Tangent to Surfaces and Edges" was indicated.
The radius of the surface curvature in the interval where the tool maintains tangency with one surface and the edge of the second surface is smaller than the tool radius or the radius of the surface curvature is smaller than the tool radius (undercutting). The calculation of the path continues.
The "undercutting" is not eliminated from the calculated and displayed path. Use Trim Curves method.

5. NON CONVERGENCE (TYPE 1)

"Tool Tangent Surfaces" was indicated.
The system cannot calculate the next point on the path within tolerance. The maximal number of iteration steps was exceeded.

The calculation is stopped and the calculated path is displayed.

6. NON CONVERGENCE (TYPE 2)

"Tool Tangent Surfaces and Edges" was indicated.
The system cannot calculate the next point on the path within a tolerance. The maximal number of iteration steps was exceeded.

The calculationn is stopped and the calculated path is displayed.

Try again by changing the parameter setting the STEPSIZE negativ. The Calculation will start from the opposit side.

7. NON CONVERGENCE (TYPE 5)

The security loop having control of the whole iteration process was exceeded.

The calculation is stopped and the calculated path is displayed.

8. SURFACES PARALLEL

The system has recognized the parallel surfaces.

REPLACEMENT PAGES

MANUAL TITLE: ICEM GPL

PUBLICATION NUMBER: 60462520

REVISION LEVEL: B

INSTRUCTIONS:

To update this manual, for which the previous revision was B, make the following changes:

Remove:	Insert:
13-7,8	13-7,8
21-3,4	21-3,4,5

SPLINE

A spline is a free-form curve generated from a series of ordered points so that slope and curvature are contiguous at each given point, approximating the physical use of a spline.

The spline start or end condition can be either circular (default) or parabolic. For circular start or end conditions, specified slopes are optional.

All symbolic points are projected into transform space before processing. The depth coordinate is determined by ZSURF if the points are not coplanar. A minimum of three points and a maximum of 42 points must be specified. Refer to menu 12.1 SPLINE in the ICEM Design/Drafting Basic Construction manual.

The optional parabolic start and end conditions provide for a starting or ending parabolic segment in the spline. If parabolic conditions are not specified, the end segments are assumed to be circular.

The spline tolerance option is used to specify the maximum discontinuity in the curvature of the spline. Acceptable values are positive and greater than or equal to 0.000001. Smaller values slow the creation of the spline, and, depending on the particular points, values very much smaller may prevent the spline from being created.

The optional circular start and end slopes are used to force the angle of tangency of the spline at the first or last points. If the start and end slopes are not specified, a circular end condition is assumed.

The point movement option provides for a minimum of strain energy at each point. If the point movement option is used, the spline points are adjusted to the specified tolerance. The spline constrains to the first and last points, but is within tolerance of the intermediate points only if needed.

The spline can be defined by the following methods:

- Specifying existing points or coordinates.
- Polar from origin.
- Specifying a number of points from an entity array.

Statement format:

```
        (point                 )                   ( (point                 )        )
SPLINE/ (xcoord,ycoord         ) [,SLOPE,angle],   ( (xcoord,ycoord         ) [,...] )
        (RADANG,radius,angle   )   PARBLC          ( (RADANG,radius,angle   )        )
                                                   ( NUMBER,number,(point array)     )
                                                   (               (coord array)     )

                      [  (XYMOVE)                  ]
[,SLOPE,angle]        [, (XMOVE ),point adj value  ] [,TOLER,spline tol value]
  PARBLC              [  (YMOVE )                  ]
```

Parameter	Description
point	The names of the points used to create the spline.
xcoord	The x-coordinate of the point.
ycoord	The y-coordinate of the point.
RADANG	The minor word for specifying the points of the spline from the origin (0,0) using the radius and angle.
radius	The radius from the origin to the point in units of measure.
angle	The angle of the point to the horizontal axis in degrees.
SLOPE	The minor word indicating a slope angle for the starting or ending point.
angle	The slope angle of the starting or ending point.
PARBLC	The minor word indicating that the first or last segment of the spline is a parabola.
point	The name of a starting point for the spline.
NUMBER	The minor word for specifying a number of points from a point or coordinate array.
number	The number of points or coordinates in the entity array.
point array	The name of a point array.
coord array	The name of a coordinate array.
XYMOVE, XMOVE, YMOVE	The minor words indicating the point adjustment value. XYMOVE allows the movement constraint in both the xt and yt directions. XMOVE allows movement only in the xt direction. Use movement constraint cautiously and only with very small values. Avoid movement constraint unless it is absolutely necessary.
point adj value	The amount of allowable point movement used in approximating the curve.
TOLER	The minor word indicating the spline tolerance.
spline tol value	The maximum amount of discontinuity in the curvature of the spline.

Example:

Program Statement	Explanation
ENTITY/T143	Define entity T143.
REAL/S	Define status variable.
OBTAIN/ENTPTR,'TL143'$,T143,S	Obtain the pointer of existing toolpath TL143 and assign it to T143.
SETGPG/LATHE,DRILL,T143	Replace the current drilling GPG with the GPG from toolpath TL143.

TLPATH

The TLPATH statement provides the ability to define toolpath entities for LATHE contouring, drilling, or threading operations. Contouring and threading toolpaths are generated along part geometry (specified as a list of entities). Drilling toolpaths do not require any geometric entities. Each toolpath reflects the current GPG settings for that operation. Interactive prompts are not allowed with this statement. Therefore, any GPG settings of PROMPT are changed to default values.

The following self-explanatory error messages can occur from improper use of the TLPATH statement.

```
ENTITY NOT FOUND

INCOMPATIBLE ENTITY USED IN DEFINITION

DEFINITION START INDETERMINATE

INVALID NUMBER SUPPLIED

GPG NOT COMPATIBLE WITH ENTITY TYPE
```

CONTOURING

Statement format:

```
tpname=TLPATH/LATHE,CONTUR,{ent1,ent2,...,entn        }[,START,{xt,yt}]
                           {NUMBER,number,ent array}[      {point}]
```

Parameter	Description
tpname	The name assigned to the defined toolpath.
LATHE	The minor word indicating lathe toolpath parameters.
CONTUR	The minor word indicating a lathe contour toolpath.
entl through entn	A list of entities used to create a toolpath. The entities can be lines, arcs, conics, two-dimensional and three-dimensional splines, bezier curves, point sets, and machine curves. The limit of the total number of entities is 64.

Parameter	Description
NUMBER	The minor word indicating the number of entities in the entity array.
number	The number of entities in the entity array. The maximum number of entities is 100.
ent array	The name of an entity array.
START	The minor word indicating the starting entity selection point.
xt,yt	A space location expressed in transform coordinates indicating the starting entity selection point.
point	The name of a point indicating the starting entity selection point.

Example:

The following statement creates a lathe contour toolpath using 21 entities contained in the entity array AR33. The new toolpath is named T322.

```
T322=TLPATH/LATHE,CONTUR,NUMBER,21,AR33(1)
```

DRILLING

Statement format:

```
tpname=TLPATH/LATHE,DRILL
```

Parameter	Description
tpname	The name assigned to the defined toolpath.
LATHE	The minor word indicating lathe toolpath parameters.
DRILL	The minor word indicating a lathe drilling toolpath.

Example:

The following statement creates a lathe drilling toolpath named TP134. All the parameters needed to create the toolpath must be specified in the GPG.

```
TP134=TLPATH/LATHE,DRILL
```

THREADING

Statement format:

```
tpname=TLPATH/LATHE,THREAD,ent1[,START,(xt,yt)]
                               [      (point)]
```

Parameter	Description
tpname	The name assigned to the defined toolpath.
LATHE	The minor word indicating lathe toolpath parameters.
DRILL	The minor word indicating a lathe contour toolpath.
ent1	The entity used to create the toolpath.
START	The minor word indicating the starting entity selection point.
xt,yt	A space location expressed in transform coordinates indicating the starting entity selection point.
point	The name of a point indicating the starting entity selection point.

Example:

The following statement creates a lathe threading toolpath using the entity LN52 with the starting entity selection location at point PT10. The new toolpath is named T413.

```
T413=TLPATH/LATHE,THREAD,LN52,START,PT10
```

CM

SOFTWARE RELEASE BULLETIN

ICEM DDN VERSION 1.57

NOS 2.3 LEVEL 617B

******** URGENT **********

Please make this document available to all ICEM DDN users!

** This document describes new features and changes to ICEM DDN.

** Also found here is a list of known and outstanding system problems (PSR's) and a list of resolved system problems.

SMD130848

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INTRODUCTION

This SOFTWARE RELEASE BULLETIN (SRB) is designed to inform site analysts and ICEM DDN users of:

* New features,
* Menu revisions,
* Operational changes and enhancements,
* Known, outstanding system problems and suggested work arounds, and
* Resolved system problems which existed in previous versions.

The review of new features, menu revisions and enhancements is organized by menu section (see Table of Contents for the menu sections of particular interest).

ICEM DDN V1.57 PUBLICATIONS STATUS

The ICEM DDN Reference Manuals have been updated for the V1.57 release and can be ordered through Control Data's Literature Distribution Service (LDS). The following table summarizes the V1.57 manual update plans:

MANUAL	NUMBER	MANUAL REVISION PLANS: NEW MANUAL	MANUAL CHANGE PACKET	NO MANUAL CHANGE
ICEM Design Drafting: Introduction and System Controls	60457130		rev J	
ICEM Design Drafting: Data Management	60461410		rev C	
ICEM Design Drafting: Basic Construction	60461420		rev B	
ICEM Advanced Design	60461430	rev B		
ICEM Design Drafting: Drafting Functions	60461440		rev B	
ICEM Numerical Control	60461450		rev B	
ICEM Design Drafting GRAPL Programming Language Reference Manual	60461460		rev B	
ICEM GPL	60462520	rev A		
ICEM DDN Instant	60457140	rev F		
ICEM Tablet Overlays	60458080			rev D
ICEM DDN User's Guide	60456940			rev E

GENERAL SYSTEM WARNINGS

A problem exists with ICEM DDN and the NOS 2.3 63-character set. The per cent sign (%) character is incorrectly converted to a colon (:) character. Corrective code for this problem has been generated but is not included in the V1.57 release. Please consult your local CDC representative, if you use the NOS 63-character set at your site.

The ICEM GPL 2D Wilson-Fowler spline implementation for V1.57 does not contain the enhancements that were incorporated into the interactive version of ICEM DDN V1.53.

VERSION 1.57 REVIEW BY MENU SECTION

This section of the system release bulletin provides a detailed description of those revisions outlined in the overview. The descriptions are organized in the same manner as in the overview--by menu section. Refer to the table of contents to quickly locate the full description of changes for a particular menu section.

TERMINAL SUPPORT

No revisions.

SPECIFYING THE TERMINAL

No revisions.

CREATING A PART

No revisions.

CONTROL CARD PARAMETERS

No revisions.

1. MODALS AND FONTS

1.7 Modify Entity Level/Pen No

A problem that causes the user to get the current level or pen number when the user answered no (N) to the modify level/pen prompt has been corrected in V1.57.

2. BLANK/UNBLANK

No revisions.

3. DELETE

Corrective Code.

4. FILE/TERMINATE

No revisions.

5.13 GPL - NEW FEATURE

The GPL (Graphics Programming Language) is a new feature. The ablilty to execute previously compiled GPL programs via menu 5.13 was added to ICEM DDN at the V1.53 release. The GPL compiler is released with ICEM DDN at this V1.57 release.

FEATURE DESCRIPTION

GPL is a higher level computer language which executes via an interpreter module within ICEM DDN as the result of an ICEM DDN menu selection. While execution of a GPL program is evoked from within ICEM DDN, it must first be compiled by the GPL compiler external to ICEM DDN. Hence, the GPL system consists of two parts: an interpreter within ICEM DDN and a stand-alone compiler.

GPL is designed to mimic ICEM DDN features, not interactively, but parametrically from within algorithms. Therefore, in addition to the standard ICEM DDN features such as modals, entity definitions, and view control, GPL includes statements for declarations, assignments, program control, character manipulation, subroutines, functions, input/output, and several interactive commands.

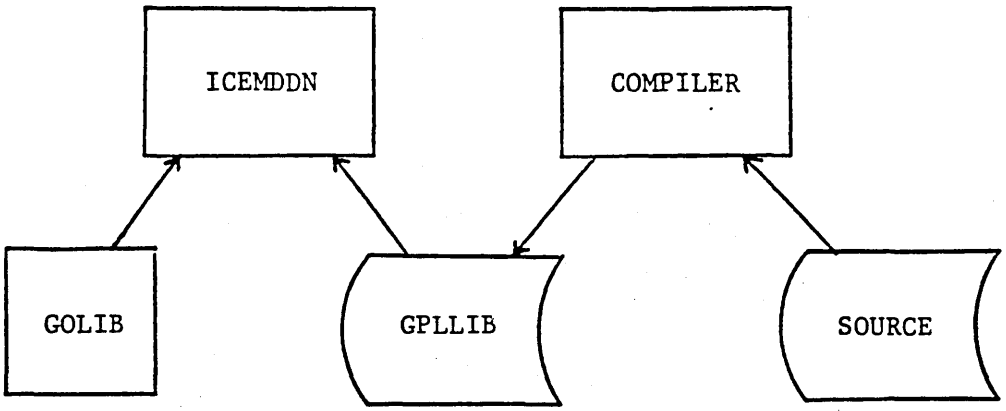
FEATURE CAPABILITIES

GPL provides the capability to design families of parts, study kinematics, calculate serial functions, develop tutorials, create customized (user-friendly) applications, and other such high level design tools.

One of the most important graphics programming features demanded by customers is "performance improvement". This feature was provided by GPL in version 1.53. Several predecessor features found in GRAPL are targeted for implementation under GPL in version 1.6.

GPL EXECUTION

While the GPL compiler is not required in order to execute GPL programs that are already compiled, another file, GOLIB is required for execution. Although part of ICEM DDN, this file is separate from the file that contains the major portion of ICEM DDN. Thus, to execute GPL programs from menu 5.13, this file must be local with the local file name GOLIB. Refer to figure 5-1.



ICEMDDN: Menu 5.13
GOLIB: GPL secondary overlay file (part of ICEM DDN)
COMPILER: To compile GPL source programs
SOURCE: File containing GPL source programs (name not unique)
GPLLIB: Library of compiled GPL programs plus source

Figure 5-1.

5.13 GPL

With this choice, you can execute pre-compiled GPL (Graphics Programming Language) programs. These programs are custom applications ranging from family of parts generators to interactive tutorials. These programs must be contained in a local GPL library.

The menu for this section is:

```
GPL
1. RECOVER LAST FILE
2. CONTINUE GPL PROGRAM
3. RUN GPL PROGRAM
4. LIST GPL NAMES
5. CHANGE LIBRARY NAME
```

The following section describes the choices in this menu.

5.13.1 RECOVER LAST FILE

With this choice, you can continue program execution following a FILE command in a GPL program (refer to the FILE command). Execution continues at the next statement following the last FILE command.

5.13.2 CONTINUE GPL PROGRAM

With this choice, you can continue program execution following a PAUSE statement in the GPL program. Choosing this menu item when there is no PAUSE statement in the current GPL program returns you to 5 SPECIAL FUNCTIONS.

5.13.3 RUN GPL PROGRAM

With this choice, you can execute a GPL program.

Prompt	Action
ENTER SIX CHARACTER NAME	Enter the name of the GPL program to run. This name can be from one to six characters long.

5.13.4 LIST GPL NAMES

With this choice, you can display the names of GPL programs and subprograms contained in a local GPL library.

5.13.5 CHANGE LIBRARY NAME

With this choice, you can change the name of the local GPL library that you want to access. The default name of this library is GPLLIB.

Prompt	Action
ENTER LIB NAME	Enter the name of the local GPL library that you want to access. The name of this library can be from one to six characters long.

6. DATA BASE MANAGEMENT

6.1.8 Pack Part

A problem with packing parts has been corrected in V1.57.

6.2 Pattern Management

A problem of two consecutive operation rejects during pattern retrieval occassionally causing ICEM DDN to terminate execution, has been corrected in V1.57.

7. INPUT/OUTPUT

Corrective code.

8. DISPLAY CONTROL

Corrective code.

9. POINT

Corrective code.

10. LINE

No revision.

11. ARC/CIRCLE/FILLET

Corrective code.

12. OTHER CURVES

Corrective code.

13. ENTITY MANIPULATION

No revisions.

14. DATA VERIFY

No revisions.

15. EXTENDED GEOMETRY

15.2.1.8 BETWEEN TWO LINES - ENHANCEMENT

A ninth method for defining planes has been added in V1.57. Under menu 15.2.1.8, BETWEEN TWO LINES, two options are now available. The second option, 2. CENTER AND CORNER, is the BETWEEN TWO LINES method from V1.53, and the first option, 1. ALONG FIRST LINE, is new. This new option creates a plane that is displayed with one edge of its rectangular grid along the first line selected. The plane is displayed as a square with side length equal to the magnitude of the first line selected. The plane is positioned along the first selected line.

15.2.12.1.1 CONE DEFIFITION - CORRECTIVE CODE

The definition of cones with 15.2.12.1.1, CONE DEFINITION using AXIS FORM, EXISTING LINE has been corrected. The pick position used for selecting the line will now determine which way the cone is oriented. The cone will be created with the smaller end toward the selected end of the line.

15.2.15 PROJECTED SURFACES - ENHANCEMENT

The Projected Surfaces feature of ICEM Advanced Design has been rewritten for V1.57. Projected surfaces allows the user to project a curve, or series of curves, to a depth or onto a surface, then automatically create ruled surface entities between the original curve and its projected counterpart. One surface is created for each curve projected. Up to 240 surfaces may be created in a single operation. The new user interface closely parallels the Draft Curve interface that was implemented in V1.53. All of enhanced capabilities of the new Draft Curve have now been added to Projected Surfaces.

16. DRAFTING FUNCTIONS

16.1.1 CHARACTER CONTROL - CORRECTIVE CODE

The number 1 has been changed in the ICEM DDN drafting character set to make it easier to distinguish from the capital letter I.

The letter M and the number 3 in the ICEM DDN drafting character set have been changed so that they now comply with ANSI standard.

16.1.2 TEXT JUSTIFICATION - CORRECTIVE CODE

Text justification was modified for V1.57 so that preceding text with limits will be centered only when there is preceding text with the first limits line and no preceding text with the second limits line.

16.1.4.3 AUTOMATIC DIAMETER SYMBOL - CORRECTIVE CODE

A problem with the automatic diameter symbol always appearing ON when drafting modals are displayed has been corrected in V1.57.

16.1.14.2 SECTION LINING VISIBILITY MODAL - CORRECTIVE CODE

The Section Lining Visibility Modal will now allow you to have section lining displayed in the view of definition only.

16.2 DIMENSION - CORRECTIVE CODE

Any dimension with preceding text other than R or a diameter symbol will be marked as keyed-in in V1.57.

16.2.5 ANGULAR DIMENSION - CORRECTIVE CODE

The problem of extension lines not being modified correctly on angular dimensions has been corrected in V1.57.

16.3 SECTIONING - CORRECTIVE CODE

Problems encountered with open boundaries in section lining have been corrected in V1.57. Reasonable boundary gaps are now permitted for section lining.

16.7 GEOMETRIC TOLERANCE - CORRECTIVE CODE

Text created with geometric tolerance symbols will now be defined at the current depth.

16.11 LABEL - CORRECTIVE CODE

Problems with parts that had labels with multiple dashes or plus signs and problems with labels pointing to the opposite side of the selected arc have been corrected in V1.57.

16.13.4 ADD/CHANGE TOLERANCE LIMITS - CORRECTIVE CODE

A problem with adding tolerance to a dimension that has multiple lines of text has been corrected in V1.57.

16.13.13 BALLOON MODIFICATION - CORRECTIVE CODE

The problem of text in a balloon taking on the current pen and level when modified and the problem of text moving incorrectly when modifying the radius of a balloon have been corrected in V1.57.

16.13.17 MODIFY DECIMAL PLACES - CORRECTIVE CODE

Fractional dimensions will have the correct number of decimal places and will be displayed correctly after decimal places are modified.

17. N/C MANUFACTURING

17.1 DRILL REFERENCE MODAL - ENHANCEMENT

A Modal will be added to the Modals section of N/C to allow the user to define the reference point of the tool used in Lathe Drilling and Point to Point Machining. The Present menu in Lathe for tool reference will be removed. The menu will be located at 17.1.16. The modal will only effect the Drill, Centerdrill, and Countersink tool reference points. The modal will appear as:

DRILL REFERENCE POINT
1. DRILL TIP
2. DRILL LIP

Choosing 1 will locate the reference point at the tip of the tool, and will configure the system to output a move that will bring the tip to a desired depth. Option 2 will bring the lip to a desired depth. Option 2, Drill Lip, will be the default.

17.2 POINT-TO-POINT USER DEFINED CYCLES - NEW FEATURE

Menu 5. Cycle Control in the Tool Motion Control section of Point-To-Point will be split into two new menus. The first of these two, 5. Machine Controlled Cycle, will be the same as the old menu. When this menu is selected you are prompted to enter cycle commands that will appear just before the first selected point. These commands will tell a postprocessor to turn on the cycle G-code. After each machine motion the cycle sequence is executed. The second menu, 6. User Defined Cycle, will allow you to enter N/C statements which will appear after each selected point. This option can be used to make machine independent cycle sequences. This option will increase the length of the toolpath because the user defined cycle will appear after each point not just in front of the first selected point.

17.2 and 17.9 COUNTERSINK/CENTERDRILLING - ENHANCEMENT

This enhancement can be categorized into three major areas, the addition of a countersink operation in Lathe and Point to Point Machining, the adding of a modal defining drill reference points for Point to Point Machining and Lathe, and the use of an upgraded chip relief option in Lathe. A change in the Lathe entity select will also be incorporated.

17.2 and 17.9 POINT-TO-POINT/LATHE COUNTERSINK OPERATION - ENHANCEMENT

The countersink enhancement will be contained in the Final Depth menu in Point to Point Machining, and the Depth Mode menu in Lathe. For Point to Point the menu will appear as:

FINAL DEPTH
1. ABSOLUTE
2. INCREMENTAL
3. COUNTERSINK TO DIAMETER
4. COUNTERSINK TO DEPTH

This form of the final depth menu will only appear if a legal countersink tool of Drill, Centerdrill, or Countersink is chosen. If any other tool is chosen only the first two options of the final Depth menu will be given. In Lathe the menu will appear as:

FINAL DEPTH
1. SCREEN POSITION
2. KEY-IN POSITION
3. EXISTING POINT
4. KEY-IN DEPTH
5. COUNTERSINK TO DIAMETER
6. COUNTERSINK TO DEPTH

As in the Final Depth menu of Point to Point, if a tool other than a countersink tool is chosen only the first 4 options of this menu will appear.

COUNTERSINK TO DIAMETER

Countersink to Diameter allows countersink to a desired diameter. Upon selection of this option the user is prompted for the desired diameter:

1. CSINK DIA =
2. PILOT DIA =

Tool motion is generated using the tool angle to give the desired diameter as measured across the countersink at the indicated part surface. A clearance distance from the contact point on the edge of the pilot hole is used to stop the rapid motion. If the desired countersink is larger than the tool diameter a warning will be given. Execution will not be effected since some shops may desire to define their tools with a lip diameter as opposed to a body diameter.

COUNTERSINK TO DEPTH

Countersink to Depth will output a tool motion that will give a desired depth of a countersink measured from the part surface. Provisions for a pilot hole are made. Upon selection of this option this user is prompted for:

1. CSINK DPTH=
2. PILOT DIA =

The depth of the countersink is defined as the distance along the drilling axis from the start position to the point where either the countersink intersects the pilot hole or in the case of no pilot hole, the position of the tip. The default value for the pilot hole diameter will be 0.

TOOL AVAILABILITY

The only legal tools allowed by the countersink operations are the Drill, Centerdrill and Countersink Tools.

17.9 LATHE CHIP RELIEF - ENHANCEMENT

Currently in the Lathe package there are three options for chip relief; none, reciprocate, and chip break. This menu will be replaced with the same chip relief options available in the present Point to Point Machining. After selecting from the DRILL METHOD menu the user will be given the chip relief options in the TOOL MOTION CONTROL menu:

TOOL MOTION CONTROL
1. ONE CONTINUOUS CUT
2. CHIP RELIEF/DELTA RETRACT
3. CHIP RELIEF/WITHDRAWAL
4. CHIP RELIEF/DWELL
5. MACHINE CONTROLLED CYCLES

These options will function exactly as in Point to Point Machining (limited to 2-D).

17.9 LATHE ENTITY SELECTION MAINTENANCE - ENHANCEMENT

Currently in Lathe, when an entity is selected for the start or end of drilling, the end of the entity furthest from the headstock is chosen. This will be changed to allow the end of the entity closest to the selection point to be chosen instead.

17.9 LATHE INSERT - NEW FEATURE

The Lathe Insert feature provides the user capabilities to insert, delete, and list postprocessor commands at the beginning and end of lathe toolpaths prior to toolpath generation. Only commands defined in the current postprocessor word library may be entered. (See ICEM Numerical Control Reference, section F.17.10.5). A similar capability currently exists for point-to-point, profile, and pocket toolpaths.

STARTING SEQUENCE

The starting sequence will allow the user to enter, delete, or list N/C statements at the beginning of a lathe toolpath. The starting sequence will be contained in the Lathe menu under Lathe Operation.

After the type of operation (rough, semi, finish, drill) and tool have been selected, the system will prompt for the starting insert sequence.

Prompt	Action
STARTING SEQUENCE	Enter:
1.LIST	1 To list the existing inserted commands.
2.ENTER	2 To enter commands at the start of the toolpath.
3.DELETE	3 To delete all inserted starting commands.
4.EXIT	4 To exit the insert menu.

The N/C statements created in this menu will appear at the very beginning of the toolpath before any GOTO or FROM statements. All postprocessor startup commands may be entered here.

ENDING SEQUENCE

The ending sequence will allow the user to enter, delete, or list N/C statements at the end of a lathe toolpath. The ending sequence will be contained in the Lathe menu under Lathe Operation.

Just before the toolpath is displayed and named, the system will prompt for the ending insert sequence. The ending insert sequence is identical to the starting insert sequence.

Prompt	Action
ENDING SEQUENCE	Enter:
1.LIST	1 To list the existing inserted commands.
2.ENTER	2 To enter commands at the end of the toolpath.
3.DELETE	3 To delete all inserted ending commands.
4.EXIT	4 To exit the insert menu.

The N/C statements created in this menu will appear at the end of the toolpath before the SETPT command.

17.9.5 LATHE THREADING - NEW FEATURE

This feature allows the user to create a single point tool threading toolpath. The threading feature can produce external or internal threads, single or multiple lead threads, axial threads (parallel or tapered) or face threads. The toolpath can have up to 30 constant volume cut passes.

DEFINE TURNING TOOL

The threading feature will use the standard tool definition and selection sequence. The threading tool's parameters are as follows:

```
TOOL NAME: name
TOOL TYPE: LATHE THREADING
1.TOOL NUM  = N              default: 1     range: N>=0
2.TIP ANGLE = NN.NNNN        default: 60.0  range: 0<a<=180
3.X GAGE LEN= NN.NNNN        default: 0.0
4.Y GAGE LEN= NN.NNNN        default: 0.0
```

THREAD FORM

The two forms for the thread are EXTERNAL and INTERNAL. An external thread is on the outside of a cylinder (as on a bolt). An internal thread is on the inside of a cylinder (as on a nut). On a face thread the outside is the side furthest from the origin point.

THREAD PARAMETERS

The thread parameters consist of THREADS PER INCH (or PITCH if metric) and the number of starts for the multi-lead threads. The pitch of a thread is the distance between the peaks of two adjacent threads. This is commonly specified as threads per inch in English units (TPI = 1/pitch). In Metric units, PITCH is specified in MM per thread. The number of starts specifies whether a thread is a single or multiple lead thread. In a multiple lead thread the thread advances 'N' times the pitch for each revolution. To produce this type of thread the cutting tool is advanced across the thread starting from a position which is successively further back for each of the 'N' times.

THREAD PLACEMENT

Placement of the thread is specified by selecting a line entity. This line defines the diameter and the length of the thread. This line can be parallel to the axis of symmetry, non-parallel (a tapered thread), or perpendicular (a face thread). The major and minor diameters are taken from this line.

TOOL APPROACH AND RETRACT ANGLE

These parameters control the angle at which the tool advances between cutting passes and the angle that the tool retracts from the cutting pass to the clearance distance. These angles are measured from a line perpendicular to the thread line, where a positive angle is the direction away from the thread.

LEAD-IN AND LEAD-OUT DISTANCES

The lead-in distance is the distance the tool travels at the front of the thread line before contacting the part material during a cutting pass. This distance is needed to allow the machine tool to synchronize the feed rate with the spindle speed. The lead-out distance is the distance the tool travels at the back of the thread line after leaving the part material before retracting to the clearance distance.

THREAD PASS PARAMETERS

The two types of passes are cutting and spring. The cutting passes do the metal removal. These cut passes occur at decreasing delta depths to maintain a constant volume chip removal for each pass. There may be up to 30 cut passes. The spring passes (optional) all occur at the final depth. These are used to clean up and/or gage the thread. An 'OPSTOP' statement is placed before each pass to allow for operator inspection of the thread. An option is given for the user to limit the maximum delta depth of cuts. If this option is used, the cut passes will no longer produce constant volume chip removal. All the calculated pass values are then displayed for the user to review and modify (if desired).

TOOLPATH STATEMENTS

The three toolpath statements that are special for threading are: PITCH/NN.NNNN, THREAD/TURN (or THREAD/FACE), and OPSTOP. In the PITCH statement the NN.NNNN is distance per thread (either inch per thread or mm per thread) multipled by the number of starts (eg. TPI = 8; STARTS = 2; produces the statment PITCH/0.2500). The THREAD/TURN statement is the normal statement, if the thread is at an angle greater than 45 degrees from the axis of rotation the THREAD/FACE statement is used.

18. ANALYSIS

The action descriptions for menu 18.3, 2-D ANALYSIS, that are documented in the ICEM Advanced Design Reference Manual, were modified to match the program. The manual listed 8 analysis options, however the program contains 11 options.

19. SI/US/RESIZE

No revisions.

TABLET INTERFACE

No revisions.

APPENDIX A

OUTSTANDING PROGRAMMING SYSTEM ERRORS (PSRs)

This section contains a list of known problems in ICEM DDN V1.57.

PRIORITY CODE: C=CRITICAL
U=URGENT
S=SERIOUS
M=MINOR
D=DEFERRED

PRIORITY STATUS: C=CURRENT
I=INTERNAL

NUMBER	PRI C	PRI I	PROBLEM ABSTRACT
AD2A630	M	M	DIMENSION USING FRACTION MODAL IN GPL IS OFF-CENTER
AD2A631	S	S	GPL LINEAR DIMENSIONS HAVE INCORRECT ARROWS AND DIMENSION LINES
AD2A632	M	M	GPL EVALS STATEMENT--RETURNING DATA ON POINT NOT ON SURFACE
AD2A633	U	U	PROBLEMS WITH CREATING FILLETS IN GPL BETWEEN ARCS & SPLINES
AD2A634	M	M	TERMINATING QUOTE GETS WRITTEN TO SCREEN AS PART OF NOTE
AD2A635	C	C	GET ERROR MESSAGE IN ROUGHING IN LATHE
AD2A636	S	S	MILLINGVIOATES CONTAINMENT (PROBABLY AN OLD PROBLEM)
AD2A637	U	U	TRIM TWO ENDS WITH SPLINE AS BOUNDARY FAILS
AD2A638	M	M	DISPLAY & EDIT OVERFLOW IN TOOL PATH DISPLAY
AD2A639	C	C	MODIFY DISPLAY VALUES CAN ABORT OR GIVE UAE
AD2A641	S	S	SECTION LINING VISIBILITY MODAL HAS NO EFFECT ON SECTIONING
AD2A651	S	S	(15.2.12.1.1)LINE PICK POSITION UNUSED IN CONE CREATION
AD2A674	M	M	CURVE MESH SURFACE-CURVE LIMIT
AD2A675	S	S	UAE ERROR WHEN DELETING ALL WITH A GROUP AND RECTANGULAR ARRAY
AD2A676	U	U	F.6.1.7
AD22240	U	U	SOLID LINES BECOME DASHED LINES
AD22247	C	C	GPARTS FILES PACKED BY F.6.1.1.4 CAN NOT BE RETRIEVED.
AD22254	S	S	TANGENTIAL CUTTING DOES NOT CHECK FOR GEOMETRY VIOLATION
AD22255	S	S	THE CURSOR TARGET MODE SHOULD DEFAULT TO FULL SCREEN
AD22256	M	M	SHOULD NOT HAVE TO SELECT DISPLAYED TOOLPATH FOR D&E, CLFILE, ETC.
AD22257	M	M	CAN NOT SUBSTITUTE FOR VARIABLE T IN PP MACRO
AD22258	M	M	SCREEN BLANKS ON 4114 TERMINAL WHEN CREATING A PRINTR FILE IN CLFILE
AD22259	S	S	PARAMETERS FOR BASE AND SIDE STOCK SHOULD NOT BE RETAINED
AD22269	U	U	DRILL TOOLPATH WILL DRILL IN WRONG DIRECTION
AD22271	U	U	DRAFT CURVE SEEMS TO USE SPLINE ROUTINE FOR INTERSECTION POINTS
AD22277	U	U	DRILLING TOOLPATH GENERATED OFF LATHE CENTERLINE

PRIORITY CODE: C=CRITICAL
U=URGENT
S=SERIOUS
M=MINOR
D=DEFERRED

PRIORITY STATUS: C=CURRENT
I=INTERNAL

NUMBER	PRI C	PRI I	PROBLEM ABSTRACT
AD22287	M	M	LINES & ARCS ARE BLANKED WHEN CONVERTING INTO STRING, F.12.5
AD22289	U	U	PART MERGE LOSES NAMED ENTITIES, F.6.7
AD22297	C	C	ICEM DDN V1.53 BULKIN INPUT 10 TIMES SLOWER THAN IN V1.45
AD22300	U	U	BLANKED ENTITIES TRANSLATED/CHANGED LEVEL BY DUPL/TRANS OTHER ENTITIES
AD22301	U	U	NEW ORIGIN OF PATTERN DIMENSION TEXT GIVES WRONG ARROW LOCATION.
AD22302	U	U	GOTOER. CALLED MESSAGE WHEN TRYING TO REPAINT BY CHANGING ZOOM.
AD22303	C	C	SCREEN SELECT IS PICKING BLANKED ENTITIES NOT ELIGIBLE IN CURRENT TASK
AD22304	S	S	BULKDATA CIRCLE,2 CAUSES MODE ERROR/CREATES INCORRECT GEOMETRY
AD22305	U	U	DATA CAPTURE CORRUPTS THE RUN TIME LIBRARY.
AD22314	C	C	2-D OFFSET OF A 2-D SPLINE
AD22319	C	C	NC POCKET FAILURE
AD22322	U	U	THE NUMBER "1" AND THE LETTER "I" LOOK IDENTICAL IN TEXT.
AD22335	U	U	(1.9.1.3) CHANGE THE DEFAULT COLOR FOR LEVELS 9 & 10.
AD22337	U	U	NON-COMPATIBLE SETS.
AD22340	M	M	PIPEWORK INTERFERENCE CHECK ABORTS
AD22342	C	C	NOT ABLE TO SELECT CENTERLINES IF CREATED IN VIEW OTHER THAN ARC
AD22346	U	U	(7.2) AUTO MAX/MIN REQUIRED WITH PLOT/SCALE FROM GEOMETRY
AD22348	U	U	(16.1.14)SECTION LINING ALIGNMENT DOES NOT WORK
AD22351	C	C	(15.1.4)DRAFT CURVE GIVES INFINITE LOOP
AD22352	M	M	TABLET INPUT
AD22355	S	S	UNABLE TO ADD FORMAT TO A SINGLE VIEW OF FRONT LAYOUT
AD22360	U	U	1.53 1982 ANSI STANDARDS PROBLEM
AD22361	U	U	1.53 PROBLEM WITH THE "SPECIAL CHARACTER PREFIX"
AD22363	U	U	1.53 STRING NOT BEING CLOSED PROPERLY
AD22364	U	U	1.53 PLUS - NEED BETTER TERMINAL RECOGNITION
AD22365	U	U	1.53 PROBLEM WITH DETAIL MAGNIFICATION
AD22367	U	U	EXTENSIVE LAYOUT USAGE CORRUPTS DATA BASE
AD22368	U	U	(11.8)MODIFY ANGLES GIVES UNPREDICTABLE RESULTS
AD22369	U	U	(16.2)LINEAR DIMENSION W/DUAL DIMENSION DECIMAL PLCS HANGS DDN
AD22370	U	U	1.53 VIEW LAY-OUT FUNCTION NOT WORKING PROPERLY
AD22371	U	U	1.53 VARIOUS PROBLEMS WITH 2-D ANALYSIS
AD22372	S	S	ICEMDDN TO ICEMOD GEOMETRY TRANSFER
AD22373	M	M	MODIFY ENTITY'S LEVEL/PEN NUMBER
AD22374	S	S	F.18.1 SLOPE VALUES FOR SPLINE ANALYSIS ARE QUESTIONABLE BY DEF.
AD22375	U	U	F.18.1.6 SPLINE ANALYSIS OMITS AND PRINTS ERRONEOUS INFORMATION
AD22378	C	C	(15.1.4)DRAFT CURVE GIVES ARITHMETIC MODE ERROR

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AD22379	C	C	(15.1.4)DRAFT CURVE DOES NOT WORK
AD22380	S	S	THE USE OF CONTROL CHARACTERS.
AD22381	M	M	CONSISTENT USE OF IMPLICIT POINTS.
AD22382	S	S	DRAFTING LABELS.
AD2A474	S	S	UNWRAPED FEATURE GENERATED OUTSIDE LAYOUT BOUNDARY.
AD2A506	S	S	(15.1.7.2) CLOSURE END CONDITION CAN LEAD TO INCORRECT.
AD2A549	U	U	(15.2.13) (9.15) FILLET SURFACES CAN NOT BE USED IN THESE MENUS
AD2A589	U	U	CURVED MESH SURFACES THAT ARE DEFINED WITH 30 VARIABLE CURVES ABORT
AD2A662	S	S	(15.2.4)CAN NOT USE A DRAFT CURVE TO DEPTH FOR RULED SURFACE
AD2A663	S	S	WRONG TOTAL LENGTH OF COMPOSITE CURVE AFTER TRIM CURVE
AD2A664	M	M	THE SMOOTHING FACTOR IS RETAINED AFTER PRELIMINARY COMPUTATION
AD2A665	S	S	F.15.1.7.2.2 AFTER ADDING ONE CONSTRAINT(CURVE THRU THE END POINT)
AD2A668	S	S	MODIFY SURFACE PATHS OF OFFSET SURFACES
AD2A669	S	S	2-D ANALYSIS MENUS WORDING OF OPTIONS IN 18.3
AD20433	U	U	(15.2.7)FILLET SURFACE ONLY HALF GENERATED
AD20460	S	S	(15.2.7)FILLET DID NOT COMPLETE BETWEEN TAB CYL AND RULED SURFACE.
AD20560	M	M	(15.1.3) INTERSECTION CURVE NOT FOUND FOR SURFACES THAT ARE
AD20956	U	C	(15.2.2) SURFACE OF REVOLUTION DEGENERATES AT CENTER.
AD21033	U	U	SURFACE PIERCE PT DOES NOT ALWAYS FUNCTION.
AD21206	U	U	VARIOUS PROBLEMS WITH COMPOSITE SURFACES(1.49X)
AD22183	S	S	PROBLEM IN UNWRAP FEATURE
AD22242	S	S	UNCOMPLETE FILLET SURFACE.
AD22293	U	U	F.9.15 SURFACE POINTS PRODUCE ERRONEOUS VALUES USING NORMAL & PIERCE
AD22317	C	C	FILLET SURFACE RADIAL GOES TO ZERO
AD20679	S	S	(18.2) MULTI-CURVE ANALYTIC AREA IS NOT CONSISTENT.
AD22148	C	C	WEIGHT/UNIT LENGTH INCORRECT FOR SURFACES ROTATED ABOUT LINES
AD22202	S	S	PROBLEM WITH 3-D ANALYSIS MENU 18.4
AD20768	U	U	(17.12)3-SURFACE PROFILE DOES NOT WORK; LOOPS THROUGH DRIVE, PART
AD2A522	U	U	(7.1.1) CIR. INTER.CAN NOT BE APPLIED TO PUNCHED PATHS.
AD21277	U	U	CIRCULAR INTERPOLATION.
AD2A275	M	M	(7.1) TOOL PATHS SWITCHED FOR TWO VIEW DISPLAY
AD2A451	U	U	SMALL CIRCLES CAUSE CIRCLE RECORD PROBLEMS IN CLFILE.
AD20826	S	S	(17.6/7.1) WRONG DIRECTION FOR CLFILE TOOL AXIS VECTOR.
AD21203	U	U	BAD CLFILE OUTPUT OF AN ABSOLUTE TOOLPATH DATA BLOCK(1.49X)
AD21347	U	U	BAD MOVE AND FAULTY CIRCLE RECORDS IN CLFILE
AD2A566	S	S	(17.14) COMPOSITE TOOLPATH INTERFACE INSUFFIENCIES
AD2A475	U	U	CHANGING DATA BASE LIBRARY LOCAL FILE NAME CAN ABORT ICEM DDN
AD2A476	U	U	(06.06) CY120-CY270CAN NOT SHARE PARTS CONTAINING FORMAT VIEW.
AD2A477	M	M	(6.2.2) MENU OVERWRITE PATTERN RETRIEVE OF '<'
AD2A483	M	M	(6.1) PARTS WITH THREE AND FOUR DIGIT SHEET NUMBERS OVERPRINT.

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AD2A502	M	M	(MISC) SECONDARY MESSAGE PATTERN BUNCHING TOGETHER COLUMN 4 AND 5
AD2A529	M	M	(6.5.4) OPERATION REJECT BOUNCES TOO FAR
AD20330	U	U	(BAD PNTR) PROBLEMS WITH DELETED USED-IN-DEFINITION ENTITIES.
AD20482	S	S	(6.2.1)CAN NOT CREATE A PATTERN USING AN EXTENDED GEOMETRY ENTITY.
AD20554	S	S	(1.10/6.2.2) PATTERN PROBLEM WITH SELECTIVE BLANKING
AD20701	S	S	(6.2.6) GLOBAL PATTERN OVERFLOW
AD20822	S	S	(6.2.1) GROUPS ARE NOT LEGAL ENTITIES FOR PATTERNS.
AD21022	S	S	(6.2.1-GLOBAL) GLOBAL PATTERNS WITH THE NAMES WILL NOT RETRIEVE.
AD21024	S	S	MENU 6.2.2 PATTERN RETRIEVE - PATTERN NAME DOES NOT MATCH PATTERN.
AD21050	S	S	(6.2.6) GLOBAL PATTERN DIRECTORY PROBLEMS.
AD21051	U	U	(6.2.2) GLOBAL PATTERN DIRECTORY LIMITS.
AD21064	S	S	BLANK AND UNBLANK ENTITIES FROM A MERGED DRAWING.
AD21086	S	S	DEGREE SYMBOLS CHANGED TO DASH AFTER MERGE
AD21152	U	U	PART MERGE LOSES EXTENDED GEOMETRY (6.1.7)
AD21155	U	U	6.1.7 PART MERGE LOSES SOME EXTENDED GEOMETRY
AD21180	U	U	ELIMINATION OF UTF BY COMMON PATTERN LIBRARY
AD21216	U	U	"PACK PART" CAUSED DISPLAY TO DISAPPEAR WHEN REPAINT OR ZOOM.
AD21341	U	U	(7.10) BULKIN DATA EXECUTION IS 10 TIMES SLOWER IN 1.50 THAN 1.45
AD21460	U	U	CREATING A PATTERN CAUSED MODE ERROR
AD22031	C	C	NO CONFIRMATION WHEN DELETING/OVERWRITING GLOBAL PATTERNS
AD22046	U	U	RESULT OF PART MERGE IS INCOMPLETE (6.1.7)
AD22081	U	U	GROUPS IN PATTERNS
AD22145	U	U	BAD DRAWING NOT IDENTIFIED BY PART INTEGRITY "CHECK PART"
AD22146	U	U	USE OF PART RENEW ON A BAD PART HUNG 4114 WORKSTATION
AD22182	C	C	ERROR ON THE INITIAL PAINT FOR SEVERAL OF THE PARTS ON TAPE3
AD22189	U	U	ICEM DDN SHOULD NOT ALLOW APPLICATION KEYWORDS IN GLOBAL FILENAMES
AD22246	U	U	PACKING GPARTS FILE CAUSES PARTS TO BE NON-ACCESSIBLE
AD22249	C	C	PART MERGE NOT WORKING PROPERLY
AD22250	U	U	BULKIN DATA ERROR IN ROTATING NOTES
AD22345	U	U	(6.1.1.4)DRAWINGS ON PACKED GPARTS CAN NOT BE RETRIEVED
AD2A481	M	M	(5.1.3) CANON HAS INCONSISTENT ERROR MESSAGES-BOTH UAE AND ILLEGAL PTR
AD22195	U	U	LINES MODIFIED TO INFINITE LENGTH DO NOT DATA VERIFY AS INFINITE
AD2A534	S	S	(5.10) GOTOERR. WHEN RUNNING NEST1 TRACE ON IST 3
AD20586	U	U	(7.9) REGENERATE ALL USING STRING, FILLET, CROSS HATCH
AD21075	S	S	PLATE NESTING DOES NOT WORK.
AD21172	U	U	(5.7) DATA GRAPHS LINE FONT PROBLEMS.
AD21263	S	S	CIO MESSAGES ON NOS/BE SYSTEMS
AD21317	U	U	UNUSED CODE

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AD22225	U	U	CAN NOT WORK AROUND GOTOER.MESSAGE IN DDN 1.5.0
AD22339	C	C	USER DEFINED SYMBOLS F5.4
AD2A546	S	S	CAN NOT INDEPENDENTLY SET X OR Y MIN/MAX OFFSET FOR PLOT
AD2A656	S	S	REPAINT INCORRECTLY DISPLAYS CLIPPED ENTITIES
AD20530	M	M	(13.2)CIRCULAR ARRAYS PLOTTED AS LINE SEGMENTS BECOME OCTAGON.
AD20962	M	S	PLOT SCALING INPROPERLY CALCULATED WHEN TEXT IS IN DRAWING.
AD21026	S	S	(7.2)PLOT-UNIPLOT-5"GAP CAUSES PLOT INACCURACIES RELATED TO USE OF
AD21157	S	S	GRID DISPLAY NOT TURNING OFF WHEN GRID IS DEACTIVATED
AD21437	S	S	PLOTTING IGNORES TEXT IF IT IS TOPMOST OR RIGHTMOST ON DRAWING.
AD22147	S	S	OFFSET PLOT LEAVES VALUES IN X,Y REGISTERS
AD22170	S	S	MULTIPLE OFFSET DRAWINGS, USING PLOT,, HAVE MISSING ENTITIES
AD22198	U	U	MULTIPLE VIEW PLOTTING MODE IN MENU 7.2
AD22232	S	S	ORIGIN POINT FOR MULTIPLE VIEW PLOTTING REQUIRED
AD22294	U	U	F.7.2 PLOTTING ROUTINE CAUSES DATA BASE PROBLEMS IF SCALE IS NOT = 1
AD22311	S	S	NO "RESCALE?" REQUEST AFTER UNBLANKING
AD2A466	S	S	CROSSHATCHING DOES NOT WORK ON A SPECIFIC PART.
AD2A496	S	S	(16.3) IMPOSSIBLE TO CREATE HORIZONTAL CROSS HATCHING.
AD2A616	M	M	MODIFY DRAFTING ENT. REPLACE STRING 'NO MATCH FOUND'
AD20395	U	U	(16.14)DETAIL MAGS APPEAR IN ALL VIEWS RATHER THAN SINGLE
AD20591	S	S	(16.3)CROSSHATCH OF 1/4 CIRCLE SELECTS SAME QUADRANT ANY SEQUENCE.
AD20592	S	S	(16.3) CROSSHATCH OF 1/2 CIRCLE USING CIRCLE AND LINE HATCHES
AD20814	U	U	(14.1) CROSSHATCHING CAN NOT BE DATA VERIFY'D.
AD20898	U	U	DRAFTING - DETAIL MAG IS DISPLAYED IN ALL VIEWS, NOT JUST ONE.
AD20961	S	S	16.12-BOLT CIRCLE WILL NOT DISPLAY PROPERLY ON A MIRRORED CIRC.ARRAY
AD20983	U	U	(16.7) ARROWHEAD ALIGNMENT DOES NOT WORK ON ANGULAR DIMENSION.
AD21035	S	S	ARROWHEAD ALIGNMENT DEFINITION CAUSES USER PROBLEMS.
AD21063	S	S	SYMBOL DEFINE OR REPLACE.
AD21133	U	U	(16.3) CROSSHATCHING.
AD21178	U	U	HYPERBOLA NOT DISPLAYED IN DETAIL MAGNIFICATION
AD21234	S	S	CIRCULAR DIMENSION CAN ONLY BE PLACED IN VIEW ARC BEING DIMENSIONED
AD21361	U	U	CROSSHATCHING USING ARCS OR CIRCULAR BOUNDARIES IS INCONSISTENT
AD21402	S	S	TEXT PROCESSING/IMPROVE ON CHARACTER SET
AD22034	C	C	(16.1.8)TEXT CAN ONLY BE JUSTIFIED IN ANSI DRAFTING
AD22083	S	S	TEXT PROBLEMS IN DRAWINGS CREATED IN 1.45.
AD22155	M	M	SECTION LINING WITH ELLIPSE AS A BOUNDARY NOT WORKING
AD22172	U	U	HORIZONTAL AND VERTICAL DIMENSIONS WILL NOT ACCEPT CENTERLINES
AD22224	S	S	CROSSHATCH IN A "DETAIL MAG." DOES WRONG AREA IF BALLOON LEFT

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AD22329	C	C	DRAFTING ENTITY MODIFICATION IS INACCURATE
AD2A251	S	S	(10.9) LINE THRU POINT PERPENDICULAR TO A LINE
AD2A417	M	M	(10.11&12) LINE FUNCTION FAILS WHEN IN VIEW DIFFERENT FROM CURVE.
AD2A526	M	M	(12.3.6) AT INDICATE PT. FOR RHO -- OP REJECT WONT BACK YOU OUT.
AD2A544	S	S	(12.4) DELETE LST ENTITY IN STRING MENU CAUSES BAD POINTER
AD2A562	U	U	(12.2) OFFSET CURVES
AD2A564	C	C	(11.9) BAD FILLET ARCS PRODUCED IN AUXILLARY WORK VIEW
AD2A601	S	S	LARGE POINT MOVE ENTRIES PREVENT CONTROL POINT FIT
AD2A602	S	S	RHO AND LOFT CONICS CAN NOT BE CONSTRUCTED UNDER PRESENT CODE
AD2A652	S	S	9.18.1 & 2 DELTA XT & YT ARE NOT WORKING AROUND FOR COMPOSITE CURVES
AD2A658	S	S	F9.9 POINT AT INTERSECTION DOES NOT WORK WITH MACHINING CURVE
AD20457	M	M	(10.4/12.11)LINE TANTO 2 ARCS WOULD NOT HIDDEN LINE REMOVE: NO INTRS.
AD20527	M	M	(12.3.5)LOFT CONIC THROUGH THREE POINTS INCONSISTENT.
AD20546	S	S	(9.17) FAN POINTS AND INCRMENTAL POINTS FAIL FOR POINT SETS.
AD21031	U	U	FAN POINTS HAVE INTEGRITY AND CONSISTENCY PROBLEMS.
AD21065	U	U	LINES--CONSTRUCTION OF LINE PERP TO LINE THROUGH POINT IS UNRELIABLE.
AD21079	S	S	(11.10)ARC INSCRIBED IN 3 LINES IS INCORRECTLY DRAWN IN CERTAIN CASES
AD21087	C	C	TRUE INTERSECTION POINT OF TWO LINES F.9.9.4.
AD21137	S	S	TRANSFORM COORDINATES POINT DELTA DIFFERENT IN 1.47 THAN 1.45 (9.4).
AD21150	S	S	INCORRECT DEPTH OF LINE TANGENT TO AN ARC AT AN ANGLE.
AD21165	U	U	(10.4) LINE TANGENT TO 2 ARCS GO TO WRONG SIDE OF ARCS
AD21189	U	U	PROBLEM WITH FAN POINTS ON CURVE CONTAINING MULTIPLE ENTITIES
AD21191	U	U	FAN POINTS OUTPUT INCOMPLETE SET OF POINTS
AD21291	S	S	INCONSISTENT DEFINITION OF PARAMETER IN POINT ON A CURVE OPTION.
AD22039	U	U	CONICS DISPLAY VALUES ARE INCONSISTANT BETWEEN METRIC AND ENGLISH
AD22153	U	U	NEED ABILITY TO CREATE A CIRCLE TANGENT TO THREE ENTITIES
AD22204	U	U	PROBLEMS WITH ELLIPSES - GENERATION AND OFFSETS
AD22291	S	S	F.5.9.2 LINE TANTO CURVE HAS DISPLAY PROBLEM
AD22318	C	C	FILLET BETWEEN POINT AND SPLINE FAILS
AD22321	U	U	ON 63-CHARACTER SET SYSTEM, A PERCENT SIGN IS CONVERTED TO A COLON.
AD22058	S	S	DUPLICATIONS OF NON-DELETABLE ARE FLAGGED AS NON-DELETABLE.
AD2A344	M	M	(12.8.2) TRIM OF AN ARC IN A VIEW 1 TO ARC DOES NOT WORK
AD2A432	S	S	USER'S MANUAL DESCRIPTION OF MENU 13.5 TRANSLATE IS MISLEADING.
AD2A463	S	S	(10.19) MODIFY PARAMETERS FOR CERTAIN LINES IS NOT WORKING.
AD2A574	S	S	UNSUCCESSFUL AT MIRRORING OF A NOTE
AD2A614	C	C	TRANSLATION BY REGION FAILS TO MOVE ALL ENTITIES
AD2A653	S	S	13.6 ROTATION OF A 3-D SPLINE DOES NOT WORK CORRECTLY
AD20400	S	S	(13.10)STRETCH DOES NOT STRETCH LINES CONNECTED TO LINE TO BE

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AD20477	M	M	(16.2/2.7)PROJECT ENTITY TO OTHER LEVEL, THEN BLANKING AFFECT HANGERS
AD20642	M	M	(13.5) ENTITIES NOT TRANSLATED CORRECTLY IN SOME VIEWS.
AD20944	S	S	(16.2) PROJECTED ENTITY NOT ON SAME LEVEL.
AD21057	S	S	(13.10) STRETCH BY SCREEN POSITION WILL NOT RESPOND TO GRID ACTIVATE
AD21076	S	S	PROBLEMS DURING ROTATION OF SURFACES.
AD21131	U	U	2-D SPLINES DO NOT WORK WELL AS TRIM BORDERS (12.8).
AD21145	U	C	ROTATE (13.6) FOR ARCS ABOUT AXIS CREATES THEM IN A NEW VIEW.
AD21188	U	U	MIRROR ABOUT A POINT
AD21209	U	U	CAN NOT TRIM CIRCLE USING TANGENT CIRCLES AS BOUNDARIES(1.49X)
AD21353	U	U	TRIMMING OF LINES AT ARC NORMAL TO VIEW IS WRONG.
AD21476	U	U	TRIM MULTIPLE CURVES TO A BOUNDARY PRODUCES IMPROPER RESULTS
AD21499	C	C	TRIMMING OF INFINITE LINES IS WRONG.
AD22028	S	S	TRIM OFFSET CURVES OF FILLET NOT WORKING CORRECTLY
AD22065	U	U	HIDDEN LINE REMOVAL DOES NOT WORK ON MACHINING CURVES
AD22112	U	U	DISPLAY TOLERANCE TO CIRCULAR ARRAY
AD22154	M	M	TRIM ONE END OF 2D SPLINE INCONSISTENT
AD22162	M	M	MIRROR OF TEXT TURNS TEXT UPSIDE DOWN
AD22292	M	M	F.12.8.1 TRIM ONE END ON INFINITE LINES WORKS INCORRECTLY
AD22338	U	C	HIDDEN LINE REMOVAL OF MACHINING CURVES IS WRONG
AD21248	S	S	FLAME CUTTING, MENU F.17.15 - DEFINED CIRCLES.
AD21250	U	S	FLAME CUTTING, MENU F.17.15 - REZERO CUT.
AD21251	U	U	FLAME CUTTING, MENU F.17.15, MARK AND FAST MARK.
AD22115	M	M	(17.15) FLAME CUTTING GENERATES WRONG TOOLPATH
AD22116	M	M	(7.1) N/C CIRCULAR INTERPOLATION FINDS WRONG RADIUS AND CENTER
AD22117	M	M	INCORRECT OUTPUT OF TOOLNO AND FEEDRATE VALUES AFTER POINT CUT
AD22227	U	U	(F.17.15)FLAME CUTTING GENERATES WRONG TOOL PATH.
AD22228	S	S	(F.17.15)FLAME CUTTING GENERATES WRONG TOOL PATH.
AD22229	U	U	(F.7.1) PROBLEM WITH CIRCULAR-INTERPOLATION IN FLAME CUTTING.
AD22230	U	U	(F.7.1) PROBLEM WITH CIRCULAR-INTERPOLATION IN FLAME CUTTING.
AD22241	S	S	CIRCULAR ENTRY/EXIT CUT WRONG (FLAME CUTTING).
AD21481	M	M	GROUP IS NOT SELECTED IN SCREEN SELECT MODE FOR PATTERNS
AD20812	S	S	(5.2.3) VIEW CHANGES IN AUTO GRAPL ON CIRCS WITH YZ ROT OF 180.
AD21042	S	S	GRAIOF INPUT GUTF/TEK 4014 NO ERROR OUTPUT DURING COMPILE.
AD21440	U	U	ONE GRAPL ONLY
AD22261	S	S	AUTO GRAPL PRODUCES STATEMENTS FOR DISPLAYED AND UNDISPLAYED ENTITIES
AD2A438	M	M	BAD DISPLAY OF PROMPTS AND INPUT WITH SPLIT SCREEN.
AD2A461	M	M	(4113) WRAP-AROUND PROBLEMS WHEN LISTING 80 CHARACTERS
AD2A464	S	S	TERMINAL CHARACTER SIZE ON SET UPON ENTRY FOR 4114 TERMINAL.

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AD2A471	S	S	SHIFT HOME DURING CURSOR POISITIONING UNPREDICTABLE.
AD2A482	M	M	(TERMINAL) 4114/ADM3 THE < AND > MARKS GET INCREMENTED TO THE RIGHT
AD2A488	U	U	(5.10) LDF NOT UPDATED WHEN NESTING TEMPLATE IS MODIFIED.
AD2A512	S	S	(TABLET) DOUBLE KEY-IN NAME ON 411X AND TABLET.
AD2A539	M	M	(5.2.3.2) ERROR MSSAGE ON 721--OUTPUT TOO BIG FOR UTF--OUTSIDE DIALOG
AD2A587	M	M	MODIFY/REPLACE VECTOR, LDF NOT UPDATED
AD2A604	M	M	WHEN KEYING AHEAD BETWEEN PARTS THE BELL SOUNDS
AD2A608	M	C	TEK 4105,7,9 TERMINALS PRINT GRAPL PROGRAM INFO ON ONE LINE
AD2A610	U	U	721 TERMINAL IS IMPROPERLY RESET AFTER LEAVING ICEMDDN
AD2A615	S	S	THE 721 VIKING TERMINL IS LEFT IN ERROR UPON EXIT
AD2A617	S	U	721 GRAPHICS TERMINALS RETURN TO GRAPHICS AFTER EXIT ICEMDDN
AD20638	M	M	(DIGITIZE) EVENTUALLY LOST THE ABILITY TO DIGITIZE CERTAIN ENTITIES.
AD20845	S	S	BACKSPACE DOES NOT ERASE CHARACTER WITH TABLET, ALPHA, 4016,GTA-1.
AD20846	U	U	TABLET/TERMINAL BECOME INACTIVE.
AD21196	S	S	TERMINAL 4115B BAD CUT VECTORS IN LDF.
AD21458	U	U	SPIKES ACROSS THE SCREEN ON 4115 TERMINAL
AD21472	S	S	CROSSHAIRS DO NOT RETURN TO ACTIVE IF TERMINAL LOCKS UP ON A 4115
AD21488	U	U	TEKTRONIX 4115 DISPLAY CHARACTER SIZE IS CHANGED WHEN ICEM DDN IS EXITED
AD22074	S	S	SUPPORT OF TEK4109 WITH TABLET TEK4957 BY ICEM PRODUCTS.
AD22121	U	U	ICEM DDN REQUIRES EXTRA CARRIAGE RETURN W/L=0 AND TB=Y PARAMETERS
AD22252	S	S	MANUAL IS INCORRECT ON TERMINAL SETUP
AD22312	C	C	FILLET W/SPLINE & LINE FILES
AD2A513	U	U	(17.4) STEP-OVER IN POCKET LEAVES MATERIAL.
AD2A492	S	S	(17.9) SEMI FINISHES FAILS TO FOLLOW BOUNDARY
AD2A520	S	S	MISC. FUNCTIONS INVERTS LATHE DISPLAY
AD20912	S	S	NC - LATHE ROUGHING FACE CUT ORIGIN IS AMBIGUOUS.
AD21071	S	S	ICEM DDN NC LATHE AND MILLING PROBLEMS.
AD21198	U	U	LATHE ROUGH BORE PLACES ROUGH STOCK OFFSET ON WRONG SIDE(1.49X)
AD21470	S	S	LATHE DRILLING PRODUCES WRONG CENTERING MOTION
AD21471	S	S	LATHE DRILLING DOES NOT ALLOW CONTROL OVER DWELL
AD21482	S	S	LATHE ROUGH FACING OFTEN FAIL
AD22050	U	U	(F.17.9) CONSTANT SURFACE SPEED IN ICEM N/C LATHE, & MODAL SETTINGS
AD22052	U	U	(F.17.9) ICEM N/C LATHE FINISH STOCK
AD22085	S	S	NO CIRCLE RECORD OUTPUTTED FOR LATHE ROUGHING
AD22086	S	S	LATHE TURNING OF A SINGLE ENTITY
AD22260	M	M	A REJECT AT SCREEN SELECT IN LATHE BACKS UP TO LATHE OPERATION

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M=MINOR
D=DEFERRED

PRIORITY STATUS: C=CURRENT
I=INTERNAL

NUMBER	PRI C	I	PROBLEM ABSTRACT
AD22262	S	M	CAN NOT BACK UP PAST STOCK AND CUT ANGLE PROMPT IN LATHE
AD22265	S	S	LATHE PACKAGE PICKS UP DEPTH SET IN SYSTEM
AD22266	U	U	CAN NOT GENERATE ROUGH LATHE TOOLPATH WITH .03 RAD AND DEPTH OF CUT .02
AD22226	S	S	(F.17.15)FLAME CUTTING GENERATES WRONG ENTRY AND EXIT TOOL PATH
AD20928	U	U	NC - DISPLAY & EDIT TOOL DISPLAY IS VERY BAD FOR ALL MILL USE.
AD21194	U	U	DISPLAY AND EDIT IS AWKWARD AND TIME-CONSUMING.
AD21465	S	S	NC DISPLAY AND EDIT WILL CHANGE LINE NUMBERS DURING EDITING
AD21468	S	S	N/C - TOOL PATH EDITOR INSERT MOTION VECTORS DISAPPEAR
AD22092	S	S	EXCHANGE FEEDRATE TRUNCATES UNIT PARAMETERS SUCH AS IPR
AD22210	S	S	N/C TOOLPATH EDITOR FAILS TO UPDATE VECTORS IN 4115 DISPLAY
AD22264	M	M	REJECT IN DISPLAY AND EDIT RETURNS TO NC MANUFACTURING MENU
AD22278	S	S	A CNTL D ENTERED IN DISPLAY AND EDIT PRODUCES UNDEFINED ADDRESS
AD2A455	U	U	LATHE NC MACRO NOT COMPATIBLE
AD2A525	S	S	(17.2.2) PITCH DOES NOT WORK AS DOCUMENTED.
AD20772	U	U	(17.2.2.2) TEMPLATE RELATIVE TO PLATE (TOOL PATH WRONG).
AD22298	U	U	F.17.2 - POINT TO POINT PUNCHING
AD20577	U	U	(17.5) COMPOSITE SURFACES DO NOT MACHINE
AD20803	C	C	(17) ICEM DDN ABORTS DURING PATH OF RULED SURFACE.
AD21193	U	U	CAN NOT USE COMPOSITE CURVE AS DRIVE OR CHECK CURVE
AD22190	C	C	3 - AXIS TOOLPATH IS WRONG
AD22309	U	C	PERFORMANCE PROBLEM WITH SURFACE MILLING
AD22310	C	C	METRIC INCOMPATIBILITY FOR NC.
AD2A555	S	S	INCONSISTENCIES BETWEEN MENU OPTIONS--INCREMENTAL POINTS
AD2A557	S	S	INCREMENTIAL POINTS--WRONG PARAMETER VALUE FOR ARCS
AD2A599	S	S	MENU CHOICES LIKE 00, 111 AND 88 ARE ACCEPTED
AD2A603	M	M	AN [TO LEVEL CHANGE REQUEST RETURNS TO ENTITY SELECTION
AD2A612	M	M	NO HELP MESSAGES IN ANALYSIS AREA
AD2A654	M	M	(12.4.6)STING BEARING DEGREE ENTRY NOT TURNED ON
AD21246	M	M	MISTAKE IN VERS. 1.5 MAIN OVERLAY, CHANGE SCALE SHOULD BE CHANGE PAGE
AD21268	S	S	DISPLAYING MAIN MENU HEADER-NO CHECK IF HEADER FITS IN AVAILABLE SPACE
AD21359	U	U	TOO MANY "UNNECESSARY" OP COMPLETES REQUIRED ON DATA ENTRY
AD21362	S	S	SUBTRACTIVE COLOR TABLE MANIPULATION SEEMS AWKWARD/INCOMPATIBLE
AD22038	M	M	MENU 1.10 ON THE ICEM DDN OVERLAY STILL READS TOGGLE BLANK/UNBLANK.
AD22220	C	C	ENTITY MANIPULATION REQUIRES TOO MUCH REPEAT INPUT.
AD2A286	S	S	(1.11.5/R) ATTENTION INDICATORS DISAPPEAR AFTER REPAINT WHEN
AD2A440	M	M	LEVEL TABLE INITIALIZE ERROR.
AD2A467	S	S	MULTI VIEWS AND OFFSCREEN ENTITY HAS PROBLEMS IN SELECTION.
AD2A470	U	U	POUND SIGNS ARE DISPLAYED IN STORAGE ON 4114.
AD2A500	U	U	(MANUAL) LEVEL TABLE NOT ASSIGNED ERROR MESS INCORRCTLY EXPLAINED.

PRIORITY CODE: C=CRITICAL
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PRIORITY STATUS: C=CURRENT
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NUMBER	PRI C	PRI I	PROBLEM ABSTRACT
AD2A537	M	M	(5.2.3) WHEN AN ERROR OCCURS, MENUS GET TURNED OFF.
AD2A551	S	S	(F.12.1.5.3) CHAIN SELECT
AD2A657	M	M	THE MANUAL DESCRIBING F.3.9 IS INCORRECT
AD2A660	S	S	POINTS OUTSIDE OF E-CLIP RANGE MAY BE SELECTED
AD20720	S	S	(3.7.5) 3 BALLOONS DELETED AS ARRAY AND GROUPS.
AD20996	S	S	AFTER OP REJECT, SYSTEM WILL RE-PICK THE SAME ENTITY.
AD21002	U	U	(3.3.3.1)ENTITIES OUTSIDE OF REGION PICKED FOR DELETION.
AD21159	M	S	CHANGE VIEWS - RIGHT/LEFT DOES NOT SCALE CORRECTLY.
AD21174	U	U	PROGRAM STOPS ACCEPTING SCREEN POSITIONS.
AD21183	S	S	TITLE BLOCK OVERLAY
AD21192	S	S	ATTENTION BLIPS END UP IN STRANGE LOCATIONS FOR TRIMMING(POINT NEAR)
AD21215	C	C	F.1.11.3.1
AD21320	U	U	CHAIN SELECT USING TABLET. PRESELECT CHARACTERS-A,P,L-NOT RESET TO 'C'
AD21321	U	U	TRIM USING TABLET. PRESELECT CHARACTER-A,P,L-DO NOT GET RESET TO 'C'
AD21360	U	U	ATTENTION INDICATORS DISAPPEAR BEFORE OPERATION IS COMPLETED.
AD21438	M	M	ATTENTION MARKERS ARE NOT DROPPED WHEN SELECTION WAS CANCELED.
AD21497	U	U	STRING MADE FROM TRANSLATED ENTITIES SCREWS UP REION SELECT
AD22061	C	C	DELETABLE STATUS CHANGED INCORRECTLY
AD22071	C	C	REPAINT REQUIRED TO SELECT ENTITIES.
AD22113	S	S	ICEM DDN EXCLUDES THE OP-COMPLETE] IN THE TABLET STRING
AD22159	M	M	ENTITY FLAG SHOWN II ODD LOCATION WHEN BLANKING
AD22188	C	C	CAN NOT SELECT GEOMETRY FOR ANY OPERATION
AD22193	U	U	ENTITY SELECTION IN VIEWS OTHER THAN THE WORKING VIEW
AD22196	U	U	CHAIN SELECT OF LINES AND AN ARC RESULTS IN ERROR--SEE DAYFILE
AD22315	C	C	DELETE BY LEVEL RANGE DELETES WHOLE PART
AD22349	U	U	(1.7)MODIFY LEVEL/PEN PRODUCES UNDESIRABLE RESULTS
AD2A274	S	S	(17.13) 3-AXIS FLANGE IS GENERATING INCORRECT TOOL PATHS
AD2A276	S	S	(17.12) SURFACING WITH MULTIPLE ISLANDS FAILS
AD2A469	U	U	THE SPIKE IS BACK ON ROCKY FLAT LATHE PATH P308.
AD2A540	U	U	(17.11) BAD POINTER IN DISPLAY AND EDIT.
AD2A257	S	S	(8.6.14) RETRIEVE ZOOM SCALE DOES NOT WORK PROPERLY
AD2A364	M	S	(8.3.1.1) DISPLAY SINGLE VIEW AT LAST SCALE USED
AD2A433	M	M	RESCALE ON NOTE FAILS (4114).
AD2A507	U	U	(MANUAL)DESCRIPTION NON STANDARD AND CONFUSING IN 8.6.15 CHANGE PAGE.
AD2A661	M	M	MANUAL DOES NOT SPECIFY DEFAULT WORK VIEW
AD20626	M	M	(8.6.11)AUTO MAX/MIN SETS SCALE TOO LARGE IF DEFINE AXIS (10.16)
AD20637	M	M	(8.6.11) VIEW NOT CENTERED ON AUTO MAX-MIN OF PART

PRIORITY CODE: C=CRITICAL
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PRIORITY STATUS: C=CURRENT
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NUMBER	PRI C	PRI I	PROBLEM ABSTRACT
AD20662	S	S	(RESCALE) DOES NOT WORK CORRECTLY FOR METRIC PART.
AD21107	U	U	VIEW NUMBERING DURING DEFINITION OF AN AUXILIARY VIEW F.8.9.
AD21252	U	U	ZOOM AUTO MAX/MIN DOES NOT WORK IF AN INFINITE LINE IS PRESENT.
AD21293	U	U	VIEW LAYOUT- WHEN CHOOSE OPTION TO RESIZE INTO NEW WINDOW PROBLEM.
AD21335	C	C	LOSS OF SCALE DURING LAYOUT CONSTRUCTION.
AD21337	C	C	VIEW ALIGNMENT IN A LAYOUT.
AD21357	C	C	VIEW MATRICES ARE NOT CHECKED SUFFICIENTLY.
AD22060	C	C	DISPLAY PREVIOUS LAYOUT
AD22064	S	S	DIAGONAL SCREEN POSITION DOES NOT WORK AFTER CREATING A LAYOUT
AD22206	C	C	ZOOM DISTORTS LAYOUT FRAMES SCALE TO PART SCALE
AD22213	U	U	(F.8.7.11) UNABLE TO FORMAT A SINGLE VIEW.
AD22272	U	U	3-SURFACE PROFILE TOOL AXIS PARALLEL TO DS GIVES BAD RESULTS.
AD22273	U	U	THREE-SURFACE PROFILE CREATES TIME LIMIT PROBLEMS.
57R056	U	U	PART MERGE DOES NOT CONVERT ENGLISH TO METRIC UNITS
57R082	M	M	ARROW ON A RADIUS DIMENSION DISPLAYS ICORRECTLY ON TOO CLOSE LEADERS
57R163	M	M	LABEL USING SLOPE METHOD DOES NOT ALWAYS POINT TO THE ENTITY
57R040	S	S	SECTION LINING DOES NOT APPEAR IN ALL VIEWS AS IT SHOULD
57R184	S	S	DATUM TARGET USES A DIAMETER AS THOUGH IT IS A RADIUS
57R148	U	U	SECTION LINING BREAKS IF TWO ENTITIES ARE SELECTED IN A ROW
57R183	M	M	ARC THROUGH 3 POINTS CREATES LINE WITHOUT WARNING USER
57R156	S	S	VERTICAL LDIMEN DIMENSION LINES
57R158	S	S	POINT SET CURVE
57R105	U	U	MACCRV/INTOF...EDGE WORKS INCORRECTLY
57R154	M	M	4114 W/ADM-3A TWO LINE DIALOG DOES NOT SCROLL
57R164	M	M	TEK 4105 DOES NOT RUN TEST SCRIPT WELL
57R052	M	M	IF -1 IS ENTERED FOR DEPTH, MESSAGE DISPLAYED IS MISLEADING
57R071	M	M	] AT ACCEPT THIS TOOL? TAKES USER TO OPERATION PROMPT
57R176	S	S	[AT ENDING SEQUENCE DOES NOT TAKE USER TO PREVIOUS MENU
57R178	S	S	] FOR DEPTH INPUT SENDS USER TO NC MAIN MENU FOR LATHE DRILL
57R179	S	S	FACE THREAD FOR LATHE DOES NOT WORK WELL FOR LONG LINE
57R180	S	S	MAJOR DIAMETER CAN NOT BE MODIFIED FOR A LINE PASSING THROUGH ORIGIN
57R170	U	U	CYCLE DOES FUNCTION WITH INSERTED INFORMATION
57R016	S	S	N/C D&E IS NOT PROCEEDING TO THE LAST LINE PROPERLY
57R173	S	S	GODLTA INSERT DOES NOT CREATE TOOL MOTION ALONG TOOL AXIS
57R130	M	M	OP REJECT FROM 'ENTER DIRECTION' DOES NOT CLEAR ENTITY ATTENTION
57R128	M	M	A DISALLOWED CURVE CAN BE SELECTED WITH SEQ. NO./PTR/NAME
57R142	M	M	OP REJECT IS NOT PROCESSED CORRECTLY IN A SINGLE SELECT
57R136	M	M	SCREEN SELECT FOR SURFACE PATHS CAN BE SELECTED WITH A CR
57R167	S	S	BLANKING WITH DISALLOWED CURVES ALSO BLANKS THE CURVES

APPENDIX B

RESOLVED PROGRAMMING SYSTEM ERRORS (PSRs)

This section contains a list of system problems existing under previous versions which were resolved in ICEM DDN V1.57.

PRIORITY CODE: C=CRITICAL
U=URGENT
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M=MINOR

PSR NO.	PRIORITY	PROBLEM ABSTRACT
AD22328	C	DECIMAL PLACES IN DIMENSIONING METRIC PART
AD2A593	C	EXECUTE A GRAPL PROGRAM WITH ATTRIBUTES EXITS TO O.S.
AD2A623	C	ENTITY VANISHES IF YOU] AT DETAIL NO BUT ENTER SHEET NO
AD21951	C	PATTERN CREATION SHOULD BE ABLE TO USE IMPLICIT POINT
AD22353	C	CHAIN SELECT DOES NOT WORK FOR SMALL ENTITIES
AD22357	C	1.53 PROBLEMS EXIST WITH CHAIN SELECT IN METRIC UNITS
AD22358	C	1.53 CROSSHATCHING
AD21182	U	TEXT MOVES INCORRECTLY WHEN TOLERANCE IS ADDED
AD21345	U	SYSTEM REL/REV NUMBER
AD22323	U	(1.7)ENTITIES GO TO CURRENT LEVEL OR PEN NUMBER
AD2A622	U	CAN NOT REGION SELECT NESTED GROUPS
AD2A625	U	DELETING NESTED GROUPS DOES NOT WORK CORRECTLY
AD22087	U	LATHE THREADING
AD22299	U	(16.13.4)MODE ERROR WHEN ADDING TOLERANCE TO DRAWING
AD22359	U	1.53 MODIFYING PEN AND NOT LEVELS IN MULTI-PICK PROBLS
AD22362	U	1.53 IMPLICIT POINTS PROBLEMS
AD2A591	S	V.A.E. ERROR WHEN MORE THAN 509 POINTS ENTERED
AD2A619	S	CAN CNTL-D TO DELETE A DATUM TARGET
AD2A620	S	MODIFY DECIMAL PLACES ERRORS ON FRACTIONAL DIMENSIONS
AD2A641	S	SECTION LINING VISIBILITY MODAL HAS NO EFFECT ON SECTIONING
AD2A651	S	(15.2.12.1.1)LINE PICK POSITION UNUSED IN CONE CREATION
AD20774	S	(16.3) CROSSHATCHING SHOULD DISPLAY IN VIEW OF DEF
AD21020	S	(16.13.5) MODIFY TEXT DISPLAY VALUES
AD22033	S	(16.13.1)NEW ORIGIN GIVES INCORRECT WITNESS LINES WITH ANGLE

4770 FRANK

PRIORITY CODE: C=CRITICAL
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M=MINOR

PSR NO.	PRIORITY	PROBLEM ABSTRACT
AD22169	S	MODIFY BALLOON ALTERS TEXT TO CURRENT LEVEL AND PEN
AD22219	S	TEXT FOR GEOMETRIC SYMBOLS STAY AT ZERO DEPTH.
AD22032	S	(16.11)LABEL-ARROWHEAD NOT ALWAYS PLACED AT SELECTED PT.
AD2A595	S	ERROR IN NAMING OF N/C TOOL
AD2A596	S	GPL INTOF RETURNS PT OF INTERSECTION BETWEEN TWO LINES
AD2A644	S	EXTRA ITEMS APPEAR IN MOVE WINDOW MENU UNDER VIEW LAYT
AD2A659	S	(6.1.10) IPARTD RETRIEVE LOSES SELECTIVE VIEW BLANK IO
AD22285	S	ENTITIES ARE NOT SELECTABLE FROM VERY SMALL ZOOM AREAS
AD22330	S	(16.13.14.2) CHANGING RADIUS CHANGES ORIGIN OF WORDING
AD22284	S	(2.11) DOES NOT RECOVER FROM A ZOOM ON A VERY SMALL AA
AD22285	S	ENTITIES ARE NOT SELECTABLE FROM VERY SMALL ZOOM AREAS
AD2A607	M	R AT INDICATE CENTER PROMPT IN FILLET RETURNS WRONG VE
AD2A667	M	REDUNDANT PARAMETER SPECIFICATION NOT HANDLED PROPERLY
AD21492	M	TRANSLATE BASE POSITION DOES NOT ALLOW IMPLICIT POINT
AD22354	M	(16.1.16) DRAFTING MODALS SAY DIAMETER ON EVEN WHEN OF
AD22151	M	GEOMETRY EXISTS AT -0.0000 WHICH CAUSES CONFUSION
AD22211	M	OPTIM CAN PRODUCE INEFFICIENT PLOT FILES

CONTROL DATA CORPORATION

ICEM Facilities

Version 1.1

Operating System Level: NOS 2.3 Level 617

Date 12/14/84

INSTALLATION INSTRUCTIONS

SMD130753

RELEASE DESCRIPTION

ICEM Facilities Version 1.1 runs under the CDC® Network Operating System (NOS) Version 2 and the CDC Interactive Facility (IAF) Communications Subsystem.

ICEM Facilities is designed to increase the drawing productivity and enable the automatic generation of reports for facilities building managers and plant engineers.

ICEM Facilities requires ICEM Design/Drafting V1.53.

The operation of ICEM Facilities under NOS 2 requires the installation of the CDC Network Access Method (NAM), IAF and the associated products.

HARDWARE CONFIGURATION

The minimum hardware configuration required for NOS 2 and IAF is required to support ICEM Facilities Version 1.1.

RELEASE MATERIALS

The ICEM Facilities release files reside on the tape with a VSN of REL37A. This tape has the following characteristics: 9-track with either 800 or 1600 CPI binary recording mode, FACILITIES11 as the file ID in the HDR1 label, and 28 files.

File 1	INSTALL	Installation procedure file.
File 2	FACIN1	Script file that defines tablet file FACTFIL.

File 3	FACIN2	Script file that defines tablet file FACTFIL.
File 4	FACIN3	Script file that defines tablet file FACTFIL.
File 5	FACIN4	Script file that defines tablet file FACTFIL.
File 6	FACIN5	Script file that defines tablet file FACTFIL.
File 7	FACIN6	Script file that defines tablet file FACTFIL.
File 8	FACTFIL	Facilities tablet file.
File 9	TABLET	TAPE3 drawing file with physical tablet overlays.
File 10	FACMSTR	Facilities MSTRING file.
File 11	FACPAT1	Facilities global pattern file.
File 12	FACPAT2	Facilities global pattern file.
File 13	FACGRAI	GRAPL programs (Source).
File 14	AUXGRAI	Auxiliary GRAPL programs (Source).
File 15	FACGUTF	GRAPL programs (Object).
File 16	FACTP3	TAPE3 drawing file with example layouts.
File 17	EXAMPLE	Script file for example layout.

File 18	ICEMFAC	Procedure file for ICEM Facilities.
File 19	DEV	Development utility procedure file loading a trace to draw a tablet overlay.
File 20	PROCFIL	A utility procedure file with a number of procedures in it.
File 21	REPORTS	CCL procedure file to generate reports.
File 22	HWDATA	Haworth Bill of Materials data base.
File 23	OFDATA	Office furniture Bill of Materials data base.
File 24	CEDATA	Construction estimate data base.
File 25	REPSRC	Report generator source code.
File 26	REPABS	Report generator absolute binary.
File 27	VERIFY	Installation verification procedure file.
File 28	VERIT	Data for verification procedure.

NOTES AND CAUTIONS

All limitations applicable to NOS 2 and IAF also apply to ICEM Facilities.

The installer must be sure that permanent files do not exist with the same names as the files generated in the installation procedure. The permanent files listed above will be generated.

INSTALLATION PROCEDURE

The files which are part of the ICEM Facilities product are installed by executing the installation procedure which is file 1 of the ICEM Facilities tape, VSN=REL37A. The installation procedure must be run interactively.

Enter the following commands:

```
LABEL,FACTAPE,R,L=FACILITIES11,VSN=REL37A,F=I,
D   = {HD} .    (9-track, 800 cpi)
      {PE} .    (9-track, 1600 cpi)

COPYBF,FACTAPE,INSTALL.
BEGIN,,INSTALL.
```

Successful installation will be indicated at the terminal by the message, "INSTALLATION COMPLETE".

VERIFICATION PROCEDURE

To verify the proper installation of ICEM Facilities complete the following steps. The verification procedure must be run interactively.

NOTE

This procedure was written assuming that ICEM Design/Drafting Version 1.53 is stored as a direct access file named ICEMDDN on user name APPLLIB or that ICEMDDN has been sysedited into the system. If this assumption is incorrect, the user must change lines 13 and 14 of file VERIFY to specify the file name and user name in use.

If the above changes are needed, lines 9 and 10 of procedure ICEMFAC and lines 8 and 9 of procedure EXTRACE both on file ICEMFAC must also be changed.

Step 1. Log onto a graphics terminal supported by ICEM Design/Drafting.

Step 2. Enter:

```
BEGIN,,VERIFY
```

ICEM Facilities will retrieve certain files from your permanent catalog, and prompt the user with the prompt shown in Figure 1 to allow the user to enter ICEM Design/Drafting.

Step 3. Answer prompts shown in Figure 1.

Step 4. After ICEM Design/Drafting places the user at the main menu, enter the following ICEM Design/Drafting command string.

F.1.17.4.IT

Step 5. Compare the display with Figure 2 to verify that the layout is the same.

Step 6. Enter: A carriage return.

Step 7. ICEM Facilities will complete ICEM Design/Drafting and generate an office Bill of Materials.

Compare the report with Figure 3 to verify that the report is the same.

NOTE: Depending on the terminal used, the report may be written over the verification figure.

Verification of ICEM Facilities will then be complete.

```
BEGIN,,VERIFY

 ENTER BAUD RATE.
9
 ICEMDDN  VERSION   R1.53.

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SERVICES, INC. 1978

COPYRIGHT CONTROL DATA CORPORATION
1978, 1979, 1980, 1981, 1982, 1983, 1984

WELCOME TO ICEMDDN

GRAPHICS TERMINAL TYPE
1.  TEKTRONIX 4014
2.  TEKTRONIX 4016
3.  TEKTRONIX 4105
4.  TEKTRONIX 4107
5.  TEKTRONIX 4109
6.  TEKTRONIX 4113
7.  TEKTRONIX 4114
8.  TEKTRONIX 4115
9.  CDC VIKING 721
10. CDC IST III
11. CDC IEW 790 WITH TEKEM
1
MENU AREA
1.  GRAPHICS TERMINAL
2.  CDC 722/752
3.  ADM-3A
4.  ALPHA-3
5.  REFRESH BUFFER
6.  INTERACTIVE BUFFER
1
TABLET
1.  ON
2.  OFF
2
LOCAL CHARACTER SET AND GRID
1.  ON
2.  OFF
2



      KEY IN NAME
      VERIFY
      SHEET                1
      NEW PART ASSUMED
      === UNITS OF MEASURE2
      --- DRAFTING STANDARD1
```

Figure 1. Initialization Prompts

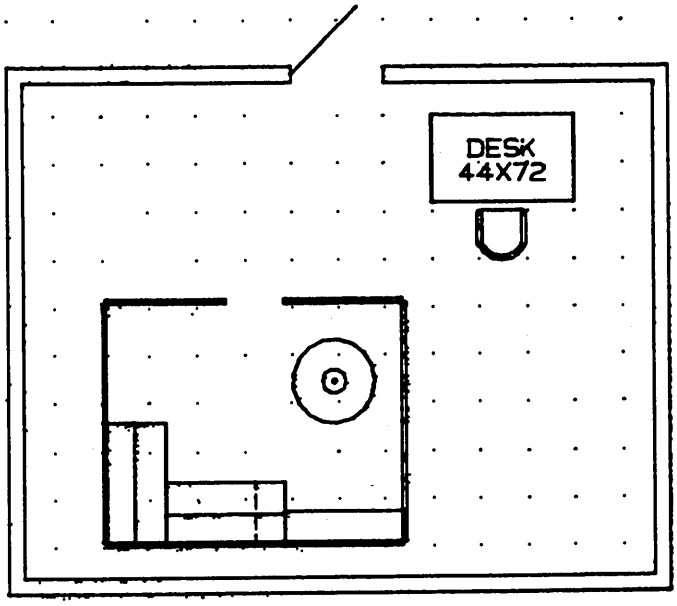

Figure 2. Verification Figure

```
REPORT
  1 OFFICE BILL OF MATERIALS
  2 HAWORTH BILL OF MATERIALS
  3 NEW CONSTRUCTION COST ESTIMATES
  4 TERMINATE

        --------THIS REPORT RESIDES ON LOCAL FILE OFBILL--------
                        REMEMBER TO SAVE IT

                    OFFICE
                BILL OF MATERIALS

     PART NAME : VERIFY

 ATTRIBUTE                                        QTY   UNIT    EXTENDED
 NAME                   DESCRIPTION                     COST    COST
 *********              ***********               ***   ****    ********

 CHAIR.SYMBOL       CHAIR  STD. COUNTOUR            1   175.75    175.75
 DESK.4472.NC       DESK  44X72                     1   377.55    377.55

  TOTAL                                                           553.30

        --------THIS REPORT RESIDES ON LOCAL FILE OFBILL--------
                        REMEMBER TO SAVE IT

REPORT
  1 OFFICE BILL OF MATERIALS
  2 HAWORTH BILL OF MATERIALS
  3 NEW CONSTRUCTION COST ESTIMATES
  4 TERMINATE



  CORRECT INSTALLATION HAS BEEN VERIFIED
REVERT.
/
```

Figure 3. Verification Report

SOFTWARE RELEASE BULLETIN

ICEM Facilities 1.1

(NOS 2.3 LV 617)

SMD130772

NOTES AND CAUTIONS

1. Procedure files ICEMFAC and VERIFY were written assuming that ICEM Design/Drafting version 1.53 is stored as a direct access file named ICEMDDN on user name APPLLIB or that ICEMDDN has been sysedited into the system. If this assumption is incorrect, you must change three procedures to specify the file name and user name in use. Change lines 9 and 10 of procedure ICEMFAC in file ICEMFAC, lines 8 and 9 of procedure EXTRACE in file ICEMFAC and lines 13 and 14 in procedure VERIFY in file VERIFY.

   (Notes 2, 3 and 4 refer only to the drawings of the tablet overlays that are provided on permanent file (TABLET).

2. The drawing of the HW PEN DRAWER (Rows 1 & 2, Col. 15 on overlay HAW1) is incorrect. The origin point of the pattern is at the center of the bottom line, not at the center of the rectangle as shown. The pattern name is DS3 in file FACPAT1.

3. The dimensions shown for UNIVERSAL DESK (Row 6, Cols. 11 & 12 on overlay ROFF1) are incorrect. They are 30 x 60 not 36 x 60 as shown. The pattern names are DK3060 and DK3060C in file FACPAT2.

4. The drawing of overlay LAY1 is missing text in one square. Row 5, Col. 4 should contain the text "DELTA S.P."

3070c

SOFTWARE RELEASE BULLETIN

ICEM ENGINEERING DATA LIBRARY

EDL VERSION 1.2 RELEASE

NOS 2 LEVEL 617A

SMD130799

ICEM EDL V1.2

This release is a major rewrite of the Engineering Data Library to correct outstanding PSR's and to provide the following enhancements:

1. User Interface

   - o Reorganization of EDL menu tree.
   - o Command interface.

2. Data Management

   - o Management of multiple user defined attributes for a design.
   - o Design selection based on the user labeled description fields.
   - o A restructured set of standard reports.
   - o Standard procedure to associate any file to a design.
   - o Format revision of design retrieval lists.
   - o Standardized selection of working, pending or released designs.
   - o Use of IMF 2.1 (Information Management Facility) providing concurrency and database backup recovery.
   - o Release mechanism tailorable to site specific requirements.
   - o Ability to grant permission to a design by group.
   - o More power to clean up EDL database.

3. Applications Supported

   - o ICEM Design/Drafting/NC
   - o ICEM Solid Modeler
   - o UNIPLOT
   - o RECLAIM

- o Text Editor (FSE or XEDIT)
- o IGES
- o UNISTRUC II
- o ICEM Schematics
- o ICEM TEKROUTE
- o PATRAN-G

4. Application Interface Enhancements

   - o Automatically attach default files for user when entering a new application.
   - o A well defined and standard set of retrieval and update routines.
   - o A common interface for transfers and translations, including IGES and site defined translators.

5. Customization

   - o Creation of customized reports by the DBA using Query Update.
   - o Utilities allowing other applications to invoke EDL Functions.
   - o Ability to specify a chain of mixed procedures and/or internal program segments for execution.
   - o Ability to call procedures with parameters.
   - o Easier menu modification.
   - o Easier migration of customized menus and messages between database versions.
   - o More internal documentation including:
     - Improved installation guide
     - Guidelines for adding other applications
     - Guidelines for EDL utilities, EDL database access by other ICEM applications and customer programs.

NOTES AND CAUTIONS

1. On entering EDL, if the user's logged in NOS user number is different than the NOS username in the EDL user profile, a warning message is displayed. Any files created under this condition may not be accessible to the user later unless they are specifically permitted.

2. Updating EDL for new files requires you to be logged on the NOS account where the file resides. EDL assumes that all new files are private files. If the file is actually a NOS public file, use the EDL PERMIT function to change the EDL file category to PUBLIC.

3. To install data files on a system account such as APPLLIB or LIBRARY, where a SUI statement is used to access the account, use UPDATE EDL FOR ENGINEERING DATA to add the file information to EDL, then use CORRECT FILE INFORMATION to change the NOS username of the file to the right username.

4. An indirect access permanent file named USER must exist on the user's NOS account if the user wishes to use Solid Modeler TRANSFER tasks. The file USER contains the job card, user card, and accounting charge card image if needed.

5. The DBA should set up a direct access file named EDLRECL on the account where EDL is installed and make it accessible in write mode to the users who will use the ARCHIVE/RECLAIM feature in EDL. Note that in previous versions of EDL, this file was called RECLDB. Either rename the old reclaim database or change procedure RECL in E120PRC.

6. If two users attempt to update the same EDL record at nearly the same time, a concurrency conflict may occur for the second. An error message will be displayed and EDL will return to the previous task menu. The user should re-obtain the data and try again.

7. If the user uses a Control T to abort EDL using IMF, occasionally the user job hangs and cannot be dropped. It may be necessary to do an override from the console to drop the job.

8. If the user changes his EDL password, he should immediately QUIT and reenter EDL before entering an application program.

9. The User's Guide and Data Base Administrator's Manuals will be supplied on magnetic tape as part of the released material. Printed manuals will be available from LDS on March 29, 1985.

PSR's

The rewritten code in this release corrects the following PSR's.

Ident	Description
ED1A008	INSTALLATION PROCEDURE DEFINES FILES WITH INCORRECT PASSWORD
ED10021	WORKING COPY OF RELEASED DRAWING HAS STATUS RELEASED.
ED10036	WASTED DISKSPACE,RELEASE PROCESS TIES UP TAPES3,REQUIRES A TAPE3 PER DRAWING
ED10039	WRONG HANDLING OF MODELS/DRAWINGS WITH SAME NAME ON DIFFERENT FILES.
ED10045	EDLPROC IS NOT DOCUMENTED WELL ENOUGH FOR ON-SITE ANALYSTS
ED10046	DIRECTORY INFORMATION NOT ACCESSED PROPERLY BY EDL DATABASE
ED10048	REMOVE MODEL FUNCTION SHOULD LET THE USER CHOOSE TO REVIEW FIRST.
ED10050	MODEL NUMBER DESCRIPTION ONLY PROMPTS FOR UNIQUE NAMES
ED10052	SIMILAR PROBLEM WITH CD2K INTERFACE REGARDING NAMING CONVENTIONS
ED10061	EDL DOES NOT ACCOMMODATE ICEM SOLID MODELER ELIMINATE COMMAND
ED10062	EDL CONFUSES ICEM SOLID MODELER WORKSPACE AND OBJECTS WITH MODELS.
ED10063	EDL IS INCONSISTENT WITH CD/2000,ICEM SOLID MODELER PROCEDURES.
ED10078	*DESTROYED EDL DATABASE AFTER EDL OR SYSTEM-CRASH WITH NO POSSIBLE RECOVERY.
ED10079	*NO WAY OF CHANGING A PART NUMBER.
ED10080	*NO WAY OF DELETING RELEASED DRAWINGS.
ED10081	*DOES NOT ALLOW DRAWINGS OF THE SAME NAME.
ED10085	DESTROYED EDL DATABASE AFTER EDL OR SYSTEM-CRASH WITH NO POSSIBLE RECOVERY
ED10087	** MENU CONSTRUCTION PROBLEM ON NEW MENUS CONTAINING "/"'S
ED10088	PERMIT INFORMATION IS LOST ON NOS WHEN A FILE IS OVERWRITTEN
ED10090	*** DRAWING REPORTS NEED COUNTERS TO SHOW "REVIEW" STATUS.

ED10091	*** DBA SHOULD NOT NEED DUPLICATE ENTRIES OF RELEASED FILES
ED10092	*** REPORT FORMAT SHOULD BE CONSISTENT REGARDLESS OF ORIGIN OF ACCESS
ED10094	*** EDL REFERENCE MANUAL REVISION
ED10096	EDL 1.13 IMPOSES LIMITS ON FAMILY NUMBER W/OUT VALIDATING IT ON ENTRY
ED10098	AUTHORIZED REVIEWERS SHOULD BE ABLE TO LIST "PENDING" DIRECTORIES.
ED10099	NEED "MODIFIED" FIELD IN EDL DIRECTORIES.
ED10101	DUPLICATE DRAWING/SHEET ERROR EDLN300 MUST OCCUR IN OWNER'S DIRECTORY.
EDL0102	REPORT OF PENDING RELEASE DRAWINGS NEEDED.
ED10103	*** REFER TO ANSWER TEXT ON ED10041 ON TERMINAL CHANGE IN EDL
ED10104	*** EDL DOES NOT ALLOW MULTIPLE "GPARTS" AND "PATTERN" ACCESS
ED10105	LACK OF ABILITY TO HANDLE TABULATED DRAWINGS
ED10107	*UNABLE TO USE RELEASED DRAWING GEOMETRY.
ED10108	*DUAL REVISION CONTROL.
ED10109	*IN-PROCESS DRAWING SUPPORT.
ED10111	ARCHIVE RELEASED DRAWINGS.
ED10112	*PROBLEM WITH EDL RELEASE PROCESS.
ED10114	*AUTOMATIC UPDATING OF EDL BY ICEM MODELER
ED10115	EDL CHANGES MOD DATE FOR CD2000 FILE EVEN WHEN USER FILES NO UPON EXIT
ED10116	EDL DBA DELETE MENU, DOES NOT DELETE MENU
ED10117	EDL DBA MENU CONSTRUCTION, WAITS TO UPDATE MENUS
ED10118	EDL113 DOESN'T ALLOW USERS OTHER THAN EDLDBA TO ATTACH IT
ED10119	V1.13/CD2000 PROCEDURE HUNG WHEN CALLED W/L=0 PARAMETER
ED10121	CANNOT LIST DRAWINGS IN PENDING RELEASE
ED10122	MODIFICATION OF DRAWING INFORMATION (INDEX CARD) IS UNCLEAR
ED10123	EDL- REQUEST ADDITIONAL DRAWING RETREVIAL KEYWORDS
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ED10125	EDL - TAPE3 LOCK-UP FOR PENDING RELEASE PARTS
ED10126	EDL - WANT EDL FILE CONTROL EXPANDED
ED10127	EDL - NEED ABILITY TO MODIFY DESCRIPTION KEYWORD
ED10128	CHANGING DESCRIPTION OF A RELEASED DRAWING
ED10130	TWO PEOPLE USING ONE EDL USERCODE CAN CAUSE LOSS OF DATA

ED10132	EDL REQUIRES A CARRIAGE RETURN TO COMPLETE THE RELEASE OF A DRAWING.
ED10133	CHANGING THE EDL INDEX CARD IS IMPOSSIBLE AFTER RELEASE.
ED10134	A DRAWING FILE WAS UNACCESSIBLE AFTER IAF LOST A USER.
ED10135	A NEED EXISTS TO BE ABLE TO EXIT "ACCESS CD/2000 FILES"

CONTROL DATA CORPORATION

ICEM

ENGINEERING DATA LIBRARY 1.2.3

Operating System Level: NOS 2 Level 642A
Date: 12/31/85

INSTALLATION INSTRUCTIONS

AND

CUSTOMIZATION GUIDE

DISCLAIMER

NOS and its product set are intended for use only as described in this document. Control Data cannot be responsible for the proper functioning of undescribed features or parameters.

SMD131013

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CONTROL DATA CORPORATION

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ICEM ENGINEERING DATA LIBRARY
INSTALLATION INSTRUCTIONS
NOS 2 Level 642A

1.0 ICEM EDL VERSION 1.2.3

1.0 ICEM EDL VERSION 1.2.3

1.1 RELEASE DESCRIPTION

ICEM Engineering Data Library (EDL) is an application designed to provide a user-friendly interface to Control Data's CAD/CAM products and to manage the engineering data produced by these products. The EDL system runs under the CDC Network Operating System (NOS) Version 2, and the CDC Network Access Method (NAM) and CDC Interactive Facility (IAF) communications packages. Information Management Facility (IMF) interfaces to the EDL database. A run-time subset of IMF is included with EDL.

1.2 HARDWARE REQUIREMENTS

EDL requires the minimum hardware configuration for NOS 2 and NAM/IAF. The user station can be a graphic or alphanumeric terminal. EDL requires a field length of 155000 octal words.

1.3 DEPENDENCIES

EDL interfaces to the following application packages.

ICEM DDN Version	1.57 or 1.60
ICEM Solid Modeler	1.1
Unistruc II	15AUG84
ICEM Schematics	1.15
PATRAN-G	1.5
IGES V2	2.1
UNIPLOT	
XEDIT	

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ICEM ENGINEERING DATA LIBRARY
INSTALLATION INSTRUCTIONS
NOS 2 Level 642A

1.0 ICEM EDL VERSION 1.2.3
1.3 DEPENDENCIES

Full Screen Editor
Reclaim

1.4 RELEASE MATERIALS

EDL resides on the tape VSN=REL76A. The tape characteristics are 9-track, 1600 cpi (D=PE). Tape format is internal (F=I) and labeled EDL123.

The following files are found on the EDL release tape.

File 1	INSTALL	EDL Installation Procedure
File 2	E123PRC	EDL Version 1.2.3 Procedure file
File 3	E123ABS	EDL Absolute Program
File 4	E123BIN	EDL Main Overlay Relocatable Program
File 5	E123LIB	EDL Relocatable Subroutine Library
File 6	E123IBL	EDL Relocatable Information Base Subroutine Library
File 7	E123NBL	EDL Networking Subroutine Library
File 8	E120CNV	Conversion Program EDL 1.1.3 to EDL 1.2.0
File 9	EDLCOM	EDL Information Base Common Block Text File
File 10	E123MMB	Message and Task Metabase
File 11	E123DMB	Engineering Data Metabase
File 12	E123MDB	Message and Task Database
File 13	E123DDB	Engineering Data Database
File 14	EDLSRB	EDL 1.2.3 Software Release Bulletin
File 15	EDLSCH	EDL 1.2.3 External Schema Charts (DDN Drawing File)
File 16	EDLCMAN	EDL Installation and Customization Manuals
File 17	EDLLIST	Default Database Load List
File 18	EDLUMAN	EDL 1.2.3 User's Reference Manual
File 19	EDLDMAN	EDL 1.2.3 Database Administrator's Manual
File 20	IMF2LIB	IMF Version 2.1 Enforcer Library
File 21	IMF2QU	Query Update with IMF 2.1 Interface
File 22	MCSIMF2	Start-up Procedure for IMF2SCP
File 23	IMF2STF	IMF 2.1 System Tuning File
File 24	IMF2SCP	IMF 2.1 System Control Point Absolute Program
File 25	CLGABS	Program to Associate Log File to Database
File 26	IMF2REC	Offline Recovery Utility

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ICEM ENGINEERING DATA LIBRARY
INSTALLATION INSTRUCTIONS
NOS 2 Level 642A

1.0 ICEM EDL VERSION 1.2.3
1.4 RELEASE MATERIALS

File 27	WMTUN52	Program to Change Metabase Username for a Database
File 28	IMF2LDU	IMF 2.1 Load/Unload/Validate Utility
File 29	MOTHERN	Metabase for Metabases, needed by IMF2LDU

2.0 INSTALLATION OF EDL AND THE IMF SUBSET.

2.0 INSTALLATION OF EDL AND THE IMF SUBSET.

2.1 ESTABLISH NOS ACCOUNTS

Establish a NOS account for the EDL programs, procedures, and data base files. This account may have any username and password.

Establish a NOS account with username IMF on which the Information Management Facility will reside and run. This username must have the name IMF, and must have special validations. It must be able to run a system control point job, communicate with user control points, create unlimited dayfile messages, unlimited CP time, unlimited MS, create direct and indirect files, etc.

All usernames from which EDL will be run must have validation to communicate to system control point jobs. Otherwise, they will be automatically logged off when they try to execute EDL.

2.2 MINIMUM VALIDATIONS

2.2.1 UN=IMF

AP=MCS Message Control System.
AP=RBF Remote Batch Facility.

AW=CLPF Create direct access files.
AW=CSPF Create indirect access files.
AW=CCNR Enter system without charge number.
AW=CUCP Access system control point facility.

2.0 INSTALLATION OF EDL AND THE IMF SUBSET.

2.2.1 UN=IMF

CC=77B	Max number of batch commands.
CM=77B	Max central memory space used.
CS=7	Cumulative size of all indirect access files.
DB=7	Max number of executing jobs and queue files.
DF=77B	Max number of MESSAGE requests to system and job dayfile.
DS=7	File size allowed for an individual direct access permanent file.
FC=7	File count.
FS=7	File size allowed for an individual indirect access permanent file.
MS=77B	Max number of additional mass storage PRU's the user is allowed to allocate to a job.
PW=pw	Password for both batch and interactive

2.2.2 ALL OTHER USERS INCLUDING THE DATABASE ADMINISTRATOR

AP=IAF	Interactive Facility
AP=RBF	Remote Batch Facility
AW=CLPF	Create direct access files.
AW=CSPF	Create indirect access files.
AW=CCNR	Enter system without charge number. (note 1)
AW=CAND	Request nonallocatable devices (magnetic tape units). (note 2)
AW=CUCP	Access system control point facility.
CC=77B	Max number of batch commands. (note 2)
CM=77B	Max central memory space used. (note 2)
CS=7	Cumulative size of all indirect access files. (note 2)
DB=7	Max number of executing jobs and queue files. (note 2)
DF=77B	Max number of MESSAGE requests to system and job dayfile. (note 2)
DS=7	File size allowed for an individual direct access permanent file. (note 2)
FC=7	File count. (note 2)
FS=7	File size allowed for an individual indirect access permanent file. (note 2)
MS=77B	Max number of additional mass storage PRU's the user is allowed to allocate to a job. (note 2)
PW=pw	Password for both batch and interactive

2.0 INSTALLATION OF EDL AND THE IMF SUBSET.
2.2.2 ALL OTHER USERS INCLUDING THE DATABASE ADMINISTRATOR

---

note 1 - The EDL installation procedure does not enter a CHARGE statement after the secondary USER commands when the procedure moves to UN=IMF and back to the DBA's account.

note 2 - Required for Database administrator, may vary for other users.

2.3 RUN THE INSTALLATION PROCEDURE

Run the tape installation procedure using the following control cards.

```
LABEL,TAPE,VSN=REL76A,F=I,D=PE,L=EDL123.
COPYBF,TAPE,INSTALL.
BEGIN,INSTALL,INSTALL.
```

The installation procedure will prompt for the username and password of the EDL account, and the password of username IMF.

If you already have the IMF2.1 files on username IMF and you do not wish to re-install it, answer NONE when prompted for the password of username IMF.

For sites currently using EDL 1.2.0, It is recommended that the IMF files be reinstalled, since the IMF released with EDL 1.2.3 has been updated.

It is also possible to install the IMF files without installing the EDL files. Be sure that you are logged into the UN=IMF account and type the following commands.

```
LABEL,TAPE,VSN=REL76A,F=I,D=PE,L=EDL123.
COPYBF,TAPE,INSTALL.
BEGIN,INSTIMF,INSTALL.
```

More information about starting and tuning IMF can be found in following sections.

2.4 EDIT THE EDL PROCEDURE FILES.

The installation procedure creates the startup file EDL. It is a single CCL proc which gets procedure file E123PRC from the NOS username where EDL is installed and passes that username as the value of the AUN parameter on the BEGIN statement for EDL. No changes to the file EDL should be necessary.

The proc header of procedure EDL in E123PRC should be edited to change the default value of the alternate username parameter (AUN) to the username on which the EDL programs and databases were installed. This will ensure that EDL will run correctly even when started directly from E123PRC instead of from file EDL.

The procedures in E123PRC should be checked to ensure that the correct versions of the application programs are obtained from the correct usernames. The standard procedure file assumes that all application programs and procedures are on UN=APPLLIB. If this is not the case at your site, E123PRC should be changed.

If an application such as ICEM DDN is sysedited into your system so that it can be used as a system command, simply remove the attach statements and the statement that checks to see if the application program has been assigned.

2.5 ACTIVATE THE IMF2.1 SYSTEM CONTROL POINT.

Edit file MCSIMF2/UN=IMF to change the commented out USER statement to a valid USER statement for the IMF account. Move this small procedure file to username SYSTEMX (UI=377777B). Note that the user statement in MCSIMF2 is mandatory and cannot be replaced by a SUI statement.

The IMF system control point program, IMFSCP, is started like all subsystems by a DSD entry, starting the execution of the procedure file saved under username SYSTEMX. That is, from the console,

```
MCSIMF2.
```

2.0 INSTALLATION OF EDL AND THE IMF SUBSET.
2.5 ACTIVATE THE IMF2.1 SYSTEM CONTROL POINT.

IMF2SCP can run at any control point. To force it to run at a specific control point, use the following CMR/DSD entry before the MCSIMF2 command.

ENABLE,MCS,cp#.

To avoid changes to the operating system, the EDL version of IMF2SCP uses the same system identification as the Message Control System, and cannot run when the Message Control System is active.

IMF2SCP is idled through the DSD entry

IDLE,MCS.

When idled-down, IMF2SCP will complete all processing needed to keep the databases in a consistent state. Idle-down can thus be done without damaging the databases, even if there are users active.

2.6 INSTALLING EDL IN NON-CONCURRENT MODE

If you do not need to allow more than one ICEM user at the same time using the same EDL database , you can install EDL so that it will run in mono-user mode without the system control point job being active. To do this, follow the following steps.

1. Define an empty direct access file named EDLLOCK on the username where the EDL Engineering Database is installed. This file should be Public in Write mode. EDL will use this file to ensure that only one person tries to use EDL at a time. Otherwise, EDL may abort when the database is busy. DEFINE,EDLLOCK/CT=PU,M=W.

2. Edit Procedure EDL in E123PRC to change the statement $IF,$MONO$=$TRUE$,L1. to $IF,$MONO$=$MONO$,L1. and put the AC=1 parameter on the E123ABS statement.

2.7 INSTALLATION VERIFICATION

To verify the installation of EDL, do the following steps:

Log in to the NOS system using the username established for the database administrator.

Initiate EDL by entering:

```
-,EDL
```

The terminal session below shows how to update the DBA's user profile. User responses are indicated by lower case letters.

```
  85/09/12.      ICEM ENGINEERING DATA LIBRARY VERSION 1.2.3
                   COPYRIGHT CONTROL DATA CORP., 1984, 1985
                             ALL RIGHTS RESERVED


          ENTER EDL USER IDENTIFICATION
? edlid

          ENTER EDL PASSWORD
? dba

          CURRENT TERMINAL CONFIGURATION
          GRAPHICS TERMINAL      CDC VIKING 721
          DIALOG AREA            ON GRAPHICS TERMINAL
          COMMUNICATIONS RATE    9600 BAUD
          COMMUNICATIONS TYPE    ASYNCHRONOUS
          TABLET                 NO
          LOCAL ASSIST           DEFAULT
          LOCAL DISPLAY          DEFAULT
          EGM                    NO
          BIT PLANES             4
EDLU0037  YOU ARE NOT RUNNING UNDER YOUR OWN NOS USERNAME

           ADMINISTRATOR TASKS
       1.  EXIT                                    E,EXIT
       2.  USER MANAGEMENT                         USERMGMT
       3.  GROUP ADMINISTRATION                    GROUPADMIN
       4.  RELEASE ADMINISTRATION                  RELADMIN
```

2.0 INSTALLATION OF EDL AND THE IMF SUBSET.
2.7 INSTALLATION VERIFICATION

```
      5.  PART, FAMILY, AND VENDOR MANAGEMENT      PARTM
ENTER TASK
? usermgmt

          USER MANAGEMENT
      1.  EXIT                                     E,EXIT
      2.  LIST USERS                               L,LIST
      3.  ADD USERS                                A,ADD
      4.  DELETE USERS                             D,DELETE
      5.  CHANGE A USER'S PROFILE                  C,CHANGE
      6.  REACTIVATE A USER                        R,REACTIVATE
SELECT OPTION
? c

         ENTER THE EDL ID OF THE USER, LIST, OR CR TO EXIT
? edlid

          CHANGE USER DATA
      1.  EXIT                                     E,EXIT
      2.  PROMPT FOR ALL                           P,PROMPT
      3.  EDL PASSWORD                             PSW,PW
      4.  NOS USER NAME                            U,UN
      5.  LAST NAME                                L,LNM
      6.  FIRST NAME                               F,FNM
      7.  MIDDLE NAME                              MI,MNM
      8.  DEPARTMENT                               D,DEPT
      9.  TITLE                                    T,TITLE
     10.  STREET ADDRESS                           A,ADDR
     11.  CITY, STATE, ZIP                         C,CITY
     12.  PHONE                                    PH,PHONE
     13.  FIRST COMMAND                            CMD,COMMAND
     14.  DIALOG DELIMITER                         DIALOG
     15.  STRING DELIMITER                         STRING
     16.  EDITOR                                   EDITOR
     17.  HOST                                     HOST
SELECT OPTION
? p

         ENTER A NEW EDL PASSWORD OR CR FOR SAME
? dbapw

         THE USER'S NOS USER NAME IS
EDLDBA

         ENTER A NEW NOS USER NAME OR CR FOR SAME
? edldba
```

```
          THE USER'S LAST NAME IS


          ENTER A NEW LAST NAME OR CR FOR SAME
? smith

          THE USER'S FIRST NAME IS


          ENTER A NEW FIRST NAME OR CR FOR SAME
? john

          THE USER'S MIDDLE NAME IS


          ENTER A NEW MIDDLE NAME OR CR FOR SAME
? a

          THE USER'S DEPARTMENT IS


          ENTER A NEW DEPARTMENT OR CR FOR SAME
? 2210

          THE USER'S TITLE IS
DATABASE ADMINISTRATOR

          ENTER A NEW TITLE OR CR FOR SAME
? <cr>

          THE USER'S STREET ADDRESS IS


          ENTER A NEW STREET ADDRESS OR CR FOR SAME
? 123 main street

          THE USER'S CITY, STATE, AND ZIP ARE


          ENTER A NEW CITY, STATE, AND ZIP OR CR FOR SAME
? minneapolis, mn 55000

          THE USER'S PHONE NUMBER IS
```

2.0 INSTALLATION OF EDL AND THE IMF SUBSET.
2.7 INSTALLATION VERIFICATION

```
          ENTER A NEW PHONE NUMBER OR CR FOR SAME
? (612) 555-2345

          THE USER'S FIRST COMMAND IS
ADMIN

          ENTER A NEW FIRST COMMAND OR CR FOR SAME
? <cr>

          THE USER'S DIALOG DELIMITER IS
/

          ENTER THE NEW DIALOG DELIMITER OR CR FOR SAME
? <cr>

          THE USER'S STRING DELIMITER IS
"

          ENTER THE NEW STRING DELIMITER OR CR FOR SAME
? <cr>

          THE USER'S DEFAULT EDITOR IS
FSE

          ENTER THE NEW EDITOR OR CR FOR SAME
? <cr>

          CHANGE USER DATA
      1.  EXIT                                E,EXIT
      2.  PROMPT FOR ALL                      P,PROMPT
      3.  EDL PASSWORD                        PSW,PW
      4.  NOS USER NAME                       U,UN
      5.  LAST NAME                           L,LNM
      6.  FIRST NAME                          F,FNM
      7.  MIDDLE NAME                         MI,MNM
      8.  DEPARTMENT                          D,DEPT
      9.  TITLE                               T,TITLE
     10.  STREET ADDRESS                      A,ADDR
     11.  CITY, STATE, ZIP                    C,CITY
     12.  PHONE                               PH,PHONE
     13.  FIRST COMMAND                       CMD,COMMAND
     14.  DIALOG DELIMITER                    DIALOG
     15.  STRING DELIMITER                    STRING
     16.  EDITOR                              EDITOR
     17.  HOST                                HOST
SELECT OPTION
```

2.0 INSTALLATION OF EDL AND THE IMF SUBSET.
2.7 INSTALLATION VERIFICATION

```
? e

        *** THE USER'S PROFILE HAS BEEN CHANGED ***

        ENTER THE EDL ID OF THE USER, LIST, OR CR TO EXIT
? <cr>

         USER MANAGEMENT
      1. EXIT                                   E,EXIT
      2. LIST USERS                             L,LIST
      3. ADD USERS                              A,ADD
      4. DELETE USERS                           D,DELETE
      5. CHANGE A USER'S PROFILE                C,CHANGE
      6. REACTIVATE A USER                      R,REACTIVATE
SELECT OPTION
? list

        ENTER THE EDL ID OF THE USER, LIST, OR CR TO EXIT
? list

        2 SELECTIONS
           EDL ID       NAME
           --- --       ----
        1. EDLCOM
        2. EDLID        SMITH, JOHN A.

        *** END OF LIST ***

        ENTER A NUMBER, E OR EXIT, OR CR FOR MORE
? 2
        EDL USER ID  EDLID
               NAME  SMITH, JOHN A.
      NOS USER NAME
         DEPARTMENT  2210
              TITLE  DATABASE ADMINISTRATOR
     STREET ADDRESS  123 MAIN STREET
   CITY, STATE, ZIP  MINNEAPOLIS, MN 55000
              PHONE  (612) 555-2345
      FIRST COMMAND  ADMIN
             STATUS  ACTIVE
   DIALOG DELIMITER  /
   STRING DELIMITER  "
             EDITOR  FSE

ENTER CR TO CONTINUE
? <cr>
```

2.0 INSTALLATION OF EDL AND THE IMF SUBSET.
2.7 INSTALLATION VERIFICATION

```
          2 SELECTIONS
             EDL ID       NAME
             --- --       ----
          1. EDLCOM
          2. EDLID        SMITH, JOHN A.

          *** END OF LIST ***

          ENTER A NUMBER, E OR EXIT, OR CR FOR MORE
? e

          ENTER THE EDL ID OF THE USER, LIST, OR CR TO EXIT
? <cr>

           USER MANAGEMENT
      1.   EXIT                                    E,EXIT
      2.   LIST USERS                              L,LIST
      3.   ADD USERS                               A,ADD
      4.   DELETE USERS                            D,DELETE
      5.   CHANGE A USER'S PROFILE                 C,CHANGE
      6.   REACTIVATE A USER                       R,REACTIVATE
SELECT OPTION
? e

           ADMINISTRATOR TASKS
      1.   EXIT                                    E,EXIT
      2.   USER MANAGEMENT                         USERMGMT
      3.   GROUP ADMINISTRATION                    GROUPADMIN
      4.   RELEASE ADMINISTRATION                  RELADMIN
      5.   PART, FAMILY, AND VENDOR MANAGEMENT     PARTM
ENTER TASK
? quit
```

2.8 UPGRADING EDL DATABASES

If your site is currently running a previous version of EDL, you must move the information to the new databases.

If you have customized EDL for your site, also read the section in the customization manual about upgrading site customizations.

2.8.1 CONVERSION FROM EDL 1.1.3

To move from EDL 1.1.3 the data must first be moved to an EDL 1.2.0 database, then moved to the EDL 1.2.3 database. All conversion programs and procedures are available on the EDL 1.2.3 release tape. However, you will need to install a default EDL 1.2.0 database from an EDL 1.2.0 release tape.

In order to convert the information on an EDL 1.13 database to your EDL 1.2 database, you need to run a procedure called CONV113. This procedure must be run from the NOS account where the EDL 1.2 database resides. The EDL1.13 database need not be on the same NOS account.

Begin the conversion procedure by typing:

```
BEGIN,CONV113,E123PRC,UN113=username.
```

Where username is replaced with the NOS account where the EDL1.13 database resides.

This procedure will submit a job to convert the data from the EDL1.13 database to the EDL1.2 database. There should be no one else using the EDL 1.2 database during this time.

After CONV113 has run, the output from the job, and the dayfile, will be on file CONVOUT. CONVOUT will contain details of any records which the program was unable to translate.

If the conversion program is unable to complete, the output and dayfile from the job will be on a file called CONVERR. Possible causes and solutions are:

Problem	Solution
Misspecified UN113	Re-run the CONV113 procedure
Time Limit	Edit E123PRC, changing the time limit from 1200 on the CONVERT procedure. Reinstall an empty default 1.2 databas before attempting to rerun the procedu

2.8.2 CONVERSION FROM EDL 1.2.0 TO EDL 1.2.3

Before moving engineering data into the EDL 1.2.3 database, you must reapply any Query Update Transactions which you used to customize the EDL 1.2.0 database. Otherwise, site defined file types, data types, engineering categories, etc., will not be in the new database, and any engineering data information that uses them will be rejected with constraint violations.

You should also delete the user EDLID and the group DBA from the default EDL 1.2.3 database before attempting to convert the old database. This will avoid uniqueness constraint violations as that user and group are moved from the EDL 1.2.0 database. Use the user and group management functions of EDL 1.2.3 or Query Update to accomplish the deletion.

To move engineering data from an EDL 1.2.0 database to an EDL 1.2.3 database, type the following command.

```
BEGIN,CONV120,E123PRC,UN120=username.
```

Where username is replaced with the NOS account where the EDL 1.2.0 database resides.

This procedure runs the IMF unload-reload utility and a special program to convert data that cannot be handled properly by the unload-reload utility. If you have a very large database, you may wish to begin the procedure in a batch job.

In some cases, the reload utility may find constraint violations which will cause the new database to be marked invalid. You should look at the error report and lists to determine which records caused the problem. Then use Query Update in repair mode to correct the errors and rerun the validate utility.

```
ATTACH,IMF2QU/UN=IMF.
IMF2QU.
-- INVOKE EDLDATAW OF EDLDATA KEY=EDLORDBA+
-- USING E123DDB REPAIR EDLPW
-- (enter QU directives to DISPLAY and correct the database)
-- END

ATTACH,IMF2LDU/UN=IMF.
```

```
IMF2LDU.
? VALIDATE THROUGH EDLDATAW OF EDLDATA
? KEY EDLORDBA
? USING E123DDB
? REPAIR EDLPW
? TERM
? <cr>
```

If you have customized EDL 1.2.0 please read the new customization guide before attempting to convert the database. It is necessary to adapt and reapply your QU and MDB directives before converting the engineering data.

2.9 IMF DATABASE MAINTENANCE

2.9.1 BACKUP AND RECOVERY

IMF 2.1 provides utilities for database journal logging and offline database recovery. There are two procedures in EDL that make these utilities easy to use to backup and recover the EDL database.

These procedures must be run from the NOS account on which the EDL database resides. They should be run only when there are no EDL users on the system.

2.9.1.1 Backup Procedure

```
BEGIN,BACKUP,E123PRC
```

This procedure copies the EDL database file E123DDB to a backup file named E123BAK. It also creates a journal log file named E123LOG which will automatically capture a record of all changes to the EDL Engineering Data Database.

You should run this procedure periodically depending on the amount of EDL activity at your site. Be careful that the database is good before you run the BACKUP procedure since it

will overwrite any previous backup and log files. Before running BACKUP, you may wish to copy E123DDB, E123BAK and E123LOG to magnetic tape.

2.9.1.2 Recovery Procedure

BEGIN,RECOVER,E123PRC,DBN=username.

This procedure is to be used only in the unlikely event that a system crash occurs when the database is open and the EDL database is destroyed.

RECOVER copies the backup file E123BAK over the current database file E123DDB and runs the offline recovery utility to update the database with the journal entries from file E123LOG. This restores tha database to a consistent state as it appeared just before the database was destroyed. Then this procedure causes the BACKUP procedure described above to be run, ensuring that any subsequent changes are logged.

2.9.2 RUNNING WITHOUT JOURNAL LOGGING

To turn journal logging off for the EDL database, execute the following procedure.

BEGIN,CHLOG,E123PRC,FUNC=OFF,FN=E123DDB,AFN=E123LOG.

Substantial improvements in resource utilization can be achieved by turning journal logging off. However, without journal logging, it is impossible to use the RECOVER procedure to reestablish the database to the point of failure in case the system crashes while a user has the EDL database open. Instead, the file E123DDB must be restored from the last system file backup.

It is unlikely that the database will be corrupted by anything other than a operating system or hardware failure, since IMF performs reprieve processing to close the database gracefully if an program fails or a user uses control T to abort the program. The risk of losing a day or half day of EDL information may be acceptable at your site. The application

data such as drawings and models are not affected by IMF journal logging.

2.10 IMF TUNING CONSIDERATIONS

The IMF System Tuning File, IMF2STF/UN=IMF, determines certain parameters that IMF 2.1 uses to control it's operation at the system control point. These parameters can affect resource utilization of EDL, response time, and overall system throughput. The tuning parameters are read from the file every time the IMF (MCS) subsystem is started.

To some extent, the optimal settings depend on the type of load on your system. The parameters on the tuning file provided on the EDL release tape are set to reasonable values for an ICEM environment. They are set to minimize the impact of IMF and EDL on system throughput at the possible expense of EDL response time.

2.11 EDL AUTOSTART FOR USERS

If a user wishes to log in to EDL without typing his EDL user id and password, create an indirect file called EDLUSER on the user's NOS username. This file should have a single line with the user id in columns 1-10 and the EDL password in columns 11-20. EDL will attempt to read this file and will prompt the user only if the file does not exist or if the information on the file is invalid.

2.12 PASSWORD MASKING

If all terminals at your site are communicating in full duplex mode, you may cause EDL to temporarily disable echoplex mode while the users are entering passwords so that the password characters do not appear on the terminal screen.

This is accomplished by changing the title of the message

named "DUPLEX" to "FULL", using a MDB transaction file or query update. See the customization guide section "CUSTOMIZING THE MESSAGE AND TASK DATABASE" for an explanation of how to change EDL messages.

2.13 USING QUERY UPDATE

For the most part, IMF2QU functions as described in the Query Update Version 3 Reference Manual 60498300.

The Invoke clause used to open an IMF 2.1 database schema, is different than the one documented for IMF Version 1.

```
INVOKE external-schema-name OF conceptual-schema-name
   [ KEY use-literal ]
   USING database-file-name [ nos-username ]
   [ REPAIR repair-literal ]
   [ CONCURRENT ]
```

To query the EDL Engineering Database,
INVOKE EDL OF EDLDATA USING E123DDB nos-username CONCURRENT

To query the EDL Message and Task Database,
INVOKE EDLMENUR OR EDLMENU USING E123MDB nos-un

To query or update the Engineering Database,
INVOKE EDLDATAW OF EDLDATA KEY $EDLORDBA$ +
USING E123DDB nos-un CONCURRENT

To query or update the Message and Task Database,
INVOKE EDLMENUW OF EDLMENU KEY $EDLORDBA$ +
USING E123MDB nos-un

Sometimes Query Update will not display data for all records of a record type unless a FOLLOW directive is entered to specify the access path or coset to be used to retrieve the records. See the Query Update manual and the EDL record layout section of the customization guide.

2.14 USING ICEM DDN VERSION 1.53 OR 1.57

EDL 1.2.3 is set by default to interface to DDN 1.6. However, it can be used with DDN 1.53 or 1.57 by simply making 1.6 inactive and making 1.53 active. DDN 1.53 Interfaces to EDL exactly like DDN 1.57, so there is no separate Application Information (AI) record for 1.57.

Use the following QU directives.

```
MODIFY USING AIAPN AIAPV SETTING AISTA
$ICEM DDN$ $1.6$ $INACTIVE$
$ICEM DDN$ $1.53$ $ACTIVE$
*END
```

Also check procedure ICEMDDN in E123PRC to be sure that the correct file for the DDN absolute is attached.

3.0 CUSTOMIZATION

3.1 DISCLAIMER

The ICEM Engineering Data Library is a flexible system that can be modified in many different ways.

To successfully customize EDL you must understand EDL usage, EDL's database structure, the application programs, database management, NOS usage, Cyber Control Language, and Fortran 5.

All customizations must be well designed and tested. Serious damage can be done to the information in the EDL database or to application data by customizations that work incorrectly or do not consider all potential situations and user errors.

Control Data cannot guarantee that customizations for one version of EDL will be transparently upward compatible to subsequent versions of EDL or to future products.

CDC will consider the impact of changes to customizations and will provide conversion procedures to upgrade data which is maintained by standard code.

However, normal enhancement, bug fixes, and evolution will inevitably result in changes to the database structure and the function of CDC supplied code. These normal changes will require that site specific code, transaction files, QU directives, and procedures be readapted and retested at every EDL release.

3.2 INTRODUCTION

There are several ways to customize EDL to fit your site.

1. Change the text which is displayed by prompts, messages, and menus.
2. Reorganize the EDL Task menu structure.
3. Add new applications, file types, and data types.
4. Add or change engineering categories and their standard attributes.
5. Create new reports, or modify the standard ones.
6. Create new Fortran ovcaps to perform site-specific functions.
7. Create new procedures to be invoked by EDL

The following sections explain in detail how to perform these customization functions.

The EDL System consists of four basic files. You have the ability to modify each of them to fit your needs.

E123PRC The standard EDL Procedure File.
E123ABS The EDL Absolute Program.
E123MDB The Message and Task Database.
E123DDB The Engineering Data Database.

3.3 UPGRADING FROM EDL 1.2.0 TO EDL 1.2.3

Sites that have customized EDL 1.2.0 and want to apply their customizations to EDL 1.2.3 should follow this outline:

1. Install the default EDL 1.2.3 database according to the installation instructions in the beginning of this manual.

2. Rerun all Message and task database transactions using the MENUMGMT task. The structure of the MDB has not changed. However, the field TITYP is now being used to control whether the task can be allowed to run on a subordinate host in a network. Set this field to "MASTER" on any site defined administrative tasks that can only run on the master machine.

3. Edit all QU directive files as needed. A few records in the Engineering Database have changed, as documented in a the ENGINEERING DATABASE RECORD DEFINITION section. Rerun the QU directives files using the QUBATCH task.

4. Run the EDL Database Conversion procedure.

5. Edit the source programs for any site defined OVCAPS. It is necessary to replace the common block definitions of all DDB records with the new definitions found on the EDLCOM file. Several common blocks have changed format and names.

6. Recompile and load the OVCAPS with the LOADEDL procedure.

7. Test everything.

4.0 CUSTOMIZING EDL PROCEDURES.

4.0 CUSTOMIZING EDL PROCEDURES.

4.1 SETTING UP THE EDL PROCEDURE.

The procedure EDL in E123PRC is the base procedure for all EDL operations. Its basic purpose is to attach the EDL program file, execute it, execute the procedure calls written on EEEEDL2, and loop until the user chooses to quit EDL.

The procedure header has several parameters, which are all passed to the E123ABS execution statement.

```
.PROC,EDL,I=INPUT/INPUT,IT=0/IT,OT=0/OT,HOST=,AUN=.
```

I Alternate input file. Default is INPUT.

IT Input Trace file name. If this parameter is specified, a trace of all input entered by the user is written to the file, or to file IT by default. If not specified or IT=0, no input trace is created.

OT Output Trace file name. If this parameter is specified, a trace of all output EDL prints at the terminal and all input the user enters is written to the file, or to file OT by default. If not specified, or OT=0, no output trace is created.

HOST The host identification code of the mainframe where this version of EDL resides. Default is blank.

AUN Alternate user name. This is the username where the EDL procedure file E123PRC and the absolute E123ABS are to be found. If not specified, EDL assumes they are to be found on the user's own account. It is good practice to edit the proc header to include a default value here so that users do not need to include the AUN parameter on the BEGIN statement.

Other parameters can be included on the E123ABS statement, if desired.

L Alternate output file. Default is OUTPUT.

DUN Database Username. This is the username where the Engineering Data Database is to be found. If not specified, EDL assumes the same value as the AUN parameter.

MUN Message Database Username. This is the username where the Message and Task Database is to be found. If not specified, EDL assumes the same value as the AUN parameter.

ECHO Echo user input to the output file. Used only for debugging purposes when the output file is renamed.

4.2 ALTERNATE PROCEDURES

You may write your own procedures to be invoked by EDL. It is suggested that you put them on a separate procedure file other than E123PRC. To allow the user to invoke them, you need to set up EDL tasks and task processes as explained later.

4.3 ADDING A DIRECTORY TO E123PRC

The system will find procedures from a proc file faster if the file has a random access directory. We recommend that you use LIBEDIT to build a directory on E123PRC after you edit it for any reason. See the NOS Version 2 reference manual, Volume 3 for more explanation.

```
GET,E123PRC.
GTR,E123PRC,TEMP.PROC/*
FSE,TEMP.
(enter full screen editor commands)
(exit the editor)
LIBEDIT,P=TEMP,N=NEW.
*BUILD DIR
```

4.0 CUSTOMIZING EDL PROCEDURES.
4.3 ADDING A DIRECTORY TO E123PRC

```
REPLACE,NEW=E123PRC.
```

5.0 CUSTOMIZING THE MESSAGE AND TASK DATABASE.

5.0 CUSTOMIZING THE MESSAGE AND TASK DATABASE.

The overall control and user dialog in EDL is defined by the message and task database (MDB). It contains definitions of all messages, prompts, menus, and tasks used by EDL.

To modify this database, prepare a MDB Transaction Data file with a standard text editor, update EDL for the transaction file, and invoke the system administrator task MDBMGMT. EDL uses the standard data retrieval to select the transaction file, updates the message database, and writes a processing report on local file MDBLIST.

The Database Administrator's Manual describes the format of the MDB Transaction Data.

The file EDLLIST contains the output from the Query Update job used to load the default Engineering Data and the output from the MDB Transaction program used to load the default tasks and messages.

5.1 CHANGING DIALOG TEXT

Dialog text can be changed by changing records in the MDB for the following types of data, without effecting the operation of EDL.

* Task Menu Headers
* Task Menu Lines
* Task Commands
* Prompts
* Error Messages
* Informative Messages
* Option Menus Headers
* Option Menu Lines
* Option Menu Keywords

5.1.1 TASK MANAGEMENT

A Task is a single function which may be invoked by the user. A task is completely defined by the Task Information (TI), Task Process (TP), and Task Parameter Value (TV) records.

5.1.2 TASK INFORMATION HEADER

The TI records define the task name and description.

5.1.3 TASK MENUS AND COMMANDS

There are two independent ways for a user to invoke a task, task commands and task menu lines. These paths are specified by the TC and TM records, respectively. Any number of commands or prompts may invoke the same task, or a task may have no direct path at all if it is intended to be used only as a subtask.

5.1.4 TASK SECURITY CATEGORIES

To prevent certain users from using a group of tasks, update the TI records in the message and task database to give each task in the restricted category a non-blank task security category code (TISEC). Then only users who belong to a group which is authorized to that security category may invoke any tasks in the category. The groups are authorized for security categories with the TASK ACCESS MANAGEMENT (GROUPTASKS) command.

For example, in the default database there are three different values in the TISEC fields:

blank	Unsecure tasks which may be entered by any user.
ADMIN	Administrator tasks for user, group, and part management.
SYSADMIN	System adminstrator tasks for customizing the EDL

databsae.

There is only one group in the default database, DBA. The DBA group is authorized to enter both ADMIN and SYSADMIN tasks.

Therefore, any user in the group DBA can execute any task in EDL. You may wish to establish a separate group which has only ADMIN privileges. Another possibilities is making some applications secure by putting non-blank values in the TISEC fields of the appropriate task information (TI) records.

5.1.5 TASK MENU TREES

You may set up as many task menu structures as you need. Most commonly, a task menu needs

1. A TI record (Task Information)
2. A TP record (Task Process) with TPTYP="TASK MENU"
3. A MI record (Menu Header) with MIMNA set the same as the TPNAM field
4. Several TM records (Task Menu Lines). The TMTNA field defines which task is invoked when the user picks the line number. The task to be invoked must have already been defined in a previous TI record before the TM record is added. This means that Subtasks are defined before the Task Menus that call them.

5.1.6 TASK PROCESSES

Each task consists of one or more Task Processes or steps which are executed sequentially when the user invokes a task. Task Processes are defined by the TP record. There are five types of processes, differentiated by the TPTYP field.

OVCAP	Overlay capsules from file E123ABS.
CCL PROC	Cyber Control Language procedures from E123PRC or any other procedure file.
TASK MENU	Display a task menu
TASK	Execute a different Task as a subtask.
FUNCTION	Perform short EDL functions, such as EXIT-TASK

5.1.7 TASK PARAMETER VALUES

Parameters may be passed to overlay capsule or CCL procedures which are set up to accept the parameters. EDL uses name=value syntax to pass parameters, not positional parameters. The parameter name is defined in the TVPRM field.

In some EDL overlay capsules, there are hard coded calls to the GETPRM subroutine. The value of the task parameter is then returned to the EDL program.

There are 4 types of parameters, differentiated by the TVTYP field.

CONSTANT EDL passes a constant to the process.

PROMPT The user is prompted for the value of the parameter to be passed to the process. The TVVAL field should contain the message name of the prompt or option menu to be displayed to the user.

NULL The process is passed a null value. This simulates a carriage return.

VARIABLE The value of an EDL global variable is passed to the process. An EDL global variable must be previously set by an overlay capsule which uses the PUTVAR subroutine.

CONFIG • EDL Passes a parameter value based on the contents of the Application Configuration (AC) records, Application Information (AI) status (must be ACTIVE), and the user's current terminal configuration.

5.2 EDL GLOBAL VARIABLES

A gobal variable is a mechanism that EDL uses to pass values through the EDL session, for example, from overlay capsules to procedures. The 10 character variable name and 40 character value are stored in an array while the EDL absolute program is

running, and on a local file while a CCL procedure or application program is active.

To establish a variable, an EDL ovcap must use the PUTVAR subroutine. The value of the global variable stays in effect until the variable is redefined or EDL ends.

To retrieve a global variable, an EDL ovcap uses the GETVAR subroutine. Global Variables may also be passed to CCL PROC or OVCAP task processes via task parameter value (TV) records with TVTYP=VARIABLE.

Several EDL global variables are defined by EDL as soon as the user starts.

USR	The EDL id of the running user.
HOST	The Host code of the computer system on which the user is running.
AUN	The value of the AUN parameter passed to the EDL absolute program.
DDB	PFN of the Engineering database.
DUN	NOS UN of the Engineering database.
MDB	PFN of the Message Database.
MUN	NOS UN of the message database.
EDITOR	The user's preferred editor from the user profile.
DDNVER	The version number of the active version of ICEM DDN

Some global variables are set by the XRETREV or DISPLAY capsule when an engineering data set is selected from the standard retrieval list.

EDN	The internal Engineering Data Number selected data.
HOS	The Host Identifier of the data.
OS	The Operating System of the host data.
PFN	The Permanent file name where the data resides.
UN	The NOS (or other OS) Username of the data.
NAME1	The first 38 characters of the data name.
NAME2	The last 32 characters of the data name.
SHEET	The secondary id.

Some global variables are set by the XTRANSF capsule when the user is transferring data.

EDN2	The Engineering Data Number of the new destination data.
HOS2	The host identifier of the destination data.

OS2 THE Operating System of the destination data.
PFN2 The Permanent file name of the destination file.
UN2 The NOS Username of the destination file.
RENAME "Y" If the user wants to give the transferred data a different name, otherwise "N".
NAME12 The first 38 characters of the new data name.
NAME22 The last 32 characters of the new data name.
SHEET2 The new secondary id.

For data transfers between hosts, the following global variables are established.

BID Username of the user on the source host.
BPW Batch Password of the user on the source host.
CHR Character code format of the source data for MFLINK.

BID2 Username of the user on the destination host.
BPW2 Batch Password of the user on the destination host.
CHR2 Character code format of the destination data for MFLINK.

Other parts of the EDL system use other global variables to communicate data between ovcaps and procedures. They are described further in the section on EDL STANDARD OVERLAY CAPSULES.

5.3 MESSAGE SUBSTITUTION

One special and useful capability is Message Substitution. The DBA can cause EDL to use a different method to determine a value returned to the program rather than prompting with the standard message or menu. This is accomplished simply by defining a task parameter value (TV) for the ovcap task process with the same name (TVPRM) as the message name (MIMNA) of the prompt or option menu that you want to change in the ovcap. The parameter can be of any type. If it's a NULL, CONSTANT, or VARIABLE, the user will not be prompted at all. If it's a PROMPT, the user will be prompted with the message whose name is in the TVVAL field instead of the standard message.

The substitution is effective only when the ovcap is used by the single task process. Other usages of the message in

different proceses are not affected. On the other hand, if the text of a message is changed, it is changed the same everywhere the prompt is used.

The following example set of MDB Transactions will null out the prompts that ask the user on which host a file resides and cause EDL to assume that all files are on the local machine. If you are running with a single CAD/CAM system, you may wish to apply these to your EDL.

```
A TV      UPDATA          10        1UPDATA1   NULL
A TV      DELETE           1        1FIDEL1    NULL
A TV      CORRECT          1        1FICORR1   NULL
```

5.4 MESSAGE AND TASK DATABASE REPORTS

There are 4 report procedures in E123PRC to aid you in determining the contents of the MDB. You may modify them or create others using the Query Update report writer.

5.4.1 TASK REPORT

This report prints all tasks (TI), their processes (TP), and their parameters (TV).

```
BEGIN,RTASKS,E123PRC,MUN=mdb username.
```

5.4.2 TASK MENU REPORT

This report prints all task headers (MI), and their lines (TM).

```
BEGIN,RTMENU,E123PRC,MUN=mdb username.
```

5.4.3 PROMPT REPORT

This report prints all single line prompts (MI).

BEGIN,RPROMPT,E123PRC,MUN=mdb username.

5.4.4 OPTION MENU REPORT

This report prints all option menu headers (MI), their option menu lines (OM), option variables (OV) and option keywords (OK).

BEGIN,RMENU,E123PRC,MUN=mdb username.

5.5 ORGANIZING EDL MDB TRANSACTIONS

The order in which tasks and menus are defined on the transaction file is critical to satisfy database constraints properly. In a sense, tasks should be defined in a top-down order, with the most major tasks first, while task menus should be defined in a bottom-up order to be sure that the tasks referenced in the Task Menu Line records (TMTNA) already have Task Information records defined.

Start defining each section of the task menu tree with the task definition of the most major task, and end the section with the menu definition of the major task. Subtasks and submenus are defined between the task and menu of the major task. The EDLLIST file shows how the structure of the default task and message database was defined.

```
A TI      MAINTASK                        MAJOR TASK
A TC      MAINTASK  MAIN
A TP      MAINTASK           1TASK MENU MAINMENU

A TI      SUBTASKA                        SUBORDINATE TASK A
A TC      SUBTASKA  A
A TP      SUBTASKA           1TASK MENU SUBMENUA
```

```
A TI      SUBTASKA1                       SUBORDINATE TASK A1
A TC      SUBTASKA1 A1
A TP      SUBTASKA1          1OVCAP       SUBA1

A TI      SUBTASKA2                       SUORDINATE TASK A2
A TC      SUBTASKA2 A2
A TP      SUBTASKA2          1OVCAP       SUBA2

A MI      SUBMENUA  TASK MENU             SUBORDINATE TASK MENU A
A TM      SUBMENUA           1EXIT
A TM      SUBMENUA           2SUBORDINATE TASK A1
A TM      SUBMENUA           3SUBORDINATE TASK A2

A TI      SUBTASKB                        SUBORDINATE TASK B
A TC      SUBTASKB  B
A TP      SUBTASKB           1CCL PROC    SUBB
A TV      SUBTASKB           1          2P1          CONSTANT  XYZ

A MI      MAINMENU  TASK MENU MAJOR TASK
A TM      MAINMENU           1EXIT
A TM      MAINMENU           2EXECUTE SUBORDINATE MENU A
A TM      MAINMENU           2EXECUTE SUBORDINATE TASK B
```

6.0 CUSTOMIZING THE ENGINEERING DATA DATABASE

The Engineering Data Database (DDB) contains all the information about users, applications, files, and data. It is changed in two ways: updated by the EDL user or administrator performing EDL tasks, or customized by the EDL system administrator using Query Update.

The file EDLLIST contains the output from the Query Update job used to load the default Engineering Data and the output from the MDB Transaction program used to load the default tasks and messages.

EDLLIST can be used as an example and documentation of how MDB Transactions and Query Update are used to customize EDL. Format definitions of the records updated in EDLLIST are found in later sections of the customization guide.

6.1 ENGINEERING CATEGORIES AND STANDARD ATTRIBUTES

When a user creates data in EDL, it must be given an Engineering Category code. These 20 character codes are completely site-defined. The EDL system or application programs function the same regardless of what category the data is given. Their only purpose is description and retrieval.

The user can also set up data descriptors to aid in describing and retrieving the data. A descriptor is a pair of character strings associated to the data, an attribute name (20 characters) and an attribute value(40 characters). For example, the user may ask for attribute name = PROJECT CODE and attribute value = T110 to retrieve all permitted data for the T110 project.

You (the DBA) may associate one or more standard attribute names to a Category. Then, when the user updates EDL data descriptors, he may ask EDL to prompt for the values for each

of these attributes. Setting up standard attributes does not restrict the user in any way. That is, he or she can still enter a descriptor with a non-standard attribute name if desired for a special purpose. However, users should be encouraged to use the standard attribute prompting feature and to take some care to use consistent attribute values.

Engineering Categories and standard attributes are set up by using QU to update the ET and EA records in the database. For example, those in the released database were set up in the following way.

```
STORE SETTING ETEDT
$ $
$EDL SYSTEM$
$PREPRODUCTION$
$PRODUCTION$
$TOOLING$
*END
STORE SETTING EAEDT EAATR
$PREPRODUCTION$ $PROJECT CODE$
$PRODUCTION$    $PRODUCT LINE$
$TOOLING$       $TOOL TYPE$
*END
```

These trivial categories and attributes should be customized to fit the environment at your site.

6.2 ADDING A NEW APPLICATION

Adding a new application to EDL involves modifying nearly every part of the EDL system. You need an application header record in the database, CCL procedures, tasks, menus and commands to invoke the application, tasks to retrieve application data, tasks to perform data transfers and translations, new file type and data type definitions,and perhaps application terminal configuration records to pass parameters to the application.

6.2.1 APPLICATION HEADER

The application header is simply entered with QU. The Application Name, Application Version, and Status are required.

```
STORE SETTING AIAPN AIAPV AISTA
$DATA ANALYZER$ $1.0$ $ACTIVE$
*END
```

6.2.2 NEW FILE TYPE AND DATA TYPE DEFINITIONS

To add new types of data to EDL, you must define the new file types (FT) on which the data resides, and then define the application data types.

For example, here is how ICEM DDN drawing files and drawing data is defined in the default EDL database. Each field is described in the ENGINEERING DATABASE RECORD DEFINITION section.

```
STORE SETTING FTFTC,FTNAM,+
 FTLFN,FTLFNR,FTAPN,FTMUL,FTCHR,FTPRT
$DRAWING FILE        $ $DRAWING FILE        $ +
 $TAPE3  $ $T$ $ICEM DDN$ $T$ $B$ $F$
*END
STORE SETTING ATADT ATNAM +
 ATFTC ATSIDR ATTNA
$DRAWING             $ $DRAWING             $ +
 $DRAWING FILE        $  $T$ $RET-DRW$
*END
```

6.3 TERMINAL CONFIGURATION

EDL stores terminal configuration data for each user in the User Configuration (UC) records. By matching the user's configuration with the Application Configuration (AC) records, and the Application Information (AI) records, EDL decides what configuration parameter value to pass to the CCL procedures

which execute application programs.

Like all parameters, They are controlled by Task Parameter Value (TV) records for the CCL PROC Task process. If the TVTYP field is CONFIG, EDL looks for all the AC records with ACPRM fields that match the TVVAL field of the TV record. If the ACATR and ACSTA fields match the user's current UCATR and UCSTA fields, the application name and version in ACATR and ACAPV are used to key to the AI record, and if the AISTA field is "ACTIVE", the value in ACVAL is passed to the CCL procedure.

See the EDLLIST file for examples of AC records for the default ICEM applications and the UC records for user EDLID.

6.4 LOGGING PATTERNS INTO EDL

The default EDL configuration automatically updates EDL for any adds, changes, or deletions of DRAWINGS and GLOBAL DRAWINGS which occur to permanent files in ICEM DDN. Your site can choose to cause information about PATTERNS to be updated in the same way.

ICEM DDN V1.6 already puts logging transactions for PATTERNS on the EDLLOG file. However, the application data type (ATADT) in EDL is GLOBAL PATTERN, while the ADT field on the EDLLOG file is PATTERN. Since PATTERN is not a valid data type, EDL ignores the log transactions.

If you wish to log PATTERNs, simply change the ATADT field with the following QU transactions.

```
MODIFY USING ATADT SETTING ATADT ATNAM
$GLOBAL PATTERN$ $PATTERN$ $PATTERN$
*END
```

This will work only if there are no Data Information (DI) records with DIADT=GLOBAL PATTERN. Otherwise, it is necesary to add a new AT record as follows:

```
STORE SETTING ATADT ATNAM ATFTC ATSIDR ATTNA
$PATTERN$ $PATTERN$ $GLOBAL PATTERN FILE$ $F$ $ $
*END
```

```
MODIFY USING DIADT SETTING DIADT
$GLOBAL PATTERN$ $PATTERN$
*END

REMOVE USING ATADT
$GLOBAL PATTERN$
*END
```

7.0 ADDING FORTRAN CODE TO EDL

You can create your own overlay capsules and integrate them into EDL tasks. These can inquire the EDL database, update the database, use EDL menus and prompts, or perform any other function desired at your site.

The first line of each new overlay capsule must be the OVCAP. statement starting in column 7. The rest of the code is merely a set of Fortran subroutines.

You may call any of the subroutines in the EDL library documented in the following section EDL UTILITY ROUTINES These can be used to display messages, prompts, menus, or selection lists exactly as the standard EDL ovcaps do.

7.1 DATABASE OPERATIONS

If you need to access the EDL database, include the common block definitions found on file EDLCOM for each record type you will be using.

7.1.1 READING THE DATABASE

The database is read by filling the key common block variables with the appropriate value and calling an EDL Information Base routine such as IBOFI1 (obtain the FI record for a file). If the record is found, the status code is returned as logical true, the common block variables are set to the values for the record, and the current position for the record is established.

You must know the access path for the particular kind of keyed access you desire, since there may be more than one index for a record type. For example, path FI1 is keyed by FIHOS,

FIPFN, FIFUN, and FILNA. Path FI2 is keyed by FIUSR, the edl id of the file's owner.

7.1.2 STORING NEW RECORDS

To store records, fill all the fields in the record's common block with legal values, and call the IBSxx routine for the record. If the store worked, the status code returned will be logical true.

7.1.3 DELETING RECORDS

To delete records, first obtain the record to establish the correct current position, then call the appropriate IBDxx routine.

7.1.4 MODIFYING RECORDS

To modify a record, first obtain the record to establish the current position, change the desired fields, then call the IBMxx routine to update the database. You cannot modify the same record twice in a row without reobtaining the record.

7.2 PROGRAMMING GUIDELINES

Do not use the following unit numbers for I/O. They are used by the standard EDL code and are kept open for the duration of the EDL program execution.

5 INPUT (I)
6 OUTPUT (L)
3 Input Trace (IT)
4 Output Trace (OT)

Other unit numbers are opened temporarily by EDL, but are closed before exiting the OVCAP. Whenever your ovcaps open files, be sure to close them before returning from the ovcap.

Do not use local file names beginning with EEE, ZZZ, E123, FSE, or EDL.

Do not use the local file name DATA.

Do not use subroutine names which conflict with routines in the EDL relocatable libraries. You may CATALOG or ITEMIZE files E123LIB, E123IBL, and E123NBL if you suspect a conflict. Do not use routine names which start with IB, RB, or WB.

Do not depend upon the contents of database common blocks from one ovcap to another. If a CCL proc is called between the ovcaps, the contents of the common block will be lost. Use the PUTVAR and GETVAR routines to pass global variable values between ovcaps.

8.0 ADDING TASKS TO EDL

The procedure for adding TASKS to EDL is different depending on whether you want to execute a ccl procedure, code, or both. The following example shows a TASK which contains both a procedure and code.

1. Create a Menu Database transaction file which will add the task to the Menu database.

```
A TI      MYTASK                        CUSTOMIZED TASK
A TC      MYTASK    MYCOMMAND
A TP      MYTASK              1OVCAP    XMYCODE
A TP      MYTASK              2CCL PROC MYPROC    MYPROCF
A TV      MYTASK              2         1MYPARM   VARIABLE  MYPARM
```

This transaction file creates a task called MYTASK, which is called with the command MYCOMMAND. The task consists of two parts. First, an OVCAP called XMYCODE is run, then a procedure called MYPROC is executed from file MYPROCF. EDL passes a parameter called MYPARM to procedure MYPROC.

2. Create the OVCAP file

```
OVCAP.
SUBROUTINE XMYCODE
CALL MYCODE
RETURN
END
```

The OVCAP could actually contain the code for the subroutine, but we recommend that the code be kept separate in a library, for ease of modification, testing, and maintenance.

3. Create the routine(s)

```
      SUBROUTINE MYCODE
C     THIS ROUTINE PROMPTS THE USER FOR A MESSAGE, AND WRITES IT IN A NOTE
C     TO THE TERMINAL WITH CCL PROCEDURE MYPROC ON FILE MYPROCF.
      CHARACTER MSG*30
C     'ENTER THE MESSAGE FOR A NOTE OR CR TO RETURN'
```

8.0 ADDING TASKS TO EDL

```
CALL INTXT('MYCODE1',MSG,ICH)
IF(ICH.NE.0)THEN
   CALL PUTVAR('MYPARM',MSG)
ENDIF
RETURN
END
```

This routine prompts the user for a character string to be put into variable MSG. If the user enters a string, the routine PUTVAR is called to put string MSG into a variable called MYPARM. The value in MYPARM is then available to any CCL procedure. Remember that CCL can only handle a parameter of up to 40 characters.

As with the code for a customized retrieval, this code should be put into a library. You must also remember to copy the corresponding common blocks from file EDLCOM if you use any of the Information Base (IB) routines.

4. Create the Menu Database transactions needed for the routine

```
A MI      MYCODE1   PROMPT    ENTER THE MESSAGE FOR A NOTE OR CR TO RETURN
A MH      MYCODE1             1WHAT YOU ENTER HERE WILL BE DISPLAYED IN A
A MH      MYCODE1             2NOTE ON YOUR TERMINAL AND IN YOUR DAYFILE.
```

5. Create the CCL procedure

```
.PROC,MYPROC,MYPARM.
NOTE,,NR./MYPARM
REVERT. MYPROC
EXIT.
REVERT,ABORT. MYPROC
```

Save the procedure in the file named in the menu database transaction file created in step 1. The file should be permitted in the same manner as the file E120PRC.

6. Load the routines.

If the OVCAP from step 2 had been written onto a file called MYOVCAP, and the routine from step 3 had been put on library MYLIB, the call to LOADEDL would look like this:

```
BEGIN,LOADEDL,E120PRC,F=MYOVCAP,ULIB=MYLIB.
```

8.0 ADDING TASKS TO EDL

LOADEDL will create a new E120ABS absolute by combining the OVCAPs and routines from your original release of EDL with the OVCAPs in file MYOVCAP and the routines in library MYLIB. Please note that any routines and OVCAPs which you may have added before wil not be in this load, unless they are in the OVCAP and library files loaded here.

7. Update EDL for the Menu Database transaction file

Put the transactions created in steps 1 and 4 into the same file, and update EDL for those transactions in the following manner:

Enter EDL using an ID with SYSADMIN privileges (Like EDLID).

A. Choose ADD INFORMATION FOR ENGINEERING DATA task (task command ADDINFO.

   1. The APPLICATION DATA TYPE is EDL MDB TRANSACTIONS.

   2. Give the data a meaningful name, like MDB TRANSACTIONS TO ADD A MYTASK

B. Enter the task command MENUMGMT.

   1. Retrieve the data which you just entered into EDL.

   2. Select that data, and the changes will be automatically entered into EDL.

If you are entering a task which contains only a CCL procedure, you can omit steps 2, 3, 4, and 6.

If you are entering a task which contains only an OVCAP, you can omit step 5.

SOFTWARE RELEASE BULLETIN

ICEM Facilities 1.3

(NOS 2.4.2 LV 642A)

SMD131035

NOTES AND CAUTIONS

1. Procedure files ICEMFAC and VERIFY were written assuming that ICEM Design/Drafting version 1.60 is stored as a direct access file named ICEMDDN on user name APPLLIB. It is also assumed that a direct access file named GOLIB is stored on APPLLIB. If these assumptions are incorrect, change lines 10 through 12 of the procedure ICEMFAC in file ICEMFAC, lines 7 through 9 of procedure EXTRACE in file ICEMFAC and lines 12 through 14 in procedure VERIFY in file VERIFY.

2. ICEM Facilities version 1.3 can be run using the ICEM Design/Drafting feature FEET and INCHES. When doing a facilities layout using the BEGING LAYOUT tablet pick of tablet overlay LAY1, all prompts must be answered in inches.

9.0 SITE DEFINED RETRIEVALS

A special provision has been made to allow you to put site written code into EDL for adding a site defined retrieval method. This change to EDL does not involve adding OVCAPS, but rather only adding subroutines and menu lines.

The retrieval selection routine in EDL has been written so that it will process an additional option value of SITE in option menus EXTRAC and EXFRAC. If this value is encountered, EDL will call a routine called EXTSIT. The procedure for adding this routine consists of 4 steps:

1. Write and compile a routine named EXTSIT. Put this routine on a library using the LIBGEN utility.

2. Create a Menu Database Transaction file, containing the desired menu changes, prompts, error messages, and help information.

3. Use the procedure LOADEDL to create a new EDL absolute, with the additional routine.

4. Update EDL for the file of Menu Database transactions. Apply the transactions to the EDL Menu Database.

9.1 ROUTINE EXTSIT

The routine must be named EXTSIT. After the routine is compiled, it should be placed in a library using the LIBGEN utility.

Here is an example of a retrieval routine, to retrieve data based on the type of the file which the data resides on.

```
1       SUBROUTINE EXTSIT(NUM)
2  CXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXX
3  CXX
```

CONTROL DATA CORPORATION

1985/12/31

ICEM ENGINEERING DATA LIBRARY 1.2.3
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9.0 SITE DEFINED RETRIEVALS
9.1 ROUTINE EXTSIT

```
CXX   PURPOSE - RETRIEVE BY FILE TYPE CODE
CXX
CXX   CALL PARAMETERS -
CXX   ARQUMENT  TYPE      I/O  DESCRIPTION
CXX   NUM         I        O   NUMBER OF RECORDS RETRIEVED
CXX
CXX   DATABASE USAGE -
CXX      DI    DATA INFORMATION RECORD
CXX      FT    FILE TYPE RECORDS
CXX      FI    FILE INFO RECORDS
CXX
CXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXX
C     ENTER FILE TYPE
C     IF 'LIST' CALL LISFTC
C     SET FIFTC TO THE FILE TYPE
C     OBTAIN AN FI RECORD
C     WHILE THERE ARE FI RECORDS
C        USE THE FIDI COSET TO GET A DI RECORD
C        WHILE THERE ARE DI RECORDS
C           CALL EXTWRI(NUM) TO WRITE THE RECORD TO EEEDL9 IF
C                                          THE DATA IS PERMITTED
C           GET ANOTHER DI RECORD
C        GET ANOTHER FI RECORD
CXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXX
C
C     EDL_COMMON
C     EDL PRIMARY COMMON BLOCK
      COMMON /ECOM1/ HOST, USR, PWD, MDISP, SCLOCK,
     +CHELP, CLIST, CEXIT, CMENU, CCLEAR,
     +CWORK, CREL, CSUBM, CPEND, COBS,
     +CPAUSE1, CPAUSE2, CINOPT1, CEXTM1,
     +CYES, CNO,
     +NOSUN, STRDEL, INPDEL,
     +AUN, DUN, DDB, MUN, MDB, AC, IT, OT
      CHARACTER*10 HOST, USR, PWD, MDISP, SCLOCK
      CHARACTER*10 CHELP, CLIST, CEXIT, CMENU, CCLEAR
      CHARACTER*10 CWORK, CREL, CSUBM, CPEND, COBS
      CHARACTER*70 CPAUSE1, CPAUSE2, CINOPT1, CEXTM1
      CHARACTER*3 CYES,CNO
      CHARACTER*7 NOSUN
      CHARACTER*1 STRDEL, INPDEL
      CHARACTER*7 AUN, DUN, DDB, MUN, MDB
      CHARACTER*2 AC
      CHARACTER*7 IT,OT
      COMMON /ECOM2/ NSYNC, PW, PL, NL, SCROLL, ECHO
      INTEGER NSYNC, PW, PL, NL
```

9.0 SITE DEFINED RETRIEVALS
9.1 ROUTINE EXTSIT

```
50          LOGICAL SCROLL, ECHO
51    C
52    *%    USE DI
53    *     STATEMENTS GENERATED BY IMF2
54          COMMON / DI       / DIEDN
55          COMMON / R600701 / DINAM
56          COMMON / R600702 / DISID  ,DIFIL
57          COMMON / R600703 / DIREV  ,DIEDT  ,DIADT  ,DIUSR  ,DITTL  ,DISTA
58         *,DIDATC ,DIDATM ,DIDATR ,DITIMC ,DITIMM ,DITIMR
59          INTEGER DIEDN  ,DISID  ,DIFIL
60          CHARACTER DINAM  *70,DIREV  *10,DIEDT  *20,DIADT  *20
61         *,DIUSR  *10,DITTL  *100,DISTA  *10,DIDATC *10,DIDATM *10
62         *,DIDATR *10,DITIMC *10,DITIMM *10,DITIMR *10
63    C
64    *%    USE FI
65    *     STATEMENTS GENERATED BY IMF2
66          COMMON / FI       / FIFIL
67          COMMON / R601601 / FIHOS  ,FIFUN  ,FIPFN  ,FIFTC  ,FISTA  ,FIUSR
68         *,FIVSN  ,FICT   ,FIMOD
69          INTEGER FIFIL
70          CHARACTER FIHOS  *10,FIFUN  *31,FIPFN  *100,FIFTC  *20
71         *,FISTA  *10,FIUSR  *10,FIVSN  *6,FICT   *2,FIMOD  *1
72    C
73    C
74    *%    USE FT
75    *     STATEMENTS GENERATED BY IMF2
76          COMMON / FT       / FTFTC  ,FTNAM  ,FTAPN  ,FTLFN
77          COMMON / R602201 / FTLFNR ,FTMUL  ,FTPRT
78          COMMON / R602202 / FTCHR
79          LOGICAL FTLFNR ,FTMUL  ,FTPRT
80          CHARACTER FTFTC  *20,FTNAM  *21,FTAPN  *20,FTLFN  *7
81         *,FTCHR  *1
82    C
83          LOGICAL OK
84          CHARACTER FTC*20
85    100   CONTINUE
86          NUM=0
87    C
88    C     GET THE FILE TYPE
89    C
90    C     'ENTER THE FILE TYPE TO BE RETRIEVED OR LIST OR CR TO RETURN'
91          CALL INTXT('EXTSIT1',FTC,ICH)
92          IF(ICH.NE.0)THEN
93             IF(FTC.EQ.CLIST)THEN
94                CALL LISFTC(FTC,OK)
95                FTFTC=FTC
```

```
 96            ELSE
 97               FTNAM=FTC
 98               CALL IBOFT1(OK)
 99               IF(.NOT.OK)THEN
100  C              'THE FILE TYPE IS NOT RECOGNIZED BY EDL'
101                 CALL ERR('EXTSIT2')
102              ENDIF
103           ENDIF
104           IF(OK)THEN
105              FIFTC=FTFTC
106              CALL IBOFI4(OK)
107  200         IF(OK)THEN
108                 CALL IBFFIDI(OK)
109  300            IF(OK)THEN
110                    CALL EXTWRI(NUM)
111                    CALL IBNFIDI(OK)
112                    GO TO 300
113                 ENDIF
114                 CALL IBEFI4(OK)
115                 GO TO 200
116              ENDIF
117           ENDIF
118        ENDIF
119  900   CONTINUE
120        RETURN
121        END
122        SUBROUTINE EXFSIT(NUM)
123  CXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXX
124  CXX
125  CXX   PURPOSE - FURTHER RETRIEVE BY FILE TYPE CODE
126  CXX
127  CXX   CALL PARAMETERS -
128  CXX   ARQUMENT  TYPE      I/O  DESCRIPTION
129  CXX   NUM         I        O   NUMBER OF RECORDS RETRIEVED
130  CXX
131  CXX   DATABASE USAGE -
132  CXX      DI    DATA INFORMATION RECORD
133  CXX      FI    FILE INFO RECORD
134  CXX      FT    FILE TYPE RECORD
135  CXX
136  CXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXX
137  C     ENTER FILE TYPE
138  C     IF 'LIST' CALL LISFTC
139  C     SET FIFTC TO THE FILE TYPE
140  C     READ A RECORD OFF EEEDL9
141  C     GET THE CORRESPONDING DI RECORD
```

```
      C     GET THE CORRESPONDING FI RECORD
      C     IF THE FTC'S MATCH
      C        WRITE THE RECORD TO EEEDL10
      C     READ ANOTHER RECORD FROM EEEDL9
      CXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXX
      C
      C     EDL_COMMON
      C     EDL PRIMARY COMMON BLOCK
            COMMON /ECOM1/ HOST, USR, PWD, MDISP, SCLOCK,
           +CHELP, CLIST, CEXIT, CMENU, CCLEAR,
           +CWORK, CREL, CSUBM, CPEND, COBS,
           +CPAUSE1, CPAUSE2, CINOPT1, CEXTM1,
           +CYES, CNO,
           +NOSUN, STRDEL, INPDEL,
           +AUN, DUN, DDB, MUN, MDB, AC, IT, OT
            CHARACTER*10 HOST, USR, PWD, MDISP, SCLOCK
            CHARACTER*10 CHELP, CLIST, CEXIT, CMENU, CCLEAR
            CHARACTER*10 CWORK, CREL, CSUBM, CPEND, COBS
            CHARACTER*70 CPAUSE1, CPAUSE2, CINOPT1, CEXTM1
            CHARACTER*3 CYES,CNO
            CHARACTER*7 NOSUN
            CHARACTER*1 STRDEL, INPDEL
            CHARACTER*7 AUN, DUN, DDB, MUN, MDB
            CHARACTER*2 AC
            CHARACTER*7 IT,OT
            COMMON /ECOM2/ NSYNC, PW, PL, NL, SCROLL, ECHO
            INTEGER NSYNC, PW, PL, NL
            LOGICAL SCROLL, ECHO
      C
      *%    USE DI
      *     STATEMENTS GENERATED BY IMF2
            COMMON / DI       / DIEDN
            COMMON / R600701 / DINAM
            COMMON / R600702 / DISID  ,DIFIL
            COMMON / R600703 / DIREV  ,DIEDT  ,DIADT  ,DIUSR  ,DITTL  ,DISTA
           *,DIDATC ,DIDATM ,DIDATR ,DITIMC ,DITIMM ,DITIMR
            INTEGER DIEDN  ,DISID  ,DIFIL
            CHARACTER DINAM  *70,DIREV  *10,DIEDT  *20,DIADT  *20
           *,DIUSR  *10,DITTL  *100,DISTA  *10,DIDATC *10,DIDATM *10
           *,DIDATR *10,DITIMC *10,DITIMM *10,DITIMR *10
      C
      *%    USE FI
      *     STATEMENTS GENERATED BY IMF2
            COMMON / FI       / FIFIL
            COMMON / R601601 / FIHOS  ,FIFUN  ,FIPFN  ,FIFTC  ,FISTA  ,FIUSR
           *,FIVSN  ,FICT   ,FIMOD
```

9.0 SITE DEFINED RETRIEVALS
9.1 ROUTINE EXTSIT

```
188         INTEGER FIFIL
189         CHARACTER FIHOS  *10,FIFUN  *31,FIPFN  *100,FIFTC  *20
190        *,FISTA  *10,FIUSR  *10,FIVSN  *6,FICT   *2,FIMOD  *1
191   C
192   C
193   *%    USE FT
194   *     STATEMENTS GENERATED BY IMF2
195         COMMON / FT       / FTFTC  ,FTNAM  ,FTAPN  ,FTLFN
196         COMMON / R602201 / FTLFNR ,FTMUL  ,FTPRT
197         COMMON / R602202 / FTCHR
198         LOGICAL FTLFNR ,FTMUL  ,FTPRT
199         CHARACTER FTFTC  *20,FTNAM  *21,FTAPN  *20,FTLFN  *7
200        *,FTCHR  *1
201   C
202         LOGICAL OK
203         CHARACTER FTC*20,LINE*80
204   100   CONTINUE
205         NUM=0
206   C
207   C     GET THE FILE TYPE
208   C
209   C     'ENTER THE FILE TYPE TO BE RETRIEVED OR LIST OR CR TO RETURN'
210         CALL INTXT('EXFSIT1',FTC,ICH)
211         IF(ICH.NE.0)THEN
212            IF(FTC.EQ.CLIST)THEN
213               CALL LISFTC(FTC,OK)
214               FTFTC=FTC
215            ELSE
216               FTNAM=FTC
217               CALL IBOFT1(OK)
218               IF(.NOT.OK)THEN
219   C              'THE FILE TYPE IS NOT RECOGNIZED BY EDL'
220                  CALL ERR('EXFSIT2')
221               ENDIF
222            ENDIF
223            IF(OK)THEN
224               REWIND 9
225   200         READ(9,5000,END=900)DIEDN,LINE
226   5000        FORMAT(I10,A)
227               CALL IBODIO(OK)
228               IF(.NOT.OK)CALL ERRIB
229               FIFIL=DIFIL
230               CALL IBOFIO(OK)
231               IF(.NOT.OK)CALL ERRIB
232               IF(FIFTC.EQ.FTFTC)THEN
233                  WRITE(10,5000)DIEDN,LINE
```

9.0 SITE DEFINED RETRIEVALS
9.1 ROUTINE EXTSIT

```
234                 NUM=NUM+1
235               ENDIF
236               GO TO 200
237             ENDIF
238           ENDIF
239  900      CONTINUE
240           RETURN
241           END
```

9.1.1 EXPLANATION OF EXTSIT

Lines	Explanation
1	EDL is coded to look for the routine EXTSIT, with the parameter NUM where NUM is the number of records found. This counter wil be incremented by the routine EXTWRI, so is not changed by this routine.
2-15	Prologue. The database usage area is the names of the database records used in this routine. These record types correspond to the common blocks which need to be copied from the file EDLCOM.
16-27	Explanation of how the routine processes.
28-82	Common Blocks. These should be copied from file EDLCOM. Blocks DI, FI, and FT are used by the IB (Information Base) routines. The corresponding block should be copied for each record type used. EDL_COMMON is the primary common block in EDL and contains constants used throughout EDL. In this case, the block is used only to provide the constant CLIST.
83	The logical variable OK will be used to monitor the status of the calls to the IB routines.
84	Character variable FTC will be used to store the user's choice of File Type Code
86	NUM is the count of records found. If NUM is returned to the calling routine as 0, the routine will display the message that no records were found. This count is

updated by routine EXTWRI.

91 Prompt for input. The routine INTXT finds the message named 'EXTSIT1' in the message database, and prompts with that message, putting the response in variable FTC. ICH is the length in characters of the response.

92 If the response was a carriage return, ICH will be 0. In that case, this routine skips to the ENDIF on line 118, and returns.

93-100 An explanation of File Type (FT) records: There are two identification fields in the FT record--FTFTC and FTNAM. When EDL is released, these fields contain identical information. FTFTC is the File Type Code which EDL uses internally. This field should not be changed. FTNAM is the external name which the user will see. This can be customized to anything which will be better understood by the user, dependant on the site. LISFTC is a routine which lists all FTNAM fields. When the user makes a choice, the value of the corresponding FTFTC field is returned for EDL to use.

93-95 If the response is equal to the constant CLIST (which is set to LIST when EDL is released, but can be changed), then the routine LISFTC is called. LISFTC lists the available FTNAM values, and prompts the user to choose one. If the user chooses to EXIT, the variable OK is set to FALSE. If the user chooses one of the file names, OK is set to TRUE, and the FTFTC value corresponding to the FTNAM chosen by the user is put into variable FTC.

97-102 If the response is not CLIST, FTNAM is set equal to the response, IBOFT1 is called to obtain the FT record via access path FT1. If there is no FT record found, the error message EXTSIT2 is displayed. If the matching FT record is found, all fields in the common block FT are filled with information from the matching record.

104 If OK was set to false, either because the FT record was not found, or the user chose to EXIT from routine LISFTC, processing skips to the ENDIF in line 117, and returns to the calling routine.

105 FIFTC (a key for the FI record) is set equal to the value of FTFTC which was determined above.

106 IBOFI4 is called to obtain the first FI record via access path FI4 (FIFTC). If there are none, OK is set to FALSE. If one is found, OK is set to TRUE.

107 If OK is FALSE, control goes to the ENDIF in line 116, and returns to the calling routine.

108 IBFFIDI is called to obtain the first DI record corresponding to the FI record which was just obtained (either in line 106 or 114). If there are none, OK is set to FALSE. If one is found OK is set to TRUE.

109 If OK is false, control goes to the ENDIF in line 113.

110 EXTWRI is called with the parameter NUM. EXTWRI checks the DI record to see if the data should be in the user's retrieval list. File permissions are checked, application data types, and engineering categories, depending on if there were any ADT or EDT task parameters on the task which called this routine. If the record is acceptable, data information is written to file EEEDL9, and NUM is incremented.

111-112 IBNFIDI is called to obtain the next DI record corresponding to the current FI record. If one is found, OK is set to TRUE. If none are found, OK is set to FALSE. Control then goes to line 109 (statement number 300).

114-115 Once all of the corresponding DI records are found for an FI record, IBEFI4 is called to find another FI record which has the same FIFTC field. If one is found, OK is set to TRUE. If not, OK is set to FALSE. Control then goes to line 107 (statement number 200).

9.1.2 EXPLANATION OF EXFSIT

The second routine listed will do further extractions (option 5 of the RETRIEVAL OPTION menu). It is basically the same as EXTSIT with a few exceptions:

Lines	Explanation
224-226	Rather than obtaining data records based on criteria, further extractions read the current list of data records, and compare them against the criteria given. All retrievals write records to the file EEEDL9. This routine reads record information off the EEEDL9 file.
227	EDL obtains the DI record based on the DIEDN read from EEEDL9. The only reason the record would not be there is if it had been purged, or there was something wrong with the database. If the record cannot be found, OK is set to FALSE by the IBODIO routine.
228	If OK was set to FALSE, the routine ERRIB is called to display the reason that the error occurred. ERRIB is used to display errors which occurred in the IB routines. ERRIB is used in EDL when there should not be an error, but the information may be of use in tracking down problems in code, or in the database.
232-235	If the FIFTC record for the file which the data is on is the same as FTFTC entered by the user, the record is written to file EEEDL10 and NUM is incremented.
240	When the routine terminates, if NUM is returned to the calling routine as greater than 0, file EEEDL10 is copied over EEEDL9, giving a new selection list. If NUM is zero, meaning that no records met the new criteria, the original EEEDL9 file is left alone.

9.2 THE MENU DATABASE TRANSACTION FILE

The menu data base transaction file shown below will update the EDL Menu database by:

1. Adding another line to the retrieval option menu. Note that the option value (OV) is SITE. EDL checks for this value when processing the retrieval menu.

2. Adding the prompt ENTER THE FILE TYPE CODE, LIST, OR CR TO RETURN and associated HELP messages, should the user

enter HELP for this prompt.

3. Adding the error message THE FILE TYPE IS NOT KNOWN TO EDL.

4. The same is done for secondary retrievals.

```
A OM      EXTRAC            13FILE TYPE CODE
A OK      EXTRAC            13FTC
A OV      EXTRAC            13          1SITE

A MI      EXTSIT1   PROMPT    ENTER THE FILE TYPE CODE, LIST, OR CR TO RETURN
A MH      EXTSIT1             1THE FILE TYPE CODE IS DEFINED BY THE SITE TO DESCRI
A MH      EXTSIT1             2USE OF A PARTICULAR TYPE OF FILE.  ENTER "LIST" TO
A MH      EXTSIT1             3A LIST OF POSSIBLE FILE TYPES.
A MH      EXTSIT1             4A CARRIAGE RETURN WILL RETURN TO THE RETRIEVAL METH

A MI      EXTSIT2   ERROR     THE FILE TYPE IS NOT KNOWN TO EDL

A OM      EXFRAC            13FILE TYPE CODE
A OK      EXFRAC            13FTC
A OV      EXFRAC            13          1SITE

A MI      EXFSIT1   PROMPT    ENTER THE FILE TYPE CODE, LIST, OR CR TO RETURN
A MH      EXFSIT1             1THE FILE TYPE CODE IS DEFINED BY THE SITE TO DESCRI
A MH      EXFSIT1             2USE OF A PARTICULAR TYPE OF FILE.  ENTER "LIST" TO
A MH      EXFSIT1             3A LIST OF POSSIBLE FILE TYPES.
A MH      EXFSIT1             4A CARRIAGE RETURN WILL RETURN TO THE RETRIEVAL METH

A MI      EXFSIT2   ERROR     THE FILE TYPE IS NOT KNOWN TO EDL
```

9.3 LOADING ROUTINES INTO EDL

Create a new EDL absolute by entering:

```
BEGIN,LOADEDL,E120PRC,F=ovfil,ULIB=library.
```

OVFIL is the file containing OVCAPs to be added to EDL. LIBRARY is the name of library containing routines to be loaded into EDL. In this case, there have been no OVCAPs added. If the routine had been put onto a library called EDLLIB, the procedure would be run as follows:

BEGIN,LOADEDL,E120PRC,F=NONE,ULIB=EDLLIB.

This procedure takes the current file E120ABS, changes it to E12XABS, and creates a new E120ABS.

9.4 UPDATE EDL FOR THE MENU DATABASE TRANSACTION FILE

Enter EDL using an ID with SYSADMIN privileges (Like EDLID).

1. Choose ADD ENINFORMATION FOR ENGINEERING DATA (task command ADDINFO.

   a. The APPLICATION DATA TYPE is EDL MDB TRANSACTIONS.

   b. Give the data a meaningful name, like MDB TRANSACTIONS TO ADD A SITE DEFINED RETRIEVAL

2. Enter the task command MENUMGMT.

   a. Retrieve the data which you just entered into EDL.

   b. Select that data, and the changes will be automatically entered into EDL.

10.0 INTERFACING APPLICATIONS

10.1 EDL LOG FILE

When a standard ICEM application creates, modifies, or deletes data, it creates a log entry on local file EDLLOG, to inform EDL that it should update the EDL database and prompt the user for additional descriptive information. You may wish to interface other applications at your site to EDL in the same manner.

1. Modify the application program to create the EDLLOG file.
2. In each task that executes your application, include a task process record (TP) for the ovcap XLOG.

Pos	Len	Type	Description
1	1	C	Action code, A (added), C (changed), D (deleted), F (file copied), P (purged file), R (retrieved).
2	7	C	Permanent file name
9	7	C	NOS User name of the file
16	20	C	File Type Code
36	20	C	Application Data Type Code
56	70	C	Data Name
126	10	I10	Secondary Identifier (e. g. Sheet Number)

10.2 EEEDLFN FILE

On local file EEEDLFN, EDL maintains a list of all local files which EDL has attached. An application program creating log files for EDL can use this file to determine PFN's and UN's of data it writes to attached permanent files.

Within EDL ovcaps, you should use the utility routines LOCATT,

LOCINQ, and LOCRET to manipulate this file. These subroutines are documented in the EDL UTILITY ROUTINES section.

col 1-7 Local File Name.
col 8-14 Permanent File Name.
col 15-21 NOS Username of the permanent file.
col 22 Mode, "R" for read, "W" for write.
col 23-42 File Type Code
col 43 Default flag, "T" if EDL attached the file as a user's default file, "F" otherwise.

10.3 RETRIEVAL TASKS

For each type of data processed by your application, you should write a retrieval task for that application data type. Include the name of the task in the ATTNA field when the Data Type is defined, so that EDL will be able to retrieve that type of data with the RETRIEVE task.

A retrieval task's function is to bring up data selected from a standard EDL retrieval list in an appropriate application program in a mode that allows the user to view the data, and to modify it if the user has write permission.

An example of the standard EDL retrieval task for retrieving an ICEM DDN drawing is task RET-DRW, which is in the EDLLIST file.

```
STORE SETTING ATADT ATNAM ATFTC ATSIDR ATTNA
$DRAWING$ $DRAWING$ $DRAWING FILE$ $T$ $RET-DRW$
*END

A TI      RET-DRW
A TP      RET-DRW          2OVCAP     XDDNPRE
A TP      RET-DRW          4OVCAP     XATTACH
A TV      RET-DRW          4          1APPNAME   CONSTANT  IC
A TV      RET-DRW          4          2REQFILE   CONSTANT  DR
A TP      RET-DRW          5CCL PROC  RETDDN
A TV      RET-DRW          5          1NAME1     VARIABLE  NA
A TV      RET-DRW          5          3NAME2     VARIABLE  NA
A TV      RET-DRW          5          5SHEET     VARIABLE  SH
A TP      RET-DRW          6TASK      DDNPROC
A TP      RET-DRW          8TASK      DDNPOST
```

11.0 CUSTOMIZING THE PLOTTING INTERFACE

11.0 CUSTOMIZING THE PLOTTING INTERFACE

The plotting interface supplied on the EDL release tape must be modified to work correctly at your site.

The option menu named PLOTN1 shows the user which plotters are available at the site. Use MDB transactions to update this menu. The OVVAL field should contain a site defined destination code which is eventually passed to procedure PLOTN as the DEST parameter when the user chooses a particular plot destination.

Procedure PLOTN in E120PRC is designed to convert a Neutral Picture File (NPFILE) to plotter specific representation and route it to the plotter. It should be edited to execute UNIPOST with the correct directives for the specific plotters at your site, and to route the plot file to the correct plotter depending on the value of the DEST parameter. See the UNIPLOT manual for details about which directives are appropriate for your plotters.

12.0 PROGRAM AND USER INTERFACE

This section describes the standard first level interface routines to the EDL database and the user for EDL programs and customized site-developed FORTRAN code.

These routines work within EDL overlay capsules. Calling them from other external programs may not work because common blocks need to be initialized by EDL.

12.1 INFORMATION BASE (IB) ROUTINES

The Information Base routines allow EDL overlay capsules to perform database accesses and updates at the record level.

IBSxx	Store record xx.
IBMxx	Modify record xx.
IBDxx	Delete record xx.
IBOxxn	Obtain record xx via access path xxn.
IBAxxn	(Approximate) Obtain record xx or next higher via access path xxn.
IBExxn	(Equivalent) Obtain the next duplicate record xx via access path xxn.
IBFxxn	Obtain the first xx record ordered by access path xxn.
IBNxxn	Obtain the next xx record ordered by access path xxn.
IBFxxyy	Obtain the first member within coset xxyy.
IBNxxyy	Obtain the next member within coset xxyy.
IBCPRC	Start a concurrency parcel.
IBCCMT	Commit a concurrency parcel.
IBCDRP	Drop a concurrency parcel.

Argument	Type	I/O	Description
STATOK	Logical	O	Status of the operation TRUE - operation was successful. FALSE - operation failed.

12.2 EDL UTILITY ROUTINES

SUBROUTINE ACQUIR (LFN, PFN, UN, MODE, STAT)
Call parameters

Argument	Type	I/O	Description
LFN	C*(*)	I	Local File Name
PFN	C*(*)	I	Permanent File Name
UN	C*(*)	I	NOS Username
MODE	C*(*)	I	Mode, R or W

The routine ACQUIR is used to attach or get a file. The file is tracked in the EDL local file list. If the file is already attached to the job with a different local name, it is returned and reattached. Error messages are printed if the file is busy, has been archived, cannot be attached, or if a PF error occurs.

SUBROUTINE ACQUIX (PFN, UN, EXIST)
Call parameters

Argument	Type	I/O	Description
PFN	C*(*)	I	Permanent File Name
UN	C*(*)	I	NOS Username
EXISTS	L	O	True if the file is found False if the file is not on the system or is not permitted.

This routine attempts to attach and return a file to see if it exists. It exists if it can be attached in read mode or if it is busy.

SUBROUTINE CHKPER (MODE)
Call parameters

Argument	Type	I/O	Description
MODE	C*(*)	O	mode the user is permitted to the file. (I, R, W, N)

Routine CHKPER checks whether the running user is permitted to the file in the FI record common block.

SUBROUTINE COPYF (I,J)
Call parameters

Argument	Type	I/O	Description

I	I	I	Unit to be copied from
J	I	O	Unit to be copied to

Routine COPYF rewinds both file I and J, and copies the contents of file I to file J. EDL then rewinds both files, and writes an End-of-file mark on file J. Both units I and J must be open text files with line lengths of no more than 140 characters. (FO=SQ,RT=Z,BT=C,FL<=140)

SUBROUTINE CSCRN
No Parameters

Routine CSCRN is used to clear the screen of a non-scrolling terminal or to reset the number of lines available for a scrolling terminal.

FUNCTION CUTNAM(NAME)
Call parameters

Argument	Type	I/O	Description
NAME	C*(*)	I	EDL Data Name
CUTNAM	C*(*)	O	Partial drawing name / sheet #

Function CUTNAM returns as many characters as possible of the drawing name, followed by a space, a slash, a space, and the sheet number, into a field of the size specified in the calling routine. For example, if CUTNAM is declared as 20 characters long in the calling program, and the sheet name consists of 2 characters, CUTNAM will return the first 15 characters of the drawing name, followed by ' / ', and then the sheet number. If the drawing name does not have 15 significant characters, CUTNAM will compress the result.

SUBROUTINE CUTSTR (INSTR, REMSTR, LENGTH, ALIGN)
Call parameters -

Argument	Type	I/O	Description
INSTR	C*(*)	I/O	Input string
REMSTR	C*(*)	O	Remainder of the string
LENGTH	I	I	Length input string should be cut to
ALIGN	I	I	Leftmost position to check for a blank

Routine CUTSTR cuts the input string (INSTR) at a blank so the resulting input string is less than the specified length. The remainder of the string is returned in (REMSTR). Align is farthest position to left to check for a blank. If no blank

is found, the line is split at the specified length.

EXAMPLE -
```
     INSTR = 'THIS IS A SAMPLE OF AN INPUT STRING'
     ALIGN = 10
     LENGTH = 26
     RESULTING INSTR = 'THIS IS A SAMPLE OF AN'
     RESULTING REMSTR = 'INPUT STRING'
```

SUBROUTINE ERR (MNA)
Call parameters

Argument	Type	I/O	Description
MNA	C*(*)	I	Message name of the error message

The routine ERR displays an error message on the user's terminal. If no error message with the given message name is found in the menu database, the following message is printed.

EDLD000 EDL INTERNAL ERROR CODE sys

SUBROUTINE ERRIB
No parameters

Subroutine ERRIB prints an error message corresponding to the IMF diagnostic for the error which occured on the last database operation.

If the last database operation was a constraint violation, ERRIB returns the last diagnostic code. If the last database operation was not a constraint violation, EDBE prints the message for error "EDLxx000", where xx is the IMF status code.

Example:
```
CALL IBSDI ( OK )
IF ( .NOT. OK ) THEN
   CALL ERRIB
ENDIF
```

SUBROUTINE ERRIBM
No Parameters

Subroutine ERRIBM functions like ERRIB for the Message and Task database operations.

12.0 PROGRAM AND USER INTERFACE
12.2 EDL UTILITY ROUTINES

SUBROUTINE ERRSTR (MNA)
Call parameters

Argument	Type	I/O	Description
MNA	C*(*)	I	Message name of the error
MSG	C*(*)	O	External error message string

The routine ERRSTR returns a character string containing an external error code and message. If no error message with the given system code is found in the menu database, the following message is printed.

EDLD000 EDL INTERNAL ERROR CODE sys

SUBROUTINE EXFSIT (NUM)
Call parameters

Argument	Type	I/O	Description
NUM	I	O	Number of records retrieved.

Subroutine EXFSIT is a dummy routine. A site may replace this routine with their own routine to refine data lists based on their own further selection criteria.

SUBROUTINE EXTSIT
Call parameters

Argument	Type	I/O	Description
NUM	I	O	Number of records retrieved.

Subroutine EXTSIT is a dummy routine. A site may replace this routine with their own routine to extract data lists based on their own criteria.

SUBROUTINE EXTLIM
No parameters

Subroutine EXTLIM initializes a common block which holds the TV parameter engineering data selection criteria limits which are checked by subroutine EXTWRI before writing data on the data retrieval list. The TV parameters used by this subroutine are documented with ovcap XEXTRAC in the section EDL Standard Overlay Capsules.

If you write your own extraction ovcap to prepare a retrieval list to be passed to the XDISPLA ovcap, you will need to call

EXTLIM once before any calls to EXTWRI.

SUBROUTINE EXTWRI (MNA)
Call parameters

Argument	Type	I/O	Description
NUM	I	I/O	Incremented if info is written on the retrieval list.

Subroutine EXTWRI writes data information to the data retrieval list if the data in the DI record matches the limits specified by TV parameters and if the data is permitted to the user. It is intended to be used to create site defined retrieval lists.

FUNCTION FULLNM (USR)
Call parameters

Argument	Type	I/O	Description
USR	C*(*)	I	EDL ID
FULLNM	C*(*)	O	first, middle and last name

Function FULLNM reads the UI record of the specified EDL ID, and returns the corresponding last, first and middle name in the form:
ADAMS, JOHN QUINCY
If the first or middle name consists of only one character (that is, an initial) FULLNM places a period after that character:
ADAMS, JOHN Q.

FUNCTION FULPER (MODE)
Call parameters

Argument	Type	I/O	Description
MODE	C*(*)	I	one character file permission
FULPER	C*(*)	O	spelled out file permission

Function FULPER spells out a single character permission mode (W, R, I, or N) to (WRITE, READ, INFO or NONE).

SUBROUTINE GETPRM (PRM, VAL, OK)
Call parameters

Argument	Type	I/O	Description
PRM	C*(*)	I	Task process parameter name

VAL	c*(*)	O	Value of the parameter
OK	L	O	true - parameter returned false - parameter not found

Routine GETPRM gets the value of a task process parameter and returns it to the program. The parameter (from the TV record) may be a constant, variable, or prompt.

SUBROUTINE GETPRN (VAL, OK)
Call parameters

Argument	Type	I/O	Description
VAL	C*(*)	O	Value of the parameter
OK	L	O	true - parameter returned false - parameter not found

Routine GETPRN gets the next value of the task process parameter defined by GETPRM and returns it to the program. The parameter (from the TV record) may be a constant, variable, or prompt.

SUBROUTINE GETUN (UN)
Call parameters

Argument	Type	I/O	Description
UN	C*(*)	O	Running Nos Username

Subroutine GETUN returns the NOS Username currently running.

SUBROUTINE GETVAR (NAME, VALUE, FOUND)
Call Parameters

Argument	Type	I/O	Description
NAME	C*(*)	I	Parameter name
VALUE	C*(*)	O	Parameter value
FOUND	L	O	True - the global variable was found

Subroutine GETVAR returns the value of the EDL global variable to the program.

SUBROUTINE INFNA (MNA, HOS, SAMEUN, PFN, FUN, OK)
Call parameters

Argument	Type	I/O	Description
MNA	C*(*)	I	Message Name

HOS	C*(*)	I	Host Id
SAMEUN	L	I	True - the file must be on the running Username False - INFNA should prompt for UN
PFN	C*(*)	O	Permanent File Name
FUN	C*(*)	O	Username of the file

Routine INFNA prompts for a syntactically valid file name for the host.

SUBROUTINE ININT (MNA, IRESP, OK)
Call parameters

Argument	Type	I/O	Description
MNA	C*(*)	I	Message name for the prompt
IRESP	I	O	Integer response from the user
OK	L	O	Status Code True - user entered a positive integer False - user entered a null response.

The routine ININT displays a prompting message, asks the user to enter an integer number, and returns the value the user enters. If the parameter MNA is not the message name of a valid Prompt in the menu database, an error message is displayed on the user's terminal instead of the prompt, but the user is still asked to enter an integer. If the user enters anything but an integer or null carriage return, an error message is printed and the user is asked to reenter his response.

SUBROUTINE INOPT (MNA, OK)
Call parameters

Argument	Type	I/O	Description
MNA	C*(*)	I	Name of the option menu to be displayed
OK	L	O	Return status True- OK, user selected an option False-User entered a null return or the menu could not be displayed

Routine INOPT displays an option menu and prompts the user for his selection. If the user enters a null response, the first line of the menu is chosen by default. This routine positions the option menu line record to the line selected by the user. The variable values corresponding to the chosen option can be retrieved by the routine OPTVAL after INOPT has been called successfully.

If the option menu has only one set of variables (parameters), it is recommended that INTXT be used instead of INOPT and OPTVAL to display the menu and return the single variable value.

SUBROUTINE INP (TXT, ICH)
Call parameters

Argument	Type	I/O	Description
TXT	C*(*)	O	Next user response
ICH	I	O	Number of characters in response

Routine INP Returns the user's input to the program. It manages The EDL type-ahead buffer, by returning only a single delimited response per call, and by issuing a read request when the input buffer is empty. INP will not prompt the user. Usually a routine such as INTXT, INYN or ININT is used to prompt the user as well as return the response.

SUBROUTINE INREAL (MNA, XRESP, OK)
Call parameters

Argument	Type	I/O	Description
MNA	C*(*)	I	Message number
XRESP	Real	O	Real Number Value
OK	L	O	True - the user entered a real False - Null response

The routine INREAL displays a prompting message, asks the user to enter a real number, and returns the value the user enters. If the parameter MNA is not the message name of a valid Prompt in the menu database, an error message is displayed on the user's terminal instead of the prompt, but the user is still asked to enter an integer. If the user enters anything but an valid real number or null carriage return, an error message is printed and the user is asked to reenter his response.

12.0 PROGRAM AND USER INTERFACE
12.2 EDL UTILITY ROUTINES

SUBROUTINE INTXT (MNA, TXT, ICH)
Call parameters

Argument	Type	I/O	Description
MNA	C*(*)	I	Message name of the prompt
TXT	C*(*)	O	User response string
ICH	I	O	Number of characters

Routine INTXT is used to prompt the user and return a text string to the calling program. MNA may be the name of either a prompt or an option menu. If MNA is a prompt, the user enters a text string. If an option menu, the first variable value of the menu line the user picks is returned in TXT.

ICH will indicate the number of characters returned in TXT. If the user enters a null carriage return, TXT will be blanked and ICH will be 0. If the user enters a blank line, ICH will be 1. If MNA is not a valid prompt or option menu, an error message will be printed but the user will still be required to enter a text response.

The following example subroutine will prompt the user with the message M1, and write the user's responses to lfn TAPE30.

```
      SUBROUTINE A
      CHARACTER * 50 RESP
      INTEGER ICH
      OPEN(30,FILE='TAPE30')
c     enter text or cr to return
10    CALL INTXT ( 'M1', RESP, ICH )
      IF ( ICH .GT. 0 ) THEN
         WRITE(30,11) RESP
         GO TO 10
      ENDIF
      CLOSE(30)
      RETURN
      END
```

SUBROUTINE INYN (MNA, YES)
Call parameters

Argument	Type	I/O	Description
MNA	C*(*)	I	Message name of the prompt
YES	L	O	Response True - "Y" or "YES" False- "N", "NO" or null cr

The routine INYN prompts the user to enter a YES or NO response. If MNA is not a valid prompt message, an error message is displayed, but the user is still prompted to enter "Y" or "N". If the user enters anything but a null carriage return, "Y", "YES", "N", or "NO", an error message is displayed and the user is reprompted.

CHARACTER FUNCTION LEFTJ(NUMBER)
Call Parameters

Argument	Type	I/O	Description
NUMBER	I	I	Number to be left justified
LEFTJ	C*(*)	O	Resulting left justified string

Function LEFTJ converts a number into a left justified character string.

SUBROUTINE LFSTAT (LFN, OK)
Call parameters

Argument	Type	I/O	Description
LFN	C*(*)	I	Local File Name
OK	C*(*)	O	true if the file is local

The routine LFSTAT determines whether a file is local.

SUBROUTINE LIST (MNA, INFO)
Call parameters -

ARQUMENT	TYPE	I/O	Description
MNA	C*(*)	I	Name of message menu for title
INFO	C*(*)	I	Text to be concatenated to message

Routine LIST concatenates a title (from the menu database, just give it the menu name) and its description and print it as a list. It only lists one line each time it is called. The position of the alignment is determined by the end of the title in the menu database.

EXAMPLE of list created with calls to "LIST"

```
code segment
      CALL LIST ( 'LSTUSR1', UIUSR )
      CALL LIST ( 'LSTUSR4', UVOUN )
      CALL LIST ( 'LSTUSR5', UIDPT )
```

resulting terminal output

```
    EDL USER ID  CADDATDEV
  NOS USER NAME  GL0234F
     DEPARTMENT  9087
```

SUBROUTINE LOCATT (LFN, PFN, FUN, MODE, DEF)

Call parameters

Argument	Type	I/O	Description
LFN	C*(*)	I	Local File Name
PFN	C*(*)	I	Permanent File Name
FUN	C*(*)	I	Username of File
MODE	C*(*)	I	Mode, R or W
DEF	L	I	TRUE if the file was attached as a default file, or should be automatically returned by the XLOG ovcap.

Routine LOCATT adds a local file to the list of EDL local files. It should be called every time a file is attached. It is probably more convenient to call the ACQUIR routine to attach the file. ACQUIR calls the ATTLOC routine after it attaches the file.

SUBROUTINE LOCINQ (LFN, PFN, FUN, MODE, FTD, DEF)

Call parameters

Argument	Type	I/O	Description
LFN	C*(*)	I	Local File Name
PFN	C*(*)	O	Permanent File Name
FUN	C*(*)	O	Username of File
MODE	C*(*)	O	Mode, R or W
FTD	C*(*)	O	File Type Name
DEF	L	O	True if the file was attached as a default file or will be returned by the XLOG ovcap.

Routine LOCINQ returns information about a local file.

SUBROUTINE LOCRET (LFN)

Call parameters

Argument	Type	I/O	Description
LFN	C*(*)	I	Local File Name

Routine LOCRET removes the information about a returned local

file from the EDL list of local files. LOCRET should be called every time a file is returned.

FUNCTION LSTCHR (STR)
Call parameters

Argument	Type	I/O	Description
STR	C*(*)	I	String to be examined
LSTCHR	I	O	Position of the last non-blank character in STR

Function LSTCHR works backwards from the end of a string to find the last non-blank character. This function can be used when you need to concatenate strings.

SUBROUTINE MSG (MNA)
Call parameters

Argument	Type	I/O	Description
MNA	C*(*)	I	Message name of desired message.

The routine MSG displays a message on the user's terminal. If MNA is not the message name of a valid message in the database, an error message is printed.

SUBROUTINE MSGSTR (MNA, MSG)
Call parameters

Argument	Type	I/O	Description
MNA	C*(*)	I	Menu name of desired message
MSG	C*(*)	O	Message Text

Routine MSGSTR returns the message text string. If MNA is not a valid message name, an error message is returned in MSG. This routine can be used to obtain a customizable "constant" from the message and task database.

SUBROUTINE NXTEDN (HOS, EDN, OK)
Call parameters

Argument	Type	I/O	Description
HOS	C*(*)	I	Host identifier
EDN	I	O	Next unused data identifier for the host
OK	L	O	Status Code, True if no error

Subroutine NXTEDN finds the next available data identifier for the host. It is used to find the correct DIEDN value before adding a new DI record.

The code sequence from calling NXTEDN to storing the new DI record should be enclosed in a parcel to prevent a different job from creating a DI record with the same EDN.

SUBROUTINE NXTFIL (HOS, FIL, OK)
Call parameters

Argument	Type	I/O	Description
HOS	C*(*)	I	Host identifier
FIL	I	O	Next unused file identifier for the host
OK	L	O	Status Code, True if no error

Subroutine NXTFIL finds the next available file identifier for the host. It is used to find the correct FIFIL value before adding a new FI record.

The code sequence from calling NXTFIL to storing the new FI record should be enclosed in a parcel to prevent a different job from creating a FI record with the same EDN.

SUBROUTINE OPTVAL (POS, VAL, OK)
Call parameters

Argument	Type	I/O	Description
POS	I	I	Option variable position
VAL	C*(*)	O	Value of the option variable
OK	L	O	Status True - A value was returned False- No variable in the position

Routine OPTVAL returns the value of an option variable which is associated to an option menu line selected by the user. The routine INOPT should have been successfully called before OPTVAL. If no option variable in the indicated position exists, VAL unchanged and OK is set to False.

SUBROUTINE PAUSE
No Parameters

Routine PAUSE displays the message ENTER CR TO CONTINUE, and

waits for the user to enter something. Any input is ignored. This routine can be used to allow a user to read a list of information before the next group of information scrolls it off the screen.

SUBROUTINE POPT
No Parameters

Routine POPT pops and discards all remaining processes of the current task from the execution stack. It is used to inhibit processing of succeeding processes when an error or condition is found that makes subsequent task processing meaningless.

SUBROUTINE PUTNAM (DINAM, DISID)
Call Parameters

Argument	Type	I/O	Description
DINAM	C*(*)	I	Data name
DISID	I	I	Sheet number

Subroutine PUTNAM user PUTVAR to store the name in DINAM in parameters NAME1 and NAME2, and DISID in parameter SHEET. This routine is used because a parameter value is limited to 40 characters, and the sheet number must be converted to a character string and left justified. This routine takes care of all that.

SUBROUTINE PUTNA2 (DINAM, DISID)

Subroutine PUTNA2 acts like PUTNAM except it sets parameters NAME12,NAME22, and SHEET2.

SUBROUTINE PUTVAR (NAME, VALUE)
Call Parameters

Argument	Type	I/O	Description
NAME	C*(*)	I	Variable name to set
VALUE	C*(*)	I	Variable value to set

Subroutine PUTVAR stores the value VALUE in EDL global variable NAME. VALUE is returned when EDL looks for a VARIABLE type parameter, or when the GETVAR subroutine is used.

The NAME parameter should be a character string 10 characters or less. Only 40 characters of the VALUE parameter are stored.

SUBROUTINE RETLIS(N,HEADER,VALUE,OK)
Call Parameters

Argument	Type	I/O	Description
N	I	I	The number of records on EEEDL12
HEADER	C*(*)	I	The message identifier for the table header
VALUE	C*(*)	O	The value chosen by the user
OK	L	O	TRUE if the user made a choice FALSE if the user chose EXIT

Subroutine RETLIS displays a selection list to the user and asks for a choice.

The selection list must be prepared by the calling program on Fortran unit 12 in a special way. The following example code displays a list of all part numbers in the database. Note that this is an unrealistic example, since in a production environment, such a list would be too long to use effectively.

```
C     (include the PI common blocks from EDLCOM)

      LOGICAL OK, OKPI
      OPEN(12,FILE=EEELIS,RECL=202,BUFL=65)
C     RECL must be at least the length of parameter VALUE + 132
C     in this case, length of PIPRT + 132 = 202.
C     BUFL should usually be kept as small as possible to
C     conserve memory, especially for short lists.
C
      N = 0
      CALL IBPIO ( OKPI )
10    CONTINUE
      IF ( OKPI ) THEN
         N = N + 1
         WRITE(12,20) PIPRT, PIPRT(1:30),PITTL
20       FORMAT(A,A,A)
         CALL IBNPIO ( OKPI )
      GO TO 10
      ENDIF
C
      CALL RETLIS ( N, 'HEADER1', PIPRT, OK )
C
```

```
      IF ( OK ) THEN
C        The user chose the line containing the
C        first 30 characters and the title of the part number
C        returned in PIPRT.
      ELSE
C        The user exited without a choice
      ENDIF
      CLOSE(12)
C     Be sure to close unit 12 to release the file buffer.
C     Otherwise memory fragmentation will occur and EDL may
C     abort later because of insufficient MFL.
```

Subroutine RETLIS processes the information on file EEEDL12 in the following manner:

1. The message 'N SELECTIONS' is printed, where N is the parameter above.
2. The message specified by HEADER is printed.
3. Each record on unit 12 is read.
4. The first I characters on each line (where I=len(VALUE)) are ignored.
5. The next 132 characters on the line are printed with a sequence number in front. i. e. "1. ADAMS, JOHN Q"
6. After NL lines are displayed (where NL is the number of lines on a screen), or the end of the list is reached, EDL prints the message:
   "ENTER A NUMBER, E OR EXIT TO EXIT, OR CR FOR MORE"
7. If the user:
   A. Enters a number J
      EDL rewinds EEEDL12 and reads VALUE from the Jth line of the file.
   B. Enters a null response
      EDL prints more of the list. If the list was ended, it is started over.
   C. Enters "E"
      OK is set to FALSE and control returns to the calling routine.
8. However, if the list contains only one possible selection, a null carriage return will select that single item.

SUBROUTINE USRPERM (FIL, USR, MODE)
Call Parameters

Argument	Type	I/O	Description
FIL	I	I	File Identifier
USR	C*(*)	I	User id

MODE	C*(*)	I	Mode R,W,I

Routine USRPERM issues a permit for the file and user in the indicated mode. The combinations of group permits and file categories are considered before issuing the appropriate file permit to the operating system.

13.0 UPDATE THE MESSAGE AND TASK DATABASE

13.1 INTRODUCTION

This task allows the administrator to perform task and message customizations to EDL. It operates by reading transaction records from a sequential input file which has been prepared by the administrator using a text editor such as FSE. The administrator should save all transaction files which have been applied to the default menu database, so that they may be re-applied when a new version of EDL is installed at the site.

There have been no changes to the message and task database structure between EDL 1.2.0 and EDL 1.2.3. Previous transaction files should work without major changes. However, some standard tasks have been reorganized, so if you have added task processes into existing EDL tasks, you should investigate whether the changes can still be applied correctly. Another change is that the TITYP field is now being used to restrict tasks in a multi-host network. Set TITYP to "MASTER" if the new tasks are administrative tasks which should be run only on the master host.

13.2 APPLYING TRANSACTION DATA

The standard data selection task is used to select the transaction file which is to be applied to the current running database. The transaction data must have been previously saved in EDL with file type "UPPER CASE TEXT FILE" and application data type "EDL MDB TRANSACTIONS" data.

If the user exits without selecting a transaction data set, control returns to the previous task. Otherwise, the menu database is updated, and EDL displays the following

confirmation message

*** FINISHED PROCESSING MDB TRANSACTIONS ***

*** PROCESSING DETAILS ARE ON LOCAL FILE MDBLIST ***

The user should check the messages on the MDBLIST file by routing it to a printer or by examining it with a text editor.

13.3 TRANSACTION FILE FORMAT

The format of the transaction file or the schema of the message and task database has not changed between EDL 1.2.0 and EDL 1.2.3.

All transaction records have a transaction code in column 1. The code is "A" for adding new records, "C" for changing records which already exist, or "D" for deleting records. Columns 3-4 contain the two character record identifier. Columns 11-120 contain the data items. In general, character fields are left justified on 10 character boundaries, and integer fields are right justified in 10 character fields. Tab settings of 3,11,21,31,41,51,61,71 will facilitate entering the data correctly using the full screen editor. Comment lines are indicated with a blank or asterisk in column 1.

The information below describes what should appear on the transaction file for each type of record. The field column shows the name used by the EDLMENUW external schema. The Type column is C for character fields, I for integers, or L for logical.

The Constraints column shows what may legally appear in the field. There are several kinds of constraints.

Unique More than one record may not exist in the database with the same value in the field.

Subset The record may not exist unless the field value matches another field value in another type of record.

Value One of the values within quotation marks must be in the field.

13.3.1 MI (MESSAGE INFORMATION)

This record is the header record for all prompts, menus, and error messages.

Field	Type	Length	Description	Constraints
Action	C	1	Action Code	"A","C","D"
	blank	1		
ID	C	2	Record Id.	"MI"
	blank	6		
MIMNA	C	10	Message Name	Unique
MITYP	C	10	Type	"PROMPT","MESSAGE", "ERROR", "OPTION", "TASK MENU"
MITTL	C	70	Title Text	

13.3.2 MH (MESSAGE HELP)

These records specify the help text for the message.

Field	Type	Length	Description	Constraints
Action	C	1	Action Code	"A","C","D"
	blank	1		
ID	C	2	Record Id.	"MH"
	blank	6		
MHMNA	C	10	Message Name	MIMNA
MHLIN	I	10	Line Number	Unique within the menu.
MHTXT	C	70	Text	

13.3.3 OM (OPTION MENU LINES)

These records specify the text which is displayed on option menu lines.

13.0 UPDATE THE MESSAGE AND TASK DATABASE
13.3.3 OM (OPTION MENU LINES)

Field	Type	Length	Description	Constraints
Action	C	1	Action Code	"A","C","D"
	blank	1		
ID	C	2	Record Id.	"OM"
	blank	6		
OMMNA	C	10	Message Name	MIMNA
OMMLN	I	10	Menu Line Number	
OMTXT	C	40	Text	

13.3.4 OK (OPTION KEYWORDS)

These records specify the keywords which may be used to choose an option menu line.

Field	Type	Length	Description	Constraints
Action	C	1	Action Code	"A","C","D"
	blank	1		
ID	C	2	Record Id.	"OK"
	blank	6		
OKMNA	C	10	Message Name	OMMNA
OKMLN	I	10	Menu Line	OMMLN
OKKEY	C	10	Keyword	Unique within the menu

13.3.5 OV (OPTION VALUES)

These records specify the value which is returned to the program when the user picks an option from an option menu.

Field	Type	Length	Description	Constraints
Action	C	1	Action Code	"A","C","D"
	blank	1		
ID	C	2	Record Id.	"OV"
	blank	6		
OVMNA	C	10	Message Name	OMMNA
OVMLN	I	10	Menu Line	OMMLN
OVPOS	I	10	Value Position	Usually=1, except when the option menu must return two or more values to the program.
OVVAL	C	40	Value	

13.3.6 TI (TASK INFORMATION)

This record is the header for EDL Tasks. For reasons of upward compatibility, it is recommended that new, similar tasks be created when customizing EDL rather than changing the standard tasks created by CDC.

Field	Type	Length	Description	Constraints
Action	C	1	Action Code	"A","C","D"
	blank	1		
ID	C	2	Record Id.	"TI"
	blank	6		
TITNA	C	10	Task Name	Unique
TISEC	C	10	Sec. Cat	Site Defined Security Category Code.
TITYP	C	10	Task Type	"MASTER" for tasks which cannot be run on subordinate hosts in an EDL database network. Otherwise, blank.
TIDSC	C	70	Description of	the Task

13.3.7 TC (TASK COMMANDS)

This record specifies the commands which may be used to invoke tasks. Note that the unique key field for change and delete is TCCMD, the second field, not the first.

Field	Type	Length	Description	Constraints
Action	C	1	Action Code	"A","C","D"
	blank	1		
ID	C	2	Record Id.	"TC"
	blank	6		
TCTNA	C	10	Task Name	TITNA
TCCMD	C	10	Command	Unique

13.3.8 TM (TASK MENU LINES)

This record specifies the menu lines which can be used to invoke tasks.

Field	Type	Length	Description	Constraints
Action	C	1	Action Code	"A","C","D"
	blank	1		
ID	C	2	Record Id.	"TM"
	blank	6		
TMMNA	C	10	Message Name	MIMNA
TMMLN	I	10	Menu Line	Unique within the menu
TMTXT	C	40	Text	
TMTNA	C	10	Task Name	TITNA

13.3.9 TP (TASK PROCESSES)

These records specify the parts of tasks, called processes, which are executed sequentially when a task is invoked.

Field	Type	Length	Description	Constraints
Action	C	1	Action Code	"A","C","D"
	blank	1		
ID	C	2	Record Id.	"TP"
	blank	6		
TPTNA	C	10	Task Name	TITNA
TPSEQ	I	10	Sequence Number	Unique within the task
TPTYP	C	10	Process Type	"TASK MENU", "OVCAP", "CCL PROC", or "TASK"
TPNAM	C	10	Name of Process	
TPFNA	C	7	File Name	For CCL procedures only, PFN of the Procedure file.
unused		3		
TPFUN	C	7	File Username	For CCL procedures only, NOS Username of the procedure file.

13.3.10 TV (TASK PARAMETER VALUES)

These records specify the parameters which are passed to CCL Procedures and EDL overlay capsules when they are executed as EDL task processes. Task parameters can also be used to answer prompts issued by EDL ovcaps.

Task parameters are one of 5 types.

CONSTANT The constant in the TVVAL field is passed to the process.

NULL A null response is passed to the process. This is equivalent to a carriage return with no other characters on the line.

PROMPT A menu or prompt with message name TVVAL is used to prompt the user for the value of the parameter.

VARIABLE The value of an EDL global variable with name TVVAL is passed to the process. The variable must have been previously initialized by an EDL ovcap.

CONFIG The parameter value passed to the process depends upon the user's terminal configuration. (CCL procedures only)

TRANSFER All of the standard variable parameters for transfer tasks are passed to the process. (CCL procedures only)

Field	Type	Length	Description	Constraints
Action	C	1	Action Code	"A","C","D"
	blank	1		
ID	C	2	Record Id.	"TV"
	blank	6		
TVTNA	C	10	Task Name	TPTNA
TVSEQ	I	10	Sequence Nr.	TPSEQ
TVPOS	I	10	Parameter Pos.	Unique within the process
TVPRM	C	10	Parameter Name	Must be an existing parameter or message name.
TVTYP	C	10	Type	"NULL","CONSTANT", "PROMPT", "VARIABLE", "CONFIG", or "TRANSFER".

13.0 UPDATE THE MESSAGE AND TASK DATABASE
13.3.10 TV (TASK PARAMETER VALUES)

TVVAL	C	40	Parameter Value

14.0 ENGINEERING DATABASE RECORD DEFINITION

14.1 SUMMARY OF CHANGES BETWEEN EDL 1.2.0 AND EDL 1.2.3

Added fields HIEDL and HIHOSS and access path HI4 to the Host Information (HI) record to implement networking.

Added the Communication Link (CL) record to define the RHF links available between hosts.

Added the User Validation (UV) record to define which users are validated on each host.

Removed the User's NOS Username field (UIUUN) from the UI record. This information is now found on the User Validation (UV) record.

Added the Part Revision (PR), Part Structure (PS), and Units of Measure Code (UM) records to implement the Part Structure List feature of EDL 1.2.3.

Added the Part Revision (PDREV) field to the Part Data Relationship (PD) record, and made the PD record dependent upon the Part Revision (PR) record instead of the Part Information (PI) record.

Removed the Long File Name (FILNA) from the File Information (FI) record. Increased the length of the FIPFN field to 100 characters. Increased the length of the FIFUN field to 31 characters. These changes allow identifiers for files on any type of operating system to be stored in the same fields.

Added the Message (ME), Message Line (ML), and Message Instance (MN) records to implement the Note Facility.

14.2 RECORDS USED TO CUSTOMIZE EDL

The following subsection describes all types of Engineering Data Database (DDB) records which are used to customize EDL. These records can be updated only via Query Update.

There are many other record types in the DDB which are updated while users run EDL. They are described in the next subsection.

14.2.1 AI APPLICATION INFORMATION

These records define the application systems under EDL and indicate which version is active.

Field	Type	Length	Description
AIAPN	C	20	Application Name
AIAPV	C	10	Application Version
AISTA	C	10	Status, ACTIVE or INACTIVE

Constraints
AIAPN,AIAPV is unique

Access Paths
AI0 by AIAPN,AIAPV
AI1 by AIAPN, duplicates sorted by AIAPV

14.2.2 AC APPLICATION CONFIGURATION

These records define parameters to be passed to the application depending on the user's terminal configuration.

Field	Type	Length	Description
ACAPN	C	20	Application
ACAPV	C	10	Applic. Version
ACATR	C	20	Terminal Attribute
ACSTA	C	20	Terminal State
ACPRM	C	10	Parameter Name
ACVAL	C	40	Parameter Value

14.0 ENGINEERING DATABASE RECORD DEFINITION
14.2.2 AC APPLICATION CONFIGURATION

Constraints
ACAPN,ACAPV,ACATR,ACSTA,ACPRM is unique
ACAPN,ACAPV is a subset of AIAPN,AIAPV

Access Paths
AC0 by ACAPN,ACAPV,ACATR,ACSTA,ACPRM
AC1 by ACAPN,ACAPV
AC2 by ACAPN,ACAPV,ACATR
AC3 by ACPRM
AC4 by ACAPN,ACAPV,ACATR,ACSTA, duplicates sorted by ACPRM

14.2.3 ET ENGINEERING CATEGORIES

These records define the engineering categories which are established by each site. Engineering Categories provide a way to describe and separate data based on how it is used in the engineering organization.

Field	Type	Length	Description
ETEDT	C	20	Engineering Category Code (formerly Engineering Data Type)
ETDSC	C	70	Description of the category (not used)

Constraints
ETEDT is unique.

Access Paths
ET0 by ETEDT

14.2.4 EA ENGINEERING ATTRIBUTES

These records specify which standard attributes the user will be prompted for if he or she chooses to be prompted for descriptors when updating EDL information for engineering data.

Field	Type	Length	Description
EAEDT	C	20	Engineering Category
EAATR	C	20	Attribute

14.0 ENGINEERING DATABASE RECORD DEFINITION
14.2.4 EA ENGINEERING ATTRIBUTES

Constraints
EAEDT,EAATR is unique.
EAEDT is subset of ETEDT

Access Paths
EA0 by EAEDT,EAATR
EA1 by EAEDT, duplicates sorted by EAATR
EA2 by EAATR

Cosets
ETEA joins ETEDT and EAEDT, duplicates sorted by EAATR

14.2.5 FT FILE TYPES

These records describe the types of files managed by EDL.

Field	Type	Length	Description
FTFTC	C	20	File Type Code (internal)
FTNAM	C	20	File Type Name (external)
FTAPN	C	20	Application which uses this file
FTLFN	C	7	Default Local File Name
FTLFNR	L		True if the default LFN is Required
FTCHR	C	1	Character Code, D-Display Code, A-Ascii, 8-8 Bit Ascii, B-Binary
FTPRT	L		Printable, True if the file has printer carriage control in column 1.
FTMUL	L		Multiple Data, True if more than one data set can be on the file.

Constraints
FTFTC is unique
FTNAM is unique

Access Paths
FT0 by FTFTC
FT1 by FTNAM
FT2 by FTLFN
FT3 by FTAPN, duplicates sorted by FTNAM

14.2.6 AT APPLICATION DATA TYPE

These records describe the types of data managed by EDL.

Field	Type	Length	Description
ATADT	C	20	Application Data Type Code (internal)
ATNAM	C	20	Application Data Type Name (external)
ATFTC	C	20	File Type Code where this type of data resides
ATTNA	C	10	Task Name used to retrieve this type of data
ATSIDR	L		True if a secondary id (sheet) is required to identify the data

Constraints
ATADT is unique
ATNAM is unique
ATFTC is a subset of FTFTC

Access Paths
AT0 by ATADT
AT1 by ATNAM
AT2 by ATFTC

14.2.7 TT TRANSFER AND TRANSLATION TASKS

These records specify which data tranfers are possible and the tasks used to perform the transfer.

Field	Type	Length	Description
TTADT1	C	20	Application Data Type Code of the source data
TTADT2	C	20	Application Data Type Code of the destination data
TTTNA	C	10	Task Name which performs the transfer

Constraints
TTADT1,TTADT2 is unique
TTADT1 is subset of ATADT
TTADT2 is subset of ATADT

Access Paths

14.0 ENGINEERING DATABASE RECORD DEFINITION
14.2.7 TT TRANSFER AND TRANSLATION TASKS

TT0 by TTADT1,TTADT2
TT1 by TTADT1
TT2 by TTADT2

Cosets
ATT1 joins ATADT and TTADT1
ATT2 joins ATADT and TTADT2

14.2.8 RT RELEASE TRANSFERS

These records specify which transfers are possible during the process of releasing Engineering Data.

Field	Type	Length	Description
RTADT1	C	20	Application Data Type of the source data
RTADT2	C	20	Application Data Type of the destination data

Constraints
RTADT1,RTADT2 is unique
RTADT1,RTADT2 is subset of TTADT1,TTADT2

Access Paths
RT0 by RTADT1,RTADT2

14.2.9 HI HOST INFORMATION

These records specify the host family codes of the computer systems at your site where data resides that you want to record in EDL.

Field	Type	Length	Description
HIHOS	C	10	Host Family ID. This field must be the logical host identifier (LID) for RHF.
HIOFF	I		Identifier Offset. All File and Data ids will be offset by this number to group all data for a single host together.
HIOS	C	10	Operating System, NOS, NOS/VE, etc.
HIEDL	L		True if the host runs EDL.

14.0 ENGINEERING DATABASE RECORD DEFINITION
14.2.9 HI HOST INFORMATION

HIHOSS	C	10	Superordinate or master host for this host.

Constraints
HIHOS is unique
HIOFF is unique
HOHOSS is a subset of HIHOS

Access Paths
HI0 by HIHOS
HI1 by HIOFF
HI2 by HIOS duplicates sorted by HIHOS

14.2.10 CL COMMUNICATION LINKS

These records specify RHF communication links.

Field	Type	Length	Description
CLHOSS	C	10	Host Family Sending.
CLHOSR	C	10	Host Family Receiving.

Constraints
CLHOSS,CLHOSR is unique
CLHOSS is a subset of HIHOS
CLHOSR is a subset of HIHOS

Access Paths
CL0 by CLHOSS,CLHOSR
CL1 by CLHOSS duplicates sorted by CLHOSR
CL2 by CLHOSR duplicates sorted by CLHOSS

14.2.11 UM UNITS OF MEASURE CODES

These records define the valid codes or abbreviations for the units of measure field in the PS record.

Field	Type	Length	Description
UMUMC	C	10	Units of Measure Code

Constraints

14.0 ENGINEERING DATABASE RECORD DEFINITION
14.2.11 UM UNITS OF MEASURE CODES

UMUMC is unique

UMO by UMUMC

14.3 RECORDS UPDATED BY EDL

This subsections describes the records in the Engineering Data Database that are updated as the EDL users and administrators use EDL functions. They are described here for reference. You may wish to write Query Update reports that use these fields, or write customized EDL code to read and manipulate them.

14.3.1 UI USER INFORMATION

These records establish EDL users and all relevant information about them.

Field	Type	Length	Description
UIUSR	C	10	EDL Id of the User
UIPWD	C	10	EDL Password of the user
UISTA	C	10	Status, "ACTIVE" or "INACTIVE"
UIDPT	C	20	Department
UPCMD	C	10	First Task Command
UIFIN	C	10	First Name or Initial
UIMIN	C	10	Middle Name or Initial
UILNF	C	20	Last Name
UITTL	C	40	Title
UIDELS	C	1	String Delimiter
UIDELD	C	1	Dialogue Delimiter
UISTR	C	70	Street Address
UICTY	C	70	City,State,Zip
UIPHO	C	20	Phone Number
UIEDT	C	10	Editor

Constraints
UIUSR is unique

Access Paths
UIO by UIUSR

14.0 ENGINEERING DATABASE RECORD DEFINITION
14.3.1 UI USER INFORMATION

UI1 by UILNA,UIFIN,UIMIN

14.3.2 UV USER VALIDATION

These records track which users are validated to use EDL on each host.

Field	Type	Length	Description
UVHOS	C	10	Host Id.
UVUSR	C	10	EDL User Id.
UVOUN	C	31	Operating System Username the user runs on on the Host.

Constraints
UVHOS,UVUSR is unique
UVHOS is subset of HIHOS
UVUSR is subset of UIUSR

Access Paths
UV0 by UVHOS,UVUSR
UV1 by UVHOS,UVUSR,UVOUN
UV2 by UVHOS,UVOUN
UV3 by UVUSR duplicates sorted by UVHOS
UV4 by UVHOS duplicates sorted by UVUSR

Cosets
UIUV joins UIUSR and UVUSR
HIUV joins HIHOS and UVHOS

14.3.3 GI GROUP INFORMATION

These records define groups of EDL users.

Field	Type	Length	Description
GIGRP	C	20	Group Id
GIGRPO	C	20	Id of the Owning Group
GIUSRA	C	10	EDL Id of the Group Administrator
GITTL	C	70	Group Title

Constraints

14.0 ENGINEERING DATABASE RECORD DEFINITION
14.3.3 GI GROUP INFORMATION

GIGRP is unique
GIGRPO is subset of GIGRPO
GIUSRA is subset of UIUSR

Access Paths
GI0 by GIGRP
GI1 by GIGRPO, duplicates sorted by GIGRP
GI2 by GIUSRA

Cosets
GIGI joins GIGRP and GIGRP
UIGI joins UIUSR and GIUSR

14.3.4 GM GROUP MEMBERS

These records establish members for groups that have already been defined in EDL.

Field	Type	Length	Description
GMGRP	C	20	Group Id
GMUSR	C	10	EDL Id of the Member

Constraints
GMGRP, GMUSR is unique
GMGRP is subset of GIGRP
GMUSR is subset of UIUSR

Access Paths
GM0 by GMGRP, GMUSR
GM1 by GMGRP, duplicates sorted by GMUSR
GM2 by GMUSR, duplicated sorted by GMGRP

Cosets
GIGM joins GIGRP and GMGRP, duplicates sorted by GMUSR
UIGM joins UIUSR and GMUSR, duplicates sorted by GMGRP

14.3.5 GS GROUP SECURITY AUTHORIZATION

These records specify which task categories the members of the group are authorized to invoke.

Field	Type	Length	Description
GSGRP	C	20	Group Id
GSSEC	C	10	Task Security Category

Constraints
GSGRP, GSSEC is unique
GSGRP is subset of GIGRP

Access Paths
GS0 by GSSEC, GSGRP
GS1 by GSGRP

Cosets
GIGS joins GIGRP and GSGRP

14.3.6 PI PART INFORMATION

These records establish the part numbers to be used in EDL.

Field	Type	Length	Description
PIPRT	C	70	Part Number
PITTL	C	100	Part Title

Constraints
PIPRT is unique

Access Paths
PI0 by PIPRT

14.3.7 FM FAMILY INFORMATION

These records establish the family codes to be associated with part numbers.

14.0 ENGINEERING DATABASE RECORD DEFINITION
14.3.7 FM FAMILY INFORMATION

Field	Type	Length	Description
FMFAM	C	40	Family Code
FMTTL	C	70	Family Title

Constraints
FMFAM is unique

Access Paths
FM0 by FMFAM

14.3.8 PF PART FAMILY

These records establish the relationships between part numbers and family codes.

Field	Type	Length	Description
PFPRT	C	70	Part Number
PFFAM	C	40	Family Code

Constraints
PFPRT, PFFAM is unique
PFPRT is subset of PIPRT
PFFAM is subset of FMFAM

Access Paths
PF0 by PFPRT, PFFAM
PF1 by PFFAM, duplicates sorted by PFPRT
PF2 by PFPRT, duplicates sorted by PFFAM

Cosets
FMPF joins FMFAM and PFFAM
PIPF joins PIPRT and PFPRT

14.3.9 VI VENDOR INFORMATION

These records establish the vendor names and vendor codes to be associated with part numbers in EDL.

Field	Type	Length	Description
VIVEN	C	20	Vendor Code

14.0 ENGINEERING DATABASE RECORD DEFINITION
14.3.9 VI VENDOR INFORMATION

VINAM	C	70	Vendor Name
VISTR	C	70	Street Address
VICTY	C	70	City, State, Zip
VIPHO	C	20	Phone Number

Constraints
VIVEN is unique
VINAM is unique

Access Paths
VI0 by VIVEN
VI1 by VINAM

14.3.10 PV PART VENDORS

These records establish the relationships between part numbers and vendor codes.

Field	Type	Length	Description
PVPRT	C	70	Part Number
PVVEN	C	20	Vendor Code

Constraints
PVPRT, PVVEN is unique
PVPRT is subset of PIPRT
PVVEN is subset of VIVEN

Access Paths
PV0 by PVPRT, PVVEN
PV1 by PVPRT, duplicates sorted by PVVEN
PV2 by PVVEN, duplicates sorted by PVPRT

Cosets
PIPV joins PIPRT and PVPRT
VIPV joins VIVEN and PVVEN

14.3.11 PR PART REVISION

These records define the revision levels for each part.

14.0 ENGINEERING DATABASE RECORD DEFINITION
14.3.11 PR PART REVISION

Field	Type	Length	Description
PRPRT	C	70	Part Number
PRREV	C	10	Revision Level
PRECO	C	20	Engineering Change Order number
PRSTA	C	10	Status of the Part Revision (WORKING,RELEASED)
PRAUX	C	100	Auxiliary field for site customization, not used by EDL.

Constraints
PRPRT,PRREV is unique.
PRPRT is subset of PIPRT

Access Paths
PR0 by PRPRT,PRREV
PR1 by PRPRT duplicates sorted by PRREV
PR2 by PRECO duplicates sorted by PRPRT,PRREV

Cosets
PIPR joins PIPRT and PRPRT

14.3.12 PS PART STRUCTURE

These records define the structure of part assemblies.

Field	Type	Length	Description
PSPRTP	C	70	Parent Part Number
PSREV	C	10	Revision Level of Parent Part
PSPRTC	C	70	Component Part Number
PSSEQ	I		Part List Sequence Number
PSUMC	C	10	Units of Measure
PSQTY	F		Quantity
PSAUX	C	100	Auxiliary field for site customization, not used by EDL.

Constraints
PSPRTP,PSREV,PSPRTC is unique.
PSPRTP,PSREV,PSSEQ is unique.
PSPRTP,PSREV is subset of PSPRT,PSREV
PSPRTC is subset of PIPRT
PSUMC is subset of UMUMC

Access Paths

14.0 ENGINEERING DATABASE RECORD DEFINITION
14.3.12 PS PART STRUCTURE

PS0 by PSPRTS,PSREV,PSPRTC
PS1 by PSPRTC duplicates sorted by PSPRTP,PSREV
PS2 by PSPRTP,PSREV duplicates sorted by PSPRTC
PS3 by PSPRTP duplicates sorted by PSREV
PS4 by PSPRTP,PSREV,PSSEQ
PS4 by PSPRTP,PSREV duplicates sorted by PSSEQ

Cosets
PRPS joins PSPRTP,PSREV and PRPRT,PRREV duplicates sorted by PS
PIPS joins PIPRT and PSPRTC

14.3.13 UC USER CONFIGURATION

These records define the states for a user's terminal configuration attributes.

Field	Type	Length	Description
UCUSR	C	10	Edl Id of the User
UCATR	C	20	Attribute
UCSTA	C	20	State

Constraints
UCUSR, UCATR is unique
UCUSR is subset of UIUSR

Access Paths
UC0 by UCUSR, UCATR
UC1 by UCUSR

Cosets
UIUC joins UIUSR and UCUSR

14.3.14 DF DEFAULT FILES

These records establish which files will be automatically attached when a user enters a specific application.

Field	Type	Length	Description
DFUSR	C	10	EDL Id of the User
DFAPN	C	20	Application Name

14.0 ENGINEERING DATABASE RECORD DEFINITION
14.3.14 DF DEFAULT FILES

DFFIL	I		File Number of the File
DFLFN	C	7	Local File Name
DFMOD	C	1	NOS Mode for the File

Constraints
DFUSR, DFAPN, DFFIL is unique
DFUSR, DFAPN, DFLFN is unique
DFUSR is subset of UIUSR
DFAPN is subset of ACAPN
DFFIL is subset of FIFIL

Access Paths
DF0 by DFUSR, DFAPN, DFLFN
DF1 by DFUSR, DFAPN, DFFIL
DF2 by DFUSR, DFAPN, duplicates sorted by DFLFN
DF3 by DFUSR, duplicates sorted by DFAPN and then by DFLFN
DF4 by DFFIL

14.3.15 FI FILE INFORMATION

These records establish files to be managed by EDL.

Field	Type	Length	Description
FIFIL	I		File Number
FIHOS	C	10	File Host
FIFUN	C	31	Operating System Username
FIPFN	C	100	Permanent File Name
FIFTC	C	20	File Type Code
FIUSR	C	10	EDL Id of the Owner
FICT	C	2	NOS Category, "PR" or "PU"
FIMOD	C	1	Permission Mode, "R", "W", or "I"
FISTA	C	10	File Status
FIVSN	C	6	Volume Serial Number of Archive Tape

Constraints
FIFIL is unique
FIHOS, FIFUN, FIPFN is unique
FIHOS is subset of HIHOS
FIFTC is subset of FTFTC
FIUSR is subset of UIUSR

Access Paths
FI0 by FIFIL

14.0 ENGINEERING DATABASE RECORD DEFINITION
14.3.15 FI FILE INFORMATION

FI1 by FIHOS, FIFUN, FIPFN
FI2 by FIUSR, duplicates sorted by FIHOS,FIFUN,FIPFN,FILNA
FI3 by FIHOS, FIFUN
FI4 by FIFTC
FI5 by FIHOS

Cosets
UIFI joins UIUSR and FIUSR
HIFI joins HIHOS and FIHOS

14.3.16 GP GROUP PERMITS

These records establish file permits for groups.

Field	Type	Length	Description
GPFIL	I		File Number
GPGRP	C	20	Group Id
GPMOD	C	1	Permission Mode, "R", "W", or "I"

Constraints
GPFIL, GPGRP is unique
GPFIL is subset of FIFIL
GPGRP is subset of GIGRP

Access Paths
GP0 by GPFIL, GPGRP
GP1 by GPFIL, duplicates sorted by GPGRP
GP2 by GPGRP

Cosets
FIGP joins FIFIL and GPFIL
GIGP joins GIGRP and GPGRP

14.3.17 UP USER PERMITS

These records establish individual user file permits.

Field	Type	Length	Description
UPFIL	I		File Number
UPUSR	C	10	EDL Id of the User

14.0 ENGINEERING DATABASE RECORD DEFINITION
14.3.17 UP USER PERMITS

UPMOD	C	1	Permission Mode, "R", "W", or "I"

Constraints
UPFIL, UPUSR is unique
UPFIL is subset of FIFIL
UPUSR is subset of UIUSR

Access Paths
UP0 by UPFIL, UPUSR
UP1 by UPFIL, duplicates sorted by UPUSR
UP2 by UPUSR

Cosets
FIUP joins FIFIL and UPFIL
UIUP joins UPUSR and UPUSR

14.3.18 FP FILE PERMITS

These records are the result of the Group Permit and User Permit records.

Field	Type	Length	Description
FPFIL	I		File Number
FPUSR	C	10	EDL Id of User
FPMOD	C	1	Permission Mode, "R", "W", or "I"

Constraints
FPFIL, FPUSR is unique
FPFIL is subset of FIFIL
FPUSR is subset of UIUSR

Access Paths
FP0 by FPFIL, FPUSR
FP1 by FPFIL
FP2 by FPUSR

Cosets
FIFP joins FIFIL and FPFIL
UIFP joins UIUSR and FPUSR

14.3.19 PP PENDING PERMITS

These records contain information about files for which NOS permits will be issued as soon as the owner of the file logs into EDL.

Field	Type	Length	Description
PPFIL	I		File Number
PPUUN	C	7	NOS Username of the user to be permitted
PPMOD	C	1	Permission Mode, "R", "W", or "I"
PPFUN	C	7	NOS Username of the owner of the file

Constraints
PPFIL, PPUUN is unique
PPFIL is subset of FIFIL

Access Paths
PP0 by PPFIL, PPUUN
PP1 by PPUUN
PP2 by PPFUN
PP3 by PPFIL

14.3.20 DI DATA INFORMATION

These records establish the data that EDL manages.

Field	Type	Length	Description
DIEDN	I		Engineering Data Number
DIFIL	I		File Number
DINAM	C	70	Data Name
DISID	I		Secondary Id
DIADT	C	20	Application Data Type
DIEDT	C	20	Engineering Category
DIUSR	C	10	EDL Id of the Creator
DIREV	C	10	Revision Level
DISTA	C	10	Status
DIDATC	C	10	Date of Creation
DIDATM	C	10	Date Last Modified
DIDATR	C	10	Date Last Retrieved
DITTL	C	100	Title
DITIMC	C	10	Time of Creation
DITIMM	C	10	Time of Modification

14.0 ENGINEERING DATABASE RECORD DEFINITION
14.3.20 DI DATA INFORMATION

DITIMR	C	10	Time Retrieved

Constraints
DIEDN is unique
DIFIL, DINAM, DISID is unique
DIFIL is subset of FIFIL
DIADT is subset of ATADT
DIEDT is subset of ETEDT
DIUSR is subset of UIUSR

Access Paths
DI0 by DIEDN
DI1 by DINAM, duplicates sorted by DISID and then by DIREV
DI2 by DIFIL, duplicates sorted by DINAM, DISID, and DIREV
DI3 by DINAM ,DISID, DIFIL
DI4 by DIEDT
DI5 by DIADT
DI6 by DIUSR

Cosets
FIDI joins FIFIL and DIFIL
ETDI joins ETEDT and DIEDT
ATDI joins ATADT and DIADT

14.3.21 DD DATA DESCRIPTOR

These records establish attribute/value pairs for data in EDL.

Field	Type	Length	Description
DDEDN	I		Engineering Data Number
DDATR	C	20	Attribute
DDVAL	C	20	Value

Constraints
DDEDN, DDATR, DDVAL is unique
DDEDN is subset of DIEDN

Access Paths
DD0 by DDEDN, DDATR, DDVAL
DD1 by DDEDN, duplicates sorted by DDATR
DD2 by DDATR, DDVAL
DD3 by DDEDN, DDATR

14.0 ENGINEERING DATABASE RECORD DEFINITION
14.3.21 DD DATA DESCRIPTOR

Cosets
DIDD joins DIEDN and DDEDN

14.3.22 PD PARTS DATA

These records establish the relationships between engineering data and part revisions.

Field	Type	Length	Description
PDPRT	C	70	Part Number
PDREV	C	10	Part Revision Level
PDEDN	I		Engineering Data Number

Constraints
PDPRT, PDEDN is unique
PDPRT,PDREV is subset to PRPRT,PRREV
PDEDN is subset to DIEDN

Access Paths
PD0 by PDEDN, PDPRT
PD1 by PDPRT, duplicates sorted by PDREV
PD2 by PDPRT,PDREV
PD3 by PDEDN, duplicates sorted by PDPRT,PDREV

Cosets
PIPD joins PIPRT and PDPRT
PRPD joins PRPRT and PDPRT
DIPD joins DIEDN and PDEDN

14.3.23 FD FAMILY DATA

These records establish the relationship between family codes and engineering data.

Field	Type	Length	Description
FDFAM	C	40	Family Code
FDEDN	I		Engineering Data Number

Constraints

14.0 ENGINEERING DATABASE RECORD DEFINITION
14.3.23 FD FAMILY DATA

FDFAM, FDEDN is unique
FDFAM is subset of FMFAM
FDEDN is subset of DIEDN

Access Paths
FD0 by FDFAM, FDEDN
FD1 by FDFAM
FD2 by FDEDN

Cosets
FMFD joins FMFAM and FDFAM
DIFD joins DIEDN and FDEDN

14.3.24 DR DATA REQUIRED

These records establish relationships between one data set and any other data sets which must be available for the current data to be complete.

Field	Type	Length	Description
DREDN	I		Engineering Data Number
DREDNR	I		Engineering Data Number of Required Data

Constraints
DREDN, DREDNR is unique
DREDN is subset of DIEDN
DREDNR is subset of DIEDN

Access Paths
DR0 by DREDN, DREDNR
DR1 by DREDN
DR2 by DREDNR

Cosets
DDR1 joins DIEDN and DREDN
DDR2 joins DIEDN and DREDR

14.3.25 DS DATA SOURCE

These records establish relationships between one data set and any other data sets from which the current data was derived.

Field	Type	Length	Description
DSEDN	I		Engineering Data Number
DSEDNS	I		Engineering Data Number of Source Data

Constraints
DSEDN, DSEDNS is unique
DSEDN is subset of DIEDN
DSEDNS is subset of DIEDN

Access Paths
DS0 by DSEDN, DSEDNS
DS1 by DSEDN
DS2 by DSEDNS

Cosets
DDS1 joins DIEDN and DSEDN
DDS2 joins DIEDN and DSEDNS

14.3.26 RP RELEASE PROCEDURE

These records establish the release procedures to be used for releasing engineering data. The release procedures are uniquely defined at the site.

Field	Type	Length	Description
RPREL	C	20	Release Procedure Name

Constraints
RPREL is unique

Access Paths
RP0 by RPREL

14.3.27 RU RELEASERS

These records define the releasers for each release procedure.

Field	Type	Length	Description
RUREL	C	20	Release Procedure Name
RUUSR	C	10	EDL Id of the Releaser

Constraints
RUREL, RUUSR is unique
RUREL is subset of RPREL
RUUSR is subset of UIUSR

Access Paths
RU0 by RUREL, RUUSR
RU1 by RUREL
RU2 by RUUSR

Cosets
RPRU joins RPREL and RUREL
UIRU joins UIUSR and RUUSR

14.3.28 RR REVIEW RESPONSIBILITY

These records define the reviewers for each release procedure and the order in which they are to review the data.

Field	Type	Length	Description
RRREL	C	20	Release Procedure Name
RRUSR	C	10	EDL Id of the Reviewer
RRTTL	C	20	Review Title
RRSEQ	I		Review Sequence
RRPRI	C	10	Review Priority

Constraints
RRREL, RRUSR, RRTTL is unique
RRREL is subset of RPREL
RRUSR is subset of UIUSR

Access Paths

14.0 ENGINEERING DATABASE RECORD DEFINITION
14.3.28 RR REVIEW RESPONSIBILITY

RR0 by RRREL, RRUSR, RRTTL
RR1 by RRREL, duplicates sorted by RRSEQ
RR2 by RRREL, RRSEQ, duplicates sorted by RRTTL
RR3 by RRUSR

Cosets
RPRR joins RPREL and RRREL
UIRR joins UIUSR and RRUSR

14.3.29 RA RELEASE AUTHORIZATION

These records establish all release information about engineering data sets.

Field	Type	Length	Description
RAREL	C	20	Release Procedure Name
RAEDN	I		Engineering Data Number of the Releaser's Copy
RAEDNC	I		Engineering Data Number of the Designer's Copy
RAUSR	C	10	EDL Id of the Releaser who accepted the data
RASTA	C	10	Status
RADAT	C	10	Date on which the data was released or rejected

Constraints
RAREL, RAEDN is unique
RAREL is subset of RPREL
RAEDN is subset of DIEDN
RAEDNC is subset of DIEDN
RAUSR is subset of UIUSR

Access Paths
RA0 by RAREL, RAEDN
RA1 by RAEDN
RA2 by RAREL
RA3 by RAUSR
RA4 by RAEDNC

Cosets
DIRA joins DIEDN and RAEDN
RPRA joins RPREL and RAREL

14.0 ENGINEERING DATABASE RECORD DEFINITION
14.3.29 RA RELEASE AUTHORIZATION

UIRA joins UIUSR and RAUSR
D2RA joins DIEDN and RAEDNC

14.3.30 RS RELEASE SIGNATURE

These records establish the stamp that each reviewer puts on data once he has reviewed it.

Field	Type	Length	Description
RSEDN	I		Engineering Data Number
RSREL	C	20	Release Procedure Name
RSUSR	C	10	EDL Id of the reviewer signing
RSTTL	C	20	Review Title of the reviewer signing
RSDAT	C	10	Date on which the reviewer signed the data
RSSTP	C	10	Stamp that the reviewer gave the data

Constraints
RSEDN, RSREL, RSUSR, RSTTL is unique
RSEDN, RSREL is subset of RAEDN, RAREL
RSUSR is subset of UIUSR

Access Paths
RS0 by RSEDN, RSREL, RSUSR, RSTTL
RS1 by RSEDN, RSREL, duplicates sorted by RSDAT
RS2 by RSUSR

Cosets
UIRS joins UIUSR and RSUSR
RARS joins RAREL,RAEDN and RSREL,RSEDN

14.3.31 ME MESSAGES

These records define messages sent by a user.

Field	Type	Length	Description
MEMSG	I		Message Number
MEUSR	C	10	User Sending the Message.
MEDAT	C	10	System Date the Message Was Created.
METIM	c	10	System Time the Message Was Created.

14.0 ENGINEERING DATABASE RECORD DEFINITION
14.3.31 ME MESSAGES

Constraints
MEMSG is unique
MEUSR is subset of UIUSR

Access Paths
ME0 by MEMSG
ME1 by MEUSR duplicates sorted by MEUSR

Coset
UIME joins UIUSR and MEUSR

14.3.32 MN MESSAGE INSTANCE

These records define each user receiving a message, and whether the message has been read by that user.

Field	Type	Length	Description
MNMSG	I		Message Number
MNUSR	C	10	User Receiving the Message
MNSTA	L		Status. True if the user has read the message.

Constraints
MNMSG,MNUSR is unique
MNMSG is subset of MEMSG
MNUSR is subset of UIUSR

Access Paths
MN0 by MMMSG,MNUSR
MN1 by MNUSR duplicates ordered by MNMSG
MN2 by MNUSR,MNSTA duplicates ordered by MNMSG
MN3 by MNMSG duplicates ordered by MNUSR

Coset
MEMN joins MEMSG and MMMSG

14.3.33 MN MESSAGE LINES

These records define the text of each message.

14.0 ENGINEERING DATABASE RECORD DEFINITION
14.3.33 MN MESSAGE LINES

Field	Type	Length	Description
MLMSG	I		Message Number
MLLIN	I		Line Number
MLTXT	C	79	Text

Constraints
MLMSG,MLLIN is unique
MLMSG is subset of MEMSG

Access Paths
ML0 by MLMSG,MLLIN
ML1 by MLMSG duplicates ordered by MLLIN

Coset
MEML joins MEMSG and MLMSG

15.0 EDL STANDARD OVERLAY CAPSULES

15.1 GENERIC APPLICATION INTERFACE

XATTACH Attach Files Before Entering an Application.

APPNAME Name of the Application.
REQFILE File Type Code of required file. There may be up to 10 TV records with this name.

Attach default files. Check for and attach required files. Allow user to attach alternate files.

XLOG Process the standard EDL log file to update information about engineering data in the EDL database.

XNEWDAT Create New Data.

ADT Application Data Type of the new data. (required)

Determine the file for the new data. Prompts for the name of the data with prompt NEWDAT4 and secondary id with prompt NEWDAT5. Creates a generic EDL log file entry to be processed later by subroutine XLOG if the data is successfully created. Sets EDL global variables PFN, UN, NAME1, NAME2, SHEET.

XPUTLOG Create a log file entry for Retrieved Data.

ACTION Action code. If absent, "A" is assumed.

The data must have been selected by XRETREV.

XATTDAT Attach the file with the last engineering data.

Attaches the current file specified by the PFN and UN Task Parameter Value records. Updates the EDL list of local files.

15.2 SPECIFIC APPLICATION INTERFACE

XEDITF Prepare to Edit a data file that was selected by XRETREV or XDISPLA.

Attaches the file. Sets EDL global variables EDITOR, LFN, CODE. Should be followed by CCL procedure EDIT.

XEDITR Return a retrieved text file after editing.

XDDNPRE Preprocessing for ICEM DDN. Attach the retrieved data file.

XSUSDDN Process a suspended DDN session. Renames ZZZSWAP and TAPE3.

XRESDDN Resume a DDN Session. Restores ZZZSWAP and TAPE3.

XISMPRE Preprocess for entering the ICEM Solid Modeler. Create the input script file.

XISMNEW Prepare for creating a new solid model.

Prompt for Solid Modeler Library file. Creates the EDL global variables PFN, UN.

XSCHPRE Prepare to run ICEM Schematics. Attach the Schematics file for the selected data.

XOIRPRE Prepare Input Script for DDN from OIR interface file.

XDDNLOG Convert the DDN EDLLOG file to standard EDL format.

XISMLOG Convert the Solid Modeler Log file to Standard EDL format.

XSCHLOG Convert the ICEM Schematics EDLLOG file to standard

EDL log file format.

XFEMLOG Convert Unistruc EDLLOG file to standard EDL log file format.

XIGBLK Prompt for External IGES blocking factor and set global variable BLKF.

XPLOTN Prompt for Plot Destination and set global variable DEST.

XPLOTNP Prompt for LFN of NPFILE and set global variable LFN.

XPLOTDD Check to be sure a TAPE9 file is local.

XPLOTUS Prompt for LFN of unistruc plot file and set global variable LFN.

XPATPRE Prepare to Execute PATRAN.

15.3 RETRIEVE

XRETREV Retrieve Engineering data.

This ovcap is a convenient combination of XEXTRAC and XDISPLA.

XEXTRAC Extract information for a data retrieval list.

If the following parameters are specified in TV records, the data that the user is allowed to retrieve is restricted to match the value of the parameter. If more than one TV record is specified for a parameter name, any data that matches any of those TV values will be eligible.

The following TV parameters are used by XEXTRAC:

ADT	Application Data Type (DIADT). 100 Max.
EDT	Engineering Category (DIEDT). 100 Max.
STATUS	Status of the Data (DISTA). 20 Max.
USR	Owner of the Data (FIUSR). 10 Max.

EXSCOPE Scope of the data to appear on the selection list.
- ALL (default) Eligible data from any host in the network will appear on the list.
- LOCAL Only data residing on the local host appears on the list.
- UPDATE Only data which can be updated from the local host appears. That is, the data must be on the local host or on a non-EDL host managed by the local host.

XDISPLA Display a data retrieval list. Used by XRETREV.

SELECT Restricts the data which may be chosen from the retrieval list.
ALL;(default) Any data from the list may be selected.
LOCAL;Only data residing on the local host may be selected.

INTENT Tells EDL the mode in which data will be attached.
I Information mode--the data need not be attached at all.
R Read mode--the file will be read but not changed, as in a transfer.
W Write mode--the user will be allowed to make changes to the data.

After the user has selected engineering data to be retrieved, the following EDL global variables are set: EDN, PFN, UN, HOS, OS, NAME1, NAME2, SHEET, DD.

XGETAPN Get the Application for Retrieved Data. Pushes the retrieval task for the selected type of data onto the execution stack.

15.4 TRANSFER ENGINEERING DATA

XTRANSF Transfer Engineering Data.

The data to be transferred must be selected by the XRETREV overlay capsule. XTRANSF creates the following EDL global variables: HOS2, OS2, PFN2, UN2, NAME12, NAME22, SHEET2, RENAME, EDN2. For transfers between hosts, it creates the following EDL global variables: BID, BPW, BID2,BPW2.

RELEASE If the transfer is performed to finalize a release, this TV record must be specified and its value must be the name of the release procedure.

ACCEPT If the transfer is performed to accept submitted data for release, this TV record must be specified and its value must be the name of the release procedure.

DISTA2 Status of the new data. If this TV record is specified, the DISTA field of the destination data is given the parameter value. Otherwise, the DISTA field will be "WORKING".

FISTA2 Status of the destination file. If this TV record is specified, the FISTA field of the destination data must be the parameter value. Otherwise, the FISTA field will be "WORKING".

XDELDI2;Delete Destination Data Records if a Transfer Fails.

;Needs EDL global variables PFN2, UN2, NAME12, NAME22, SHEET2.

15.5 RELEASE PROCEDURE

15.5.1 SUBMIT

XRELS Submit Data to a Release Procedure.

The Data to be submitted must have been selected by the XRETREV ovcap.

Prompts for the name of the release procedure. Creates the Release Authorization record. The status of the data and the release authorization is set to the title of the message SUBMITTED ("SUBMITTED"). Grants permissions to releasers and reviewers.

15.5.2 ACCEPT

XRELACC Prepare to Accept Submitted Data.

Prompts for the release procedure name. Sets EDL global variable REL to the name of the release procedure. Creates a selection list of all data that has been submitted to the release procedure. Should be followed by ovcap XDISPLA to display the list and allow selection.

XRELTRA Accept Submitted Data.

The data must have been selected by ovcap XDISPLA or XRETREV. The global variable REL must contain the name of the release procedure.

The status of the release authorization is set to the title of the message PENDING (PENDING). The status of the designer's working data is set to the title of message RELTRAN4 (COPY PEND).

May be followed by ovcap XTRANSF to copy the working data to a pending file.

15.5.3 REVIEW

XRELREV Prepare for Review Pending Data.

Extracts a retrieval list of all pending data the user is due to review. Sets the EDL global variable REL to the name of the release procedure. The Data list may be displayed and selected in the XDISPLA

ovcap.

XRELR Prompt whether to display the data being reviewed. Push the retrieval task onto the execution task for immediate execution.

XRELRS Prompt for review disposition and store the release signature.

XRELCHG Prepare to Change a Review Signature.

Prompts for release procedure and reviewer title. Set EDL global variables REL and TTL. Creates a retrieval list of all data the user has previously signed.

Should be followed by ovcap XDISPLA to display the list and allow selection.

XRELCS Change Review Disposition on Review Signature.

The data must have been selected in ovcap XDISPLA or XRETREV. The release procedure must be in variable REL. The reviewer's title must be in global variable TTL.

Prompts for the new disposition and changes the RS record.

15.5.4 FINALIZE

XRELFIN Prepare to Finalize Release.

Creates a data retrieval list of all pending data which the releaser may release. Sets EDL global variable REL to the name of the release procedure. Follow by ovcap XDISPLA to display the list and allow selection.

XRELF Finalize or Reject Data.

The Data must have been selected with the XRETREV or XDISPLA ovcap. The REL variable must contain the

name of the release procedure.

If Finalized, the release authorization status is set to the value of the message RELEASED, and the status of the pending data and the designer's working data is set to the title of message RELTRF2 (COPY REL).

If Rejected, the status of the release authorization and the pending data is set to the value of the message RELFRJ0 (REJECTED), and the the status of the designer's working data is set to the title of message RELFRJ0A (COPY REJ).

May be followed by ovcap XTRANF to move the data to a release file.

15.5.5 RELEASE A PART STRUCTURE

XRELPRT Release a Part Structure.

15.6 FILE MANAGEMENT

XFILOWN List Files Owned by the User.

XFILPER List Permitted Files.

XFIDEFI Define a New File.

XFIDEL Delete Files.

XFIARCH Archive Files. Must be followed by CCL procedure RECL to submit the RECLAIM job.

XFIRECL Reclaim Archived Files. Must be followed by CCL procedure RECL to submit the RECLAIM job.

XFPMENU File Permissions.

XFICORR Correct File Information.

XIMPORT Prepare to Import a file. Must be followed by Task IMPORT1.

XEXPORT Prepare to Export a file. Must be followed by Task EXPORT1.

XCHKIMP Check that the Import worked.

XCHKEXP Check that the Export worked.

XATTLLO List Local Files.

XSAVLOC Save local files.

Must be followed by the CCL Procedure SAVLOC.

XFIACQ Acquire a file. Makes a permanent file local.

XATTRET Return Local files.

XFIEDIT Edit a local file. Must be followed by CCL procedure EDIT.

XFIROUT Route a file to a Printer. Must be followed by CCL procedure ROUTE.

XFIREQ Request a tape. Must be followed by CCL Procedure REQUEST.

15.7 UPDATE

XUPLOAD Mass Update for Data Files.

XUPADD Add Information About Data.

XUPCHG Change Information About Data.

XUPDEL Delete Information About Data.

15.8 USER PROFILE

XPERSON Update Personal Information.

XDFMAIN Update Default Files

XTRMCON Update Terminal Configuration

15.9 REPORTS

XRDATAF Report program for full data report.

XRPARTS Part List Report.

XRPARTR Part Revision History Report.

XRPARTW Where Used Part Report.

XRPARTI Indented Part List Report.

XPOSTRP Print Message After Reports Finish.

15.10 PART STRUCTURE MANAGEMENT

XPSMGMT Part Structure Management.

15.11 MISCELLANEOUS USER TASKS

XMESEND Send A Message.

XMEREAD Read Messages.

XTASKS List All Available Task Commands.

15.12 ADMINISTRATOR TASKS

XUSMGMT User Management

XGPMGMT Group Management.

XGPLIST List Group Information.

XGMMGMT Group Member Management.

XGTMGMT Group Task Management.

XRELADM Release Administration.

XPIUPD Part Information Update.

XPFUPD Part Family Relationship Update.

XPVUPD Part Vendor Relationship Update.

XVIUPD Vendor Information Update.

XMUPD Update the Menu and Task Database using a transaction file. The transaction file data must have been retrieved by XRETREV.

15.13 RESERVED OVCAPS

XEDLINI Reserved by CDC. Initialize EDL.

XEQUIT Reserved for CDC. Executed when EDL user Quits.

XFIRST Initialize execution stack and push the user's first task onto the execution stack.

XGEPGM Reserved by CDC.

XREASUB Reserved for CDC (networking).
XREAMAS Reserved for CDC (networking).
XGENIMP Reserved for CDC. (networking)
XTRAREA Reserved for CDC. (networking)
XCHKDDB Reserved for CDC. (networking)

15.0 EDL STANDARD OVERLAY CAPSULES
15.13 RESERVED OVCAPS

XCHKSDB	Reserved for CDC.	(networking)
XREAMES	Reserved for CDC.	(networking)
XUPDI	Reserved for CDC.	Sub ovcap of Update.
XUPDD	Reserved for CDC.	Sub ovcap of Update.
XUPPD	Reserved for CDC.	Sub ovcap of Update.
XUPFD	Reserved for CDC.	Sub ovcap of Update.
XUPDS	Reserved for CDC.	Sub ovcap of Update.
XUPDR	Reserved for CDC.	Sub ovcap of Update.
XUPALLD	Reserved for CDC.	Sub ovcap of Update.
XUPDIS	Reserved for CDC.	Sub ovcap of Update.
XUSLSTA	Reserved for CDC.	Sub ovcap of user management.
XUSADD	Reserved for CDC.	Sub ovcap of user management.
XUSDEL	Reserved for CDC.	Sub ovcap of user management.
XUSCHG	Reserved for CDC.	Sub ovcap of user management.
XUSACT	Reserved for CDC.	Sub ovcap of user management.
XDISDET	Reserved for CDC.	Sub ovcap of DISPLA.
XDISEXF	Reserved for CDC.	Sub ovcap of DISPLA.
XTRATRA	Reserved for CDC.	Sub ovcap of Transfer.
XTRADES	Reserved for CDC.	Sub ovcap of Transfer.
XTRANEW	Reserved for CDC.	Sub ovcap of Transfer.
XTRAREL	Reserved for CDC.	Sub ovcap of Transfer.
XTTDUP	Reserved for CDC.	Sub ovcap of Transfer.
XTTDUPH	Reserved for CDC.	Sub ovcap of Transfer.

16.0 CREATING A NETWORK IN EDL

This section explains how to set up a network of EDL databases, one on each mainframe. Hosts in an EDL network are configured in a "star", with many subordinates clustered around a single master host. Administrative functions (user validation, part definition) are carried out on the master host. The DBA in the network is responsible for running a job (started with the command INITNET) which polls other hosts in the network (a subordinate polls the master, while the master polls each subordinate), then rolls out for a site defined period before repeating the polling cycle.

16.1 DEFINE HOSTS

The default EDL database host name is blank. In order to identify multiple hosts in a network, each host must be given a unique name within EDL. This name should be the three character LID (Logical IDentifier) by which the host is known to RHF.

One host should be designated as the MASTER host for the network. This host must communicate directly to all subordinate hosts which run EDL. All administrative functions, such as validating users, and defining parts, and vendors, will be done on this host, and the information will be passed to the subordinates.

All transactions dealing with data are done on the subordinate hosts, and then passed up to the master. Therefore, the master host will contain information about the data on all subordinate hosts.

16.2 DEFINE COMMUNICATION LINKS

CL records must be created for each host in the database, telling EDL which other hosts a specific host can communicate with. Note that each link must be defined twice, saying that HOST A can communicate with HOST B, and that HOST B can communicate with HOST A.

16.3 QU DIRECTIVES TO DEFINE A NETWORK

A sample network could consist of two Cyber mainframes, and a Cyber 120 which does not run EDL, but whose data is managed by MA4 (whose data is passed up to MB1). Following are the QU directives to update the MASTER host (in this case MB1) for this network configuration.

```
INVOKE EDLDATAW OF EDLDATA KEY $EDLORDBA$ USING E123DDB
STORE SETTING HIHOS,HIOFF,HIOS,HIEDL,HIHOSS
$MB1$        1  $NOS$ $T$ $MB1$
$MA4$   100000  $NOS$ $T$ $MB1$
$SD2$   200000  $AOS/VS$ $F$ $MA4$
*END
STORE SETTING UVUSR UVHOS UVOUN
$EDLID$     $MA4$     $EDLDBA $
$EDLID$     $MB1$     $EDLDBA $
$EDLID$     $SD2$     $DJH $
$EDLCOM$    $MA4$     $EDLDBA $
$EDLCOM$    $SD2$     $DJH $
$EDLCOM$    $MB1$     $EDLDBA $
*END
STORE SETTING CLHOSS CLHOSR
$MA4$ $MB1$
$MB1$ $MA4$
$MA4$ $SD2$
$MB1$ $SD2$
*END
REMOVE USING UVHOS
$ $
*END
REMOVE USING HIHOS
$ $
*END
```

```
MODIFY USING HIHOS SETTING HIOFF
$MB1$ 0
*END
END
```

Once the network has been defined on what will be the master host, this configuration should be copied to subordinates. EDL should be installed, then this same QU file should be run on each subordinate host. EDL must run on the same NOS account on each host.

16.4 E123PRC MODIFICATIONS

16.4.1 PROCEDURES GETMAS AND GETSUB

Procedure GETMAS and GETSUB contain .DATA files with MFLINK directives. These directives are used to poll alternate hosts in the network for information which should be sent from the master to the subordinates, or vice versa. The first line in the .DATA files are USER,EDLDBA,EDLDBA. This user statement should be replaced with the batch user statement for the username where EDL will be running in the network. Since the master host will be using these MFLINK directives to poll each subordinate, this means that the username and batch password where EDL runs on each subordinate must be the same.

A recommended modification to the GETMAS and GETSUB procedures is to remove the .DATA files from E123RPC (which is available to all users running EDL), put this information into a private file on the username on which EDL resides, and modify the procedures to read these files rather then the .DATA files.

16.4.2 PROCEDURE EDL

Procedure EDL on file E123PRC must be changed on each host, telling EDL the name of the host. The updated procedure header will look like:

.PROC,EDL,I=INPUT,IT=0/IT,OT=0/OT,HOST=hos,AUN=EDLDBA.
where hos is replaced by the name of the host on which this file resides.

This is the only change to E123PRC which is specific to a given host.

16.4.3 EDL_LOG FILES

Each subordinate should have, on the username on which EDL is installed, a file called EDLSLOG. The master should have a file called EDLMLOG, and one file for each subordinate which runs EDL. These files will be called EDLMhos, where hos is replaced with the host identifier for the subordinate. These files should be public, or permitted to all usernames which can run EDL, in WRITE mode.

These files contain log entries of each transaction which needs to be shipped either from the subordinates to the master, or vice versa. These log files are polled periodically by their destination hosts.

16.5 NETWORK INITIALIZATION

The DBA should log into each host on the account where EDL resides, and enter the command INITNET. This will start up a job which will:

1. Poll the subordinates (or master) for transactions which should be sent to this host.
2. Run EDL in batch mode to process these transactions.
3. Roll out for the interval defined in the procedure NETROLL in E123PRC.
4. Repeat.

This job will have the UJN of NETJOB. It should continue to cycle until the system is deadstarted, at which time the INITNET task should be run again. If the job is dropped, the transaction data is not lost. Network transactions will

accumulate in the log files, and will be sent to other hosts whenever the INITNET job is run on the receiving host.

1986/04/09

INST 647

ATTACH, GLOBLIB
LIBRARY, GLOBLIB/A.

CONTROL DATA CORPORATION

ICEM

ENGINEERING DATA LIBRARY V1.2.3

Operating System Level: NOS 2 Level 642A
Date: 04/09/86

SOFTWARE RELEASE BULLETIN

SMD131012

CONTROL DATA CORPORATION

1986/04/09

ICEM ENGINEERING DATA LIBRARY
SOFTWARE RELEASE BULLETIN
NOS 2 Level 642A

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CONTROL DATA CORPORATION

1986/04/09

ICEM ENGINEERING DATA LIBRARY
SOFTWARE RELEASE BULLETIN
NOS 2 Level 642A

1.0 INTRODUCTION

1.0 INTRODUCTION

Version 1.2.3 of the Engineering Data Library incorporates the following new features and enhancements:

1. Networking between NOS and AOS/VS machines.
2. Part Structure definition and reports.
3. Graphics Programming Language interface.
4. Suspend and resume ICEM DDN sessions.
5. Improvements to UPDATE and SAVE.
6. General improvements in consistency and language. More selection lists.
7. Note facility to notify the user of the completion or failure of batch jobs and to allow EDL users to send and receive short notes.
8. Extract and load information automatically from existing Drawing, Global Drawing, and Solid Model Library files.
9. Improved Customization Documentation.
10. Performance improvements due to better IMF tuning and decreased system control point communication.

2.0 NOTES AND CAUTIONS

2.0 NOTES AND CAUTIONS

1. On entering EDL, if the user's logged in NOS user name is different than the NOS username in the EDL database, a warning message is displayed. Files created under this condition will not be accessible when the user is logged into the correct username unless the files are specifically permitted to the user.

2. Updating EDL for new files requires you to be running on the NOS username where the file resides. EDL assumes that all new files are private files. If the file is actually a NOS public file, use the EDL PERMIT task to change the file category to PUBLIC.

3. To install data files on a system username such as APPLLIB or LIBRARY, when a SUI statement is used to access the account, use UPDATE EDL FOR ENGINEERING DATA to add the information to EDL, then use CORRECT FILE INFORMATION to change the NOS username of the file to the right username.

4. An indirect access permanent file named USER must exist on the user's NOS username if the user wishes to use TRANSFER tasks on Solid Modeler data. The file USER contains the job card, user card, and accounting charge card image if needed.

5. If two users attempt to update the same EDL record at nearly the same time, a concurrency conflict may occur for the second user. An error message will be displayed and EDL will return to the previous task menu. The user should reobtain the data to determine what change was made by the other user and try the update again if appropriate.

6. If the user uses a Control T to abort Query Update using IMF, occasionally the user job hangs and cannot be dropped. It may be necessary to do an override from the console to drop the job.

7. In a multi-host network, it is not possible to transfer data to a remote host when using the ACCEPT or RELEASE tasks. Data may be submitted to a release procedure

2.0 NOTES AND CAUTIONS

from any host on the network, but to ACCEPT or RELEASE the data, the releaser must run on the host where the pending or released destination data is desired to reside.

8. Using the EDIT command on non-permanent files or creation files will prompt the user for the character code to be used to edit the file, UPPER CASE DISPLAY CODE or UPPER LOWER CASE ASCII.

9. The correct file type for PATRAN DATA, local file PATDAT, is RANDOM ACCESS DATA.

10. In using the transfer tasks involving an IGES DATA FILE, the user must use the correct data name of the origination file or the destination file. The IGES data name specified must match the origination data name. The transfer data name specified must match the data name in the IGES file, or if the name in the IGES file is blank, the default data name IGES.

11. In a network configuration consisting of two or more hosts where a host is not available, the IMPORT and EXPORT commands will require a Control-T to exit the wait status. This will not exit the user from EDL.

12. The DRAWING to AP-INDEPENDENT DRAWING transfer currently supports only the ICEMDDN V1.57 drawings. The ICEMDDN V1.60 translators will be made available after the release of ICEMDDN V1.60 on the Application Processor.

13. The reference manual states that a part number cannot be deleted if any released data is associated with the part. In fact, the part cannot be deleted if any data is associated with the part, regardless of the status of the data.

14. The default core memory field length to run EDL V1.2.3 is 155,000 octal. If EDL aborts due to maximum field length (MFL) exceeded, then edit the procedure file E123PRC, procedure EDL, to change the command MFL,155000 to increase the amount of memory allowed for EDL and IMF.

15. The EDL relocatable libraries are compiled at NOS 2.4.2 level 642. If your site is using an earlier version of NOS and the product sets, there may be incompatibilities

2.0 NOTES AND CAUTIONS

between the EDL libraries and the system libraries. This may cause problems if the EDL absolute is reloaded using the LOADEDL procedure to include site-written Fortran code. If this situation occurs at your site, upgrade the product sets of your site to level 642.

16. The data type field is set incorrectly if a GPARTS file drawing is restored to a DRAWING file within ICEM DDN. The DDN log file specifies the data type of the restored data as GLOBAL DRAWING rather than DRAWING. To correct the data type, use the UPDATE-CORRECT INFORMATION task to correct the application data type or use QU to modify the DIADT field. The data type is set correctly if the GLOBAL DRAWING to DRAWING TRANSFER task within EDL is used.

17. Selecting a local file by name for routing to a printer does not work. Local files that need to be printed may be selected by entering 'LIST' and selecting from the list.

3.0 PSR/RSE CORRECTIVE CODE

The release of EDL V1.2.3 corrects the following PSR/RSE's.

PSR/RSE	DESCRIPTION
ED1A011	Underlining is incorrect on certain TEK graphics terminals.
ED1A012	Modeler analysis file transfers require suffix on file name.
ED1A013	IGES data to DDN transfer failed.
ED10137	Backup procedure in E120PRC prevents access to EDL 1.2.
ED10147	1.13 to 1.2 conversion sets released drawing ADT to DRAWING
ED10148	RETDDN should retrieve drawings w/adt of GLOBAL DRAWING
ED10149	Submit should only retrieve data with a working or rejected status.
ED10150	Transaction parameter values not working correctly.
ED10151	TAPE3 read-only message flips by too fast to read.
ED10153	ED10145 answer is incomplete - command missing from LOADEDL,E120PRC
ED10154	1.13 to 1.2 conversion leaves DI status set to RELEASED
ED10155	1.13 to 1.2 conversion leaves FI status set to spaces.
ED10157	MH transaction not working.
ED10158	Data goes into EDL even if it is not actually created.
ED10161	Infinite loop after accidentally trying to edit E120MDB.
ED10162	Task RETSCH not updating EDL database after exit from application.
ED10163	IMF subsystem is a cpu hog.
ED10164	This PSR is to reopen PSR ED10141, which described the problem.
ED10165	Limited lines of dialog.
ED10166	MCS does not recover after a system checkpoint correctly.
ED10167	Lack of security of the EDL data base.

3.0 PSR/RSE CORRECTIVE CODE

ED10168	EDL currently executes a password display with echo on.
ED10170	1.13 to 1.2 conversion copies invalid tablet type from old database.
ED10171	EDL V1.2 standard capsule XRELS does not pop remaining tasks.
ED10172	EDL V1.2 looses track of ICEMDDN drawings with non alph-numeric names.
ED10173	EDL V1.2 one TV parameter card answers all of a capsules's prompts.
ED10176	EDL V1.2 REVPEND task is unusable, just to darn slow.
ED10177	File transfer for release does not check if destination is archived.
ED10178	RECLAIM fails due to lack of EDLRECL.
ED10179	Data base gets updated when user creates drawing in a read-only file.
ED10180	EDL aborts with CMM error.
ED10182	Deleting of drawings in EDL V1.2 very complicated.
ED10184	Tape VSN's are not converted in EDL 1.13 to 1.2 conversion.
ED10186	EDL does not update GPARTS file content when changes are made.
ED10187	Cannot delete data sets from EDL menus.
ED10188	EDL believes whatever it is told without checking validity.
ED10201	Deleting more than 1 data set with source data deletes info source.

CONTROL DATA CORPORATION

ICEM Facilities

Version 1.3

Operating System Level: NOS 2.4.2 Level 642A

Date: 12/20/85

INSTALLATION INSTRUCTIONS

DISCLAIMER

NOS and its product set are intended for use only as described in this document. Control Data cannot be responsible for the proper functioning of undescribed features or parameters.

SMD131036

RELEASE DESCRIPTION

ICEM Facilities Version 1.3 runs under the CDC Network Operating System (NOS) Version 2 and the CDC Interactive Facility (IAF) Communications Subsystem.

ICEM Facilities is designed to increase the drawing productivity and enable the automatic generation of reports for facilities building Managers and plan engineers.

ICEM Facilities requires ICEM Design/Drafting V1.60.

The operation of ICEM Facilities under NOS 2 requires the installation of the CDC Network Access Method (NAM), IAF and the associated products.

HARDWARE CONFIGURATION

The minimum hardware configuration required for NOS 2 and IAF is required to support ICEM Facilities is 1.

RELEASE MATERIALS

The ICEM Facilities release files reside on the tape with a VSN of REL37A. This tape has the following characteristics: 9-track with either 800 or 1600 CPI binary recording mode, FACILITIES13 as the file ID in the HDR1 label, and 18 files.

File 1	INSTALL	Installation procedure file.
File 2	FACTFIL	Facilities tablet file.
File 3	FACMSTR	Facilities MSTRING file.
File 4	FACPAT1	Facilities global pattern file.
File 5	FACPAT2	Facilities global pattern file.
File 6	FACGPLS	GPL Source.

File 7	FACLIB	Compiled GPL Library.
File 8	FACGPRT	GPARTS file with tablet overlay drawings, pattern descriptions and example layouts.
File 9	EXAMPLE	Script file for example layout.
File 10	ICEMFAC	Procedure file for ICEM Facilities.
File 11	REPORTS	CCL procedure file to generate reports.
File 12	HWDATA	Haworth Bill of Materials database.
File 13	OFDATA	Office furniture Bill of Materials database.
File 14	CEDATA	Construction estimate database.
File 15	REPSRC	Report generator source code.
File 16	REPABS	Report generator absolute binary.
File 17	VERIFY	Installation verification procedure.
File 18	VERIT	Data for verification procedure.

NOTES AND CAUTIONS

All limitations applicable to NOS 2 and IAF also apply to ICEM Facilities.

The installer must be sure that permanent files do not exist with the same procedure. The permanent files list above will be generated.

INSTALLATION PROCEDURE

The files which are part of the ICEM Facilities product are installed by executing the installation procedure which is file 1 of the ICEM Facilities tape, VSN=REL37A. The installation procedure must run interactively.

Enter the following commands:

```
LABEL,FACTAPE,R,L=FACILITIES13,VSN=REL37A,F=I,
D   =  HD  .  (9-track, 800 cpi)
       PE  .  (9-track, 1600 cpi)

COPYBF,FACTAPE,INSTALL.
BEGIN,,INSTALL.
```

Successful installation will be indicated at the terminal by the message, "INSTALLATION COMPLETE".

VERIFICATION PROCEDURE

To verify the proper installation of ICEM Facilities complete the following steps. The verification procedure must be run interactively.

NOTE

This procedure was written assuming that ICEM Design/Drafting Version 1.60 is stored as a direct access file named ICEMDDN on user name APPLLIB. It is also assumed that a direct access file named GOLIB is stored on APPLLIB. If these assumptions are incorrect, the user must change lines 12 through 14 of file VERIFY to specify the filename and user name in use.

If the above changes are needed, lines 10 through 12 of procedure ICEMFAC and lines 7 through 9 of procedure EXTRACE both on file ICEMFAC must also be changed.

Step 1. Log onto a graphics terminal supported by ICEM Design/Drafting.

Step 2. Enter:

```
BEGIN,,VERIFY
```

ICEM Facilities will retrieve certain files from your permanent catalog, and prompt the user with the prompt shown in Figure 1 to allow the user to enter ICEM Design/Drafting.

Step 3. Answer prompts for baud rate and terminal configuration for your installation. Figure 1 shows the responses for a TEKTRONIX 4114 terminal. Key in PART NAME, SHEET NUMBER, UNITS and DRAFTING STD as shown in Figure 1.

Step 4. After ICEM Design/Drafting places the user at the main menu, enter the following ICEM Design/Drafting command string.

```
F.1.17.4.IT
```

Step 5. Compare the display with Figure 2 to verify that the layout is the same.

Step 6. Enter: A carriage return.

Step 7. ICEM Facilities will complete ICEM Design/Drafting and generate an office Bill of Materials.

Compare the report with Figure 3 to verify that the report is the same.

NOTE: Depending on the terminal used, the report may be written over the verification figure.

Verification of ICEM Facilities will then be complete.

```
 ENTER BAUD RATE.
9
 ICEMDDN  VERSION  R1.59Z

COPYRIGHT MANUFACTURING AND CONSULTING
SERVICES, INC. 1978

COPYRIGHT CONTROL DATA CORPORATION
1978, 1979, 1980, 1981
1982, 1983, 1984, 1985

WELCOME TO ICEMDDN

GRAPHICS TERMINAL TYPE
1.  TEKTRONIX 4014
2.  TEKTRONIX 4105
3.  TEKTRONIX 4107
4.  TEKTRONIX 4109
5.  TEKTRONIX 4113
6.  TEKTRONIX 4114
7.  TEKTRONIX 4115
8.  TEKTRONIX 4125
9.  CDC VIKING 721
10. CDC IEW 790 WITH TEKEM
6
MENU AREA
1.  GRAPHICS TERMINAL
2.  CDC 722
1
TABLET
1.  OFF
2.  TEKTRONIX OPTION 13
3.
4.  TEKTRONIX 4957
1
LOCAL DISPLAY FILE
1.  ON
2.  OFF
1
LOCAL CHARACTER SET
1.  ON
2.  OFF
2



ENTER PART NAME VERIFY
SHEET NUMBER =  1
NEW PART ASSUMED
--- UNITS OF MEASURE 2
--- DRAFTING STANDARD 1
ICEMDDN L=0    V=1  D=0.00    P=0  C=0 F.1.17.4.IT
```

Figure 1. Initialization Prompts

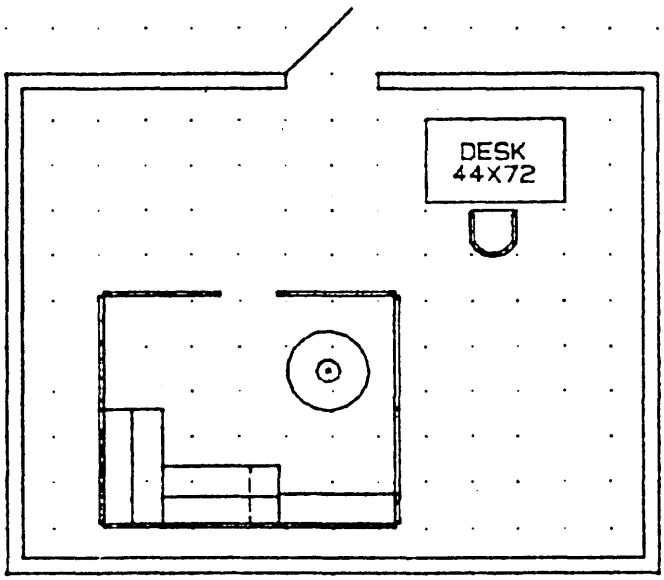

Figure 2. Verification Figure

```
REPORT
  1 OFFICE BILL OF MATERIALS
  2 HAWORTH BILL OF MATERIALS
  3 NEW CONSTRUCTION COST ESTIMATES
  4 TERMINATE


        --------THIS REPORT RESIDES ON LOCAL FILE OFBILL--------
                        REMEMBER TO SAVE IT

                        OFFICE
                  BILL OF MATERIALS

     PART NAME :VERIFY

 ATTRIBUTE
 NAME                          DESCRIPTION                 QTY    UNIT    EXTENDED
 *********                     ***********                 ***    COST    COST
                                                                  ****    ********
 CHAIR.SYMBOL                CHAIR  STD. COUNTOUR            1   175.75    175.75
 DESK.4472.NC                DESK  44X72                     1   377.55    377.55

  TOTAL                                                                    553.30

        --------THIS REPORT RESIDES ON LOCAL FILE OFBILL--------
                        REMEMBER TO SAVE IT

REPORT
  1 OFFICE BILL OF MATERIALS
  2 HAWORTH BILL OF MATERIALS
  3 NEW CONSTRUCTION COST ESTIMATES
  4 TERMINATE



  CORRECT INSTALLATION HAS BEEN VERIFIED
REVERT.
/
```

Figure 3. Verification Report

Norm WW
Bud
Charlie

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D. A. Windmeier	HQN4EX

CONTROL DATA CORPORATION
INTEROFFICE MEMORANDUM

DATE: September 30, 1985

TO: Distribution

FROM: Mani L. Subramanian

SUBJECT: ICEM EDL Enhancements for:
1. Multiple Document Retrieval
2. 3-D Piece Part Extraction

Recently, some enhancements were made in ICEM EDL to provide two special capabilities to CDC internal users. The first enhancement enables to generate multiple sheet plot files and transmit them to a remote plotter of user's choice with minimum user input. The second enhancement enables to extract detailer drawings from 3-D layout drawing and reassemble modified detailer drawings into layout drawing. In either case, the user inputs only the part number for the drawing. All necessary operations are carried out automatically by the system.

Both these enhancements, though developed to meet our internal users' needs, can be effectively used by many of our customers. Attached to this memo are copies of User's Manuals and Installation Instructions Manuals for these two products. Please pass on copies of these manuals to any customer who may be interested in these or similar products. CIM division Special Support Group will be happy to modify these products to meet customers special needs, if any. For additional information, please call me at (612)642-3849 (C/N 380-3849).

Mani Subramanian
Cooperative Development
CIM Division

/ag

MULTIPLE PLOTS
FOR
MANUFACTURING DOCUMENT RETRIEVAL

USERS MANUAL

THIS DOCUMENT IS SUBJECT TO CHANGE.
REFER TO THE LATEST REVISION FOR THE CURRENT INFORMATION

CONTROL DATA CORPORATION
Minneapolis, MN

REVISION 0
September, 1985
M. L. Subramanian
ETC231 (612)642-3849

Multiple Plots for Manufacturing Document Retrieval

Introduction

Applications such as Process Planning may require several sheets of drawings for each part. Ordinarily the process planner creates the plot files for each of these drawings, walks over to the plotter terminal and plots the drawings and then ships them to the manufacturing floor. Each of these activities requires considerable amount of planner's time. Furthermore, the planners office, plotting center and the manufacturing site are, in general, far apart. Consequently, there will be considerable time delay between design completion and the receipt of documents at the manufacturing floor.

An enhancement added to the ICEM Engineering Data Library (EDL) provides an easy and quick means of transmitting multiple sheet plots to manufacturing site without much human intervention. To use this capability, the latest version of EDL is customized with the special software as explained later. One or more plotters are installed at as many remote manufacturing sites as necessary. These plotters are connected to the host computer using Control Data's application product Terminal Cluster Facility (TCF). When the installation is complete, the multiple sheet document can be transmitted to the manufacturing site by entering the part identification number. The system scans the data base to accumulate all the sheets with the given part number, generates a trace file to run ICEM DDN, executes the DDN to generate the multiple sheet plot file and then runs the appropriate postprocessor to convert the plot file into device dependent input file for the plotter of user's choice. The plotter input file is then transmitted to the remote plotter through TCF. If the designated plotter is not turned on, or if the plotter is busy with some other job, TCF holds the plot file in the queue until the plotter is ready to receive it.

EDL Customization

To use this simple document retrieval procedure, the EDL must be customized using the special software provided by Control Data. Your local CDC analyst will be able to help to customize EDL. Specific customization procedure is described in the document "Installation Procedure for Multiple Plots for Manufacturing Document Retrieval." Figure 1 shows complete computer-user dialog under this option. As seen in this figure, the new customization adds two new choices to the ICEM applications task menu. The first addition is "Multi-Plot for Document Retrieval" and the next "Reroute Last Multi-Plot File."

MULTI-PLOT FOR DOCUMENT RETRIEVAL

When the user selects the first choice by entering either the task number 9, or the task name MULPLT, the system responds with the message:

ENTER THE PARTNO FOR THE DRAWING OR CR TO RETURN
?----------

The user enters the part number (1-70 characters long), the same name used while creating or modifying the part drawing in ICEM DDN. The system begins to scan the data base. The user is informed of the current activity by displaying appropriate message on the screen. Thus, the first message is

**** GENERATING A LIST OF ALL SHEET NUMBERS ****

followed by

**** GENERATING TRACE FILE TO RUN ICEM DDN ****

If the data base does not contain any part with the given name (which could also happen if the name is misspelled), the system displays the message:

NO DRAWING WITH GIVEN PARTNO IN THE DATA BASE

and aborts back to the EDL menu. If the desired drawing is found the system displays:

THE NAMED PART HAS n SHEETS. n PLOTS WILL BE GENERATED

where n is the total number of sheets.
This message will be followed by

**** ENTERING ICEM DDN TO GENERATE TAPE9 ****

and

**** ENTERING UNIPLOT TO CONVERT TAPE9 TO NEUTRAL PICTURE FILE (NPFILE) ****

After converting the plot file TAPE9 into neutral picture file, the system asks the user the destination point by displaying a menu:

SELECT THE PLOTTER FOR DOCUMENT RETRIEVAL

1.	Benson 90V	B90
2.	Benson 9336V	B9336
3.	Calcomp Plotter	Calcomp

SELECT OPTION
?----------

The above menu is only a typical menu. The actual menu for individual sites will be different depending upon the types of plotters used. Help messages similar to the one shown below can also be added in the menu data base:

> THIS MENU ALLOWS YOU TO SELECT THE PLOTTER TO WHICH THE PLOT FILE IS TO BE ROUTED BY TCF. BENSON B 90V PLOTTER CAN PLOT ONLY "A" SIZE DRAWINGS AND IT IS LOCATED AT (SITE NAME). BENSON 9336 CAN PLOT ALL SIZE PLOTS AND IS LOCATED AT (SITE NAME). CALCOMP PLOTTER IS LOCATED AT (SITE NAME).

The user selects the destination by entering the option number or the option name. The system continues with the message:

> **** ENTERING UNIPOST TO CONVERT NP FILE TO A SPECIFIC PLOTTER FORMAT. THE FILE WILL BE ROUTED THROUGH TCF ****

When the routing is complete, the procedure is terminated with the message:

> **** ROUTING IS COMPLETE ****

Control then returns to EDL menu.

"REROUTE LAST MULTI-PLOT FILE"

Sometimes it may be necessary to route the same file to more than one plotter. This second choice enables the user to accomplish this function without going through the long procedure followed during the execution of the first choice. Therefore, whenever a new plot file is routed to the plotter, a copy of the file is saved. When the second choice is selected, the user is asked to specify the destination plotter and the copy is routed to the specific plotter.

The second selection of the plotter need not necessarily be the same type as the first selection. Hence, instead of saving the final plot file, the neutral picture file is saved and postprocessed according to the plotter selected.

Use of TCF

Terminal Cluster Facility only enables to route plot files to remote plotters. This capability eliminates the necessity to use the dedicated terminal at the plotter site. However, if there is no necessity for such a capability, one may use this EDL enhancement without the use of TCF.

Error Recovery

If a plot file is routed to a wrong plotter and you like to drop the job, you may do so. First find the JSN for the Route process by looking into your dayfile. Then enter

DROP, JSN name

If DROP command does not work, try

QGET,JSN name,DC=PR

If QGET also fails, plotter has started plotting the file. Only the computer operator can drop the job at this time.

If a wrong drawing is selected, and if you like to drop out while the job is in execution, wait until it gets into DDN, then enter 'Control T' twice. DDN execution will be terminated and the control will return to EDL menu. Before you re-execute, return or rewind all local files.

```
-.EDL

  86/88/11.      ICEM ENGINEERING DATA LIBRARY VERSION 1.2.8
                 COPYRIGHT CONTROL DATA CORP., 1984


        CURRENT TERMINAL CONFIGURATION
        GRAPHICS TERMINAL      TEK 4114
        DIALOG AREA            ON GRAPHICS TERMINAL
        COMMUNICATIONS RATE    9600 BAUD
        COMMUNICATIONS TYPE    ASYNCHRONOUS
        TABLET                 NO
        LOCAL ASSIST           DEFAULT
        LOCAL DISPLAY          DEFAULT
        EGM                    NO
        BIT PLANES             4

         ICEM APPLICATIONS
     1.  EXIT                                   E,EXIT
     2.  DESIGN/DRAFTING/NC                     DDN
     3.  SOLID MODELING                         ISM
     4.  UNISTRUC II                            US
     5.  PATRAN-G                               PAT,PATRAN
     6.  ICEM SCHEMATICS                        SCH
     7.  ICEM TEKROUTE                          TEK
     8.  PLOTTING                               PLOT
     9.  MULTI-PLOT FOR DOCUMENT RETRIEVAL      MULPLT
    10.  REROUTE LAST MULTI-PLOT FILE           REROUT
ENTER TASK
? MULPLT____

        ENTER THE PARTNO FOR THE DRAWING OR CR TO RETURN
? MULTIPLE SET OF DRAWINGS FOR DOCUMENT RETRIEVAL_____

  ****    GENERATING A LIST OF ALL SHEET NUMBERS     ****

  ****    GENERATING TRACE FILE TO RUN ICEM DDN      ****


          THE NAMED PART HAS  4 SHEETS.
          4 PLOTS  WILL BE GENERATED.

  ****    ENTERING ICEM DDN TO GENERATE TAPE9        ****

  ****    ENTERING UNIPLOT TO CONVERT TAPE9
          TO NEUTRAL PICTURE FILE(NPFILE)            ****
    STOP


          SELECT THE PLOTTER FOR DOCUMENT RETRIEVAL
     1.  BENSON-98V                                 B98
     2.  BENSON-9336V                               B9336
     3.  CALCOMP PLOTTER                            CALCOMP
SELECT OPTION
? ?_________

     THIS MENU ALLOWS TO SELECT THE PLOTTER TO
     WHICH THE PLOT FILE WILL BE ROUTED BY TCF.
     BENSON B-98V PLOTTER CAN PLOT ONLY "A" SIZE
     DRAWINGS.  B-98V IS LOCATED AT (SITE NAME).
     BENSON 9336 CAN PLOT ALL SIZES DRAWINGS.
     BENSON 9336 IS LOCATED AT (SITE NAME).
     CALCOMP PLOTTER IS LOCATED AT :SITE NAME).

          SELECT THE PLOTTER FOR DOCUMENT RETRIEVAL
     1.  BENSON-98V                                 B98
     2.  BENSON-9336V                               B9336
     3.  CALCOMP PLOTTER                            CALCOMP
SELECT OPTION
? B98_______

  ****    ENTERING UNIPOST TO CONVERT NPFILE
          TO A SPECIFIC PLOTTER FORMAT.
          THE FILE WILL BE ROUTED THROUGH TCF.       ****
 UNIPOST V9.2 RELEASE 87
 COPYRIGHT CONTROL DATA 1985

  ****    ROUTING IS COMPLETE                        ****

          ICEM APPLICATIONS
     1.  EXIT                                   E,EXIT
     2.  DESIGN/DRAFTING/NC                     DDN
     3.  SOLID MODELING                         ISM
     4.  UNISTRUC II                            US
     5.  PATRAN-G                               PAT,PATRAN
     6.  ICEM SCHEMATICS                        SCH
     7.  ICEM TEKROUTE                          TEK
     8.  PLOTTING                               PLOT
     9.  MULTI-PLOT FOR DOCUMENT RETRIEVAL      MULPLT
    10.  REROUTE LAST MULTI-PLOT FILE           REROUT
ENTER TASK
? REROUT____

          SELECT THE PLOTTER FOR DOCUMENT RETRIEVAL
     1.  BENSON-98V                                 B98
     2.  BENSON-9336V                               B9336
     3.  CALCOMP PLOTTER                            CALCOMP
SELECT OPTION
? 1_________

  ****    ENTERING UNIPOST TO CONVERT NPFILE
          TO A SPECIFIC PLOTTER FORMAT.
          THE FILE WILL BE ROUTED THROUGH TCF.       ****
 UNIPOST V9.2 RELEASE 87
 COPYRIGHT CONTROL DATA 1985

  ****    ROUTING IS COMPLETE                        ****

          ICEM APPLICATIONS
     1.  EXIT                                   E,EXIT
     2.  DESIGN/DRAFTING/NC                     DDN
     3.  SOLID MODELING                         ISM
     4.  UNISTRUC II                            US
     5.  PATRAN-G                               PAT,PATRAN
     6.  ICEM SCHEMATICS                        SCH
     7.  ICEM TEKROUTE                          TEK
     8.  PLOTTING                               PLOT
     9.  MULTI-PLOT FOR DOCUMENT RETRIEVAL      MULPLT
    10.  REROUTE LAST MULTI-PLOT FILE           REROUT
ENTER TASK
? QUIT______
```

FIGURE 1. Computer-User Dialog During
"Multi-Plots for Manufacturing Document Retrieval" Session

CONTROL DATA CORPORATION

MULTI-PLOTS FOR MANUFACTURING DOCUMENT RETRIEVAL

REVISION 0

SEPTEMBER, 1985

INSTALLATION INSTRUCTIONS

DISCLAIMER

RELEASE DESCRIPTION

"Multi Plots for Manufacturing Document Retrieval" is an enhancement to ICEM EDL Version 1.2 which runs under the CDC Network Operating System (NOS) Version 2.

This enhancement enables you to generate multiple sheets of plots under the given part number and transmit the file to a remote plotter of your choice. You input only the part identification number and the destination plotter code. The system scans the database, creates a list of all sheets under the given part number, generates a trace file to run ICEM DDN, executes DDN to generate the multiple sheet plot file, converts the plot file to a neutral picture file using UNIPLOT, runs the appropriate postprocessor to convert the neutral picture file to device dependent input file for the plotter, and finally transmits the file to the plotter through Terminal Cluster Facility (TCF).

Hence, to use this enhancement, you should be already using or willing to install NOS Operating System Version 2.0, ICEM EDL Version 1.2, ICEM DDN Version 1.57, Terminal Cluster Facility Version 1.0. This enhancement will be operational in any later versions of these products, but not necessarily in earlier versions.

HARDWARE CONFIGURATION

The minimum hardware configuration required for NOS 2, EDL and DDN is also required for this product.

RELEASE MATERIALS

THE "Multi Plots" release files reside on the magnetic tape with VSN of MPREL1. This tape has the following characteristics: 9-track with 1600 bpi binary recording mode, MPV10 as the file ID in the HDR1 label, and 6 files.

File 1: Installation Procedure

File 2: FORTRAN routines that will be added to the EDL

File 3: FORTRAN capsules that will be added to the EDL

File 4: Procedure file to be included in the EDL

File 5: Transaction file to be included in the EDL

File 6: A procedure to compile the FORTRAN routines (File 2), FORTRAN capsules (File 3) and implement them in EDL

NOTES AND CAUTIONS

All limitations applicable to NOS 2, EDL, DDN and TCF also apply to this product.

Also it is the customer's responsibility to provide the necessary postprocessor(s) for each plotter being used. Control Data has a large supply of postprocessors for various plotters. If not readily available, CDC can develop one. The postprocessor may need some modifications in order to use the plotter as a remote device using TCF.

To convert the DDN generated plot file TAPE9 into Neutral Picture File, you need UNIPLOT and DDNUTIL installed in your APPLLIB user name.

If your EDL is already customized, running the procedure (File 6) may wipe out your original customization routines. Hence, modify File 6 as necessary if your EDL is already customized.

This product is expected to provide the capabilities described in the User's Manual. However, it has to be fine tuned during installation to adjust for customer site requirements.

INSTALLATION PROCEDURE

The files which are part of this product are installed by executing the installation procedure which is File 1 of the MPREL1 tape. To install the files, submit the tape to the computer operator and enter the following commands from your interactive terminal, under DBA account nuumber.

```
LABEL,TAPE,VSN=MPREL1,NT,L=MPV10,R,F=I,PO=R,D=PE,LB=KL.
COPYCF,TAPE,INSTAL.
BEGIN,,INSTAL.
```

This procedure will install the following indirect access files:

MPFTN,MPCPSL,MPPROC,MPTRAN and MPFTOE.

If you already have files with these name, transfer them to different names before running this procedure.

Modify the transaction file MPTRAN using XEDIT or FSE. Change all "MLS2154" to DBA account number.

Clear all local files and then execute the procedure MPFTOE by entering the commands:

```
CLEAR.
GET,MPFTOE.
BEGIN,,MPFTOE.
```

This will update your EDL files by including the new capsules and FORTRAN routines. This will also create a new indirect access file MPLIB.

Next, update the EDL Menu database in the following manner.

Enter EDL using an ID with SYSADMIN privileges (like EDLID).

A. Choose the UPDATE EDL for Engineering Data Task (Task Command UPDATE).

   1. Tell the EDL that the file is an UPPER CASE TEXT FILE.
   2. Give the data a meaningful name, like MDB TRANSACTIONS FOR MULTIPLE PLOTS.
   3. The Application Data Type is EDL MDB TRANSACTIONS.

B. Enter the task command MENUMGMT.

   1. Retrieve the data which you just entered into EDL.
   2. Select that data, and the changes will be automatically entered into EDL.

To check whether there was any error while modifying the EDL menu database, review the file MDBLIST by entering EDIT task. If there is no error, enter into ICEM task. The ICEM APPLICATIONS task menu should show the additional two tasks MULTI PLOT FOR DOCUMENT RETRIEVAL and REROUTE LAST MULTI PLOT FILE.

VERIFICATION PROCEDURE

To verify the proper functioning of this enhancement:

1. Generate a multi sheet drawing in DDN while running DDN from EDL.

2. Make sure TCF is properly installed and plotters are connected to the appropriate dedicated ports.

3. Both UNIPLOT and DDNUTIL reside in your computer under user name APPLLIB. If they are in some other user name, edit the MPPROC file to replace the correct user name.

4. Make sure that the postprocessors for the plotters are updated to transmit data through TCF.

5. Edit the MPPROC to change all user names from MLS2154 to the corresponding names in your installation. Change the postprocessor file names as necessary. Edit the MPTRAN file to modify SELECT THE PLOTTER menu.

Now, select the task MULPLT. If the installation is complete, the dialog will be as shown in Figure 1 of the User's Manual.

Because of the large amount of hardware-software compatibility matching requirements, considerable amount of fine tuning may be necessary before successful installation and execution of this enhancement procedure.

3-D Piece Part Extraction From Layout Drawing

USERS MANUAL

This Document is Subject to Change
Refer to the Latest Revision for the Current Information

Control Data Corporation
Minneapolis, MN

Revision 0
September, 1985
M. L. Subramanian
ETC231 (612)642-3849

3-D Piece Part Extraction From Layout Drawings

INTRODUCTION

Conventionally 3-D layout drawings are generated first. Data for each piece part are extracted from the layout drawing to draw the detailer drawings. Detailers work on the piece part drawing to provide detailed information for the piece parts. Depending upon the complexity of the layout drawing, piece part data extraction may be very laborious and is prone to human error.

To systematize this process, in computer aided design, each piece part geometry is designed at a different level. Then using the "DELETE BY THE LEVEL RANGE" Menu, piece part geometry data are extracted cyclically. Though a giant step forward in right direction, this technique still requires considerable amount of designer's time to generate piece part drawings.

An enhancement added to the ICEM Engineering Data Library (EDL) automize this entire process and eliminates possible human errors. The designer identifies the layout drawings by entering the part identification number. Name, level, find number, and quantity for each piece part are stored in a file called Part History File and is supplied by the user. Using these two sets of information the system scans the database to attach all necessary files, generates a trace file to run ICEM DDN, executes DDN and creates a GPARTS file which contains detailer drawings for each piece part listed in the part history file.

Detailers can extract individual drawings from the GPARTS file, work on them and return them to the GPARTS file. By selecting another menu, the designer can reassemble all modified drawings and compare the reassembled drawing with the original drawing for possible design error.

To help the designer to create and/or modify the part history file, a third menu choice provides easy access to the on-line full screen editor or the line editor.

A fourth menu allows the detailers to enter the PARTNO of the layout drawing to attach the corresponding GPARTS file. The system also puts the detailer into DDN automatically.

The system keeps track of all existing files. If necessary, defines new files. If a file exists where one is to be created, the system requests permission to overwrite. If denied, steps back to the previous menu. Though not necessary for user to remember, the system displays newly defined file names for information. If the named part does not exist in the database, issues error message and returns to the main menu.

DL CUSTOMIZATION

To use this automatic piece part extraction process, the EDL must be customized using the special software provided by Control Data. Your local CDC analyst will be able to help to customize EDL. Specific customization procedure is described in the document "Installation Procedure for 3-D Piece Part Extraction from Layout Drawing." When this enhancement is implemented in EDL, a new task is added to the ICEM APPLICATIONS task menu as seen in Figure 1. The title for this new task is "DETAILER DRAWINGS". When this task is selected, another task menu as shown below is displayed.

DETAILER DRAWINGS

1.	EXIT	E,EXIT
2.	GENERATE DETAILER DRAWINGS FROM LAYOUT	DETDRW
3.	ASSEMBLE DETAILER DRAWINGS INTO LAYOUT	ASEMBL
4.	CREATE/EDIT PART HISTORY FILE	PHEDIT
5.	ATTACH GPARTS FILE TO USE WITH DDN	GPATCH

Per EDL convention, the first task EXIT allows you to return to the previous menu.

"GENERATE DETAILER DRAWINGS FROM LAYOUT"

When the task number 2 or task name DETDRW is entered, the system displays

ENTER THE PARTNO FOR THE DRAWING OR CR TO RETURN

?----------

Enter the 1-70 characters long PARTNO used while creating and/or modifying the layout drawing. The system begins to scan the database and informs the user by displaying

**** SCANNING EDL DATABASE TO OBTAIN PFN AND
UN FOR ALL REQUIRED FILES ****

Next, the system displays

**** ATTACHING THE DRAWING FILE-TAPE3 ****

If there is no drawing file in the database, control returns to the last menu after displaying the message

NO DRAWING FILE IN THE DATABASE

If the named part is not found in the database (which could also happen, if the name is misspelled), control will return to the last menu after displaying the message

**** NO DRAWING WITH THE GIVEN PARTNO IN THE DATABASE ****

If the drawing is found, the system continues with the message:

**** ATTACHING THE PART HISTORY FILE - PHFILE ****

If the part history file does not exist, the system displays the error message:

NO PART HISTORY FILE IN THE DATABASE

Or, if the part history file does not contain data for the given part number, the system displays the message:

REQURED DATA IS NOT IN PHFILE. CANNOT GENERATE DETAILER DRAWINGS.

In either case, the control returns to the previous menu. Then select the PHEDIT task to create the PHFILE or add data to it.

If the required part history data are found, the system continues with the message:

**** DEFINING A GLOBAL DRAWING FILE - GPARTS ****

If a global parts file already exists with the given PARTNO, the system displays:

GPARTS FILE WITH GIVEN PART NAME ALREADY EXISTS. OVER WRITE?

If the answer is NO, control returns to the previous menu. If YES, the system continues with the messages:

**** GENERATING A TRACE FILE TO RUN ICEM DDN ****

**** THE NAMED PART HAS n LEVELS n DRAWINGS WILL
BE CREATED ON GPARTS FILE ****

where n is a positive integer.

**** ENTERING ICEM DDN TO GENERATE GPARTS ****

**** SUCCESSFUL COMPLETION ****

**** GPARTS FILE NAME IS GPFnn ****

Where GPFnn is the name for the newly created GPARTS file. This is for your information only. You need not remember this name in order to retrieve drawings from the GPARTS file.

Please note that when the detailer drawings are generated, the entire piece part geometry for each component piece part is created at level zero. Now the detailers can add labels and other information at levels other than zero.

"ASSEMBLING DETAILER DRAWINGS INTO LAYOUT"

When this task is selected by entering the task number 3 or the task name ASEMBL, the system requests the part number of the original layout drawing by displaying:

```
   ENTER THE PARTNO FOR THE DRAWING OR CR TO RETURN

?-------------------------------------------------------------
```

When you enter the part number, scanning the database, attaching the files, generating the trace file to run DDN and DDN execution proceeds almost in the same manner as in the previous task. The sequential output messages are shown in Figure 2.

As seen in this figure, instead of defining a new GPARTS file and scanning data on it, GPARTS file with the PARTNO is attached and data is restored from it. Instead of displaying the newly defined GPARTS file name, the system puts you back in DDN and displays the newly reassembled layout drawing. You may review and make changes as necessary.

During reassembly all additional data put by detailers at levels other than zero are discarded. Piece part component geometry are moved to their original levels. The original layout drawing is not altered. The new assembly drawing is created with the same part number but the sheet number is incremented by 1000. That is, if the sheet number of the original layout drawing is 100, the sheet number of the reassembled drawing will be 1100. Since the sheet number cannot be greater than 9999, if the original sheet number is 9000 or more, the sheet number for the assembled drawing will be original number minus 9000.

"CREATE/EDIT PART HISTORY FILE"

This task enables to create and/or edit the part history file. A part history file may contain part history for more than one part.

Each part history begins with the PARTNO for the part. The second and the subsequent lines, except the last, contain the part history which include (a) find number, (b) level, (c) quantity and (d) piece part name. All these four items for each piece part are stored on a single line. The first five columns contain the find number. The next five columns contain the level. The next five

columns contain the quantity. The last 70 columns contain the piece part name. The first three items can be anywhere in their specified area. While entering data using a text editor like XEDIT or FSE, left justified data entry is easier due to tab settings. The last line in part history must be END.

When this task is chosen, the system requests the PARTNO by displaying

ENTER THE PARTNO FOR THE DRAWING OR CR TO RETURN

?----------

Enter the 1-70 characters long PARTNO. The system looks for a part history file. If one does not exist, it will define a new file. If a part history file already exists, then it scans the data to see if the history for the named part exists. If it does, it positions the cursor on the first line of that history if you are using the full screen editor. If you are using XEDIT, it will print the first five lines of that part history. In either case, the tab character is set as '\' (inverse slash) and tab columns are set at 6, 11, and 16. Hence, you can insert a new line of data by entering a line like:

25\3\60\HALF INCH NUT

The data will be entered into the file as

25bbb3bbbb60bbbHALF INCH NUT

where b is a blank space.

If the part history for the given PARTNO is not found, FSE will set the cursor at bottom of the file and XEDIT will put you at the top of the file. Find number and quantity are not used in this application. But they are included here so that the same part history file can be used in other applications such as Bill of Materials. When you leave the edit session, control will return to the last EDL menu.

"ATTACH GPARTS FILE TO USE WITH DDN"

To begin his task, the detailer must attach the GPARTS file and run DDN to extract the piece part drawing. One cannot expect every detailer to remember the file name. Hence, by selecting this task, a detailer can attach the right GPARTS file by entering the PARTNO for the layout drawing. Thus, this task also begins

with a request for the PARTNO for the layout drawing. When you enter the PARTNO, the system will display:

DURING THIS SESSION, WILL YOU SAVE PARTS ON THIS GPARTS FILE?

Answer yes or no depending upon whether you are to save parts or restore parts from the GPARTS file. As seen in Figure 4, you will automatically enter into DDN after having an opportunity to attach additional files, if necessary.

SECURITY_CODE

Of the four tasks, the last one will be chosen by any detailer. Other three tasks should be performed only by a selected few. Hence, a security code is assigned to the first three tasks dedscribed above. Unless one is a member of a group and the group has permission, one cannot access the first three tasks.

ERROR_RECOVERY

If you select a wrong task, the easiest way to quit is inputting a non-existing PARTNO. While the job is in progress, wait until it gets into DDN and then enter 'Control T' twice. If you enter 'Control T' at any other time you may be forced out of EDL.

```
05/09/20.      ICEM ENGINEERING DATA LIBRARY VERSION 1.2.0          09.12.57.
                    COPYRIGHT CONTROL DATA CORP., 1984

        CURRENT TERMINAL CONFIGURATION
        GRAPHICS TERMINAL      TEK 4114
        DIALOG AREA            ON GRAPHICS TERMINAL
        COMMUNICATIONS RATE    9600 BAUD
        COMMUNICATIONS TYPE    ASYNCHRONOUS
        TABLET                 NO
        LOCAL ASSIST           DEFAULT
        LOCAL DISPLAY          DEFAULT
        EOM                    NO
        BIT PLANES             4

         ICEM APPLICATIONS
     1.  EXIT                                  E,EXIT
     2.  DESIGN/DRAFTING/NC                    DDN
     3.  SOLID MODELING                        ISM
     4.  UNISTRUC II                           US
     5.  PATRAN-G                              PAT,PATRAN
     6.  ICEM SCHEMATICS                       SCH
     7.  ICEM TEXROUTE                         TEK
     8.  PLOTTING                              PLOT
     9.  DETAILER DRAWINGS                     DETAIL
ENTER TASK
? DETAIL____

        DETAILER DRAWINGS
     1.  EXIT                                  E,EXIT
     2.  GENERATE DETAILER DRAWINGS FROM LAYOUT  DETDRW
     3.  ASSEMBLE DETAILER DRAWINGS INTO LAYOUT  ASEMBL
     4.  CREATE/EDIT PART HISTORY FILE         PHEDIT
     5.  ATTACH GPARTS FILE TO USE WITH DDN    GPATCH
ENTER TASK
? DETDRW____

        ENTER THE PARTNO FOR THE DRAWING OR CR TO RETURN
? 2-D PIECE PART ASSEMBLY_____________________________________________

 ****   SCANNING EDL DATA BASE TO OBTAIN
        PFN AND UN FOR ALL REQUIRED FILES          ****

 ****   ATTACHING THE DRAWING FILE - TAPE8         ****

 ****   ATTACHING THE PART HISTORY FILE - PHFILE   ****

 ****   DEFINING A GLOBAL DRAWING FILE - GPARTS    ****

 ****   GENERATING A TRACE FILE
        TO RUN ICEM  DDN                           ****

 ****   THE NAMED PART HAS    4 LEVELS.
          4 DRAWINGS WILL BE CREATED
        ON GPARTS FILE.                            ****

 ****   ENTERING ICEM DDN TO GENERATE GPARTS       ****

 ****   SUCCESSFUL COMPLETION.                     ****

 ****   GPARTS FILE NAME IS GPF01                  ****
```

Figure 1. Computer-User Dialog During the "Generate Detailer Drawings from Layout" Task

```
        ICEM APPLICATIONS
     1. EXIT                                    E,EXIT
     2. DESIGN/DRAFTING/NC                      DDN
     3. SOLID MODELING                          ISM
     4. UNISTRUC II                             US
     5. PATRAN-G                                PAT,PATRAN
     6. ICEM SCHEMATICS                         SCH
     7. ICEM TEKROUTE                           TEK
     8. PLOTTING                                PLOT
     9. DETAILER DRAWINGS                       DETAIL
ENTER TASK
? 9_________

        DETAILER DRAWINGS
     1. EXIT                                    E,EXIT
     2. GENERATE DETAILER DRAWINGS FROM LAYOUT  DETDRW
     3. ASSEMBLE DETAILER DRAWINGS INTO LAYOUT  ASEMBL
     4. CREATE/EDIT PART HISTORY FILE           PHEDIT
     5. ATTACH GPARTS FILE TO USE WITH DDN      GPATCH
ENTER TASK
? ASEMBL____

        ENTER THE PARTNO FOR THE DRAWING OR CR TO RETURN
? 3-D_PIECE_PART_ASSEMBLY_____________________________________________

  ****  SCANNING EDL DATA BASE TO OBTAIN
        PFN AND UN FOR ALL REQUIRED FILES       ****

  ****  ATTACHING THE DRAWING FILE - TAPE8      ****

  ****  ATTACHING THE GLOBAL DRAWING FILE - GPARTS****

  ****  ATTACHING THE PART HISTORY FILE - PHFILE ****

  ****  GENERATING A TRACE FILE
        TO RUN ICEM  DDN                        ****

  ****  ENTERING ICEM DDN TO ASSEMBLE DETAILER
        DRAWINGS INTO LAYOUT DRAWING            ****

  ****  SUCCESSFUL COMPLETION.                  ****

  ****  WAIT A MINUTE TO SEE THE REASSEMBLED
        LAYOUT DRAWING                          ****
```

Figure 2. Computer-User Dialog During the "Assemble Detailer Drawings into Layout" Task

```
        ICEM APPLICATIONS
     1. EXIT                                  E,EXIT
     2. DESIGN/DRAFTING/NC                    DDN
     3. SOLID MODELING                        ISM
     4. UNISTRUC II                           US
     5. PATRAN-G                              PAT,PATRAN
     6. ICEM SCHEMATICS                       SCH
     7. ICEM TEKROUTE                         TEK
     8. PLOTTING                              PLOT
     9. DETAILER DRAWINGS                     DETAIL
ENTER TASK
? DETAIL____

        DETAILER DRAWINGS
     1. EXIT                                  E,EXIT
     2. GENERATE DETAILER DRAWINGS FROM LAYOUT DETDRW
     3. ASSEMBLE DETAILER DRAWINGS INTO LAYOUT ASEMBL
     4. CREATE/EDIT PART HISTORY FILE         PHEDIT
     5. ATTACH SPARTS FILE TO USE WITH DDN    SPATCH
ENTER TASK
? 4_________

        ENTER THE PARTNO FOR THE DRAWING OR CR TO RETURN
? 3-D_PIECE_PART_ASSEMBLY_____________________________________________

  ****    ATTACHING THE PHFILE FOR EDITING          ****
3-D PIECE PART ASSEMBLY
27   27   36   POINTS
36   36   0    LINES
81   000  18   CIRCLES
128  1    45   TEXTS
?? T;P*
ILLEGAL PARAMETER
?? T
?? P*
R41654600
1    0    1    PRINTED WIRING BOARD (PWD) OUTLINE
2    2    10   FORMAT, ENGINEERING NOTES, TILTLE BLOCK ETC.
5    10   1    PWD COMPONENT LOCATION GRID
6    50   55   INTEGRATED CIRCUIT BODIES
7    51   45   IC FIND NUMBER CIRCLES
8    52   55   IC VENDER IDENTIFICATION
9    60   63   SINGLE-IN-LINE (SIP) BODIES
10   80   27   DISCRETE BODY GEOMETRY
12   100  99   DRILL PATTERN DATA 1
13   101  123  DRILL PATTERN DATA 2
14   102  54   DRILL PATTERN DATA 3
15   103  27   DRILL PATTERN DATA 4
16   104  12   DRILL PATTERN DATA 5
17   105  3    DRILL PATTERN DATA 6
18   106  5    DRILL PATTERN DATA 7
23   201  45   IC FIND NUMBER INFORMATION
24   202  36   IC LOCATION NUMBER INFORMATION
25   301  1    SIP FIND NUMBER INFORMATION
26   302  30   SIP LOCATION NUMBER INFORMATION
27   401  2    DISCRETE FIND NUMBER INFORMATION
28   402  10   DISCRETE LOCATION NUMBER INFORMATION
$END$
3-D SECOND
1    1    5    POINTS
2    2    0    LINES
3    3    5    CIRCLES
4    4    3    TEXTS
$END$
3-D PIECE PART ASSEMBLY
27   27   36   POINTS
36   36   0    LINES
81   000  18   CIRCLES
128  1    45   TEXTS
$END$
--EOR--
--EOF--
--EOI/TOP--
?? Q
PHFILE  IS A LOCAL FILE
*** EDL IS NOW ADDING INFORMATION FOR 3-D PIECE PART ASSEMB / 1

        WOULD YOU LIKE TO UPDATE EDL INFORMATION FOR THE DATA
        ENTER YES OR NO (Y/N)
? ___

        DETAILER DRAWINGS
     1. EXIT
```

Figure 3. Computer-User Dialog During the "Create/Edit Part History File" Task

```
        ICEM APPLICATIONS
      1.  EXIT                                  E,EXIT
      2.  DESIGN/DRAFTING/NC                    DDN
      3.  SOLID MODELING                        ISM
      4.  UNISTRUC II                           US
      5.  PATRAN-G                              PAT,PATRAN
      6.  ICEM SCHEMATICS                       SCH
      7.  ICEM TEKROUTE                         TEK
      8.  PLOTTING                              PLOT
      9.  DETAILER DRAWINGS                     DETAIL
ENTER TASK
? 9_________

        DETAILER DRAWINGS
      1.  EXIT                                  E,EXIT
      2.  GENERATE DETAILER DRAWINGS FROM LAYOUT  DETDRW
      3.  ASSEMBLE DETAILER DRAWINGS INTO LAYOUT  ASEMBL
      4.  CREATE/EDIT PART HISTORY FILE         PHEDIT
      5.  ATTACH GPARTS FILE TO USE WITH DDN    GPATCH
ENTER TASK
? GPATCH____

        ENTER THE PARTNO FOR THE DRAWING OR CR TO RETURN
? 3-D PIECE PART ASSEMBLY_____________________________________________

        DURING THIS SESSION, WILL YOU SAVE PARTS ON THIS GPARTS FILE?
        ENTER YES OR NO (Y/N)
? N__

  ****    ATTACHING THE GLOBAL DRAWING FILE - GPARTS****

PLEASE SPECIFY THE DRAWING FILE

        SPECIFY FILE
      1.  EXIT                                  E,EXIT
      2.  SPECIFY BY FILE NAME                  N,NAME
      3.  LIST AVAILABLE FILES                  L,LIST
      4.  CREATE A NEW FILE                     CR,CREATE
SELECT OPTION
? NAME______

        ENTER THE PERMANENT FILE NAME OR CR TO EXIT
? PARTS__

        ENTER THE NOS USER NAME FOR THIS FILE OR CR FOR YOUR OWN
? -------

        *** THE FILE HAS BEEN ATTACHED ***

        ALTERNATE FILES
      1.  ENTER APPLICATION                     APPL,GO
      2.  RETURN TO TASK MENU                   E,EXIT
      3.  LIST LOCAL FILES                      L,LISTLF
      4.  RETURN LOCAL FILES                    R,RETURN
      5.  ATTACH FILES BY FILE TYPE             T,TYPE
      6.  ATTACH FILES BY FILE NAME             N,NAME
SELECT OPTION
? ----------

        *** NOW ENTERING ICEM DDN ***
```

Figure 4. Computer-User Dialog During the "Attach GPARTS File to Use With DDN" Task

CONTROL DATA CORPORATION

3-D PIECE PART EXTRACTION FROM LAYOUT DRAWING

SEPTEMBER, 1985

INSTALLATION INSTRUCTIONS

DISCLAIMER

NOS and its product set are intended for use only as described in this document. Control Data cannot be responsible for the proper functioning of undescribed features or parameters.

RELEASE DESCRIPTION

"3-D Piece Part Extraction from Layout Drawing" is an enhancement to ICEM EDL Version 1.2 which runs under the CDC Network Operating System (NOS) Version 2.

This enhancement enables you to extract piece-part geometry for detailer drawings from 3-D layout drawings. It also allows you to reassemble detailer drawings into layout drawing. A comparison between the original drawing and the reassembled drawing may reveal design error. Your only input is the part identification number, which is the same as the 1-70 characters long PARTNO you used while creating and/or modifying the layout drawing in ICEM DDN. The system scans the database, attaches all necessary files, generates trace files to run DDN, runs DDN to save parts on GPARTS file or restore parts from GPARTS file.

To inform the system what components a layout drawing contains and their levels of definition, the user also supplies a file called "Part History File." Part history file data structure is explained in the User's Manual. To assist the designer to create and/or edit the part history file, this enhancement provides special capabilities as described in the User's Manual. Also, this system enables detailers to get access to the GPARTS file by entering the PARTNO for the layout drawing.

To use this enhancement, you should already be using or willing to install NOS Operating System Version 2.0, EDL Version 1.2 and DDN Version 1.57. This enhancement will be operational in any later versions of these products, but not necessarily in earlier versions.

HARDWARE CONFIGURATION

The minimum hardware configuration required for NOS2, EDL and DDN is also required for this product.

RELEASE MATERIALS

The "3-D Piece Part Extraction" release files reside on the magnetic tape with VSN of TDREL1. This tape has the following characteristics: 9-track with 1600 bpi binary recording mode, TDV10 as the file ID in the HDR1 label, and 6 files.

File 1: Installation Procedure

File 2: FORTRAN routines that will be added to the EDL

File 3: FORTRAN capsules that will be added to the EDL

File 4: Procedure file to be included in the EDL

File 5: Transaction file to be included in the EDL .

File 6: A procedure to compile the FORTRAN routines (File 2), FORTRAN capsules (File 3) and implement them in EDL

NOTES AND CAUTIONS

All limitations applicable to NOS2, EDL, and DDN also apply to this product. If your EDL is already customized, running the procedure (File 6) may wipe out your original customization routines. Hence, modify File 6 as necessary if the EDL is already customized.

This product is expected to provide the capabilities described in the User's Manual. If you have some special needs, you may modify the enhancement programs to meet your needs. Control Data will assist you to meet your special requirements.

INSTALLATION PROCEDURE

The files which are part of this product are installed by executing the installation procedure which is File 1 of the TDREL1 tape. To install the files, submit the tape to the computer operator and enter the following commands from your interactive terminal under DBA account number.

```
LABEL,TAPE,VSN=TDREL1,NT,L=TDV10,R,F=I,PO=R,D=PE,LB=KL.
COPYCF,TAPE,INSTAL.
BEGIN,,INSTAL.
```

This procedure will install the following indirect access files:

TDFTN,TDCPSL,TDPROC,TDTRAN,and TDFTOE.

If you already have files with these names, transfer them to different names before running this procedure.

Modify the transaction file TDTRAN using XEDIT or FSE. Change all "MLS2154" to DBA account number.

Clear all local files and then execute the procedure TDFTOE by entering the commands:

```
CLEAR.
GET,TDFTOE.
BEGIN,,TDFTOE.
```

This will update your EDL files by including the new capsules and FORTRAN routine. This will also create a new indirect access file TDLIB.

Next, update the EDL menu database in the following manner:

Enter EDL using an ID with SYSADMIN privileges (like EDLID):

A. Choose the UPDATE EDL FOR ENGINEERING DATA task (task command UPDATE).

1. Tell the EDL that the file is an UPPER CASE TEXT FILE.

2. Give the data a meaningful name like MDB TRANSACTIONS FOR 3-D PIECE-PART.

3. The APPLICATION DATA TYPE is EDL MDB TRANSACTIONS.

B. Enter the task command MENUMGMT.

1. Retrieve the data which you just entered into EDL.

2. Select that data, and the changes will be automatically entered into EDL.

To check whether there was any error while modifying the EDL menu database, review the file MDBLIST by entering EDIT task. If there is no error, enter into ICEM task. The ICEM APPLICATIONS task menu should show the additional task DETAILER DRAWINGS.

Next, update the EDL Engineering Database in the following manner:

A. Choose the INTERACTIVE QUERY UPDATE task (task command QU).

1. When Query Update responds with the prompt --; enter

INVOKE EDLDATAW OF EDLDATA KEY $EDLORDBA$ USING E120DDB

all in one line.

2. When Query Update returns with the prompt --; enter

STORE SETTING FTFTC,FTNAM,FTLFN,FTLFNR,FTAPN, FTMUL,FTCHR,FTPRT

all in one line.

3. When Query Update returns with the prompt >>, enter

```
$PARTbHISTORYbFILEbbb$b$PARTbHISTORYbFILEbbb$b
                              $PARTHIS$b+
$T$b$ICEMbDDN$b$T$b$D$b$T$
```

where b is a blank space. Enter the data just as shown.

4. When Query Update returns with the prompt >>, enter *END

5. When Query Update returns with the prompt --, enter

```
STORE SETTING ATADT,ATNAM,ATFTC,ATSIDR,ATTNA
```

all in one line.

6. When Query Update returns with the prompt >>, enter

```
$PARTbHISTORYbbbbbbbbb$b$PARTbHISTORYbbbbbbbbb
                    $b$PARTbHISTORYbFILEbbb$b+
$F$b$bb$
```

where b is a blank space. Enter the data just as shown.

7. When Query Update returns with the prompt >>, enter

```
*END
```

8. When Query Update returns with the prompt --, enter

```
END
```

You will be back at your last EDL menu.

Next, enter into GROUP ADMINISTRATION task (task command is GROUPADMIN)

1. Create a new group with a meaningful name.

2. Add the names of all staff who are likely to use

   (a) GENERATE DETAILER DRAWINGS FROM LAYOUT

(b) ASSEMBLE DETAILER DRAWINGS INTO LAYOUT

and (c) CREATE/EDIT PART HISTORY FILE tasks, as members of the newly created group.

3. Give task access to the group. Task name is DTLDRW.

That will complete the installation procedure.

VERIFICATION PROCEDURE

To verify the proper functioning of this enhancement,

1. Have a 3-D layout drawing where component piece parts are defined at pre-set levels, available in the drawing file.

2. Create a part history file for this part, using the task CREATE/EDIT PART HISTORY FILE. (Data structure is explained in the User's Manual).

3. Select the GENERATE DETAILER DRAWINGS FROM LAYOUT task. Upon completion, examine the newly created GPARTS file by selecting the F.6.1.2.3 menu in DDN.

4. Select the ASSEMBLE DETAILER DRAWINGS INTO LAYOUT task. Review the reasssembled drawing for the completeness of the task.

5. Select the ATTACH GPARTS FILE TO USE WITH DDN task to verify that proper files are attached when the PARTNO for the layout drawing is supplied by the user.

To add any special requirements for your site, contact your local CDC analyst.

C. MARTOCELLO

SOFTWARE RELEASE BULLETIN

CDC 790-20 WORKSTATION
TEKEM MICROCODE
Version 3.0

RELEASE 003

Product 790-202
for the Control Data 790-20 Workstation

```
* * * * * * * * * * * * * * * * * * * * * * * * *
*                                               *
*   RRRR  EEEE    A    DDD     M   M  EEEE  !! *
*   R  R  E      A A   D  D    MM MM  E     !! *
*   RRR   EEE   AAAAA  D  D    M M M  EEE   !! *
*   R R   E     A   A  D  D    M   M  E        *
*   R  R  EEEE  A   A  DDD     M   M  EEEE  !! *
*                                               *
*   Critical information is contained in this   *
*        document.  At the very least you       *
*                                               *
*      MUST READ THE NEXT PAGE COMPLETELY!!     *
*                                               *
* * * * * * * * * * * * * * * * * * * * * * * * *
```

IF YOU WANT TEKEM V3.0 TO WORK RIGHT

(AND WE ALL KNOW THAT YOU DO)

THEN IF YOU DO NOTHING ELSE READ THIS

1. You must follow the instructions in section 5 to change the alpha baud rate and tablet switches or TEKEM V3.0 will not work.

APPLICATION HOTLINE SUPPORT

If any difficulties arise in the installation or operation of this product, please call Application Central Support at one of the following phone numbers:

External Domestic Users	800/638-8502 (toll free)
Internal CDC Users	CDC Controlnet 232-3900
International Users	USA 301-340-3900

These support hotlines operate Monday through Friday, except holidays, 8:00 a.m. to 5:00 p.m., Eastern time.

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1.0 INTRODUCTION

The CDC 790-20 is an ergonomic workstation used with ICEM applications on both the CYBER 120 Application Processor and CYBER 800 mainframe computers. The CDC 790-20 has two display screens, one high resolution color graphics and the second scrolling alphanumeric. It also has a keyboard and tablet. The TEKEM microcode provides the program for the CDC 790-20 to operate in one of two modes:

1. Transparent Mode - the alphanumeric terminal is directly connected for standard host operating system communication.

2. Tektronix[1] 4115 Emulation Mode - the terminal operates like the Tektronix 4115 graphics terminal substituting the separate alpha display for the Tektronix dialog area.

This SRB describes TEKEM V3.0 which is a corrective code release of the CDC 790-20 microcode. This microcode is delivered on one 3 1/2 inch diskette for loading on the CDC 790-20. This version differs from previous versions. It was produced by Control Data CIM Development. With certain restrictions, third party applications may also be used with the CDC 790-20 in Tektronix 4115 emulation mode or transparent mode.

This SRB documents the following important items:

- Installation Changes - required terminal changes to operate properly with this new microcode.

- New Features - descriptions of new features and their operation.

- Fixed Features - lists the features that operated improperly in past releases that have been fixed.

- Outstanding Problems - highlights known problems for which corrective action is in process, but not yet completed.

---

[1] Tektronix is a registered trademark of Tektronix, Inc., Beaverton, Oregon.

2.0 REFERENCES

Related Publications

- CDC 790 ICEM Ergonomic Workstation - Tektronix Emulation Manual - 62950166
- CDC 790 ICEM Ergonomic Workstation - Owner's Manual - 62950150
- CDC 790 ICEM Workstation Communications Interfaces - Installation and Maintenance Manual - 62950153
- Series ONE The Thin Dimension - Graphics Tablet User's Manual - Kurta Corporation
- Tektronix 4110 Series Command Reference Manual - 070-3892-00
- Tektronix 4110 Series Host Programmers Manual - 070-4664-00
- Tektronix 4115B Computer Display Terminal Operators Manual - 070-4665-00

3.0 HARDWARE/SOFTWARE ENVIRONMENT

3.1 Hardware Requirements

This microcode product executes in the CDC 790-20 graphics workstation configuration to control its operation. The CDC 790-20 consists of microprocessor display list and graphics processors, a high-resolution color graphics display monitor, an alphanumeric monitor and keyboard (which is the CDC 721 display terminal), and graphics tablet.

Options available to the basic CDC 790-20 hardware configuration and supported by TEKEM V3.0 include the following:

- Display list memory expansion from 1MB to 2MB.
- Seiko color hardcopy with Centronix parallel interface.
- Kurta 3-button cursor.

4.0 GENERAL SOFTWARE DESCRIPTION

Refer to the referenced CDC 790-20 manuals for detailed information about this product. In particular, refer to the "CDC 790 ICEM Ergonomic Workstation - Tektronix Emulation" manual. The information that follows in this and subsequent sections refers to changes to that manual.

4.1 New Features

4.1.1 Seiko Parallel Hardcopy

In previous versions of TEKEM the Seiko graphics printer was supported using the RGB video interface. This version provides for support of a parallel interface that makes exact screen copies of the graphics displayed.

Microcode options are provided to support dithering for higher color resolution and selectable dark background or inverse hardcopy background.

4.1.2 Segmented Display List Speed-up

Processing of segmented display list drawings from the host (also known as a "host repaint" when using ICEM DDN) has been improved so that host paint times are reduced by up to a factor of eight.

4.1.3 Run-Length Coded (RLC) Display Speed-up

Processing of RLC drawings (typical of the ICEM Solid Modeler shaded picture drawings) has been improved so that paint time is reduced by up to a factor of four.

4.1.4 19.2 and 38.4 Kbps Communications

Communications from the CDC 790-20 are now supported at asynchronous speed of up to 38.4 Kbps. On CYBER 120 Application Processor systems 19.2 Kbps is supported from all ports. AP ports can be specially configured to operate at 38.4 Kbps as can the master console port. CYBER 800 systems require the CLA performance upgrade to operate at rates above 9600 and, if provided, will operate at up to 38.4 Kbps.

4.1.5 Local TEKEM/Transparent Mode Toggle

In previous versions only receipt of the proper host command could cause the terminal to go from TEKEM to transparent mode. Similarly, to go from transparent mode to TEKEM required a host command or terminal reset.

A local function that allows the user to toggle between the two modes at will is now provided. The mechanism is to hit the BREAK key twice, rapidly. A time delay is used to detect the difference between a single BREAK that should be forwarded on to the host and a BREAK/BREAK that causes the mode toggle function.

Note: The BREAK/BREAK sequence does send two BREAK signals to the host in addition to toggling the mode.

4.1.6 2MB Display List

TEKEM V3.0 allows installation and utilization of the 2MB display list option. The microcode will automatically detect the presence and enable use of the extra memory without any user or engineer intervention. Previously a manual configuration process was required to enable access to this memory.

4.1.7 Three-Button Cursor

A 3-button cursor, also called a "puck", may be installed on the Kurta tablet. Although not strictly being provided as a new feature it is highlighted as a new option that may be obtained and installed to replace the pen stylus. TEKEM V3.0 provides no support for the multi-button functionality of the puck at this time.

4.1.8 Alpha Terminal Speed-up

The communication rate to the alphanumeric terminal is doubled from 9600 bps to 19200 bps. This allows much better performance matching for text operations between the host and the alpha monitor when host connections exceed 9600 bps. Performance is not significantly improved when scrolling is enabled due to increased processing overhead in the alpha monitor.

4.1.9 Improved Memory Allocation

Display list memory use per segment has been reduced 25%. This will allow more segments to be stored in the same amount of display list memory.

4.2 Fixed Features

A major emphasis of this release is to provide corrective code rather than new features to the field users of the CDC 790-20. The items below list some of the major functions and features that were either missing or significantly deficient in previous releases of TEKEM. Not all fixed features are listed. Refer to the later section describing outstanding bugs for a list of all reported problems that are still not fixed in this release.

4.2.1 Panel Fill

Panel fill operations is now more robust in function and with improved performance. Panel fill with or without boundaries works. The various ways polygon boundaries may intersect, form islands, etc., are handled properly for panel fill.

4.2.2 Diskette Boot Time

At first use of TEKEM V3.0 the user will notice a significant speed-up in diskette boot time. The time is reduced from about 65 seconds to 33 seconds.

4.2.3 Dragging

In previous versions entity dragging (attaching segments as the cursor) did not work at all. This feature is improved so entity dragging can now be performed.

CAUTION: Refer to the list of outstanding problems for the description of the limitations of this feature.

4.2.4 Highlighting

Entity highlighting (blinking) now functions properly and uses a clock rate for consistent blink frequency. Because of processing overhead selection of a large number of entities for simultaneous highlighting may cause the blinking time to become large.

4.2.5 Communication Flagging

Input and output flow control operations are working properly. This fixes many reported problems that were caused by loss of process synchronization and loss of data due to inadequate flow control by TEKEM.

4.2.6 Display of Facetted Pictures

The DDN facetted method to display surface shaded pictures now works properly. This was fixed by properly handling communications flagging.

4.2.7 Tablet Operations

Two tablet problems have been fixed: (1) Frequent manual resets and (2) Inability to detect back-to-back picks at the same position.

4.2.8 Tablet Typeahead

During some operations tablet picks would be lost. A tablet typeahead buffer of 50 tablet picks has been added to queue the user's tablet entries.

4.2.9 Break Function

The "BREAK" key did not operate properly in previous TEKEM versions. This presented a problem with CYBER 120 AP installations where the BREAK function is an important exception signaling mechanism. This function now operates properly.

4.2.10 Set-Up Mode Back Space

The back space key now works when entering and correcting Set-Up mode parameters.

4.2.11 Transmit Limit

A transmit limit is now imposed on character transmissions. This implies that although the output rate on a bit-wise basis will conform to the selected baud rate, the net output rate on a character-wise basis will be constrained to a potentially slower rate. The default is 9600 bps.

4.2.12 Terminal Hang with Large Drawings

The terminal no longer hangs when display list memory is exhausted. It operates as expected: drawing continues but a repaint will be of only that part of the display list received before memory was exhausted.

5.0 INSTALLATION ON THE CDC 790-20

Normal installation of TEKEM microcode requires no more than insertion of the diskette and a boot operation. Because of changes made to improve performance and correct problems two changes to the basic configuration parameters in the CDC 790-20 must be made at the time of installation of this diskette.

These changes are a one-time change. Once the changes are performed on the CDC 790-20 no further action is required to operate with TEKEM V3.0 on a continuing basis.

5.1 Terminal Configuration Changes

The alphanumeric terminal in the CDC 790-20 is a CDC 721. The default baud rate of the terminal must be changed from 9600 bps to 19200 bps. Perform the change according to the steps below.

Refer to page A-3 of manual 62950166, "CDC 790 ICEM Ergonomic Workstation - Tektronix Emulation," and perform the following steps to change the default baud rate. The steps below assume that other steps have already been performed and that the CDC 790-20 works with prior TEKEM versions. Refer to the documentation change description in the sections that follow for complete details of the manual change:

Step 1. Reset the alpha terminal using the rectangular RESET button.

Step 2. Depress SETUP (second key from the left in the top row); then depress F10 twice; then depress CONTROL/SETUP.

Step 3. No action required.

Step 4. Depress F10.

Step 5. When the mode prompt "ENTER MODE n (1-6)" appears depress "1".

Step 6. Change the default baud rate from 9600 (code 00AA) to 19200 (code 00BB) in configuration parameter F9 by entering first "F9"; second enter "00BB".

Graphic page 26

F9	DFTR 00BB	(The display for F9 should be changed to look like this.)

Step 7. Save the changed state by depressing the COPY key and then depress F1 twice to return to the original set-up state. Reset the terminal again and boot the terminal.

NOTE FOR CYBER 120 AP USERS:

You must perform the above steps exactly the same but substituting an entry of "5" for the "ENTER MODE n (1-6)" response to set the SMALL CYBER default baud rate. Some AOS/VS utilities require the alphanumeric terminal be configured to operate in Mode 5 and the default baud rate for this mode must also be 19200 bps.

5.2 Tablet Switch Changes

This change sets the tablet to work in streaming mode rather than delta mode. This allows multiple picks to work properly when the stylus/puck remains in the same position.

The Mode/Baud switches should be changed to the following positions. The switches are located on the rear of the tablet, possibly under a protective adhesive label:

NOW	WAS
S-1 - OFF	ON
S-2 - OFF	ON
S-3 - OFF	OFF
S-4 - ON	ON

The Program Switch should be as follows -

S1 - OFF
S2 - OFF
S3 - OFF
S4 - OFF
S5 - OFF
S6 - OFF
S7 - OFF
S8 - ON

6.0 DOCUMENTATION ADDITIONS AND CHANGES

The following notes are corrections and additions to the "CDC 790 ICEM Ergonomic Workstation - Tektronix Emulation" manual, publication number 62950166. It is recommended that the pages that follow be copied and inserted into your manual so that future references to the manual contain up to date information.

6.1 Setup Parameters (p2-3)

Replace the "TERMINAL STATUS" table and the "Changing Setup Parameters" sections with the following page. The "Saving Setup Parameters" section remains the same.

(Replacement page for Manual 62950166 page 2-3. TEKEM V3.0)

TERMINAL STATUS
GENERAL

	ECHO	YES
	LOCKKYBD	NO
	DAENABLE	YES
	IGNOREDEL	NO
	LFCR	NO
	CRLF	NO
	SAVECONFIG	NO
	SCROLLING	NO
	SNOOPY	NO
*	TABLETECHO	NO
*	HCDITHER	YES
*	HCINVERSE	NO
	ERRORLEVEL	2

COMMUNICATIONS

	BAUDRATE	19200
	STOPBITS	1
	PARITY	NONE
	PROMPTSTRING	'? '
	PROMPTMODE	NO
	QUEUESIZE	8100
	FLAGGING	IN/OUT
	BYPASSCANCEL	(NL)
	LOCAL/REMOTE	REMOTE

* New parameters this release.

Changing Setup Parameters

(Note: The first paragraph remains the same. Delete and replace the second paragraph with the next section.)

6.2 Transmit Rate Limit Feature (p2-3+)

Add the page which follows to the manual after page 2-3 as new information.

Transmit Rate Limit

The SET-TRANSMIT-LIMIT command imposes an upper bound on how fast the terminal may send characters to the host computer. This must be entered by means of the encoded escape sequence described below and in the Tektronix reference manuals.

This may be useful in circumstances where the host cannot process characters as fast as the terminal can send them over the communications line. The default transmit limit is 9600 bps.

SYNTAX

<esc>NL int:rate-limit

rate-limit(110 to 65536) - Transmit limit, in bits per second.

EXAMPLE

Suppose the transmit baud rate(set by the SET-BAUD-RATES command)is 1200 bits/sec - about 120 characters per second. Suppose further that a SET-TRANSMIT-LIMIT:300 command is sent to the terminal. Then, when transmitting characters to the host, the terminal will send at the full data rate (1200 bits/sec), but will space the characters apart so that the average bit rate is no more then 300 bits per second (about 30 characters per second).

6.3 Break Key Change (p3-3)

(Delete the section on page 3-3 describing BREAK and replace it with the following text:)

Break Key Functionality

Pressing the BREAK key sends a "break" signal to the host. If the keyboard is locked, pressing BREAK also unlocks the keyboard (this can also be accomplished by pressing CANCEL). For most host systems, the break signal should last for 200 milliseconds; that is the "default" setting to which this parameter is set when the terminal is reset. However, this duration may be changed with the SET-BREAK-TIME command.

Transparent/TEKEM Toggle = BREAK/BREAK Function

Pressing the BREAK key twice in rapid succession (within 1 second) effects a transfer between transparent mode and TEKEM mode. This is equivalent to sending a SELECT-CODE command from the host.

7.0 KNOWN PROBLEMS AND WORK-AROUNDS

This section describes problems and work-arounds that are known to be in TEKEM V3.0 product that is being released at this time.

The purpose of this section is to inform the user about potential problems and what, if any, workarounds are available to allow productive use of application software with the CDC 790-20 workstation. A second reason for this list is to inform the user what problems are known and need not be reported. These problems will receive corrective attention in future releases of TEKEM.

7.1 Dragging Restrictions

Entity dragging is operational, but only within certain limits. If too many entities are selected for dragging TEKEM will hang and require reboot of the terminal.

Workaround: When selecting entities for dragging take care not to select "too many" entities. Unfortunately, the rules for "too many" is not straightforward as the success or failure is a function of both the number of entities and the complexity (number of vectors) in the entity. Up to 100 squares have successfully been dragged, but 100 circles causes the overflow and hang problem.

7.2 GIN Modes

Many modes of GIN processing do not operate properly. There is no workaround available if application modifications cannot be made. Fixes are in process and will be included in future releases.

7.3 Outstanding Bug List

The following is a tabular list of outstanding bugs, their severity rating, and a one-line description of the problem.

***** the OUTSTANDING bug report text is to be merged *****
***** at this point *****

OUTSTANDING PROBLEMS

NO.	TYPE/CLASS	SECTION	PROBLEM	03/21/86
224	PTR C	4953 TABLET	4953 TABLET REPORT IS INCOMPLETE.	
002	PTR U		DRAGGING WITH MANY ENTITIES BOOTS TERMINAL	
004	PTR U		CHANGE ORIGIN OF DIMENSIONS WITH IEW AND DDN NOT RELIABLE	
352	PTR U		REPORT-END-OF-MESSAGE FREQUENCY DOESN'T AFFECT GIN REPORTS.	
382	PTR U	GIN	READING COORDINATES W/ EOM-FREQUENCY=0 INCORRECT	
003	PTR U		ORIGIN CHANGE OF NOTE LINES IN DDN DOESN'T ALWAYS BLANK NOTE	
036	PTR S		WINDOW APPEARS TO BE LIMITED TO 16-BITS.	
042	PTR S		RE-DRAWING OF POLYGON CURSOR DOES NOT KEEP UP WITH TYPE-AHEAD BUFFER	
099	PTR S		COORDINATE MODE CAN NOT CHANGE DURING PANEL DEFINITION.	
134	PTR S		EDL INDEX CARDS DISAPPEAR WITH 50 CHAR DISPLAY & REVERSED SCROLLING	
202	PTR S		ZOOMING WITH VERY SMALL WINDOWS YIELDS STRAY VECTORS.	
377	PTR S	BYPASS	GIN BYPASS MODE DOESN'T WORK.	
094	PTR S	CRLF	THE CRLF AND LFCR COMMANDS DO NOT WORK WHEN DIALOG AREA IS ENAB/DIAB'ED	
366	PTR S	GIN	SEGMENT CURSOR DOES NOT MAP TO SELECTED VIEWPORT (IV 8 N ...)	
368	PTR S	GIN	GIN AREA IS NOT ASSIGNED BY MAJOR GIN TYPE	
348	PTR S	KX	EXPAND MACRO GIVES "EXISTANCE PROBLEM" ERROR.	
101	PTR S	NB,NC	ESC NB, ESC NC ARE IGNORED.	
381	PTR S	PARITY	PARITY SETTINGS ARE NOT SAVED PROPERLY	
201	PTR S	POLYGON	POLYGON PICKING DOES NOT WORK WHEN DISPLAY PRIORITY IS IN USE.	
166	PTR M		READBACK FORMAT IS DIFFERENT FROM DOCUMENTATION.	
345	PTR M		ATTENTION INDICATORS WRONG SIZE.	
370	PTR M		CROSSHAIRS ARE NOT REDISPLAYED WITH CHANGE IN VIEW	
373	PTR M		NEXTVIEW WITH ZOOM BOX DOWN DOES NOT REPAINT CLUSTERED VIEWS	
374	PTR M		CLUSTER OF VIEWS CAN LEAVE VIEWS WITH DIFFERENT SCALE FACTORS.	
376	PTR M		INITIAL CURSOR OPERATION DOES NOT FUNCTION CORRECTLY.	
226	PTR M	BORDER	THE SET_BORDER_VISIBILITY COMMAND DOES NOT WORK PROPERLY.	
035	PTR M	IC	POSITION OF CURSOR WHEN ENABLED IS DIFFERENT BETWEEN 4115 AND TEKEM	
240	PTR M	KC	TEST FOR KC DOES NOT ALWAYS WORK.	
152	PTR M	LINE	LINE A TO B DOES NOT HAVE SAME PIXELS AS LINE B TO A.	
068	PTR M	NP	ESC NP DOESN'T SET PARITY CORRECTLY	
071	PTR M	TB	TB DOES NOT ALLOW BLINK BACKGROUND COLOR.	
367	PTR M	GIN	(ESC) I W <XY> <XY> RANGE IS LIMITED TO -65535, 65535	
369	PTR M	VIEWING	WINDOW DOES NOT CHANGE WHEN VIEWS ARE CLUSTERED	
062	PTR M	VIEW BOX	VIEW BOX IS LEFT ON THE SCREEN AFTER POLYGON ERASE.	
028	PTR M	VIEWPORT	BORDER NOT DISPLAYED ON CHANGING VIEWPORT WITH NEXT VIEW KEY.	
010	PTR M	WINDOW	SETTING OVERVIEW WINDOW.	
047	PTR I	PROMPT MODE	IN PROMPT MODE, PROMPT STRING IS DISPLAYED & NO INPUT IS RETURNED	

6.4 New Setup Commands (p4-1)

(Add the following descriptions of new Setup commands at page 4-1.)

Table 4-1 (Additions). Setup Mode Commands

HCDITHER	Set hardcopy dither mode (YES,NO)
HCINVERSE	Set hardcopy background inverse (YES,NO)
TABLETECHO	Set tablet audible echo mode (YES,NO)

6.5 Misc. Changes

(Please make the following changes by marking up your manual original. The changes described are not significant enough to require complete page replacement.)

6.5.1 CDC Application Hot-Line Phone Number (pA-1)

Change the number in section **CDC APPLICATION HOTLINE** to 1-800-638-8502.

6.5.2 Alpha Terminal Set Up (pA-1)

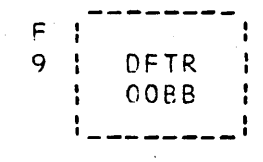
At the bottom of page A-1 in section **SETTING UP THE ALPHA TERMINAL** there is a statement that reads as follows:

> You may notice that there is also a BAUD parameter shown. This should be set to 9600, regardless of the workstation host connection.

Change the rate mentioned as the default rate for the alpha terminal to read 19200 instead of 9600.

6.5.3 Configuration Parameter F9 in Step 6 (pA-3)

In step 6 of the alpha set up sequence shown on page A-3 the box for F9 shows "00AA". Change it to show "00BB".



(The display for F9 should be changed to look like this.)

SOFTWARE RELEASE BULLETIN

CDC 790-20 WORKSTATION
TEKEM MICROCODE
Version 3.1

RELEASE 004

Product 790-202
for the Control Data 790-20 Workstation

```
* * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * *
*                                                                           *
* RRRRR   EEEEEEEE    AA    DDDDDDD    MM    MM EEEEEEEE !!  *
* RRRRRR  EEEEEEEE   AAAA   DD    DD   MMM  MMM EEEEEEEE !!  *
* RR  RRR EE         AA  AA  DD     DD  MM MM MM EE       !!  *
* RR  RR  EE        AA    AA DD     DD  MM MM MM EE       !!  *
* RRRRR   EEEEEEEE AAAAAAAA DD     DD  MM MM MM EEEEEEEE !!  *
* RRR     EEEEEEEE AAAAAAAA DD     DD  MM    MM EEEEEEEE !!  *
* RRRR    EE       AA    AA DD     DD  MM    MM EE       !!  *
* RR RR   EE       AA    AA DD     DD  MM    MM EE       !!  *
* RR  RR  EEEEEEEE AA    AA DD    DD   MM    MM EEEEEEEE !!  *
* RR   RR EEEEEEEE AA    AA DDDDDDD    MM    MM EEEEEEEE !!  *
*                                                                           *
*                                                                           *
*          Critical information is contained in this                        *
*              document.  At the very least you                             *
*                                                                           *
*              MUST READ THE NEXT PAGE COMPLETELY!!                         *
*                                                                           *
* * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * *
```

IF YOU WANT TEKEM V3.1 TO WORK RIGHT

(AND WE ALL KNOW THAT YOU DO)

THEN IF YOU DO NOTHING ELSE READ THE FOLLOWING SECTIONS

1. Tablet Overlay installation. Refer to section 4.1.7.
2. Setup of Alpha Terminal. Refer to section 6.4.
3. AUTONEWLINE Setup parameter for ICEM users. Refer to section 4.1.9.

APPLICATION HOTLINE SUPPORT

If any difficulties arise in the installation or operation of this product, please call Application Central Support at one of the following phone numbers:

External Domestic Users	~~800/638-8502~~ 821-5212 (toll free)
Internal CDC Users	CDC Controlnet 239-2739
International Users	USA 612-482-2739

These support hotlines operate Monday through Friday, except holidays, 8:00 a.m. to 5:00 p.m., Central time.

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7.0 KNOWN PROBLEMS AND WORK-AROUNDS

1.0 INTRODUCTION

The CDC 790-20 is an ergonomic workstation used with ICEM applications on both the CYBER 120 Application Processor and CYBER 800 mainframe computers. The 790-20 has two display screens, one high resolution color graphics and the second scrolling alphanumeric. It also has a keyboard and tablet. The TEKEM microcode provides the firmware for the 790-20 to operate in one of two modes:

1. Transparent Mode - the alphanumeric terminal is directly connected for standard host operating system communication.

2. Tektronix[1] 4115 Emulation Mode - the terminal operates like the Tektronix 4115 graphics terminal substituting the separate alpha display for the Tektronix dialog area.

This SRB describes TEKEM V3.1 which is a corrective code and feature enhanced release of the 790-20 microcode. This microcode is delivered on one 3 1/2 inch diskette for loading on the 790-20. With certain restrictions, third party applications may also be used with the 790-20 in Tektronix 4115 emulation mode or transparent mode.

This SRB documents the following important items:

- New Features - descriptions of new features and their operation.

- Fixed Features - lists the features that operated improperly in past releases that have been fixed.

- Outstanding Problems - highlights known problems for which corrective action is in process, but not yet completed.

---

[1] Tektronix is a registered trademark of Tektronix, Inc., Beaverton, Oregon.

2.0 REFERENCES

Related Publications

- CDC 790 ICEM Ergonomic Workstation - Tektronix Emulation Manual - 62950166
- CDC 790 ICEM Ergonomic Workstation - Owner's Manual - 62950150
- CDC 790 ICEM Workstation Communications Interfaces - Installation and Maintenance Manual - 62950153
- Series ONE The Thin Dimension - Graphics Tablet User's Manual - Kurta Corporation
- Tektronix 4110 Series Command Reference Manual - 070-3892-00
- Tektronix 4110 Series Host Programmers Manual - 070-4664-00
- Tektronix 4115B Computer Display Terminal Operators Manual - 070-4665-00

3.1 HARDWARE/SOFTWARE ENVIRONMENT

3.1 Hardware Requirements

This microcode product executes in the CDC 790-20 graphics workstation configuration to control its operation. The 790-20 consists of microprocessor display list and graphics processors, a high-resolution color graphics display monitor, an alphanumeric monitor and keyboard (which is the CDC 721 display terminal), and graphics tablet.

Options available to the basic 790-20 hardware configuration and supported by TEKEM V3.1 include the following:

- Display list memory expansion from 1MB to 2MB.
- Seiko color hardcopy with Centronix parallel interface.
- Tektronix 4692 color hardcopy with Centronix parallel interface.
- Kurta 3-button cursor.

The following item is no longer a supported option:

- DCSL coaxial interface to CYBER 800 processors.

4.0 GENERAL SOFTWARE DESCRIPTION

Refer to the referenced CDC 790-20 manuals for detailed information about this product. In particular, refer to the "CDC 790 ICEM Ergonomic Workstation - Tektronix Emulation" manual. The information that follows in this and subsequent sections refers to changes to that manual.

4.1 New Features

4.1.1 Numeric Keypad

The numeric keypad keys operate as cursor controls whenever the thumbwheels crosshairs, zoombox, or panbox is "up". The Remainder of the time, the keypad produces numeric data.

4.1.2 Tek 4692 Hardcopy

TEKEM V3.1 now supports both the Seiko and Tek 4692 hardcopiers. The device in use is selected in Setup mode by setting the parameter HCTYPE (SEIKO/TEK 4692). (Note: Interface cables are different between the two units.)

4.1.3 Scrolling

Additional scrolling features have been implemented in TEKEM V3.1 which provide the user with greater flexibility and a larger scrolling buffer. If desired the user can disable scrolling by entering SETUP mode and changing the value of the SCROLLING parameter from "YES" to "NO". As before, scrolling works when in TEKEM mode and not when in Passthru mode.

The SCROLLING parameter is saved on the TEKEM disk, to be restored at boot time. Thus, the user can disable SCROLLING at boot time by doing the following.

1. Enter SETUP mode
2. At the SETUP prompt type :
   * SCROLLING NO
   * SAVECONFIG
   *
3. It is not nessesary to Re-boot TEKEM. SCROLLING is automatically disabled with the SCROLLING NO command. The next time you re-boot TEKEM, the Saved SCROLLING parameter will be restored from the configuration file as NO, and SCROLLING will be disabled.

To Re-enable SCROLLING at boot time, do the following.

1. Enter Setup mode.
2. At the SETUP prompt type :
   * SCROLLING YES
   * SAVECONFIG
   *
3. Again, Re-boot is not nessesary.

4.1.3.1 Controlling the Dialog area :

The following commands are new SETUP commands which affect the dialog area:

DABUFF command specifies the minimum number of lines the dialog area buffer can hold (of DACHARS length). More lines may be within the scrolling buffer depending on the actual line lengths. The default value is 240 lines; however, the user can change it to any value from 24 to 16384.

DALINES command specifies the size of the dialog area, i.e., the number of lines visible at once on the screen. There are only two possible values for this parameter: 30 and 24. The default value is 30 lines.

DACHARS command specifies the number of characters per line in the dialog area. The value of this parameter can be set at either 80 or 132. The default is 80 characters per line.

4.1.3.2 Scrolling the dialog area:

Function keys F11 and F12 have been designated for the use of scrolling the dialog area. When depressed alone, or with the Shift key and/or the Control key, the function keys (F11 & F12) invoke the following functions:

F11	-- Display previous page of text.
F12	-- Display next page of text.
Shift F11	-- Display previous line of text.
Shift F12	-- Display next line of text.
Control F11	-- Display previous half page of text.
Control F12	-- Display next half page of text.
Control Shift F11	-- Display Top page of text.
Control Shift F12	-- Display Bottom page of text.

4.1.3.3 Scrolling performance :

The performance of scrolling in TEKEM V3.1 is much better compared to previcus releases. Speed is notably the most significant improvement. The variable sized dialog are buffer is a flexibility that the earlier versions of TEKEM did not have.

4.1.4 Tablet Zooming/Unzooming

These two functons offer the user an alternative method of performing local zoom/pan functions. The original zooming and panning functions have not changed. (However, only one method or the other may be used at one time.)

To initiate tablet zooming, press the "tablet zoom" tablet key (refer to section 4.1.7, leftmost "key", button 0). Special colored crosshairs will appear on the screen. Using the tablet, select the position of one corner of the region you wish to zoom in on. This first corner is called the anchor point.

Now a zoom box will appear on the screen. The zoom box will "rubberband" on the screen as you move the pen/puck around on the tablet. This allows you to see what would be contained within the zoomed view. Note that the aspect ratio of the zoom box is always maintained as 5:4 in world space coordinates. One corner of the zoom box is always the anchor point chosen. To zoom in make a tablet pick when the desired region is enclosed by the zoom box. The zoomed view will appear.

If at any time prior to completing the zoom you wish to exit without zooming select any tablet key. Tablet zooming will be cancelled. The function associated with the tablet key pressed will not be executed.

To zoom out, or "unzoom", simply press the "tablet unzoom" tablet key in the tablet's menu area (second from the left, button 0). The field will be zoomed out in all four directions by the unzooming scale factor (default is 100%). If the scale amount is 50% the x and y dimensions will be increased by one half. For example, if the view coordinates were (1000,1000) to (2000,1800) and the unzoom scale factor 50%, the resulting view coordinates after unzooming would be (750,800) to (2250,2000). The overview window, as before, is the limit for unzooming.

Both the unzooming scale factor and the tablet zooming crosshairs color are changeable through the new host command described in section 4.1.4.1, Set Tablet Zoom Parameters. The defaults are:

```
UnZoom Scale           : 100%
Crosshair Color Index  :   7
```

4.1.4.1 Set Tablet Zooming Parameters Command

Description : This command sets the tablet zooming crosshairs color and the tablet unzooming scale factors.

Host Syntax: (esc)IZ int:scale-factor int:color-index

Setup Syntax: None

Parameters:

scale factor Range: 0 to 2**31 - 1

The scale factor represents the percentage increase in the x- and y-dimensions when a view is unzoomed. For example, a 10x8 view with scale factor 100 would be unzoomed by 100% or 20x16.

color index kange: 0 to 32767

The color index parameter determines the color of the tablet zooming crosshairs which are used when selecting the first corner, or anchor point, of the zoom box. The color is selectable so that the tablet zooming crosshairs can be easily distinguished from the gin crosshairs.

Defaults:

Scale factor

On power up	100
if omitted	100

Color Index

On power up	7
if ommitted	7

Errors:

IZ11 (level 2)	invalid scale factor
IZ21 (level 2)	invalid color index

4.1.5 Previous Zoom Special Function

The Previous Zoom Special function, labeled PREV ZOOM on the tablet overlay, changes the viewing window to the previous zoomed window, if any. It is similar to the Restore key, except that no zoom or pan box is displayed.

4.1.6 Three Button Tablet Puck

TEKEM V3.1 now fully supports the three button tablet puck. The user may define key macros for any or all of the buttons; the buttons may be defined in a variety of ways:

1. Define a button to operate just like a pen stylus pick. This is defined using a special function NOP (special key code -38). In this case, if tablet GIN is enabled and the button is pressed, a single GIN report is sent to the host with the button number as the gin report key character. (The buttons are numbered 0,1,2 from left to right.) If tablet GIN is not enabled, nothing will occur.

2. Define a key macro for a button. In this case, pressing the puck button results in one or more tablet GIN reports sent to the host if tablet GIN is enabled (one GIN report for each character in the expanded key macro, with each character of the macro included in successive GIN reports as the key character). If tablet GIN is not enabled, the key macro characters are treated as if they had been input from the keyboard. (So these characters can cause thumbwheel GIN events.)

3. Define a key macro for a button and treat the button as if it were a keyboard key. To do this, the first value in the key macro definition must be GINSUP (i.e., -1) which serves as a flag to indicate tablet GIN suppression whenever the button is pressed. No tablet GIN events are caused by pressing the button. However, this button will cause thumbwheels GIN events if thumbwheels GIN is enabled.

4. Define a button to be a special function key. In this case, no GIN reporting occures. The special key function is performed.

5. Defaults: Button 0 has a default definition of NOP. Button 1's default definition is special function "Operation Complete" ("]"). Button 2's default definition is special function "Operation Reject" ("[").

The tablet GIN areas may be considered to be a very large, specialized tablet key, Please read about tablet keys.

4.1.7 Tablet Keys

Tablet keys are now defined on the tablet. (Please Refer to Figure 4) There are 23 "Keys" located in a 1" x 12" horizontal strip across the top portion of the active area of the tablet. Each key is 1/2" wide. These keys are considered to be an extension of the keyboard of TEKEM. Fourteen of the keys are predefined; the remaining nine are undefined (i.e., they are defined to be NOP). All 23 keys are redefinable, however, just as the keyboard keys are.

The predefined keys perform local viewing and scrolling functions:

TABLET ZOOM	Perform tablet-controlled zooming
UNZOOM	Perform fixed factor zooming out
OVERVIEW	Same as OVERVIEW key
PREV ZOOM	Change to previous zoomed window.
PAGE	Same as PAGE key
PASSTHRU	Enter/exit Passthru mode
BOTTOM	Display Bottom Page of scrolling text
TOP	Display Top Page of scrolling text
DOWN LINE	Display Next line of scrolling text
UP LINE	Display Previous line of scrolling text
H PG DOWN	Display next half page of scrolling text
H PG UP	Display previous half page of scrolling text
PAGE DOWN	Display next page of scrolling text
PAGE UP	Display previous page of scrolling text
CLEAR	Clear dialog area buffer, and screen

(Refer to Appendix D for the default definitions and key macro numbers for all the tablet keys.)

A new tablet overlay has been designed which labels the tablet keys. For non-DDN users, refer to Figure 1 and 2 for the placement of the new overlay. The dotted lines indicate the positioning, with the lower 1/2 inch of the overlay overlappig the top 1/2 inch of the active area of the tablet.

For DDN users, refer to figure 2. The new overlay fits directly above the existing ddn tablet overlay, with the new overlay's bottom edge directly against the existing overlay's top edge, and the left edges lined up.

To use a tablet key, position the pen or puck within the box BELOW the labeling and make a tablet pick. The appropriate

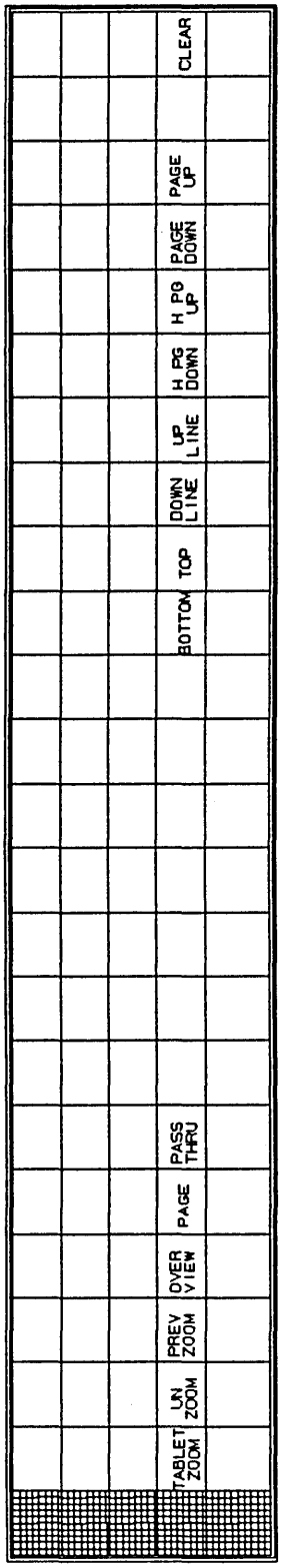

TABLET ZOOM
UN ZOOM
PREV ZOOM
OVER VIEW
PAGE
PASS THRU
BOTTOM
TOP
DOWN LINE
UP LINE
H PG DOWN
H PG UP
PAGE DOWN
PAGE UP
CLEAR

Figure 4

FIGURE 1

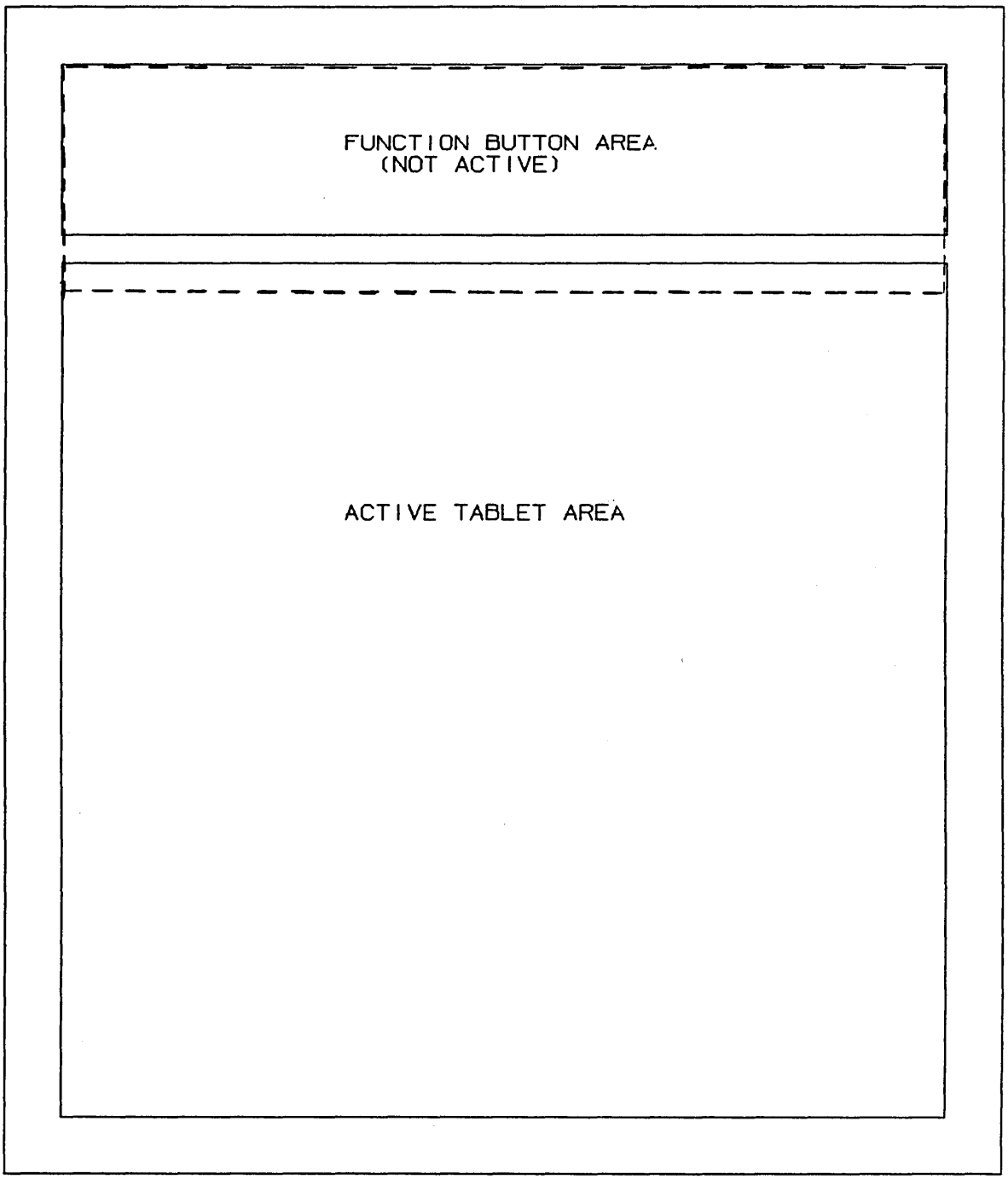
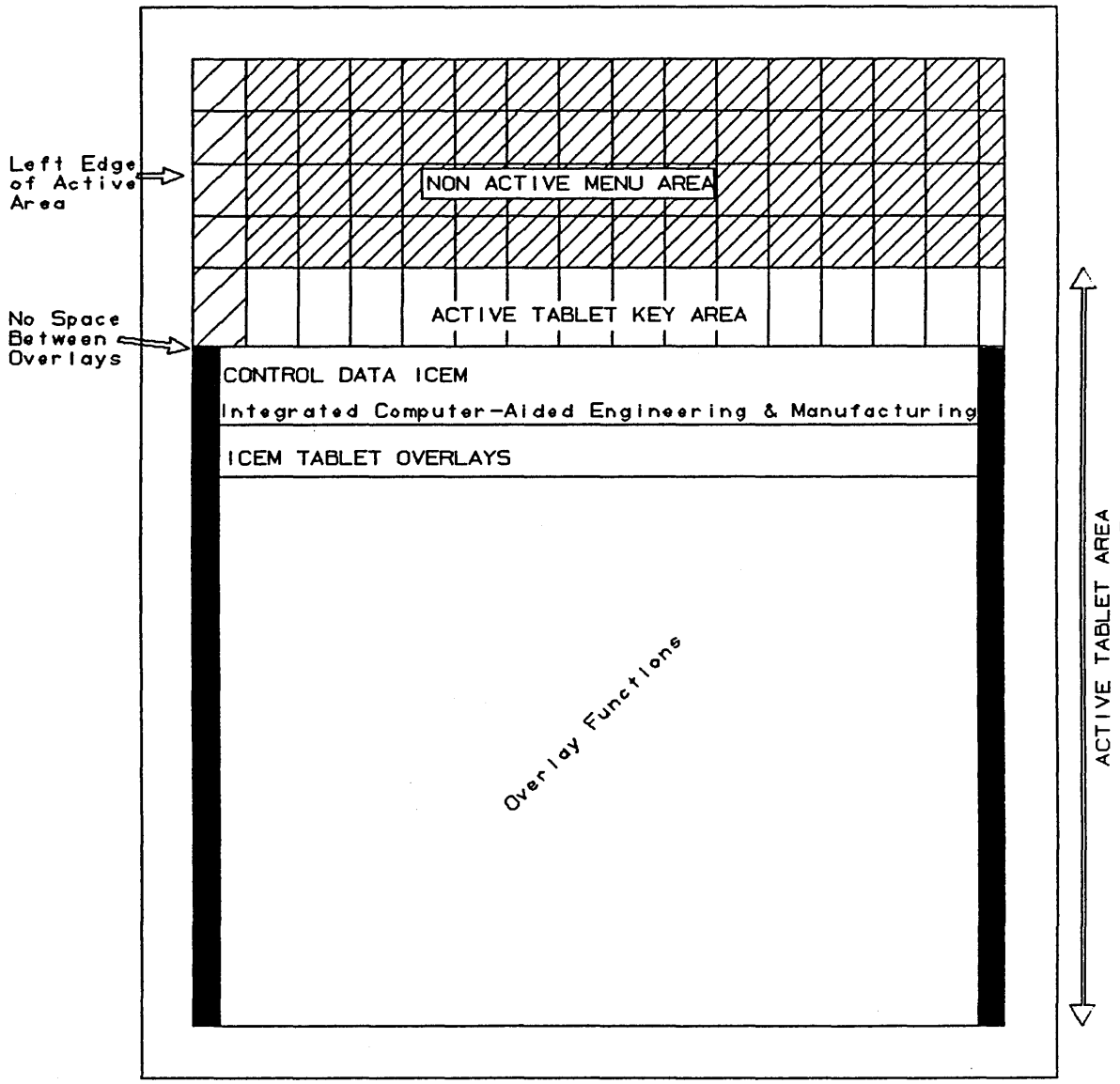


FIGURE 2


Left Edge of Active Area
No Space Between Overlays
NON ACTIVE MENU AREA
ACTIVE TABLET KEY AREA
CONTROL DATA ICEM
Integrated Computer-Aided Engineering & Manufacturing
ICEM TABLET OVERLAYS
Overlay Functions
ACTIVE TABLET AREA

function will be executed. Tablet keys cannot be used with the shift, Control, or Shift/Control keys from the keyboard. However, the same effect may be achieved through the use of a multi-button tablet puck, or by using "color" functions which emulate a multi-button puck.

If a multi-button tablet puck is used in conjunction with a tablet key, each button/tablet key combination may be defined to be a separate key. So, with a theoretical four button puck (not yet available), 92 (4x23) separate keys can be defined. With the three button puck now available, you can effectively use 69 different keys. Color functions may be used to emulate the multi-button puck. (See "New Feature: Color Functions".) The default definition for all the "higher" tablet keys is NOP.

4.1.8 Operation Complete and Operation Reject Special Functions

The new special functions Operation Complete ("]") and Operation Reject ("[") have been introduced into TEKEM V3.1 for the convenience of users who use the IEW in conjuction with Control Data's ICEM program. Any keyboard or tablet key may be defined as an Op Complete or an Op Reject. The default key for Op Complete is button 1 (middle button) of the multi-button tablet puck, when the tablet puck is in the GIN area of the tablet (i.e., not in the tablet key area). The default key for Op Reject is button 2 (right button) of the multi-button tablet puck, when the tablet puck is in the GIN area of the tablet.

Pressing the key associated with an Op Complete or Op Reject results in the appropriate data being sent to the host. Some host computers expect an Op Complete or Op Reject to be terminated by a Newline. A new Setup command, AUTONEWLINE (YES/NO) has been introduced. AUTONEWLINE YES causes a Newline to terminate all OP Complete's and Op Reject's, while AUTONEWLINE NO suppresses Newline after Op Complete's and Op Reject's. (See New Feature: AUTONEWLINE setup command.)

4.1.9 AUTONEWLINE Setup command

AUTONEWLINE is a new setup command which affects special functions Operation Complete and Operation Reject, which are also new. (Please read about these new special functions.) Setting AUTONEWLINE to YES results in all Op Complete's and Op Reject's being terminated with a NewLine; AUTONEWLINE NO causes suppression of the Newline terminator.

If you wish to use the Op Complete and Op Reject special functions, you mush first set the setup parameter AUTONEWLINE. If your host computer is a CYBER 120 or 793/794 workstation AUTONEWLINE should be NO. If your host computer is a CYBER 170/180 AUTONEWLINE should be YES. To set AUTONEWLINE, perform the following steps prior to using TEKEM V3.1 the first time:

1. Boot TEKEM V3.1
2. Enter Setup Mode.
3. Enter "AUTONEWLINE NO" or "AUTONEWLINE YES" as the case may be.
4. Enter "SAVECONFIG".
5. Exit SETUP mode.

Now, whenever you boot TEKEM V3.1 AUTONEWLINE will be set correctly for your system.

4.1.10 Key Macro Modifications.

This section describes the modifications to the Tektronix DEFINE-MACRO and EXPAND-MACRO commands and their counterparts on the CDC IEW. In general, macros work the same way on the IEW as on a Tektronix terminal. What is different is the commands that create and execute them. In the CDC version both DEFINE-MACRO and EXPAND-MACRO have been enhanced.

4.1.10.1 Additional Macro Expansion Values

The range of permissible values for macro expansion has been extended. The Tektronix commands restrict the values of bytes in an expanded macro to the ASCII set, decimal 0 through 127. CDC's TEKEM allows the full ASCII set, plus values in the range -64 to -1. (We will call macros in this range "Special key codes") These 64 additional values execute the local functions normally performed by the special (non-ASCII) keys on the keyboard, such as PAN, ZOOM, PAGEUP and SETUP. See Appendix C for a list of the special key codes & their corresponding special functions. Though these codes were developed for internal use, you may use them through the DEFINE-MACRO command, to assign the function of the special keys to any ASCII key of desired. Appendix A describes each of the special functions.

4.1.10.2 Mapping of Keyboard

As a result of this additional macro expansion feature, the user may "re-layout" the entire keyboard, if desired, using DEFINE MACRO commands. For example, to redefine the Normal key as the Previous View key, one would define macro number -60 to be -19, since -60 is the macro number for the Normal key, and -19 is the special key code associated with the Previous View special function (see Appendices B and C).

4.1.10.3 Expanded Macro Handling

In general, macros work the same way on the IEW as on a Tektronix terminal. There are, however differences in the macro definitions and a general expansion of the capabilties for handling macros. The most noticeable difference is that the macros in the range -176 to -18 are completely different between the two terminals. All other macro ranges are identical. A comparison of the macro codes for all keys between the IEW and the Tektronix terminal is shown in Appendix B.

Because of limitations imposed by the keyboard, and because of the layout used in previous versions of TEKEM, certain control character keys may not be used to transmit their corresponding keycodes to the host. Any key from the keyboard which executes a local function whose code does not start with RS can not be simultaneously be used to send its code to the host.

Specifically, the keycodes ^H, ^K, ^W, ^X, ^Y, ^Z, and ^_ (where '^' means 'CONTROL') now execute local functions when TEKEM V3.1 reads them from the keyboard. Control keys K and _ always execute their corresponding local function. If it is necessary to send a ^K or ^_ to the host, a macro may be defined which generates the appropriate value.

Control keys H and W-Z (cursor speed and movement) only execute exclusively local functions when the thumbwheel crosshairs, or a zoom or pan box is being displayed. At all oter times, these keys' codes are sent to the host whenever ther corresponding local function is executed. As a side effect of this, if some other key is defined to produce a crosshair movement or speed local keycode it to will send the appropriate control key to the host when crosshairs are not displayed.

4.1.11 Color Functions

Color functions are special functions which enable you to emulate a four-button tablet puck using a three-button puck or a pen. Invoking a color function forces the next tablet pick's button press to be a particular button number:

Red: forces next tablet pick's button press to be button 0.
Green:forces next tablet pick's button press to be button 1.
Blue: forces next tablet pick's button press to be button 2.
Gold: forces next tablet pick's button press to be button 3.

None of the keyboard or tablet keys are defined in the default definitions to execute color functions. In order to use a color function, a DEFINE MACRO containing the color function's special key code must be issued. Then, whenever the macro is expanded, the color function will be executed.

4.1.12 Dithering

An additional type of hardcopy dithering for the Tek 4692 hardcopier is now available. It may be selected by setting the HCDITHER Setup mode parameter to MANY. With the Seiko hardcopier, there is no difference between HCDITHER set to YES or MANY.

4.1.13 Terminal Mode at Boot

A new Setup parameter, BOOTMODE, specifies the terminal's mode after booting the system. The mode may be either TEKEM or PASSTHRU.

4.1.14 Summary of New Setup Mode Parameters

Several new Setup mode parameters have been introduced in TEKEM V3.1. They are as follows:

Parameter name	range of values	description
HCTYPE	SEIKO/TEK 4692	type of hardcopy device being used
HCDITHER	YES/NO/MANY	dithering method
PASSTHRU	SMALL CYBER/ LARGE CYBER	terminal config. to use when in passthru mode.
BOOTMODE	TEKEM/PASSTHRU	mode to enter after system is booted
AUTONEWLINE	YES/NO	include/exclude a carriage return when sending an Operation Complete or an Operation Reject to host
DALINES	24/30	maximum number of lines visible in dialog area
DABUFF	24 to 16384	minimum number of lines in dialog area buffer
DACHARS	80/132	maximum number of characters per line of dialog

4.1.15 New Setup Mode Commands

Two new Setup mode commands have been added, STATUS GENERAL and STATUS COMMUNICATIONS. These new commands permit viewing of subsets of Setup mode parameters. The STATUS command still works as before, displaying both general and communications parameters. To view only the General terminal parameters, enter "STATUS GENERAL" in Setup mode. To view only the Communications parameters, enter "STATUS COMMUNICATIONS" in Setup mode. These can be abbreviated to "STAT GEN" and "STAT COM".

4.2 Fixed Features

An additional emphasis of this release is to provide corrective code to users of the CDC 790-20. The items below list some of the major functions and features that were either missing or deficient in previous releases of TEKEM. Not all fixed features are listed. Refer to the later section describing outstanding bugs for a list of all reported problems that are still not fixed in this release.

4.2.1 Passthru Mode

Passthru in small Cyber mode now works. All CYBER 120 applications are now supported, including SED, CEO, and SLATE. In order to use the IEW as a 120 terminal, do the following:

1. Set the Setup parameter PASSTHRU MODE to SMALL CYBER. (Only done first time.)
2. Issue the following terminal characteristics command from AOS/VS: char/605x/off/nas
3. Enter Passthru mode.

To return to using the IEW as a workstation, reverse your steps:

1. Exit Passthru mode.
2. Issue the following terminal characteristics command from AOS/VS:
   char/crt4/on/nas

4.2.2 Entity Dragging

Entity dragging now works without restriction. However, it is inadvisable to drag very large numbers of entities, since drag processing time goes up with the number of entities.

4.2.3 Change of Origin in DDN

Change of origin of text or dimensions in DDN using an IEW now works correctly.

4.2.4 Set GIN Area Command (esc IV)

The Set GIN Area command is now fully functional, including multiple and overlapping tablet GIN areas, and GIN area mapping to the GIN window, current window, or other specified window.

4.2.5 Set Report EOM Frequency Command (esc IM)

The Set Report EOM Frequency command now works properly when the EOM frequency is set to "less frequent".

4.2.6 4953 Tablet Report

4953 Tablet Reports now contain the proper header character.

4.2.7 GIN Stroke Reporting

The key char-reports in GIN stroke reports are now correct.

4.2.8 xy Reports in Coordinate Mode 1

In Coordinate Mode 1, the x and y values for xy reports were previously reduced to modulo 4096. This has been corrected.

4.2.9 Disabling of Tablet

Previously, if the tablet was not enabled for GIN, tablet picks were still entered into the tablet data buffer. This has been corrected.

4.2.10 Segment GIN cursor

Deletion of a segment which is the GIN cursor now works properly. Tracking of segment GIN cursor in a noncurrent view now works properly.

4.2.11 GIN window limits

The GIN window was previously limited to (-65535,-65535) to (65535,65535). This limit has been removed.

4.2.12 View Clustering

The windows of all views within a view cluster are properly updated whenever one view in the cluster has any of the following operations performed: SET WINDOW command issued, VIEW, RESTORE, or OVERVIEW key pressed.

All views within a view cluster are renewed whenever one view in the cluster has any of the following operations performed: RENEW VIEW command issued, PAGE command issued, or PAGE, VIEW, RESTORE, or OVERVIEW key pressed.

4.2.13 Set Border Visibility Command (esc RE)

Issuing the Set Border Visibility command with a parameter of 2, which toggles the visibility, previously gave an error message and did not toggle the border visibility; this has been corrected.

4.2.14 Border Display with Next View key

Borders are now blinked correctly when changing views with the Next View key.

4.2.15 GIN Bypass Mode

GIN Bypass mode now works.

4.2.16 Bypass Cancel Mode

Bypass cancel mode now works.

5.0 INSTALLATION ON THE CDC 790-20

Normal installation of TEKEM microcode requires no more than insertion of the diskette and a boot operation. Because of changes made to improve performance and correct problems two changes to the basic configuration parameters in the 790-20 must be made at the time of installation of this diskette.

These changes are a one-time change. Once the changes are performed on the 790-20 no further action is required to operate with TEKEM V3.1 on a continuing basis.

5.1 Installation of Tablet overlay (Tablet functions)

For non-DDN users, refer to Figure 1 and 2 for the placement of the overlay. The dotted lines indicate the positioning, with the lower 1/2 inch of the overlay overlapping the top 1/2 inch of the active area of the tablet.

For DDN users, refer to figure 2. The new overlay fits directly above the existing DDN tablet overlay, with the new overlay's bottom edge directly against the existing overlay's top edge, and the left edges lined up.

5.2 Labeling of Puck Buttons

It may be useful for users of TEKEM to label the buttons of the three button puck. This may be done by lifting the clear button covers up, and inserting a piece of paper which signifies the button purpose. See figure 3.

5.3 How to order a three button puck.

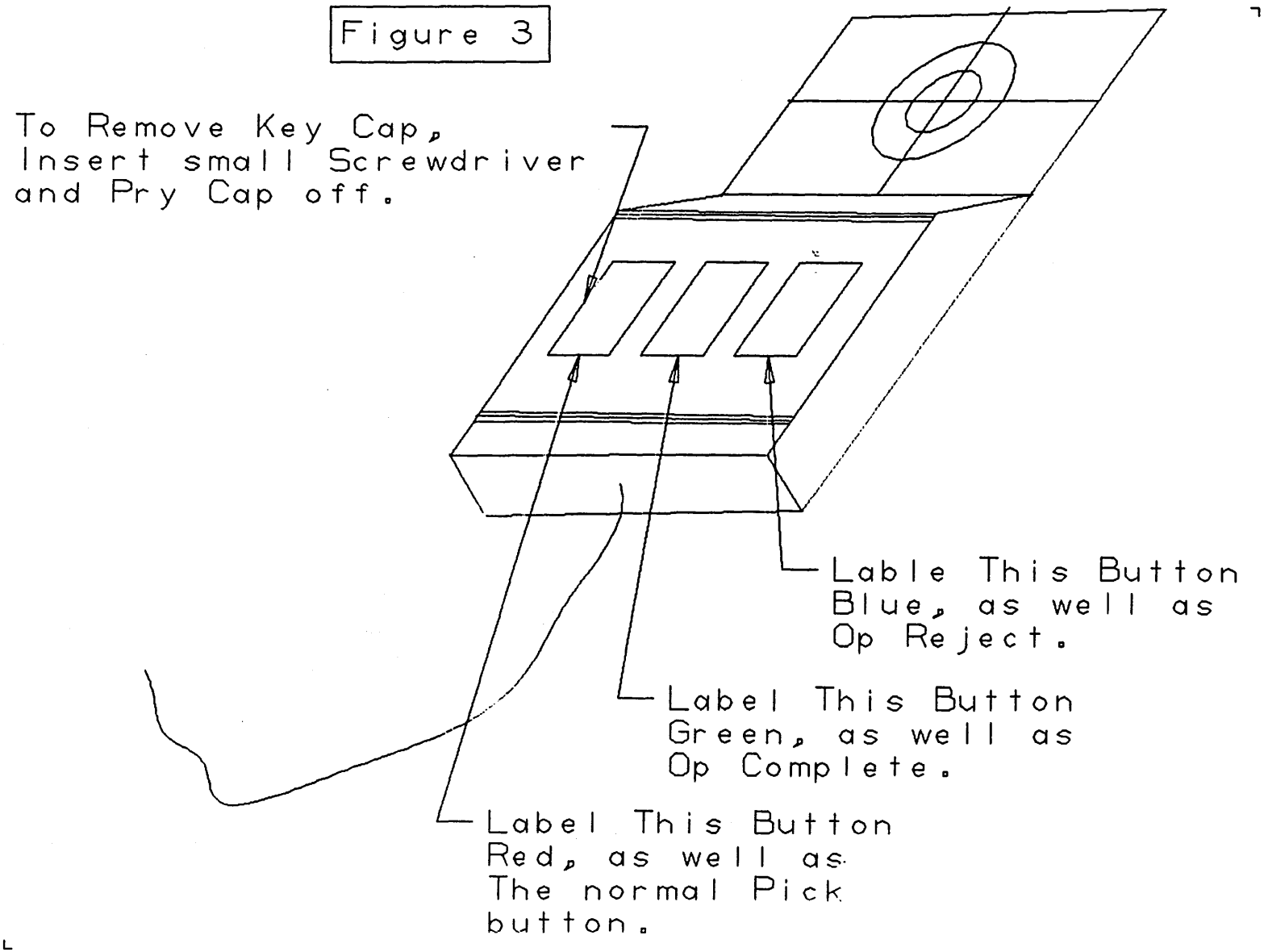
If the user does not own a three button puck, it may be obtained at the following distributers :

1. Radio Shack (Tandy Express service)
2. Entre
3. Micro Age Stores

Please ask for the "Kurta 3 button puck". $125.00 $132.50

EKR LEVEL

Figure 3


To Remove Key Cap,
Insert small Screwdriver
and Pry Cap off.
Lable This Button
Blue, as well as
Op Reject.
Label This Button
Green, as well as
Op Complete.
Label This Button
Red, as well as
The normal Pick
button.

6.0 DOCUMENTATION ADDITIONS AND CHANGES

The following notes are corrections and additions to the "CDC 790 ICEM Ergonomic Workstation - Tektronix Emulation" manual, publication number 62950166. Also, these notes are to be used IN ADDITION to TEKEM V3.0 Documentation Additions and Changes. It is recommended that the pages that follow be copied and inserted into your manual so that future references to the manual contain up to date information.

6.1 Determining Setup Parameters. (p2-2)

Change Paragraph From :

When the terminal is in Setup mode, terminal and communications status can be determined by typing STA folowed by a carriage return. This will display the TEKEM parameters on the alpha terminal as follows:

TO:

When the terminal is in Setup mode, General and Communications status can be determined by typing "STA" followed by carriage return. To determine the General Status only, type "STA G" followed by carriage return. To determine the Communications Status only type "STA C" followed by carriage return. By typing "STA" followed by cariage return, TEKEM parameters will be displayed on the alpha terminal as follows:

6.2 Setup Parameters (p2-3)

Replace the "TERMINAL STATUS" table and the "Changing Setup Paramters" sections with the following page. The "Saving Setup Parameters" section remains the same.

(Replacement page for Manual 62950166 page 2-3. TEKEM V3.1)

TERMINAL STATUS
GENERAL

	ECHO	YES
	LOCKKYBD	NO
*	DABUFF	240
*	DACHARS	80
*	DALINES	30
	DAENABLE	YES
	IGNOREDEL	NO
	LFCR	NO
	CRLF	NO
	SAVECONFIG	NO
	SCROLLING	YES
	SNOOPY	NO
	TABLETECHO	NO
	HCDITHER	YES
	HCINVERSE	NO
*	HCTYPE	SEIKO
	ERRORLEVEL	2

COMMUNICATIONS

	BAUDRATE	19200
*	AUTONEWLINE	NO
	STOPBITS	1
	PARITY	NONE
	PROMPTSTRING	'? '
	PROMPTMODE	NO
	QUEUESIZE	8100
	FLAGGING	IN/OUT
	BYPASSCANCEL	(NL)
	LOCAL/REMOTE	REMOTE
*	PASSTHRU MODE	SMALL CYBER
*	BOOT MODE	TEKEM MODE

* New parameters this release.

Changing Setup Parameters

(Note: The first paragraph remains the same. Delete and replace the second paragraph with the next section.)

6.3 New Setup Commands (p4-1)

(Add the following descriptions of new Setup commands at page 4-1.)

Table 4-1 (Changes). Setup Mode Commands

Change:	
HCDITHER	Set hardcopy dither mode (YES,NO)
TO:	
HCDITHER	Set hardcopy dither mode (YES,NO,MANY), MANY is only applicable to Tek 4692 Hardcopy operation.

Table 4-1 (Additions). Setup Mode Commands

DABUFF	Minimum Number of Lines stored in Dialog buffer. (24->16000)
DACHARS	Width of Dialog Area (80,132)
DALINES	Visible Dialog Area Size {Screen Size} (24,30)
HCTYPE	Hardcopy Type (Seiko, Tek 4692)
AUTONEWLINE	(Yes,No)
PASSTHRU MODE	Mode to enter when in Passthru mode. (SMALL CYBER, LARGE CYBER)
BOOT MODE	Terminal Mode to boot. (TEKEM MODE, PASSTHRU MODE).

6.4 Misc. Changes

(Please make the following changes by marking up your manual original. The changes described are not significant enough to require complete page replacement.)

6.4.1 Configuration Parameter F6 in Step 6 (pA-3)

In step 6 of the alpha set up sequence shown on page A-3 the box for F6 may show "4625". Change it to show "4C25".

(The display for F6 should be changed to look like this.)

7.0 KNOWN PROBLEMS AND WORK-AROUNDS

This section describes problems and work-arounds that are known to be in TEKEM V3.1 product that is being released at this time.

The purpose of this section is to inform the user about potential problems and what, if any, workarounds are available to allow productive use of application software with the 790-20 workstation. A second reason for this list is to inform the user what problems are known and need not be reported. These problems will receive corrective attention in future releases of TEKEM.

7.1 Memory Allocation Relating to Scrolling.

Currently, the memory allocation/deallocation operations have a bug when large blocks of memory are obtained. (i.e. larger than 32K bytes) Normally this large of a block is <u>never obtained</u>. This is only a problem when a large scrolling buffer is desired, and/or when the QUEUE SIZE (setup parameter) is changed to a value larger than 32K bytes.

If the user desires a scrolling buffer with the following attributes :

```
DABUF    300
DACHARS  132
```

This will result in a scrolling buffer of approximately 300*132 bytes, or 39,600 bytes. Which is larger than 32k bytes. Thus it appears that the scrolling buffer may be set larger than 32k bytes at system boot time, but do so at your own risk.

As for the QUEUE SIZE, the user must always to keep this setup parameter bellow 32K.

7.3 Outstanding Bug List

The following is a tabular list of outstanding bugs, their severity rating, and a one-line description of the problem.

***** the OUTSTANDING bug report text is to be merged *****
***** at this point *****

OUTSTANDING PROBLEMS SORTED BY PRODUCT,TYPE,CLASS,SECTION

TYPE/CLASS	SECTION	PROBLEM 07/10/86
PSR I	PROMPT MODE	IN PROMPT MODE, PROMPT STRING IS DISPLAYED & NO INPUT IS RETURNED.
PSR I		INITIAL CURSOR OPERATION DOES NOT FUNCTION CORRECTLY.
PSR I	IC	POSITION OF CURSOR WHEN ENABLED IS DIFFERENT BETWEEN 4115 AND TEKEM.
PSR I	LINE	LINE A TO B DOES NOT HAVE SAME PIXELS AS LINE B TO A.
PSR M		READBACK FORMAT IS DIFFERENT FROM DOCUMENTATION.
PSR M	NP	ESC NP DOESN'T SET PARITY CORRECTLY
PSR M	TB	TB DOES NOT ALLOW BLINK BACKGROUND COLOR.
PSR M	VIEW BOX	VIEW BOX IS LEFT ON THE SCREEN AFTER POLYGON ERASE.
PSR M	WINDOW	SET OVERVIEW WINDOW DOES NOT SET HOME POSITION.
PTR M	POLY-BORDER	POLYGON BORDER LEFT WHEN DRAGGING POLYGON.
PSR M		COORDINATE MODE CAN NOT CHANGE DURING PANEL DEFINITION.
PSR M	DRAG	LARGE SEGMENT IS NOT DRAWN PROPERLY WHEN DRAG-ED,...
PSR M	NB,NC	ESC NB, ESC NC ARE IGNORED.
PSR M	PARITY	PARITY SETTINGS ARE NOT SAVED PROPERLY
PSR M	POLYGON	POLYGON PICKING DOES NOT WORK WHEN DISPLAY PRIORITY IS IN USE.
PTR M	MSB STRIP	MSB (MOST SIG BIT) OF INPUT BYTE(FROM HOST) IS STRIPPED.
PTR M	(EC)SM	ESC SM (XOR,AND,OR) MODES DON'T SEEM TO WORK WITH TEST CASE
PSR S		RE-DRAWING OF POLYGON CURSOR DOES NOT KEEP UP WITH TYPE-AHEAD BUFFER.
PSR S		EDL INDEX CARDS DISAPPEAR WITH 50 CHAR DISPLAY & REVERSED SCROLLING
PSR S		ZOOMING WITH VERY SMALL WINDOWS YIELDS STRAY VECTORS. SEE TEKTEST FILE.
PSR S	CRLF	THE CRLF AND LFCR COMMANDS DO NOT WORK WHEN DIALOG AREA IS ENAB/DIAB'ED
PTR S	OP SYS	CONTROL P IS NOT SENT TO HOST & ALSO PUTS TEKEM IN PSUDO LOCAL.
PTR S	SCROLLING	SCROLLING DOESN'T WORK WELL, WHEN VIKING IN 24 LPP, & BOOTED IN 30.
PTR S	MALLOC	MALLOC FAILS WHEN OBTAINING BLOCK > 32K. ALSO OTHER INSTANCES.

APPENDIX A - Special Function Descriptions

CURUP — Move the thumbwheels GIN cursor up (towards the top of the screen) one movement unit. Also, if the ZOOM box is up, this will increase the size of the ZOOM box. The movement unit may be made larger or smaller using the special functions SPEED, SLOW, MEDIUM, or FAST.

CURLFT — Move the thumbwheels GIN cursor left (away from the alpha monitor) one movement unit. Also, if the ZOOM box is up, this will decrease the size of the ZOOM box. The movement unit may be made larger or smaller using the special functions SPEED, SLOW, MEDIUM, or FAST.

CURRT — Move the thumbwheels GIN cursor right (towards the alpha monitor) one movement unit. Also, if the ZOOM box is up, this will increase the size of the ZOOM box. The movement unit may be made larger or smaller using the special functions SPEED, SLOW, MEDIUM, or FAST.

CURDWN — Move the thumbwheels GIN cursor down (towards the bottom on the screen) one movement unit. Also, if the ZOOM box is up, this will decrease the size of the ZOOM box. The movement unit may be made larger or smaller using the special functions SPEED, SLOW, MEDIUM, or FAST.

CANCEL — Reset to default values various terminal parameters and modes:

- o Put terminal in ALPHA mode.
- o Disable all GIN device-functions.
- o Unlock the keyboard.
- o Cancel BYPASS mode.
- o Remove the terminal from PROMPT mode.

SPEED — Toggle the current movement unit of the thumbwheels GIN cursor. Three different movement units are supported; slow, medium, and fast. This operation changes the speed from slow to medium to fast and then back to slow again.

FAST — Set the thumbwheels GIN movement unit to FAST.

MEDIUM — Set the thumbwheels GIN movement unit to MEDIUM.

SLOW — Set the thumbwheels GIN movement unit to SLOW.

LOCAL This operation causes the terminal to transition to or from local mode. If in local mode already, this will put the terminal into remote mode. If in remote mode, the terminal will go to local mode.

SETUP This operation causes the terminal to transition to or from setup mode. If in setup mode already, this will exit setup mode. If not in setup mode, this will put the terminal into setup mode.

HCOPY This operation initiates a hard copy on an attached hard copy device. Black and white areas of the screen are printed as is.

HINV This operation initiates a hard copy on an attached hard copy device. Black areas on the screen are printed as white, and white areas on the screen are printed as black. This feature is not currently supported, but reserved for future implementation.

HALPHA This operation produces a hardcopy of information on the alpha monitor. This feature is not currently supported, but reserved for future implementation.

PAGE This operation initiates a RENEW-VIEW, repainting the screen.

BORDER This operation toggles the border visibility in the current view. If borders were not visible, they will be made visible. If they were visible, they become invisible.

NXTVIEW This operation selects the next higher view defined. If only one view is defined it is a null operation.

PREVIEW This operation selects the next lower view defined. If only one view is defined it is a null operation.

CLEAR This operation erases the dialog area, and clears any data in the dialog area scrolling buffer.

DIALOG This operation toggles the dialog area location. If the dialog area was on the alpha monitor, it will move to the graphics display. If it was on the graphics display, it will move to the alpha monitor.

PAN — This operation toggles the local pan function. The pan viewing function displays a box on the graphics device, with a crosshair in the center. The box may be moved around with the CURUP, CURLFT, CURDWN, and CURRT operations. The selected view can be displayed with the VIEW operation.

OVRVW — This operation erases the current view, then re-displays the view using the partial overview window (as set by the SET-OVERVIEW-WINDOW command). Any views clustered with the current view are also redisplayed using the current view's partial overview window.

VIEW — This operation erases the current view, then re-displays the view using the most recent window and viewport data. Any views clustered to the current view are also affected.

RESTORE — This operation erases the current view, then re-displays the view using the previous transformations stored in the circular restore-queue. Viewing transformations and local viewing operations (PAN and ZOOM) are entered into a circular queue each time that the VIEW operation is selected. Up to four sets of "old values" for the viewing transformations can be stored. Any views clustered to the current view are also affected.

ZOOM — This operation toggles the local zoom function. The zoom viewing function displays a box on the graphics device, with smaller corner markers inside the larger full box. The box may be made smaller with the CURDWN or CURLFT operations. The CURUP or CURRT operations make the box larger. The selected view may be displayed with the VIEW operation.

NORMAL — This operation restores the size and shape of the pan or zoom viewing display boxes.

BREAK — This operation causes a BREAK signal to be sent to the host on the host RS-232 communications line.

PASTHRU — This operation toggles the current state of the 'transparent' mode. If the terminal is in TEKEM mode, it will go to transparent mode; if in transparent mode, it will go to TEKEM mode. Not currently implemented.

PAGEUP — This operation scrolls the dialog area back one full page (either 24 or 30 lines) of text on the alpha display.

PAGEDWN This operation scrolls the dialog area forward one full page (either 24 or 30 lines) of text on the alpha display.

HPAGUP This operation scrolls the dialog area back one half page (either 12 or 15 lines) of text on the alpha display.

HPAGDWN This operation scrolls the dialog area forward one half page (either 12 or 15 lines) of text on the alpha display.

LINEUP This operation scrolls the dialog area back one single line of text on the alpha display.

LINEDWN This operation scrolls the dialog area forward one single line of text on the alpha display.

TOP This operation scrolls the dialog area all the way back to the beginning of the dialog buffer, and displays the first 24 or 30 lines of the buffer on the alpha display.

BOTTOM This operation scrolls the dialog area all the way forward to the end of the dialog buffer, and displays the last 24 or 30 lines of the buffer on the alpha display.

NOP This operation does nothing. When used with key macros -100 to -103 (associated with the tablet GIN area buttons), a tablet GIN report will be sent. Any other key macro defined to this function effectively disables the key.

TZOOM This operation initiates the tablet controlled zoom feature. A crosshair appears on the screen, which is used to locate one corner of the zoom box. After that, a zoom box appears whose size is controlled by the tablet pen. It is only possible to zoom in on a view with this method.

TUNZOOM Zoom out of the view by a fixed factor. The factor may be changed from the default value of 100% with the Set Tablet Zooming Parameters (esc IZ) command.

PREVZOOM The previous Zoom Special function, labeled PREV ZOOM on the tablet overlay, changes the viewing window othe previous zoomed window, if any. It is similar to the Restore key, except that no zoom or pan ox is displayed.

GINRED This operation forces the next tablet pick to assume button #0 was pressed.

GINGREN This operation forces the next tablet pick to assume button #1 was pressed.

GINBLUE This operation forces the next tablet pick to assume button #2 was pressed.

GINGOLD This operation forces the next tablet pick to assume button #3 was pressed.

OPCOM Operation Complete. Sends a "]" or a "]<cr>". Inclusion or exclusion of the carriage return is controlled by the Setup parameter AUTONEWLINE.

OPREJ Operation Reject. Sends a "[" or a "[<cr>". Inclusion or exclusion of the carriage return is controlled by the Setup parameter AUTONEWLINE.

APPENDIX B - Macro Number Table

Macro Number	TEK keyboard key	IEW keyboaro key	IEW keyboard character sequence (hex)
0	CNTL @	CNTL @	00
1	CNTL A	CNTL A	01
2	CNTL B	CNTL B	02
3	CNTL C	CNTL C	03
4	CNTL D	CNTL D	04
5	CNTL E	CNTL E	05
6	CNTL F	CNTL F	06
7	CNTL G	CNTL G	07
8	CNTL H or BACK SPACE	CNTL H or BACK SPACE	08
9	CNTL I or TAB	CNTL I or TAB	09
10	CNTL J or LINE FEED	CNTL J or LINE FEED	0A
11	CNTL K	CNTL K	0B
12	CNTL L	CNTL L	0C
13	CNTL M or RTN	CNTL M	0D
14	CNTL N	CNTL N	0E
15	CNTL O	CNTL O	0F
16	CNTL P	CNTL P	10
17	CNTL Q	CNTL Q	11
18	CNTL R	CNTL R	12
19	CNTL S	CNTL S	13
20	CNTL T	CNTL T	14
21	CNTL U	CNTL U	15
22	CNTL V	CNTL V	16
23	CNTL W	CNTL W	17
24	CNTL X	CNTL X	18
25	CNTL Y	CNTL Y	19
26	CNTL Z	CNTL Z	1A
27	CNTL [or ESC	CNTL [or ESC	1B
28	CNTL \	CNTL \	1C
29	CNTL]	CNTL]	1D
30	CNTL ^	CNTL ^	1E
31	CNTL _	CNTL _	1F
32	blank	blank	20
33	!	!	21
34	"	"	22
35	#	#	23
36	$	$	24
37	%	%	25
38	&	&	26
39	'	'	27
40	(	(	28
41	)	)	29
42	*	*	2A
43	+	+	2B
44	,	,	2C
45	-	-	2D
46	.	.	2E
47	/	/	2F

48	0	0	30
49	1	1	31
50	2	2	32
51	3	3	33
52	4	4	34
53	5	5	35
54	6	6	36
55	7	7	37
56	8	8	38
57	9	9	39
58	:	:	3A
59	;	;	3B
60	<	<	3C
61	=	=	3D
62	>	>	3E
63	?	?	3F
64	@	@	40
65	A	A	41
66	B	B	42
67	C	C	43
68	D	D	44
69	E	E	45
70	F	F	46
71	G	G	47
72	H	H	48
73	I	I	49
74	J	J	4A
75	K	K	4B
76	L	L	4C
77	M	M	4D
78	N	N	4E
79	O	O	4F
80	P	P	50
81	Q	Q	51
82	R	R	52
83	S	S	53
84	T	T	54
85	U	U	55
86	V	V	56
87	W	W	57
88	X	X	58
89	Y	Y	59
90	Z	Z	5A
91	[	[	5B
92	\	\	5C
93	]	]	5D
94	^	^	5E
95			5F
96	`	`	60
97	a	a	61
98	b	b	62
99	c	c	63
100	d	d	64
101	e	e	65

102	f	f	66
103	g	g	67
104	h	h	68
105	i	i	69
106	j	j	6A
107	k	k	6B
108	l	l	6C
109	m	m	6D
110	n	n	6E
111	o	o	6F
112	p	p	70
113	q	q	71
114	r	r	72
115	s	s	73
116	t	t	74
117	u	u	75
118	v	v	76
119	w	w	77
120	x	x	78
121	y	y	79
122	z	z	7A
123	{	{	7B
124	!	!	7C
125	}	}	7D
126	~	~	7E
127	RUB OUT	DEL	7F
128	F1	F1	1E,71
129	F2	F2	1E,72
130	F3	F3	1E,73
131	F4	F4	1E,74
132	F5	F5	1E,75
133	F6	F6	1E,76
134	F7	F7	1E,77
135	F8	F8	1E,78
136	SHFT F1	SHFT F1	1E,61
137	SHFT F2	SHFT F2	1E,62
138	SHFT F3	SHFT F3	1E,63
139	SHFT F4	SHFT F4	1E,64
140	SHFT F5	SHFT F5	1E,65
141	SHFT F6	SHFT F6	1E,66
142	SHFT F7	SHFT F7	1E,67
143	SHFT F8	SHFT F8	1E,68
-1			
-2	CNTL F1	CNTL F1	1E,31
-3	CNTL F2	CNTL F2	1E,32
-4	CNTL F3	CNTL F3	1E,33
-5	CNTL F4	CNTL F4	1E,34
-6	CNTL F5	CNTL F5	1E,35
-7	CNTL F6	CNTL F6	1E,36
-8	CNTL F7	CNTL F7	1E,37
-9	CNTL F8	CNTL F8	1E,38
-10	SHFT CNTL F1	SHFT CNTL F1	1E,21
-11	SHFT CNTL F2	SHFT CNTL F2	1E,22
-12	SHFT CNTL F3	SHFT CNTL F3	1E,23

-13	SHFT CNTL F4	SHFT CNTL F4	1E,24
-14	SHFT CNTL F5	SHFT CNTL F5	1E,25
-15	SHFT CNTL F6	SHFT CNTL F6	1E,26
-16	SHFT CNTL F7	SHFT CNTL F7	1E,27
-17	SHFT CNTL F8	SHFT CNTL F8	1E,28
-18	ZOOM	CANCEL	1E,12,2C
-19	PAN	SHFT CANCEL	1E,12,2D
-20	NEXT VIEW	CNTL CANCEL	1E,12,2E
-21	VIEW	SHFT CNTL CANCEL	1E,12,2F
-22	SHFT ZOOM	DIALOG	1E,12,28
-23	SHFT PAN	SHFT DIALOG	1E,12,29
-24	SHFT NEXT VIEW	CNTL DIALOG	1E,12,2A
-25	SHFT VIEW	SHFT CNTL DIALOG	1E,12,2B
-26	CNTL ZOOM	'UP'	1E,12,24
-27	CNTL PAN	SHFT 'UP'	1E,12,25
-28	CNTL NEXT VIEW	CNTL 'UP'	1E,12,26
-29	CNTL VIEW	SHFT CNTL 'UP'	1E,12,27
-30	SHFT CNTL ZOOM	ESC	1E,12,20
-31	SHFT CNTL PAN	SHFT ESC	1E,12,21
-32	SHFT CNTL NEXT VIEW	CNTL ESC	1E,12,22
-33	SHFT CNTL VIEW	SHFT CNTL ESC	1E,12,23
-34	SHFT RUB OUT	PAGE	1E,02
-35	CNTL RUB OUT	SHFT PAGE	1E,01
-36	SHFT CNTL RUB OUT	'SUPER'	1E,79
-37	SHFT ESC	SHFT 'SUPER'	1E,69
-38	CNTL ESC	CNTL 'SUPER'	1E,39
-39	SHFT CNTL ESC	SHFT CNTL 'SUPER'	1E,29
-40	SHFT BACK SPACE	'SUB'	1E,7A
-41	CNTL BACK SPACE	SHFT 'SUB'	1E,6A
-42		CNTL 'SUB'	1E,3A
-43	SHFT LINE FEED	SHFT CNTL 'SUB'	1E,2A
-44	CNTL LINE FEED	SCROLL UP	1E,7B
-45	SHFT CNTL LINE FEED	SHFT SCROLL UP	1E,6B
-46	SHFT TAB	CNTL SCROLL UP	1E,3B
-47	CNTL TAB	SHFT CNTL SCROLL UP	1E,2B
-48		SCROLL DOWN	1E,7C
-49	SHFT RTN	SHFT SCROLL DOWN	1E,6C
-50	CNTL RTN	CNTL SCROLL DOWN	1E,3C
-51	SHFT CNTL RTN	SHFT CNTL SCROLL DOWN	1E,2C
-52	SHFT SPACE	CLEAR	1E,4F
-53	CNTL SPACE	SHFT CLEAR	1E,52
-54	SHFT CNTL SPACE	SETUP	1E,4E
-55	Num 0	SHFT SETUP	1E,51
-56	Num 1	LOCAL	0B
-57	Num 2	SHFT LOCAL	0C
-58	Num 3	HARDCOPY	1B
-59	Num 4	BREAK	BREAK
-60	Num 5	NORMAL	1E,5C
-61	Num 6	SHFT NORMAL	1E,58
-62	Num 7	OVERVIEW	1F
-63	Num 8	SHFT OVERVIEW	1E,5D
-64	Num 9	SHFT CNTL OVERVIEW	1E,59
-65	Num .	RESTORE	1E,5E
-66	Num ,	SHFT RESTORE	1E,5A

-67	Num -	BORDER	1E,5F
-68	Num ENT	SHFT BORDER	1E,5B
-69	SHFT Num 0	[	1E,12,35
-70	SHFT Num 1	SHFT [	1E,12,36
-71	SHFT Num 2	ZOOM	1E,7D
-72	SHFT Num 3	SHFT ZOOM	1E,6D
-73	SHFT Num 4	CNTL ZOOM	1E,3D
-74	SHFT Num 5	SHFT CNTL ZOOM	1E,2D
-75	SHFT Num 6	PAN	1E,7E
-76	SHFT Num 7	SHFT PAN	1E,6E
-77	SHFT Num 8	CNTL PAN	1E,3E
-78	SHFT Num 9	SHFT CNTL PAN	1E,2E
-79	SHFT Num .	VIEW	1E,70
-80	SHFT Num ,	SHFT VIEW	1E,70
-81	SHFT Num -	CNTL VIEW	1E,30
-82	SHFT Num ENT	SHFT CNTL VIEW	1E,20
-83	CNTL Num 0	NEXTVIEW	1E,12,31
-84	CNTL Num 1	SHFT NEXTVIEW	1E,12,32
-85	CNTL Num 2	CNTL NEXTVIEW	1E,12,33
-86	CNTL Num 3	]	1E,49
-87	CNTL Num 4	SHFT]	1E,4A
-88	CNTL Num 5	CNTL TAB	1E,12,57
-89	CNTL Num 6	BACKTAB	1E,0B
-90	CNTL Num 7	CNTL BACKTAB	1E,12,58
-91	CNTL Num 8	CURSOR UP	17
-92	CNTL Num 9	CURSOR DOWN	1A
-93	CNTL Num .	CURSOR LEFT	08
-94	CNTL Num ,	CURSOR RIGHT	18
-95	CNTL Num -	CURSOR SPEED	19
-96	CNTL Num ENT	RESERVED	
-97	SHFT CNTL Num 0	RESERVED	
-98	SHFT CNTL Num 1	RESERVED	
-99	SHFT CNTL Num 2	RESERVED	
-100	SHFT CNTL Num 3	TABLET GIN AREA BUTTON #0	
-101	SHFT CNTL Num 4	TABLET GIN AREA BUTTON #1	
-102	SHFT CNTL Num 5	TABLET GIN AREA BUTTON #2	
-103	SHFT CNTL Num 6	TABLET GIN AREA BUTTON #3	
-104	SHFT CNTL Num 7	TABLET KEY 0 BUTTON #0	
-105	SHFT CNTL Num 8	TABLET KEY 0 BUTTON #1	
-106	SHFT CNTL Num 9	TABLET KEY 0 BUTTON #2	
-107	SHFT CNTL Num .	TABLET KEY 0 BUTTON #3	
-108	SHFT CNTL Num ,	TABLET KEY 1 BUTTON #0	
-109	SHFT CNTL Num -	TABLET KEY 1 BUTTON #1	
-110	SHFT CNTL Num ENT	TABLET KEY 1 BUTTON #2	
-111	DIALOG	TABLET KEY 1 BUTTON #3	
-112	SETUP	TABLET KEY 2 BUTTON #0	
-113	LOCAL	TABLET KEY 2 BUTTON #1	
-114	COPY	TABLET KEY 2 BUTTON #2	
-115	PAGE	TABLET KEY 2 BUTTON #3	
-116	BREAK	TABLET KEY 3 BUTTON #0	
-117	SHFT DIALOG	TABLET KEY 3 BUTTON #1	
-118	SHFT SETUP	TABLET KEY 3 BUTTON #2	
-119	SHFT LOCAL	TABLET KEY 3 BUTTON #3	
-120	SHFT COPY	TABLET KEY 4 BUTTON #0	

-121	SHFT PAGE	TABLET KEY 4 BUTTON #1
-122	SHFT BREAK	TABLET KEY 4 BUTTON #2
-123	CNTL DIALOG	TABLET KEY 4 BUTTON #3
-124	CNTL SETUP	TABLET KEY 5 BUTTON #0
-125	CNTL LOCAL	TABLET KEY 5 BUTTON #1
-126	CNTL COPY	TABLET KEY 5 BUTTON #2
-127	CNTL PAGE	TABLET KEY 5 BUTTON #3
-128	CNTL BREAK	TABLET KEY 6 BUTTON #0
-129	SHFT CNTL DIALOG	TABLET KEY 6 BUTTON #1
-130	SHFT CNTL SETUP	TABLET KEY 6 BUTTON #2
-131	SHFT CNTL LOCAL	TABLET KEY 6 BUTTON #3
-132	SHFT CNTL COPY	TABLET KEY 7 BUTTON #0
-133	SHFT CNTL PAGE	TABLET KEY 7 BUTTON #1
-134	SHFT CNTL BREAK	TABLET KEY 7 BUTTON #2
-135	Joy Right	TABLET KEY 7 BUTTON #3
-136	Joy Up	TABLET KEY 8 BUTTON #0
-137	Joy Left	TABLET KEY 8 BUTTON #1
-138	Joy Down	TABLET KEY 8 BUTTON #2
-139	SHFT Joy Right	TABLET KEY 8 BUTTON #3
-140	SHFT Joy Up	TABLET KEY 9 BUTTON #0
-141	SHFT Joy Left	TABLET KEY 9 BUTTON #1
-142	SHFT Joy Down	TABLET KEY 9 BUTTON #2
-143	CNTL Joy Right	TABLET KEY 9 BUTTON #3
-144	CNTL Joy Up	TABLET KEY 10 BUTTON #0
-145	CNTL Joy Left	TABLET KEY 10 BUTTON #1
-146	CNTL Joy Down	TABLET KEY 10 BUTTON #2
-147	SHFT CNTL Joy Right	TABLET KEY 10 BUTTON #3
-148	SHFT CNTL Joy Up	TABLET KEY 11 BUTTON #0
-149	SHFT CNTL Joy Left	TABLET KEY 11 BUTTON #1
-150	SHFT CNTL Joy Down	TABLET KEY 11 BUTTON #2
-159	Mouse Right Down	TABLET KEY 11 BUTTON #3
-160	Mouse Right Up	TABLET KEY 12 BUTTON #0
-151	Joy Trigger	TABLET KEY 12 BUTTON #1
-152	SHFT Joy Trigger	TABLET KEY 12 BUTTON #2
-153	CNTL Joy Trigger	TABLET KEY 12 BUTTON #3
-154	SHFT CNTL Joy Trigger	TABLET KEY 13 BUTTON #0
-155	Mouse Left Down	TABLET KEY 13 BUTTON #1
-156	Mouse Left Up	TABLET KEY 13 BUTTON #2
-157	Mouse Mid Down	TABLET KEY 13 BUTTON #3
-158	Mouse Mid Up	TABLET KEY 14 BUTTON #0
-161	SHFT Mouse Left Down	TABLET KEY 14 BUTTON #1
-162	SHFT Mouse Left Up	TABLET KEY 14 BUTTON #2
-163	SHFT Mouse Mid Down	TABLET KEY 14 BUTTON #3
-164	SHFT Mouse Mid Up	TABLET KEY 15 BUTTON #0
-165	SHFT Mouse Right Down	TABLET KEY 15 BUTTON #1
-166	SHFT Mouse Right Up	TABLET KEY 15 BUTTON #2
-167	CNTL Mouse Left Down	TABLET KEY 15 BUTTON #3
-168	CNTL Mouse Left Up	TABLET KEY 16 BUTTON #0
-169	CNTL Mouse Mid Down	TABLET KEY 16 BUTTON #1
-170	CNTL Mouse Mid Up	TABLET KEY 16 BUTTON #2
-171	CNTL Mouse Right Down	TABLET KEY 16 BUTTON #3
-172	CNTL Mouse Right Up	TABLET KEY 17 BUTTON #0
-173	SHFT CNTL Mouse L Down	TABLET KEY 17 BUTTON #1
-174	SHFT CNTL Mouse L Up	TABLET KEY 17 BUTTON #2

-175	SHFT CNTL Mouse M Down	TABLET KEY 17 BUTTON #3
-176	SHFT CNTL Mouse M Up	TABLET KEY 18 BUTTON #0
-177	SHFT CNTL Mouse R Down	TABLET KEY 18 BUTTON #1
-178	SHFT CNTL Mouse R Up	TABLET KEY 18 BUTTON #2
-179		TABLET KEY 18 BUTTON #3
-180		TABLET KEY 19 BUTTON #0
-181		TABLET KEY 19 BUTTON #1
-182		TABLET KEY 19 BUTTON #2
-183		TABLET KEY 19 BUTTON #3
-184		TABLET KEY 20 BUTTON #0
-185		TABLET KEY 20 BUTTON #1
-186		TABLET KEY 20 BUTTON #2
-187		TABLET KEY 20 BUTTON #3
-188		TABLET KEY 21 BUTTON #0
-189		TABLET KEY 21 BUTTON #1
-190		TABLET KEY 21 BUTTON #2
-191		TABLET KEY 21 BUTTON #3
-192		TABLET KEY 22 BUTTON #0
-193		TABLET KEY 22 BUTTON #1
-194		TABLET KEY 22 BUTTON #2
-195		TABLET KEY 22 BUTTON #3

APPENDIX C. Special Key Codes

Special Key Code	Special Key Name	Special Function Short Description
-1	GINSUP	Tablet GIN suppression flag
-2	CURUP	Move thumbwheels GIN cursor UP
-3	CURLFT	Move thumbwheels GIN cursor LEFT
-4	CURRT	Move thumbwheels GIN cursor RIGHT
-5	CURDWN	Move thumbwheels GIN cursor DOWN
-6	CANCEL	Cancel current operation
-7	SPEED	Toggle thumbwheels GIN speed
-8	FAST	Set thumbwheels GIN speed to FAST
-9	MEDIUM	Set thumbwheels GIN speed to MEDIUM
-10	SLOW	Set thumbwheels GIN speed to SLOW
-11	LOCAL	Toggle local/remote mode
-12	SETUP	Toggle setup mode
-13	HCOPY	Initiate a hard copy
-14	HINV	Initiate inverted hard copy
-15	HALPHA	Initiate alpha monitor hard copy
-16	PAGE	Clear graphics and repaint
-17	BORDER	Toggle viewport borders
-18	NXTVIEW	Select next defined view
-19	PREVIEW	Select previous defined view
-20	CLEAR	Clear dialog screen
-21	DIALOG	Toggle dialog setting
-22	PAN	Toggle local pan mode
-23	OVRVW	Set view to current overview
-24	VIEW	Renew current view
-25	RESTORE	Restore current view
-26	ZOOM	Toggle local zoom mode
-27	NORMAL	Set normal mode
-28	BREAK	Send communications break
-29	PASTHRU	Toggle passthru mode
-30	PAGEUP	Scroll back one page
-31	PAGEDWN	Scroll forward one page
-32	HPAGUP	Scroll back one half page
-33	HPAGDWN	Scroll forward one half page
-34	LINEUP	Scroll back one line
-35	LINEDWN	Scroll forward one line
-36	TOP	Scroll back to beginning
-37	BOTTOM	Scroll forward to end
-38	NOP	No operation
-39	Reserved	Reserved for future use
.	.	.
.	.	.
.	.	.
-55	Reserved	Reserved for future use
-56	PREVZOOM	Tablet Controlled Previous Zoom.
-57	OPCOM	Send an Operation Complete
-58	OPREJ	Send an Operation Reject
-59	TZOOM	Tablet Controlled Zoom
-60	TUNZOOM	Tablet Controlled Zoom Out
-61	GINRED	Force next tablet pick to BUTTON #0

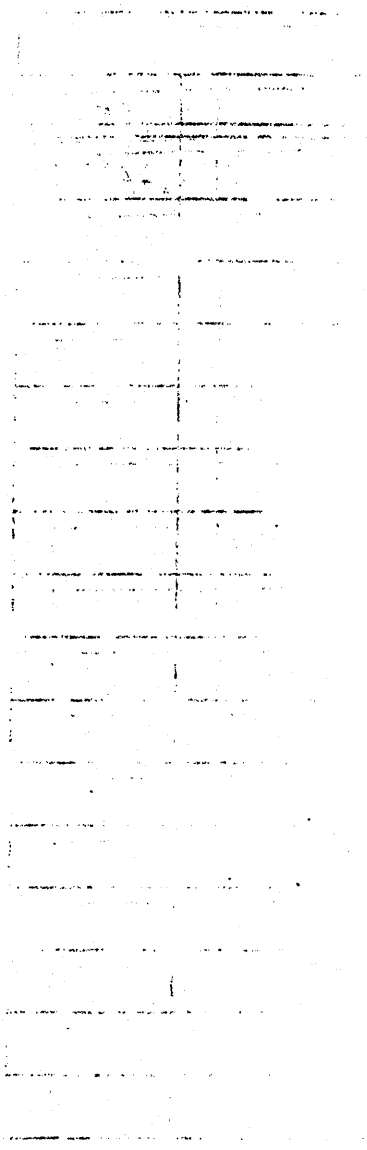
-62	GINGREN	Force next tablet pick to BUTTON #1
-63	GINBLUE	Force next tablet pick to BUTTON #2
-64	GINCOLD	Force next tablet pick to BUTTON #3

APPENDIX D -- Tablet Key Macro Numbers and Default Definitions

Tablet Key Number	Button Number	Macro Number	Default Special Key Code	Default Special Function
GIN area	0	-100	-38	NOP
GIN area	1	-101	-57	OPCOM
GIN area	2	-102	-58	OPREJ
GIN area	3	-103	-38	NOP
0	0	-104	-59	TZOOM
0	1	-105	-38	NOP
0	2	-106	-38	NOP
0	3	-107	-38	NOP
1	0	-108	-60	TUNZOOM
1	1	-109	-38	NOP
1	2	-110	-38	NOP
1	3	-111	-38	NOP
2	0	-112	-56	PREVZOOM
2	1	-113	-38	NOP
2	2	-114	-38	NOP
2	3	-115	-38	NOP
3	0	-116	-16	OVRVW
3	1	-117	-38	NOP
3	2	-118	-38	NOP
3	3	-119	-38	NOP
4	0	-120	-29	PAGE
4	1	-121	-38	NOP
4	2	-122	-38	NOP
4	3	-123	-38	NOP
5	0	-124	-29	PASTHRU
5	1	-125	-38	NOP
5	2	-126	-38	NOP
5	3	-127	-38	NOP
6	0 to 3	-128 to -131	-38	NOP
7	0 to 3	-132 to -135	-38	NOP
8	0 to 3	-136 to -139	-38	NOP
9	0 to 3	-140 to -143	-38	NOP
10	0 to 3	-144 to -147	-38	NOP
11	0 to 3	-148 to -151	-38	NOP
12	0 to 3	-152 to -155	-38	NOP
13	0	-156	-37	BOTTOM
13	1	-157	-38	NOP
13	2	-158	-38	NOP
13	3	-159	-38	NOP
14	0	-160	-36	TOP

14	1	-161	-38	NOP
14	2	-162	-38	NOP
14	3	-163	-38	NOP
15	0	-164	-35	LINEDWN
15	1	-165	-38	NOP
15	2	-166	-38	NOP
15	3	-167	-38	NOP
16	0	-168	-34	LINEUP
16	1	-169	-38	NOP
16	2	-170	-38	NOP
16	3	-171	-38	NOP
17	0	-172	-33	HPAGDWN
17	1	-173	-38	NOP
17	2	-174	-38	NOP
17	3	-175	-38	NOP
18	0	-176	-32	HPAGUP
18	1	-177	-38	NOP
18	2	-178	-38	NOP
18	3	-179	-38	NOP
19	0	-180	-31	PAGEDWN
19	1	-181	-38	NOP
19	2	-182	-38	NOP
19	3	-183	-38	NOP
20	0	-184	-30	PAGEUP
20	1	-185	-38	NOP
20	2	-186	-38	NOP
20	3	-187	-38	NOP
21	0	-188	-38	NOP
21	1	-189	-38	NOP
21	2	-190	-38	NOP
21	3	-191	-38	NOP
22	0	-192	-20	CLEAR
22	1	-193	-38	NOP
22	2	-194	-38	NOP
22	3	-195	-38	NOP

ICEM DDN
VERSION 1.6
MIGRATION



1/86 V1.6

REVISION RECORD

Revision	Description	Date
	Migration Manual V1.6	1/86

PREFACE

It is continually our goal to provide you with solutions that will increase you productivity and make your job easier. As our products evolve to better obtain these goals, the manner in which to accomplish a given task also changes. In developing new revisions of ICEM DDN, user impact is a significant factor in new features to be included. As a matter of fact, most feature additions, changes, and enhancements are the result of customer input. However, in order to accomplish these enhancements in the most efficient manner, the end result is sometimes a product that does not function exactly the same as its predecessor. Normally, once the 'new way' is learned, the latest revision is in fact the more efficient and the benefits far outweigh the inconvenience caused by the changes. The difficulty of migrating from one revision to the next is becoming aware of changes and how they affect the usage of ICEM DDN.

ICEM DDN Version 1.60 is CONTROL DATA'S most ambitious release to date in terms of new product capabilities and features. This release required the addition of half a million lines of new code to accomplish this. The purpose of this manual is to provide you, the software support person at your site, with information of all the changes in moving from version 1.57 to 1.60 so that the transition can be as smooth as possible. Hopefully, this document will make you aware of what these changes are and how they will affect your organization. This manual contains information about every change that occurs when moving from version 1.57 to version 1.60 usage. The manual is organized in order by menu, much like all other ICEM DDN documentation. The table of contents serves two purposes: it is a listing of all changes between the two revisions as well as a reference to the pages on which these changes are explained more thoroughly.

Although all of the changes have purpose, there are several of significant importance because of functional impact and increased productivity potential. These areas should be presented to all ICEM DDN users, not only to avoid problems in migration, but to become aware of items that can potentially increase productivity. They are:

NEW ENTITY SELECTION CONTROL
NEW USER TABLET MANAGEMENT
NEW PATTERN MANAGEMENT
NEW ATTRIBUTE MANAGEMENT
FEET/INCHES DRAFTING

Other new features or enhancements may have particular impact on your organization's DDN usage. To become familiar with these, consult the table of contents for the complete list of changes.

As your organization's support person, we hope that you will take the initiative to assure that users in your organization are properly trained in the areas that you feel are important. This manual can be used to help develop such training material for your site; or if you wish, more detailed training is available through CONTROL DATA'S training department. This department also offers a Train-the-Trainer course which involves training consulting and detailed information about training your users. For more information about the training, contact: Leon Vann, 612/642-3815.

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ENTERING ICEM DDN

TERMINALS

SUPPORT FOR TEKTRONIX 4016 AND CDC IST TERMINALS HAS BEEN DROPPED FROM THE MENU. SUPPORT FOR TEKTRONIX 4125 AND CDC 790 TERMINALS HAS BEEN ADDED TO THE MENU

MENU AREA

SUPPORT FOR ADM-3A, ALPHA-3, REFRESH BUFFER, AND INTERACTIVE BUFFER HAS BEEN DROPPED. ONLY PROMPTED FOR THIS ON 4113, 4114, 4115, AND 4125.

TABLET

LARGE TABLET (OPTION 14 OR TEKTRONIX 4954) IS IN DOCUMENTATION BUT NOT A VALID PICK. (NOT SUPPORTED)

BIT PLANES

ADDED PROMPT FOR NUMBER OF BIT PLANES FOR TEK 4115 AND 4125 AND CDC 790 TERMINALS. PROPER SETTING SHOULD BE VERIFIED AT EACH SITE AND LOOK INTO PRE-SETTING THIS IN PROC OR EDL.

NEW PARAMETERS

- BP = NUMBER OF COLOR BIT PLANES
  (VALID SETTINGS: 4, 6, OR 8)

- FL = TAPE3 FILE LENGTH LIMIT

- GL = GLOBAL PARTS FILE LENGTH LIMIT

- GP = GLOBAL PATTERN FILE LENGTH LIMIT
  FOR FL, GL AND GP, DEFAULT SIZE IS UNLIMITED. IF THESE PARAMETERS ARE SELECTED WITHOUT A VALUE, 10,000 DDN SECTORS (20,000 NOS PRUS) IS DEFAULT. THESE PARAMETERS SELECTED WITH A VALUE MULTIPLY THE VALUE BY 100 FOR DDN SECTORS OR 200 FOR NOS PRUS.

  NOTE: IF THIS VALUE IS EXCEEDED, A MESSAGE WILL TELL YOU SO.

- FS = SELECT TARGET SIZE AREA
  (DEFAULTS TO .5" OR 12.7 MILLIMETERS)

- LA = LOCAL ASSIST
  (VALID SETTING Y OR N)

- MT = MENU INPUT TRACE FILE NAME

- TB = NEW SETTINGS AVAILABLE

  - OPT13 - OPTION 13 TABLET
  - T4953 - 4014 TABLET
  - T4957 - 4957 TABLET

NOTE: OPT 14 AND T4957 ARE DOCUMENTED;
BUT SINCE THE LARGE TABLET IS NOT YET FUNCTIONAL, THEY WILL NOT WORK.

- AX = THE PRIMARY AXIS FOR PEN MOVEMENT WHEN USING THE OPTIM UTILITY. IT DETERMINES THE AXIS ALONG WHICH THE PEN PLOT MOVES MOST FREQUENTLY.
(VALID SETTINGS ARE: X OR Y)

UNITS OF MEASURE

ADDED MENU CHOICE

3. ENGLISH (FOOT/INCH) - COVERED LATER

MISCELLANEOUS

- 'ENTER' REPLACES 'KEY-IN' PROMPT THROUGHOUT DDN

TABLET

GRAPHIC DESIGN CHANGES

- GOT RID OF 'SCREAMERS'
- USE OF HEADER BARS TO HIGHLIGHT
- MUCH IMPROVED ORGANIZATION
  - HORIZONTALITY
- CLEARER TEXT
  - ONLY 2 CHARACTER SIZES
  - UPPER/LOWER CASE
  - FLUSH LEFT
  - HELVETICA FONT
- COLOR
  - SOFTER, LIGHTER - HELPS REDUCE EYE STRAIN
  - SMALLER PALETTE
- GROUPS ARE DISTINGUISHED BY:
  - COLOR
  - MAJOR/MINOR HEADERS

FUNCTION CHANGES

- SINGLE PICK ACTIVATES NEW PAGES
- DELETE LAST ENTITY WAS MOVED TO AVOID INADVERTANT USE
- CHANGE PAGE IS NOW CALLED PAN AND IS REPRESENTED ON THE TABLET AS ARROWS
- NOTE WAS ADDED TO MAIN TABLET
- FILE/TERMINATE WAS REPLACED BY FILE AND DO NOT FILE SEQUENCES
- DUE TO CHANGES IN ENTITY SELECTION, DELETE, BLANK, AND UNBLANK HAS CHANGED
- ADDED ENTITY SELECTION CONSTRAINT SETS
- GPL IS NOW ON MAIN TABLET
- TRIM/EXTEND CURVES MOVED AND HAS ADDITIONAL SQUARES FOR SCREEN POSITION TRIM
- ADDED MODALS
  - COLOR
  - IMPLICIT POINTS
  - DRAG
- PATTERN MANAGEMENT AND ENTITY MANIPULATION HAVE CHANGED

ENTITY SELECTION

NEW CAPABILITIES

- ENTITY SELECTION CONTROL WAS REWRITTEN FOR ICEM DDN V 1.60 AND VASTLY INCREASES ITS POWER AND EASE OF USE.
- ALL OPERATIONS NOW HAVE THE SAME ENTITY PICKING CAPABILITIES.
- THE EXPANDED ENTITY SELECTION CAPABILITIES COMBINE THE FUNCTIONALITY OF BLANK AND DELETE FOR ALL OPERATIONS. (I.E. ALL OF A TYPE, ALL OF A LEVEL, ETC.)
- ALLOWS FOR MODIFYING THE GROUP OF ENTITIES SELECTED. (I.E. YOU CAN PICK ADDITIONAL ENTITIES OR EVEN 'UNPICK' ENTITIES)
- ALLOWS FOR DEFAULT SELECTION METHOD. THIS MEANS THE SYSTEM NO LONGER HAS ADDITIONAL MENUS WHEN EXECUTING A FUNCTION WHICH REQUIRES ENTITY PICKING. RATHER, IT GOES RIGHT TO ACTIVE ENTITY SELECTION USING THE SELECTION METHOD THAT WAS MODALLY SET.
- ALLOWS FILTERING OR 'MASKING' OF ENTITIES THAT ARE PICKABLE IN THE CURRENT OPERATION.
- CHAIN SELECTION ENHANCEMENT
- ADDS SEVERAL NEW MODALS

ENTITY SELECTION

USER IMPACT

- WILL NO LONGER GET THE SELECTION METHOD MENU:

  1. SINGLE
  2. CHAIN
  3. REGION

  RATHER, THE SYSTEM WILL AUTOMATICALLY GO DIRECTLY TO THE INDICATE ENTITY PROMPT. (OR TO WHICHEVER METHOD HAS BEEN CHOSEN IN THE DEFAULT SELECTION METHOD MODAL F.1.11.10)

- IF USERS ONLY USE SINGLE SELECT, THEY CAN JUST PICK THEIR ENTITIES AS BEFORE, FOLLOWED BY AN OP COMPLETE WHEN FINISHED.

- IF THE USERS WANT TO USE FURTHER (MORE POWERFUL) ENTITY SELECTION, THEY SHOULD ENTER E OR CTRL E WHICH WILL BRING UP THE ENTITY SELECTION MENU WHICH IS DESCRIBED IN GREATER DETAIL IN THIS SECTION.

- BLANK/UNBLANK AND DELETE MENUS WILL CHANGE DUE TO PULLING MANY OF THE FUNCTIONS OUT OF THESE MENUS AND PUTTING THEM INTO THE ENTITY SELECTION MENU.

- ADDS POWER IN EASE OF SELECTION OF SPECIFIC ENTITIES IN A LARGE DRAWING WITH MANY ENTITIES.
- ALLOWS USER TO BE EXPOSED ONLY TO THE AMOUNT OF 'POWER' THEY WANT OR NEED.

ENTITY SELECTION PROCESS

THE INITIAL METHOD OF CONTROLLING HOW AN ENTITY IS TO BE SELECTED IS SET AS A MODAL IN F.1.11.10

SELECTION METHOD

1. SCREEN SELECT - DEFAULT
2. NAME
3. SEQUENCE NUMBER
4. POINTER NUMBER
5. SET WHEN USED - GIVES OPTIONS 1 THROUGH 4 WHENEVER ENTERING AN ENTITY SELECTION FUNCTION

NOTE: THIS MENU MUST ALWAYS BE INCLUDED IN TABLET COMMAND STRINGS (I.E. COMMAND STRINGS ALWAYS REACT AS IF SET WHEN USED IS TURNED ON).

ENTERING E OR CTRL-E AT THE PROMPT FOR ENTITY SELECTION (REGARDLESS OF SELECTION METHOD) WILL BRING UP A COMPLETELY NEW SET OF MENUS DESCRIBED AS FOLLOWS:

ENTITY SELECTION

1. SCREEN SELECT - PICK ENTITIES ONE AT A TIME
2. CHAIN - SELECT A SET OF CONTIGUOUS ENTITIES
3. REGION IN - SELECT A SET OF ELIGIBLE ENTITIES INSIDE A RECTANGULAR REGION
4. ALL DISPLAYED - SELECTS ALL ELIGIBLE ENTITIES DISPLAYED ON SCREEN
5. ENTIRE PART - SELECTS ALL ELIGIBLE ENTITIES IN THE CURRENT PART
6. OTHER SELECTION METHODS - SEE PG. 11
7. MODALS - SEE PG. 11
8. USE NAMED CONSTRAINT SET - USE A CONSTRAINT SET THAT HAS BEEN DEFINED AND SAVED IN THE DEFINE CONSTRAINTS MENU - SEE PG. 14
9. CLEAR CONSTRAINTS - REMOVES ALL SELECTION CONSTRAINTS
   NOTE: THIS DOES NOT DELETE NAMED CONSTRAINTS IN THE PART BUT MERELY REMOVES ALL CONSTRAINTS PREVIOUSLY IMPOSED DURING THE CURRENT ENTITY SELECTION PROCESS.
10. DEFINE CONSTRAINTS - ALLOWS YOU TO FILTER OR 'MASK OFF' WHICH TYPES ARE ELIGIBLE FOR THE CURRENT ENTITY SELECTION PROCESS - SEE PG. 14

NOTE: IF CONSTRAINT SETS ARE IN USE, THEN METHODS 1 - 6 WILL ONLY SELECT ELIGIBLE ENTITIES.

E.6 OTHER SELECTION METHODS

1. NAME - TO SELECT ENTITIES BY NAME (NAMES ARE ATTACHED TO ENTITIES USING F.5.11.2)
2. LAST ENTITY - SELECTS THE LAST ENTITY CREATED OR MODIFIED
3. ALL NOT DISPLAYED - SELECTS ALL ELIGIBLE OFF-SCREEN OR BLANKED ENTITIES
4. REGION OUT - SELECTS ALL ELIGIBLE DISPLAYED ENTITIES OUTSIDE OF A RECTANGULAR REGION
5. SEQUENCE NUMBER - SELECTS ENTITY BY THE SEQUENCE NUMBER ENTERED
6. POINTER NUMBER - SELECTS ENTITY BY THE POINTER NUMBER ENTERED

E.7 MODALS

1. REPEAT INCLUDE/EXCLUDE - (ALSO SET IN F.1.11.7)
   1. ON - REMAINS IN THE CONSTRAINT DEFINITION MENU AFTER EACH INCLUDE OR EXCLUDE UNTIL USER OP COMPLETES (DEFAULT)
   2. OFF - ALLOWS ONLY ONE INCLUDE OR EXCLUDE AT A TIME - RETURNS TO ENTITY SELECTION MENU AFTER EACH INCLUDE OR EXCLUDE

2. CONSTRAINT SET DURATION - (ALSO SET IN F.1.11.8)
   1. ONCE - CONSTRAINT SET IS ACTIVE ONLY FOR CURRENT SELECTION PROCESS (DEFAULT)
   2. CONTINUOUS - CONSTRAINT SET REMAINS ACTIVE UNTIL CLEARED OR THIS MODAL IS CHANGED

E.7 MODALS (CONT.)

3. SELECTION MODIFICATION - (ALSO SET IN F.1.11.9)

    1. ON - ALLOWS MODIFICATION OF THE ENTITIES SELECTED BY BRINGING UP THE SELECTION MODIFICATION MENU DESCRIBED ON PG. 20.
    2. OFF - DOES NOT DISPLAY THE SELECTION MODIFICATION MENU.

4. SINGLE SELECT FROM GROUP - (ALSO SET IN F.1.11.3)

    1. ON - CAN SELECT ENTITIES IN A GROUP WITHOUT PICKING THE ENTIRE GROUP
    2. OFF - PICKING AN ENTITY IN A GROUP SELECTS THE ENTIRE GROUP (DEFAULT)

5. CHAIN SELECT MODE - (ALSO SET IN F.1.11.2.1)

    1. SELECT FIRST ENTITY AND DIRECTION (DEFAULT)
    2. SELECT FIRST AND SECOND ENTITIES

E.7 MODALS (CONT.)

6. CHAIN SELECT METHOD - DETERMINES HOW ENTITIES DURING CHAIN SELECT ARE SELECTED (ALSO SET IN F.1.11.2.1)

   1. SCREEN SELECT (DEFAULT)
   2. NAME
   3. SEQUENCE NUMBER
   4. POINTER NUMBER
   5. SET WHEN USED

7. DISALLOW PRE-SELECTED CURVES - (ALSO SET IN F.1.11.2.2)

   1. ON - LETS YOU SELECT CURVES NOT TO BE SELECTED IN A CHAIN WITH MULTIPLE PATHS
   2. OFF (DEFAULT)

8. ATTENTION INDICATORS - CONTROLS WHETHER ATTENTION INDICATORS ARE DISPLAYED ON SELECTED ENTITIES

   1. ON (DEFAULT)
   2. OFF

9. CONSTRAINT SET LEVEL - WHEN A CONSTRAINT SET IS NAMED (E.10.15), IT IS CREATED AS A SYSTEM ENTITY. THIS MODAL DETERMINES THE LEVEL UPON WHICH THIS ENTITY IS CREATED.

   1. CURRENT LEVEL - ON CURRENT WORKING LEVEL (DEFAULT)
   2. SPECIFIC LEVEL - ENTER LEVEL
   3. SET WHEN USED

SELECTION CONSTRAINT SETS

- A CONSTRAINT SET IS A SET OF PROPERTIES WHICH AN ENTITY MUST SATISFY IN ORDER TO BE ELIGIBLE FOR SELECTION IN ANY GIVEN SELECTION PROCESS

- CONSTRAINT SETS PROVIDE A MEANS OF MAKING ENTITY SELECTION EASIER BY ALLOWING THE USER TO 'MASK OFF' UNSELECTABLE ENTITIES IN A GIVEN SELECTION PROCESS

- PROPERTIES:
  - ENTITY TYPE
  - COLOR
  - FONT
  - PEN
  - LEVEL

- IN ORDER TO BE SELECTABLE DURING A GIVEN SELECTION PROCESS, AN ENTITY MUST HAVE INCLUDED PROPERTIES. "INCLUDE" PROPERTIES PERMIT ENTITIES TO BE SELECTED.

- ENTITIES CANNOT HAVE EXCLUDED PROPERTIES TO BE SELECTABLE FOR THE CURRENT PROCESS. "EXCLUDE" PROPERTIES PREVENT ENTITIES FROM BEING SELECTED.

- CONDITIONS WITHIN A PROPERTY ARE 'OR'ED
  (I.E. IF A CONSTRAINT SET INCLUDES ENTITY TYPES LINES AND ARCS, EITHER LINES OR ARCS OR BOTH CAN BE SELECTED.)

SELECTION CONSTRAINT SETS (CONT.)

- CONDITIONS ACROSS PROPERTIES ARE 'AND'ED
  (I.E. IF A CONSTRAINT SET INCLUDES ENTITY TYPES LINES AND ARCS AND INCLUDES FONT TYPE DASHED, ENTITIES MUST BE LINES AND DASHED OR ARCS AND DASHED TO BE SELECTABLE.)

- CONSTRAINT SETS CAN BE DEFINED FOR THE CURRENT PROCESS ONLY OR CAN BE SAVED AND CALLED UP BY NAME THROUGHOUT WORK ON THE DRAWING

- NAMED CONSTRAINT SETS CAN BE USED ON SEVERAL DRAWING FILES BY PUTTING A PART THAT ONLY CONTAINS THESE CONSTRAINT SETS ON A GLOBAL PARTS FILE AND MERGING THIS FILE INTO ALL DRAWINGS IN WHICH THE CONSTRAINTS ARE DESIRED

- CONSTRAINT SETS SPEED UP ENTITY SELECTION IN THAT UNWANTED ENTITIES DON'T HAVE TO BE BLANKED BEFORE THE SELECTION PROCESS AND UNBLANKED AFTER THE PROCESS

- TO ENHANCE SPEED OF SELECTION EVEN MORE, NAMED CONSTRAINTS CAN BE CALLED UP USING TABLET COMMAND FILES

CONSTRAINT SET DEFINITION (CONT.)

CONSTRAINT SETS CAN BE DEFINED BY ENTERING THE DEFINE CONSTRAINTS MENU E.10

E.10 DEFINE CONSTRAINTS

1. INCLUDE - LEVEL - PROMPTS FOR START LEVEL, END LEVEL, AND INCREMENT
2. INCLUDE - PEN - PROMPTS FOR START AND END PEN
3. INCLUDE - COLOR - PROMPTS FOR START AND END COLOR
4. INCLUDE - TYPE - ALLOWS USER TO SELECT TYPE FROM THE FOLLOWING LIST:

1.	ALL -	BASIC GEOMETRY
2.		3 - D CURVES
3.		SURFACES
4.		DRAFTING
5.		N/C
6.		GROUP/ARRAY/TEMPLATE
7.		OTHER
8.	SPECIFY -	BASIC GEOMETRY
9.		3 - D CURVES
10.		SURFACES
11.		DRAFTING
12.		N/C
13.		GROUP/ARRAY/ TEMPLATE

NOTICE THAT MENUS 1 - 7 ALLOW YOU TO GENERALIZE, WHILE MENUS 8 - 13 ALLOW YOU TO SELECT SPECIFIC ENTITY TYPES. CHOOSING ANY OF MENUS 8 - 13 WILL DISPLAY ANOTHER MENU, BREAKING DOWN THE ENTITY TYPES EVEN FURTHER. (I.E. BASIC GEOMETRY IS BROKEN DOWN INTO POINTS, LINES, ARCS, ETC.)

E.10 DEFINE CONSTRAINTS (CONT.)

5. INCLUDE - FONT - ALLOWS USER TO SELECT FONT FROM FOLLOWING LIST:
   1. SOLID
   2. DASHED
   3. PHANTOM
   4. CENTERLINE

6. EXCLUDE - LEVEL
7. EXCLUDE - PEN
8. EXCLUDE - COLOR
9. EXCLUDE - TYPE
10. EXCLUDE - FONT

MEANS OF DEFINITION IS THE SAME AS INCLUDE

11. USE NAMED CONSTRAINT SET - SAME AS E.8 - ALLOWS USER TO USE A CONSTRAINT SET THAT WAS STORED EARLIER WITH E.10.15

12. CLEAR CONSTRAINTS - SAME AS E.9 - REMOVES ALL CONSTRAINTS FOR THE CURRENT SELECTION PROCESS

E.10 DEFINE CONSTRAINTS (CONT.)

13. LIST CONSTRAINT SET - ALLOWS USER TO REVIEW CONSTRAINTS IN A GIVEN CONSTRAINT SET - THE SYSTEM WILL PROMPT FOR THE NAME OF THE CONSTRAINT SET DESIRED. TO OBTAIN A LIST OF ALL SAVED CONSTRAINT SET NAMES, ENTER LIST AT THIS PROMPT.

14. DELETE CONSTRAINT SETS - ALLOWS USER TO DELETE A SET PREVIOUSLY SAVED USING E.10.15. IF USER CANNOT REMEMBER NAMES, ENTER LIST AT THE NAME PROMPT AND THE SYSTEM WILL DISPLAY ALL SET NAMES.

15. NAME CURRENT CONSTRAINT SET - ALLOWS USER TO SAVE THE CONSTRAINT SET FOR FUTURE USE.

ENTITY SELECTION PROCESS (CONT.)

- AS SOON AS CONSTRAINTS HAVE BEEN IMPOSED, THE USER SHOULD OP COMPLETE TO RETURN TO THE ENTITY SELECTION MENU.
- TO PROCEED TO ENTITY SELECTION, THE USER SHOULD CHOOSE ONE OF THE SELECTION METHODS 1 - 6.
- DEPENDING ON THE METHOD CHOSEN, THE SYSTEM WILL EITHER PROMPT FOR USER INPUT (FOR E.1, E.2, AND E.6) OR WILL MAKE SELECTION (E.4 AND E.5). REGARDLESS OF WHICH METHOD IS CHOSEN, THE PREVIOUSLY DEFINED CONSTRAINT SET WILL BE IN EFFECT. (I.E. IF A CONSTRAINT SET IS DEFINED TO INCLUDE LINES AND THE USER CHOOSES METHOD E.4, DDN WILL PROCEED TO SELECT ALL DISPLAYED LINES.)
- TO COMPLETE THE PROCESS FOR WHICH THE ENTITY SELECTION IS BEING MADE, THE USER SHOULD OP COMPLETE AND THE FUNCTION WILL CONTINUE WITH THE SELECTED ENTITIES; OR IF THE MODIFY SELECTED ENTITIES MODAL (E.7.3 OR F.1.11.9) IS TURNED ON, IT WILL ALLOW THE USER TO MODIFY THE SELECTED SET OF ENTITIES WITH THE FOLLOWING MENU:

MODIFY SELECTION

1. ADD - SCREEN SELECT
2. CHAIN
3. REGION IN
4. ALL DISPLAYED
5. ENTIRE PART
6. OTHER SELECTION METHODS
7. MODALS
8. USE NAMED CONSTRAINT SET
9. CLEAR CONSTRAINTS
10. DEFINE CONSTRAINTS
11. REMOVE - SCREEN SELECT
12. CHAIN
13. REGION IN
14. ALL DISPLAYED
15. ENTIRE PART
16. OTHER SELECTION METHODS
17. CANCEL LAST MODIFICATION

NOTE: ITEMS 1 - 6 ALLOW USER TO PICK MORE ENTITIES WITH THE SAME METHODS DESCRIBED EARLIER (PG. 10) AND ADD THEM TO THE SELECTED ENTITY SET.

NOTE: ITEM 7 ALLOWS USER TO SET ENTITY SELECTION MODALS DESCRIBED EARLIER (PG. 11).

NOTE: ITEMS 8 - 10 ARE THE SAME AS DESCRIBED EARLIER IN THIS SECTION (PG.17).

NOTE: ITEMS 11 - 17 ALLOW USER TO PICK ENTITIES WITH THE SAME METHODS DESCRIBED EARLIER (PG. 10) AND REMOVE THEM FROM THE SELECTED ENTITY SET. I LIKE TO CALL IT 'UNPICKING' ENTITIES.

- IF THE USER CHOOSES NOT TO MODIFY THE SET OF SELECTED ENTITIES, AN OP COMPLETE IS SUFFICIENT TO CONTINUE THE OPERATION.

NOTE: EVEN IF THIS MODAL IS TURNED OFF, IT CAN BE TURNED ON FOR THE CURRENT SELECTION PROCESS IF IT IS DESIRED.

OTHER OPTIONS

WITH THE MOVE TOWARD USING PRESET MODALS FOR SEVERAL OPERATIONS INSTEAD OF PROMPTING THE USER EVERY TIME, THERE IS A NEED TO BE ABLE TO CHANGE THESE SETTINGS 'ON THE FLY'.

- THIS NEED IS SATISFIED IN SOME AREAS OF DDN 1.6 WITH THE NEW CONTROL KEY V OR CTRL-V, WHICH IS CALLED OTHER OPTIONS.

- THE OTHER OPTIONS KEY CAN BE USED FOR:
  - SETTING MODALS THAT APPLY TO THE FUNCTION CURRENTLY IN PROGRESS
  - DISPLAYING A MENU WHICH WAS BYPASSED DUE TO A DEFAULT MODE OR METHOD MODAL SETTING
  - UNFOLDING ADDITIONAL MENU OPTIONS

- THIS KEY IS IMPLEMENTED IN THE FOLLOWING FUNCTIONS IN DDN 1.60:

  - PATTERN RETRIEVE TO GET THE RETRIEVE MODALS
  - GLOBAL FILE SAVE/RESTORE TO SET THE PART OVERWRITE MODAL
  - DISPLAY AND EDIT COPY MENU TO COPY FROM ANOTHER FILE OR ANOTHER TOOL PATH
  - DISPLAY AND EDIT MATRIX COPY MENU TO TRANSFORM THE LINES FROM ANOTHER FILE OR TOOL-PATH
  - DISPLAY AND EDIT INSERT TEXT ENTRY PROMPT TO INSERT A GOTO POINT BY SCREEN POSI-TION, COORDINATES, OR EXIST-ING POINT (EDITING A TOOLPATH ONLY)
  - TABLET MANAGEMENT MENUS TO CHANGE MODALS, CHANGE THE TABLET FILE OR REDISPLAY THE CURRENT DISPLAYED TABLET PAGE

MENU 1: MODALS AND FONTS

SUMMARY OF ENHANCEMENTS

- OPTION TO DISPLAY/NOT DISPLAY INTERMEDIATE MENU HEADERS
- FAN AND INCREMENTAL POINTS START AND END SELECTION MODALS
- SYSTEM ROUNDOFF CAN NOW BE SET IN DECIMALS OR FRACTIONS
- SEVERAL NEW ENTITY SELECTION MODALS
- CAN NOW RESTORE TERMINAL SETTINGS FROM WITHIN ICEM DDN
- CAN NOW TURN ON/OFF LOCAL DISPLAY FILE FROM WITHIN ICEM DDN
- CAN NOW CHANGE TABLET COMMAND FILES AND FROM WITHIN ICEM DDN

MENU 1: MODALS AND FONTS

1.1 MENU DISPLAY NOW HAS A SUBMENU

1. DISPLAY CHOICES
    1. ON-MENUS & HEADERS DISPLAYED (DEFAULT)
    2. OFF-HEADERS ONLY ARE DISPLAYED

2. DISPLAY INTERMEDIATE HEADINGS
    1. ON-DISPLAYS HEADERS OF ALL MENUS IN A TYPE AHEAD OR TABLET SEQUENCE
    2. OFF-DOESN'T DISPLAY INTERMEDIATE HEADERS (DEFAULT)

1.2 CONSTRUCTION MODALS NOW HAS A SUBMENU

1. CONTINUE OPERATION MODE
    1. ON-TO CONTINUE WITH SAME OPERATION (DEFAULT)
    2. OFF-TO RETURN TO PREVIOUS MENU

2. POINT MODALS
    1. FAN START
        1. SPECIFY ANGLE
        2. SCREEN POSITION
        3. EXISTING POINT
        4. OPEN
        5. SET WHEN USED

1.2 CONSTRUCTION MODALS (CONT.)

2. FAN END
    1. SPECIFY ANGLE
    2. SCREEN POSITION
    3. EXISTING POINT
    4. OPEN
    5. SET WHEN USED
3. INCREMENTAL START
    1. SPECIFY VALUE
    2. SCREEN POSITION
    3. EXISTING POINT
    4. OPEN
    5. SET WHEN USED
4. INCREMENTAL END
    1. SPECIFY VALUE
    2. SCREEN POSITION
    3. EXISTING POINT
    4. OPEN
    5. SET WHEN USED

1 AND 2 ARE SET FOR USE WHEN USING FAN POINTS (F.9.17).

3 AND 4 ARE SET FOR USE WHEN USING INCREMENTAL POINTS (F.9.18).

IF THE PRESET VALUE IS NOT THE DESIRED ONE UPON CONSTRUCTION, IT CAN BE CHANGED BY USING OTHER OPTIONS (V OR CNTL-V).

1.4 SYSTEM DECIMAL PLACES NOW ALLOWS FOR SYSTEM ROUNDOFF TO BE SET FOR DECIMALS OR FRACTIONS.

NOTE: THIS SETTING DOES NOT EFFECT DIMENSION TEXT (SEE DRAFTING MODALS).

1. DECIMAL PLACES
   DECIMAL PLACES = N
   DEFAULT N = 4

2. FRACTIONS
   1. 1/64 INCH
   2. 1/32 INCH
   3. 1/16 INCH DEFAULT
   4. 1/8 INCH
   5. 1/4 INCH
   6. 1/2 INCH
   7. 1 INCH
   8. 1 FOOT

1.8 SURFACE PATHS HAS MOVED TO F.15.3.18.2 AND F.1.8 IS NOW VACANT.

1.11 ENTITY SELECTION CONTROL HAS CHANGED IN THE FOLLOWING WAYS.

1. SEQ. NO./POINTER/NAME SELECT IS NOW PART OF OTHER SELECTION METHODS (E.6). SEE SECTION ON ENTITY SELECTION.

ENTITY SELECTION CONTROL (CONT.)

- IT WAS REPLACED BY -

1. DISPLAY SELECTION SYSTEM MODALS

   WHEN SELECTED, IT DISPLAYS THE SETTINGS OF THE FOLLOWING MODALS:

   1. CHAIN SELECT MODE (F.1.11.2)
   2. CHAIN SELECT METHOD (F.1.11.2.2)
   3. DISALLOW PRESELECTED CURVES (F.1.11.2.3)
   4. SINGLE SELECT FROM GROUP (F.1.11.3)
   5. ATTENTION POINT OF LINES (F.1.11.4)
   6. REPEAT INCLUDE/EXCLUDE (F.1.11.7)
   7. CONSTRAINT SET DURATION (F.1.11.8)
   8. SELECTION MODIFICATION (F.1.11.9)
   9. SELECTION METHOD (F.1.11.10)

2. CHAIN SELECT MODALS NOW HAS THREE MODALS.

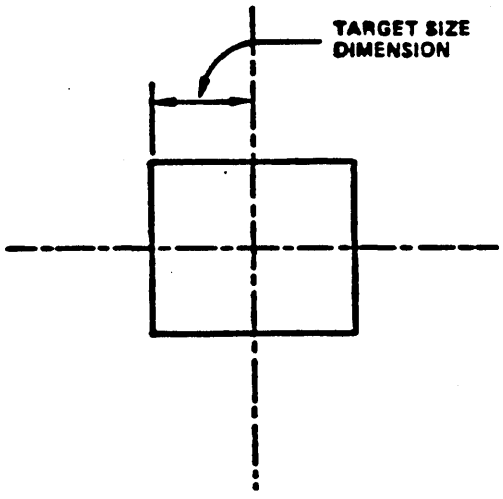
   1. CHAIN SELECT MODE
      1. SELECT FIRST ENTITY AND DIRECTION (DEFAULT)
      2. SELECT FIRST AND SECOND ENTITIES

1.11.2 CHAIN SELECT MODALS (CONT.)

2. CHAIN SELECT METHOD
    1. SCREEN SELECT (DEFAULT)
    2. NAME
    3. SEQUENCE NUMBER
    4. POINT NUMBER
    5. SET WHEN USED

3. DISALLOW PRESELECTED CURVES
    1. ON
    2. OFF (DEFAULT)

ALSO ADDED FOLLOWING MENUS:



6. SET SELECT TARGET
    1. FULL SCREEN
    2. ENTER TARGET SIZE
        TARGET SIZE = XXXX
        DEFAULT IS 0.5" OR 12.7 mm

<-----TARGET SIZE

7. REPEAT INCLUDE/EXCLUDE (SAME AS E.7.1)
    1. ON-TO ENTER MORE THAN ONE PROPERTY (DEFAULT)
    2. OFF-TO ENTER ONLY ONE

8. CONSTRAINT SET DURATION (SAME AS E.7.2)
    1. ONCE
    2. CONTINUOUS-AS LONG AS PART IS IN USE OR CLEARED (E.9)

9. SELECTION MODIFICATION (SAME AS E.7.3)
    1. ON-ALLOWS MODIFICATION OF ENTITIES SELECTED
    2. OFF-DOES NOT ALLOW MODIFICATION OF SELECTED ENTITIES

10. SELECTION METHOD
    1. SCREEN SELECT (DEFAULT)
    2. NAME
    3. SEQUENCE NUMBER
    4. POINTER NUMBER
    5. SET WHEN USED

AS NOTED, MANY OF THE ABOVE MODALS CAN ALSO BE SET IN MENU E.7 WHILE DOING SELECTION. MORE IN DEPTH INFORMATION ON THESE MODALS IS GIVEN IN THE ENITITY SELECTION SECTION.

F.1.14 TERMINAL DEPENDENT MODES NOW HAS ADDED MENUS.

4. RESTORE TERMINAL PARAMETERS

- THIS MODAL RESTORES THE TERMINAL SETUP PARAMETERS TO THEIR SETTINGS AFTER INITIALIZATION. VALID AFTER TERMINAL RESET FOR TEK 41XX TERMINALS AND THE CDC 790.

5. LOCAL DISPLAY FILE

- CAN NOW TURN LOCAL DISPLAY FILE ON/OFF WITHOUT EXITING DDN

- FIND OUT HOW FULL LDF IS BY GOING INTO TERMINAL SETUP MODE AND ENTERING STATUS, MEM. IF THIS STATUS IS APPROACHING 0, YOU SHOULD TURN LDF OFF

F.1.16 ACTIVATE USER PAGE IS NOW
ACTIVATE PAGE/CHANGE TABLET FILE
AND NOW HAS 2 NEW MENUS.

3. CHANGE TABLET COMMAND FILE

- ENTER NEW COMMAND FILE NAME

- THIS IS TO CHANGE THE NAME OF THE FILE FROM WHICH USER PAGES ARE ACTIVATED

4. CHANGE MSTRING FILE

- ENTER NEW MSTRING FILE NAME

MENU 2 : BLANK/UNBLANK

THE BLANK/UNBLANK MENU WAS TOTALLY RESTRUCTURED DUE TO THE NEW ENTITY SELECTION CONTROL. THE NEW MENU IS AS FOLLOWS:

1. BLANK-SELECT
2. -LEVEL RANGE
3. -ALL OF A TYPE
4. -ALL
5. UNBLANK-SELECT
6. -LEVEL RANGE
7. -ALL OF A TYPE
8. -ALL

WARNING: CARE MUST BE TAKEN WHEN TYPING AHEAD BECAUSE OF SELECTIONS' MOVEMENT TO NEW MENU CHOICES.

I.E., F.2.3 IS NO LONGER BLANK ALL, IT IS BLANK ALL OF A TYPE.

OTHER SELECTION OPTIONS ARE AVAILABLE BY ENTERING E OR CNTL-E AT 2.1 BLANK-SELE CT OR 2.5 UNBLANK-SELECT.

MENU 3: DELETE

THE DELETE MENU HAS ALSO BEEN TOTALLY RESTRUCTURED DUE TO THE NEW ENTITY SELECTION CONTROL. THE NEW MENU IS AS FOLLOWS:

1. SELECT
2. LEVEL RANGE
3. ALL POINTS

OTHER SELECTION OPTIONS ARE AVAILABLE BY ENTERING E OR CNTL-E AT 3.1. SELECT

MENU 4: FILE/EXIT

MENU 4 IS NO LONGER PROMPTS. THESE PROMPTS WERE REPLACED BY THE FOLLOWING MENU:

1. FILE-CONTINUE CURRENT PART
2. -GET DIFFERENT PART
3. -QUIT SESSION
4. -SUSPEND SESSION
5. DO NOT FILE-CONTINUE CURRENT PART
6. -GET DIFFERENT PART
7. -QUIT SESSION
8. -SUSPEND SESSION

- THIS MAKES THE FILING PROCESS A MORE DEFINED PROCESS AND ALSO MAKES IT A ONE MENU/TABLET PICK

- DOES AUTOMATIC PART PACK WHEN FILE-QUIT IS CHOSEN

- ALLOWS QUICK CONTINUE FROM LAST FILE IF A MISTAKE IS MADE

- SUSPEND ALLOWS USER TO RETURN TO OPERATING SYSTEM OR EDL AND RESUME DDN PROCESS WITHOUT GOING THROUGH ALL OF THE ENTRY PROMPTS

SUSPEND SESSION

- A NEW FEATURE ADDED THAT ALLOWS FOR USER TO EXIT DDN AND DO OPERATING SYSTEM OR EDL FUNCTIONS AND THEN REENTER THE SAME DRAWING IN DDN WITHOUT THE NEED OF ANSWERING THE NORMAL ENTRY PROMPTS

- IS IN EFFECT WHEN F.4.4 OR F.4.8 IS CHOSEN

- CONTROL IS RETURNED TO OPERATING SYSTEM OR EDL

- GOOD FOR GET/ATTACH OR FORGOTTEN FILES, SUCH AS GLOBAL PARTS, PATTERNS, ETC.

- IMPORTANT LOCAL FILES (DON'T MESS WITH THEM)

  - ZZZ SWAP
  - TAP31
  - TAP32
  - TAPE3

- RETURN TO PREVIOUS DRAWING BY INVOKING THE ICEM DDN EXECUTE COMMAND (IN EDL 1.2.3, THERE IS A TASK TO CONTINUE A SUSPENDED DDN SESSION)

MENU 5: SPECIAL FUNCTIONS

SUMMARY OF ENHANCEMENTS

- LEVEL TABLE REWRITE - MUCH MORE FUNCTIONAL AND EASY TO USE
- ATTRIBUTE MANAGEMENT REWRITE
  - CAN NOW DO SEARCH BY ATTRIBUTE/SUBATTRIBUTE NAME
  - CAN MODIFY ATTRIBUTES/ SUBATTRIBUTES OF ALL ENTITIES IN A SEARCH AT ONE TIME
- DATA GRAPHS HAS BEEN REMOVED FROM ICEM DDN

MENU 5: SPECIAL FUNCTIONS

5.5 LEVEL MANAGEMENT HAS CHANGED IN A NUMBER OF WAYS

5.5.2 DEFINE LEVELS HAS BEEN REWRITTEN

- IF NO LEVEL TABLE HAS BEEN ASSIGNED, A MESSAGE TO THIS EFFECT WILL APPEAR. OTHERWISE, LEVELS WILL BE DEFINED FOR THE CURRENT LEVEL TABLE ASSIGNED USING F.5.5.5

- DDN WILL NO LONGER PROMPT FOR THE TABLE NAME

- PROMPTS FOR LEVEL NUMBER, LEVEL NAME, AND DESCRIPTION

- LEVEL NAME IS A 12 CHARACTER DESCRIPTOR

- DESCRIPTION CAN BE UP TO 50 CHARACTERS

- NOW ALLOWS YOU TO DEFINE LEVELS NON-SEQUENTIALLY

5.5.3 LIST LEVELS
NOW HAS SUBMENU

1. BY LEVEL NUMBER
   FROM LEVEL = ENTER
   TO LEVEL = DESIRED RANGE

5.5.3 LIST LEVELS (CONT.)

2. BY LEVEL NAME
   ENTER LEVEL NAME

- LISTS LEVELS FOR THE CURRENT TABLE ASSIGNED USING F.5.5.5

5.5.5 INITIALIZE LEVELS IS NOW CREATE/ASSIGN LEVEL TABLE.

- ALLOWS YOU TO ASSIGN A NEW OR EXISTING LEVEL TABLE FOR USE IN MENUS 5.5.2, 5.5.3, AND 5.5.4

- TABLES RESIDE IN THE UTF

- IF THE TABLE NAME ENTERED IS THE SAME AS THE CURRENT TABLE, DDN WILL PROMPT WHETHER YOU WISH TO DELETE IT. IF YOU ENTER Y, IT WILL REINITIALIZE THE TABLE.

5.6 ATTRIBUTE MANAGEMENT CHANGES ARE AS FOLLOWS:

5.6.2 MODIFY NOW HAS A SUBMENU

1. SCREEN SELECT ENTITY-SAME AS EARLIER VERSIONS

2. SEARCH FOR NAMED ATTRIBUTE

- WITH CHOICE 2, YOU CAN MODIFY AN ATTRIBUTE AND/ OR SUBATTRIBUTE SHARED BY SEVERAL ENTITIES.

- DDN PROMPTS FOR AN ATTRIBUTE NAME AND A SUBATTRIBUTE NAME AND WILL LOCATE ALL INSTANCES OF THIS COMBINATION. A WILD CARD * CAN BY ENTERED FOR EITHER ATTRIBUTE OR SUBATTRIBUTE IF NEED BE.

- DDN THEN DISPLAYS THE FOLLOWING MENU TO DETERMINE MORE CONSTRAINTS ON THE SEARCH SUBATTRIBUTE SEARCH CONDITION.
  1. UNCONDITIONAL
  2. LESS THAN
  3. LESS THAN OR EQUAL TO
  4. EQUAL TO
  5. NOT EQUAL TO
  6. GREATER THAN OR EQUAL TO
  7. GREATER THAN

- IF CONDITIONS ARE CHOSEN, DDN WILL PROMPT FOR A VALUE.

- DDN WILL PLACE ATTENTION INDICATORS ON ALL DISPLAYED ENTITIES THAT MATCH THE GIVEN CONSTRAINTS.

- DDN WILL NOT MODIFY BLANKED OR OFFSCREEN ENTITIES, BUT WILL GIVE A MESSAGE AS TO HOW MANY SUCH ENTITIES EXIST.

NOTE: AN] AT ANY PROMPT TERMINATES INPUT. IF YOU TERMINATE INPUT AFTER ENTERING THE ATTRIBUTE NAME, DDN WILL SEARCH FOR ATTRIBUTES WITHOUT SUBATTRIBUTES. IF YOU TERMINATE INPUT AT THE SUBATTRIBUTE SEARCH CONDITION MENU, DDN WILL SEARCH FOR ATTRIBUTES WITH SUBATTRIBUTE NAMES ONLY (TYPE 1).

- AFTER THE ENTITY SEARCH, DDN ALLOWS YOU TO SELECT THE MODIFICATION MODE WITH THE FOLLOWING MENU:

1. MODIFY GLOBALLY- MODIFY ALL SELECTED ENTITIES
2. MODIFY INDIVIDUALLY
   - IF 2 IS CHOSEN, THE ATTENTION INDICATORS ARE ALL ERASED AND REAPPEAR ONE BY ONE AS THE ATTRIBUTES ARE MODIFIED. AN] ENDS ATTRIBUTE MODIFICATION WITH NO CHANGES MADE.

- AFTER MODIFICATION MODE IS CHOSEN DDN WILL PROMPT FOR THE TYPE OF MODIFICATION TO BE DONE:

  MODIFICATION FUNCTION

  1. REPLACE
  2. INSERT BEFORE
  3. INSERT AFTER
  4. DELETE
  5. DO NOT CHANGE - ONLY APPEARS IF MODIFYING INDIVIDUAL

- EACH OF THE DIFFERENT MODIFICATION FUNCTIONS FOLLOWS WITH PROMPTS AS TO HOW THE ATTRIBUTES SHOULD BE MODIFIED.

- AN EXAMPLE OF THE POWER OF GLOBAL MODIFICATION CAN BE SEEN IF YOU HAVE SEVERAL ENTITIES WITH A SUBATTRIBUTE NAME OF COST AND YOU WANTED TO CHANGE THE VALUES OF ALL OF THEM AT ONCE.

5.7 DATA GRAPHS HAS BEEN REMOVED. THEREFORE, MENU 7 IS NOW BLANK.

MENU 6 : DATA BASE MANAGEMENT

GLOBAL FILE SAVE AND GLOBAL FILE RESTORE (F.6.1.1 AND F.6.1.2) BOTH HAVE AN ADDED MENU CHOICE.

6. PART OVERWRITE MODE
    1. PROMPT IF PART ALREADY EXISTS (DEFAULT)
    2. OVERWRITE ALL EXISTING PARTS
    3. DO NOT OVERWRITE EXISTING PARTS

- THESE MODES ARE IN EFFECT ONLY WHEN DOING SAVE ALL OR RESTORE ALL (F.6.1.1.2 AND F.6.1.2.2) AND CAN BE CHANGED DYNAMICALLY BY ENTERING CRTL-V AT THE OVERWRITE PROMPT.

- DDN WILL DISPLAY MESSAGES AS TO PARTS OVERWRITTEN.

6.1.3 LIST ON-LINE PART FILE

- WHENEVER THIS IS EXECUTED, THE SYSTEM CHECKS FOR PART OVERLAP AND DISPLAYS THE MESSAGE: BAD PART INDEX

  IF SUCH OVERLAP EXISTS OR A PART HEADER IS BAD, AN * WILL APPEAR IN FRONT OF THE PART NAME.

- IF EITHER OF THESE THINGS HAPPEN, SALVAGE AS MANY PARTS AS POSSIBLE USING 6.1.1 GLOBAL FILE SAVE AND DISCARD THE DAMAGED TAPE3.

F.6.2 PATTERN MANAGEMENT HAS BEEN COMPLETELY REWRITTEN, CREATING A TOTALLY NEW MENU STRUCTURE.

6.2.1 PATTERN MODALS ALLOWS USER TO PRESET VALUES FOR RETRIEVAL INFORMATION TO DECREASE NUMBER OF PROMPTS DURING RETRIEVAL. THE SUBMENU BREAKDOWN AND DESCRIPTIONS OF THE MENUS ARE AS FOLLOWS:

6.2.1.1 RETRIEVE MODALS

1. ORIGIN METHOD-ESTABLISHES METHOD OF INDICATING ORIGIN
   1. SCREEN POSITION
   2. ENTER COORDINATES
   3. EXISTING POINT (DEFAULT)
   4. DELTA FROM CURVE END
   5. NORMAL TO CURVE
2. SCALE FACTOR DEFAULT = 1
3. ROTATION ANGLE DEFAULT = 0
4. ROTATION AXIS-ALLOWS FOR YOU TO ROTATE ABOUT ANY OF 3 AXES
   1. X/XT-AXIS
   2. Y/YT-AXIS
   3. Z/ZT-AXIS (DEFAULT)
5. ORIENTATION-DICTATES WHICH VIEW THE PATTERN WILL BE ORIENTED AND ROTATED IN
   1. WORK SPACE (DEFAULT)
   2. MODEL SPACE
6. (RESERVED FOR LATER USE)

6.2.1.1 RETREIVE MODALS (CONT)

7. ENTITY GROUPING
   1. ON - CAN ONLY GROUP IF LESS THAN 240 ENTITIES
   2. OFF (DEFAULT)
8. LEVEL
   1. USE ORIGINAL LEVELS-TO PUT ENTITIES ON LEVEL CREATED IN
   2. OFFSET FROM ORIGINAL LEVELS - TO OFFSET BY A GIVEN NUMBER
   3. USE CURRENT LEVEL-TO PUT ENTITIES ON CURRENT WORKING LEVEL
   4. SPECIFY LEVEL
9. PEN
   1. USE ORIGINAL PEN (DEFAULT)
   2. USE CURRENT PEN
   3. SPECIFY PEN
10. COLOR
   1. USE ORIGINAL ENTITY COLOR (DEFAULT)
   2. USE CURRENT COLOR
   3. SPECIFY COLOR
11. ENTITY NAMES
   1. DROP ENTITY NAMES (DEFAULT)
   2. RETAIN ENTITY NAMES

6.2.1.1 RETRIEVE MODALS (CONT)

12. SET WHEN USED
    1. ON-DISPLAYS MODAL MENU ON EACH RETRIEVAL (DEFAULT)
    2. OFF

THE ABOVE MODALS ALLOW FOR PATTERN RETRIEVAL WITHOUT ANY PROMPTS EXCEPT TO INDICATE ORIGIN. IF YOU TURN SET WHEN USED OFF (F.6.2.1.12.2), YOU CAN STILL SET WHEN USED IF YOU ENTER CNTL-V AT THE INDICATE ORIGIN PROMPT.

6.2.1.2 RESTORE RETRIEVE MODALS
RESTORES THE PATTERN RETRIEVAL MODALS BACK TO THE SYSTEM DEFAULT

6.2.1.3 COPY OVERWRITE MODE
ALLOWS YOU TO SET THE OVERWRITE MODE FOR USE WHEN COPYING ALL PATTERNS FROM ONE LIBRARY TO ANOTHER

1. PROMPT IF PATTERN ALREADY EXISTS
2. OVERWRITE ALL EXISTING PATTERNS
3. DO NOT OVERWRITE EXISTING PATTERNS

6.2.2 CREATE

ALLOWS YOU TO CREATE A PATTERN IN CURRENT PRIMARY LIBRARY. ENTITY SELECTION FOR CONTAINMENT IN THE PATTERN IS CONSISTANT WITH ENTITY SELECTION THROUGHOUT DDN.

PATTERN CREATE

SUMMARY OF MAIN ENHANCEMENTS:

- ADDITIONAL ENTITY TYPES SUPPORTED
- ALL VIEW ORIENTATION INFORMATION RETAINED
- LONGER PATTERN NAMES ALLOWED
- ENTITY NAMES MAINTAINED
- PATTERN/PATTERN LIBRARY SIZE INCREASED
- NEW ENTITY SELECTION CAPABILITIES USED

PATTERN CREATE - NEW ENTITIES

THE FOLLOWING ENTITY TYPES ARE NOW SUPPORTED IN PATTERNS:

- GROUPS
- COMPOSITE CURVES
- ALL ADVANCED DESIGN (SURFACE) ENTITIES
- BEZIER CURVES
- VECTORS
- TOOLS

THE FOLLOWING ENTITY TYPES ARE STILL SUPPORTED IN PATTERNS:

- POINTS, LINES, ARCS, CONICS, 2-D AND 3-D SPLINES
- POINT SETS, MACHINE CURVES, STRINGS, SECTION LINING
- N/C TOOLPATHS
- ALL DRAFTING ENTITIES (DIMENSIONS, NOTES, ETC.)

THE FOLLOWING ENTITY TYPES ARE STILL NOT SUPPORTED IN PATTERNS:

- ARRAYS
- HEXAHEDRONS
- TEMPLATES
- SYSTEM ENTITIES

PATTERN CREATE - VIEW DATA RETAINED

PAST:

- NO VIEW INFORMATION SAVED WITH A PATTERN
- ENTITIES DEFINED IN AUXILIARY VIEWS ARE NOT SELECTABLE DURING PATTERN CREATE

PRESENT:

- NECESSARY VIEW INFORMATION SAVED WITH A PATTERN
- ENTITIES DEFINED IN ANY VIEW (EITHER STANDARD OR AUXILIARY) NOW ELIGIBLE FOR SELECTION DURING PATTERN CREATE

PATTERN VIEW OF DEFINITION

- WHEN A PATTERN IS CREATED, THE CURRENT WORK SPACE (ORIENTATION) IS SAVED TO FACILITATE RETRIEVE TO ANY WORK SPACE AT A LATER DATE

PATTERN CREATE - NAMES

INDIVIDUAL PATTERN NAMES

- NUMBER OF CHARACTERS ALLOWED TO NAME A PATTERN INCREASED FROM 10 TO 64

- ONLY ONE NAME PER PATTERN (OLD GLOBAL PATTERNS HAD 'TWO')

ENTITY NAMES

- ANY NAMED ENTITY SELECTED DURING PATTERN CREATE CAN HAVE ITS NAME SAVED ALONG WITH THE PATTERN. WHETHER TO SAVE THE NAMES IS SET WITH PATTERN MODALS.

- N/C TOOL LIBRARIES

PATTERN CREATE - SIZE

PATTERN LIBRARY SIZE

- NEW PATTERN LIBRARIES - 2048 PATTERNS
- OLD (TAPE3) LOCAL - 212 PATTERNS
- OLD GLOBAL FILE - 2039 PATTERNS
- THE NUMBER OF PATTERNS AVAILABLE DURING RETRIEVE HAS INCREASED OVER 90% (FROM 2251 TO 4096)

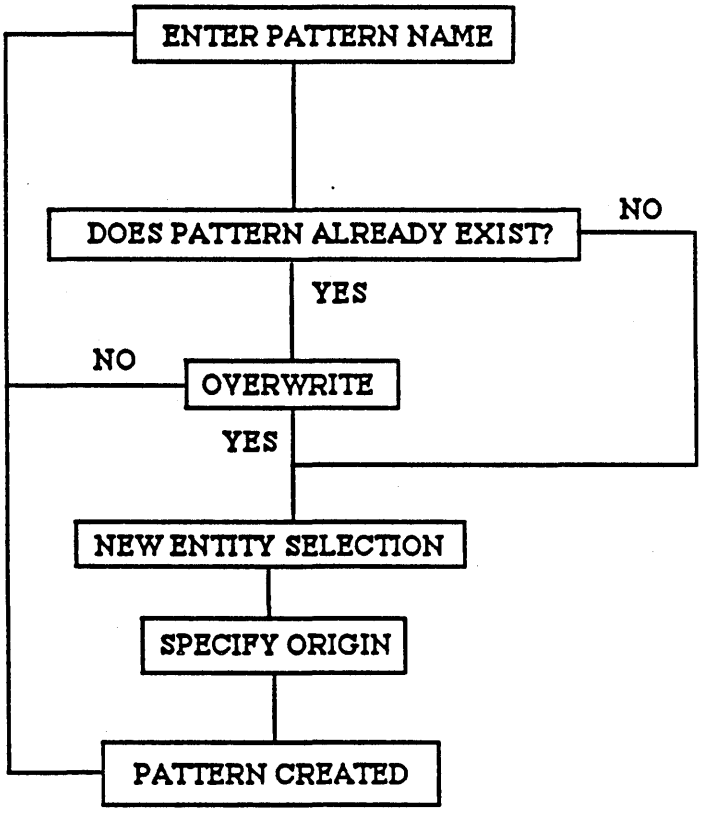
INDIVIDUAL PATTERN SIZE

- NUMBER OF ENTITIES IN NEW PATTERNS - 2048+
- NUMBER OF ENTITIES IN OLD PATTERNS - 2048

PATTERN MANAGEMENT

- PATTERN LIBRARIES MUST BE MANAGED BY THE USER BECAUSE OF INCREASED PATTERN LIBRARY FLEXIBILITY

PATTERN CREATE

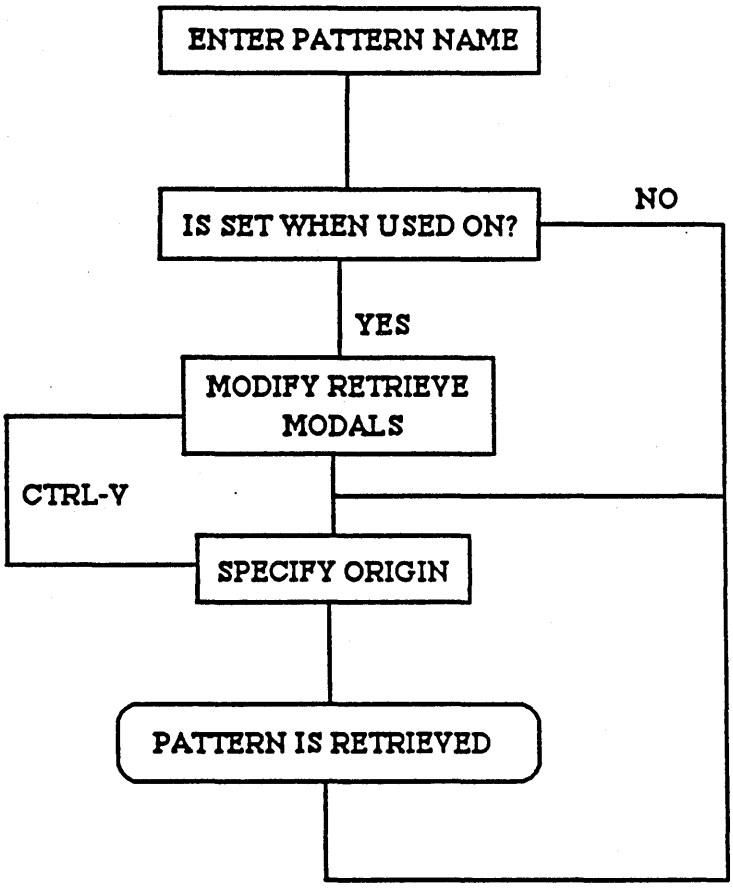


6.2.3 PATTERN RETRIEVE

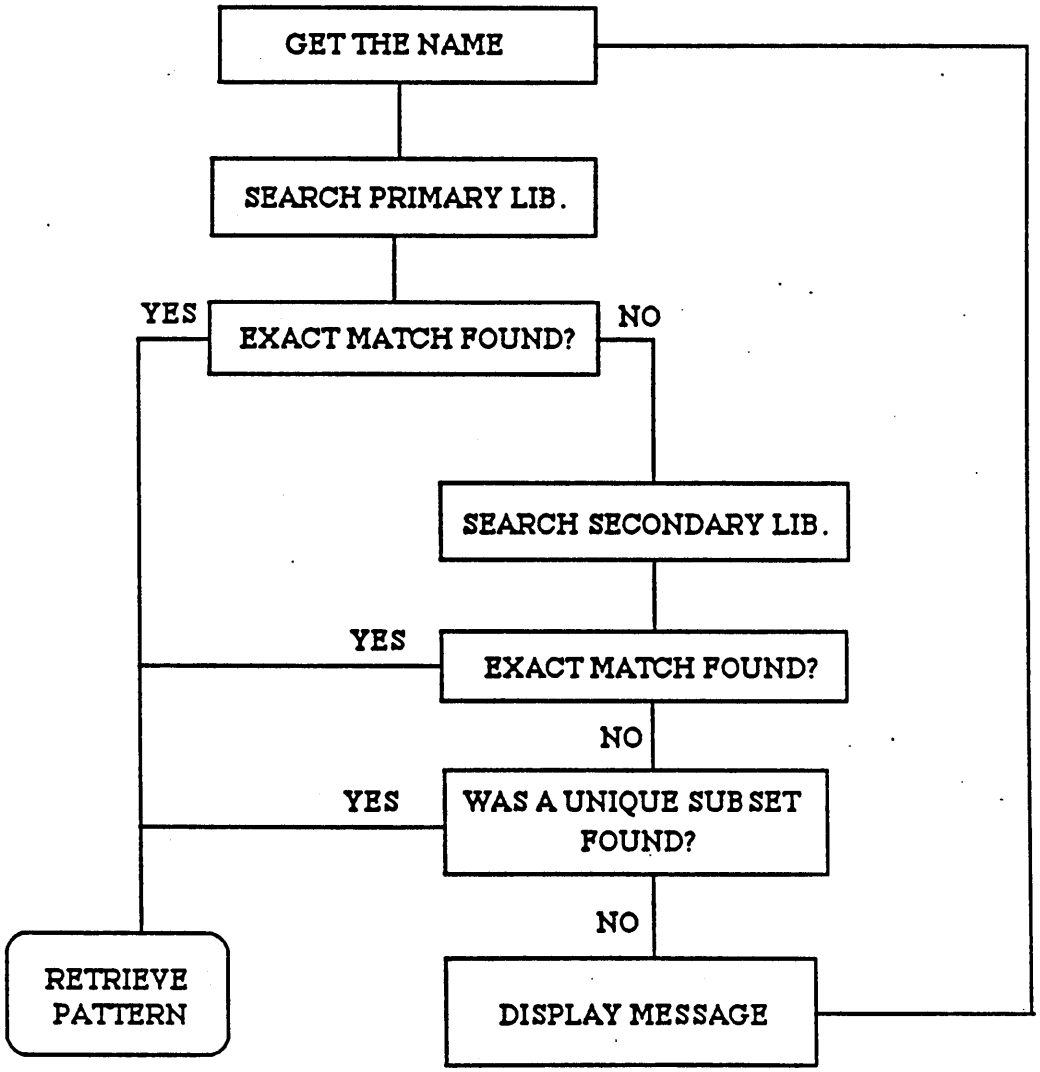
MAIN FEATURES AND CAPABILITIES

- RETRIEVAL TO WORK PLANE
- MODAL CONTROL (SEE PAGES 44-46)
- EXPANDED CONTROL OVER LEVEL, PEN NUMBERS, AND COLOR
- ENTITY NAMES
- EXPANDED ROTATIONAL CONTROL
- EASY RETRIEVAL FROM MULTIPLE LIBRARIES

PATTERN RETRIEVAL



PATTERN RETRIEVE NAME SEARCH



PATTERN RETRIEVE MESSAGES

PATTERN NOT GROUPED - TOO MANY ENTITIES

YOU WILL RECIEVE THIS MESSAGE IF YOU HAVE REQUESTED TO HAVE A PATTERN GROUPED WHICH CONTAINS MORE THAN 240 ENTITIES.

SOME ENTITIES COULD NOT BE GROUPED

THIS MESSAGE MEANS THAT THE PATTERN WAS GROUPED AS REQUESTED. HOWEVER, SOME OF THE PATTERN ENTITIES ARE NOT ALLOWABLE IN GROUPS.

nn CONFLICTING ENTITY NAMES DROPPED

THIS MESSAGE STATES THE NUMBER OF PATTERN ENTITY NAMES THAT WERE DROPPED DURING RETRIEVE TO RESOLVE CONFLICTS WITH NAMES IN THE PART. NO TWO ENTITIES MAY HAVE THE SAME NAME WITHIN A PART.

NEW VIEW NUMBER nn CREATED

NEW VIEWS NO. nn - mm CREATED

THESE MESSAGES STATE THE NUMBER OF NEW VIEWS THAT WERE CREATED IN ORDER TO SUPPORT RETRIEVAL OF THE PATTERN.

MAXIMUM NUMBER OF VIEWS EXCEEDED PATTERN COULD NOT BE RETRIEVED

THIS MESSAGE WILL OCCUR IF PATTERN RETRIEVAL CANNOT DEFINE ALL THE VIEWS NECESSARY TO RETRIEVE THE PATTERN BECAUSE IT REACHES THE 420 VIEW LIMIT.

6.2.4 DELETE

1. SINGLE
2. ALL

DELETES PATTERNS FROM PRIMARY LIBRARY. DDN GIVES MESSAGE IF USER DOES NOT HAVE WRITE ACCESS TO PRIMARY LIBRARY.

6.2.5 LIST

1. PRIMARY LIBRARY
2. SECONDARY LIBRARY

6.2.6 COPY

1. PRIMARY TO SECONDARY - SINGLE
2. - ALL
3. SECONDARY TO PRIMARY - SINGLE
4. - ALL

6.2.7 CHANGE PRIMARY LIBRARY

ALLOWS FOR YOU TO CHANGE FILE NAME FOR THE PRIMARY PATTERN LIBRARY. INITIALLY THIS IS SET TO PATTERN.

6.2.8 CHANGE SECONDARY LIBRARY

ALLOWS FOR YOU TO CHANGE FILE NAME FOR THE SECONDARY PATTERN LIBRARY.

VERSION 1.6 PATTERN MANAGEMENT REVIEW, DISCUSSION

- SOME REASONS FOR SUCH A MAJOR CHANGE IN PATTERN MANAGEMENT.

  - OVERHEAD ON DRAWING FILE FOR LOCAL PATTERNS IS NO LONGER NECESSARY. THIS MAKES DRAWING WITH OR WITHOUT PATTERNS MORE EFFICIENT.
  - VASTLY INCREASED LIMITS
  - ALLOWS FOR MUCH LESS USER INPUT IF A PATTERN IS RETREIVED THE SAME WAY EACH TIME BUT ALSO LEAVES IN FLEXIBILITY TO CHANGE THIS MODAL EASILY IF NECESSARY.
  - ADDED ENTITY TYPES ELIGIBLE TO BE IN PATTERNS
  - VIEW DEPENDENT DATA IS SAVED
  - ALL OF THE ABOVE SUMMED INTO ONE WORD - EFFICIENCY

- THE IMPACT OF THIS MAJOR CHANGE CAN BE MINIMIZED IF THE PROPER USAGE OF PATTERN LIBRARIES IS STRESSED TO ALL WHO USE THEM.

- ONE OF THE BIGGEST IMPACT ITEMS IS THE 1.57 TO 1.60 PATTERN FILE UPDATE. EVEN THOUGH THIS ONLY HAS TO BE DONE ONCE FOR EACH SET OF PATTERNS, IT IS THE FIRST THING THAT HAPPENS WHEN BRINGING A DRAWING FILE FROM 1.57 TO 1.60. THUS, IF A USER IS NOT INFORMED, HIS FIRST EXPOSURE TO VERSION 1.60 COULD BE A BAD ONE. FOR THIS REASON, PROPER PLANNING AND TRAINING IN PATTERN LIBRARY MANAGEMENT IS VERY IMPORTANT IN THIS AREA.

PATTERN UPDATE 1.57 - 1.60

DUE TO THE EXTENSIVE CHANGES IN PATTERNS FROM EARLIER VERSIONS OF ICEM DDN TO VERSION 1.6, THE PATTERNS MUST BE UPDATED BEFORE THEY CAN BE USED IN VERSION 1.6. THIS IS AN AUTOMATIC, MENU-DRIVEN PROCESS.

<u>WHEN AND WHERE IS UPDATE?</u>

- 'LOCAL' PATTERN UPDATE AT ENTRY

- 'GLOBAL' PATTERN UPDATE AT USE WITHIN THE PATTERN MENU

THE PROCESS FOR BOTH TYPES OF UPDATE ARE DESCRIBED IN THE FOLLOWING PAGES.

ICEM DDN 1.6 AUTOMATIC PATTERN UPDATE FOR LOCAL PATTERNS

TO PROVIDE INCREASED PATTERN FLEXIBILITY OLD 'LOCAL' PATTERNS WILL NO LONGER BE STORED ON TAPE3. THEY MUST BE COPIED TO A NEW PATTERN LIBRARY FILE BEFORE THEY CAN BE USED. YOU WILL BE ASKED TO NAME THIS NEW LIBRARY.

THE FOLLOWING MENU WILL CONTINUE TO APPEAR WHENEVER YOU ENTER ICEM DDN BEFORE THE ENTER PART NAME PROMPT UNTIL YOU REMOVE THE OLD PATTERNS ON TAPE3.

-UPDATE PATTERNS TO NEW LIBRARY
1. UPDATE -REMOVE OLD PATTERNS
2. -DO NOT REMOVE OLD PATTERNS
3. NO UPDATE -REMOVE OLD PATTERNS
4. -DO NOT REMOVE OLD PATTERNS

IF 1 OR 2 IS CHOSEN, DDN WILL PROMPT:

ENTER NAME FOR NEW PRIMARY LIBRARY

SINCE A NEW PATTERN LIBRARY MUST BE CREATED FOR THE PATTERNS WHICH YOU ARE UPDATING, THE ATTACHED LIBRARY 'PATTERN' WILL BECOME THE SECONDARY LIBRARY.

THE FILE NAME MUST BE A UNIQUE NOS FILE NAME THAT IS CURRENTLY NEITHER LOCAL NOR PERMANENT ON THE USER'S NAME.

THERE ARE nnn PATTERNS TO UPDATE:

10 PATTERNS UPDATED
20 PATTERNS UPDATED
.
.
.
ALL PATTERNS UPDATED

ENTER PART NAME

ICEM DDN 1.6 AUTOMATIC PATTERN UPDATE FOR GLOBAL PATTERNS

IF A 1.57 PATTERN LIBRARY IS ENTERED AS THE PRIMARY OR SECONDARY LIBRARY F.6.2.7 OR F.6.2.8, DDN WILL PROMPT

LIBRARY MUST BE UPDATED TO THIS RELEASE/REVISION BEFORE IT CAN BE USED.

DO YOU WANT TO UPDATE?

IS YES, DDN WILL PROMPT

ENTER NEW LIBRARY NAME

JUST LIKE IN LOCAL PATTERN UPDATE, THE USER MUST ENTER A UNIQUE, NEW NOS FILE NAME AND THE UPDATE WILL PROCEED.

PATTERN UPDATE - IMPORTANT INFORMATION

- DDN PATTERNS ARE NO LONGER CALLED LOCAL AND GLOBAL PATTERNS IN VERSION 1.6

- SINCE DELETIONS AND CREATIONS CAN ONLY BE DONE ON THE PRIMARY LIBRARY, IT MIGHT BE A GOOD IDEA TO MAKE THE GLOBAL 1.57 FILE THE SECONDARY LIBRARY IN 1.60

- EVEN IF THE GLOBAL FILE IS MADE PRIMARY LIBRARY IN 1.60, THE USERS WILL NOT BE ABLE TO DAMAGE THIS FILE AS LONG AS THEY ARE ONLY GIVEN READ PERMISSION

- WITH PROPER PLANNING AND TRAINING, THE IMPACT OF THIS CHANGE SHOULD BE MINIMAL AND THE BENEFITS GREAT

MENU 7: INPUT/OUTPUT/REGENERATION

7.2 PLOT BRINGS UP A REWRITTEN PLOT FILE ACCESS METHOD MENU.

PLOT FILE ACCESS METHOD
1. INITIALIZE PLOT FILE - THIS REWINDS TAPE9
2. APPEND TO PREVIOUS PLOT - TO COMBINE MULTIPLE PARTS INTO ONE DRAWING
3. CREATE NEW PLOT - TO CREATE A NEW PLOT IN A SERIES OF PLOTS

AFTER SPECIFYING ACCESS METHOD, THE PAPER SIZE MENU WILL APPEAR. THIS MENU CAN BE ONE OF THREE, DEPENDING ON UNITS/STANDARDS.

PAPER SIZE MENUS:

U.S.PAPER SIZES (ENGLISH UNITS)
1. A SIZE (11.0 X 8.5)
2. B SIZE (17.0 X 11.0)
3. C SIZE (22.0 X 17.0)
4. D SIZE (34.0 X 22.0)
5. E SIZE (44.0 X 34.0)
6. ENTER SIZE IN INCHES

NONSTANDARD PAPER SIZE (ENGLISH UNITS)
1. MAXIMUM WIDTH (X) = n.nnnn
2. MAXIMUM LENGTH (Y) = n.nnnn

U.S.PAPER SIZES (METRIC UNITS)
1. A SIZE (280 X 216)
2. B SIZE (432 X 280)
3. C SIZE (559 X 432)
4. D SIZE (884 X 559)
5. E SIZE (1118 X 864)
6. ENTER SIZE IN MILLIMETERS

INTERNATIONAL PAPER SIZED (METRIC UNITS)
1. A0 SIZE (1189 X 841)
2. A1 SIZE (841 X 594)
3. A2 SIZE (594 X 420)
4. A3 SIZE (420 X 297)
5. A4 SIZE (297 X 210)
6. ENTER SIZE IN MILLIMETERS

NONSTANDARD PAPER SIZE (METRIC UNITS)
1. MAXIMUM WIDTH (X) = n.nnnn
2. MAXIMUM LENGTH (Y) = n.nnnn

DDN NEXT PROMPTS FOR THE PLOTTER ORIGIN

PLOTTER ORIGIN
1. LOWER LEFT CORNER
2. LOWER RIGHT CORNER

THIS SPECIFIES THE PHYSICAL LOCATION OF THE PEN ON THE PLOTTER WITH RESPECT TO THE PLOT PAPER

DDN NEXT ALLOWS THE USER TO ENTER X AND Y OFFSETS

OFFSET DISTANCES
1. X-DIRECTION OFFSET =
2. Y-DIRECTION OFFSET =

NOTE THAT YOU NO LONGER ENTER IN MIN 1/2 MAX OFFSET VALUES! THE X OFFSET APPLIES TO BOTH THE RIGHT AND LEFT MARGINS; THE Y OFFSET APPLIES TO BOTH THE TOP AND BOTTOM MARGINS.

IF PLOTTING A SINGLE VIEW, THE NEXT PROMPT IS FOR HOW MUCH OF THE PART TO PLOT.

SINGLE VIEW PLOT EXTENT
1. PLOT ALL DISPLAYED
2. PLOT ENTIRE PART

REGARDLESS OF THE EXTENT CHOSEN, THE SYSTEM WILL PROMPT FOR PLOT ORIGIN.

PLOT ORIGIN
1. SCREEN POSITION
2. ENTER TRANSFORM COORDINATES
3. EXISTING POINT
4. LOWER LEFT/RIGHT CORNER

THIS ESTABLISHES HOW TO POSITION THE PART WITHIN THE PLOT. THE PLOT ORIGIN SPECIFIED HERE WILL 'SNAP TO' THE PLOTTER ORIGIN SPECIFIED EARLIER. FOR EXAMPLE, IF LOWER LEFT WAS SPECIFIED FOR PLOTTER ORIGIN AND LOWER LEFT IS SPECIFIED FOR PLOT ORIGIN, THE ENTIRE PART WILL BE PLOTTED IN THE LOWER LEFT HAND PORTION OF THE PAPER. HOWEVER, IF LOWER LEFT IS SPECIFIED FOR PLOTTER ORIGIN, AND A SCREEN POSITION SOMEWHERE IN THE UPPER RIGHT CORNER IS CHOSEN FOR PLOT ORIGIN, ONLY THE PORTION OF THE PART TO THE RIGHT AND ABOVE THE SCREEN PICK WILL BE DRAWN.

AFTER ALL CONSTRAINTS ARE SPECIFIED, DDN CALCULATES THE MAXIMUM SIZE IT CAN DRAW THE PART WITH RESPECT TO THESE CONSTRAINTS AND PROMPTS FOR SCALE WITH THIS SCALE AS THE DEFAULT.

SCALE FOR PLOTTING = 1.2436 FOR EXAMPLE

IF A SCALE OTHER THAN THIS IS ENTERED, DDN WILL GIVE THE NEW DISPLAY SIZE AND PROMPT IF THE USER WANTS TO CONTINUE.

IF MULTIPLE VIEWS ARE DISPLAYED WHILE COMPLETING THE PLOTTING PROCEDURE, THE FOLLOWING MENU WILL APPEAR INSTEAD OF THE SINGLE VIEW PLOT EXTENT MENU:

MULTIPLE VIEW PLOT EXTENT
1. PLOT A SPECIFIED VIEW
2. PLOT ALL VIEWS

THE SYSTEM WILL THEN PROMPT FOR THE SCALE FOR PLOTTING =

AND PROCESSING CONTINUES AS IN SINGLE VIEW PLOTTING.

7.13 TABLET MANAGEMENT HAS BEEN COMPLETELY REWRITTEN IN DDN 1.57 AND EARLIER THIS MENU HAD ONLY 3 CHOICES AS SHOWN BELOW:

TABLET MANAGEMENT
1. DEFINE NEW PAGE
2. MODIFY USER PAGE
3. MODIFY STANDARD PAGE

IN DDN 1.6, F.7.13 WILL FIRST TELL THE USER THE NAME OF THE CURRENT EDIT FILE AND DISPLAY A 10-ITEM MENU AS FOLLOWS:

EDIT FILE = EDITFILE

TABLET MANAGEMENT
1. TABLET MODALS
2. CREATE PAGE
3. MODIFY PAGE
4. RENAME PAGE
5. DELETE PAGE
6. DISPLAY PAGE
7. LIST PAGES IN EDIT FILE
8. CHANGE EDIT FILE
9. PACK EDIT FILE
10. COPY PAGES FROM ANOTHER FILE

THE FIRST TIME THIS MENU IS ACCESSED, THE EDIT FILE WILL BE TFILE. IF YOU DO NOT HAVE A LOCAL FILE CALLED TFILE AND YOU TRY TO DO ANY OF THE TABLET MANAGEMENT FUNCTIONS, DDN WILL GIVE THE FOLLOWING PROMPT:

NO TABLET EDIT FILE IS ASSIGNED
GET EXISTING TABLET FILE?

Y - DDN WILL PROMPT FOR NAME OF FILE

NOTE: THIS MUST BE A PERMANENT FILE THAT WAS PREVIOUSLY DEFINED/SAVED. IT DOES NOT HAVE TO BE A LOCAL FILE. DDN WILL ATTACH/ GET IT AND MAKE IT YOUR EDIT FILE.

N - DDN WILL PROMPT

CREATE PERMANENT TABLET FILE?

Y - PROMPT FOR FILE NAME AND WILL CREATE A NOS DIRECT ACCESS FILE WITH THIS NAME
N - RETURNS YOU TO TABLET MANAGEMENT MENU

7.13.1 TABLET MODALS

7.13.1.1 SQUARE OVERWRITE MODE (APPLIES TO 7.13.3.1, 7.13.3.2, 7.13.3.4, 7.13.3.5)

1. PROMPT TO OVERWRITE - WILL ASK WHETHER TO OVERWRITE AN ALREADY DEFINED SQUARE (default)
2. AUTOMATICALLY OVERWRITE - WILL TELL YOU IF A SQUARE HAS BEEN OVER-WRITTEN
3. DO NOT OVERWRITE

7.13.1.2 PAGE DISPLAY STATUS

1. DISPLAY - DISPLAYS THE TABLET PAGE ON SCREEN WHEN CREATE OR MODIFY (default)
2. DO NOT DISPLAY - AVOIDS DISPLAYING TABLET PAGE

7.13.1.3 PAGE DISPLAY AREA - SPECIFY WHERE ON THE SCREEN THE PAGE IS TO BE DISPLAYED

1. UPPER SCREEN
2. LOWER SCREEN

7.13.1.4 STRING DISPLAY FORMAT - THIS MODAL CONTROLS STRING FORMAT FOR 7.13.6, 7.13.3, AND 7.13.3.8

1. UNPACKED CHARACTERS - DISPLAYS FULL 2-DIGIT NUMBERS WITH SEPARATORS
2. PACKED CHARACTERS - DISPLAYS SPECIAL SINGLE-CHARACTER EQUIVALENTS WITH NO SEPARATORS

7.13.1 TABLET MODALS (CONT.)

7.13.1.5 TABLET FILE STATUS

- ACTIVE PAGE SQUARES ARE EXECUTED FROM THE TABLET COMMAND FILE

- COMMAND FILES ARE CREATED/MODIFIED WITH A TABLET EDIT FILE

- THESE 2 FILES CAN BE THE SAME OR DIFFERENT DEPENDING ON THIS MODAL SETTING

- THIS MODAL AFFECTS 1.16.3 CHANGE COMMAND FILE AND 7.13.8 CHANGE EDIT FILE

- THE SETTINGS ARE:
  1. EQUATE EDIT AND COMMAND FILES. WITH THIS SETTING, THE COMMAND AND EDIT FILES WILL BE THE SAME. (I.E. IF THE COMMAND FILE IS CHANGED TO TF121, USING F.1.16.3, THEN THE EDIT FILE WILL ALSO BE TF121; OR IF THE EDIT FILE IS CHANGED TO TF222 , USING F.7.13.8, THE COMMAND FILE WILL BECOME TF222 AS WELL.
  2. DO NOT EQUATE EDIT AND COMMAND FILES - ALLOWS YOU TO CHANGE THE EDIT AND COMMAND FILES INDEPENDENTLY.

7.13.2 CREATE PAGE

- UPON ENTRY TO THIS MENU DDN WILL PROMPT FOR A NEW PAGE NAME. IF THE NAME ENTERED MATCHES AN ALREADY EXISTING PAGE, DDN WILL ASK IF YOU WANT TO OVERWRITE.

Y -

N - REPROMPTS FOR NAME OF PAGE

DDN WILL THEN DISPLAY THE FOLLOWING:

EDIT PAGE = YOUR PAGE
CREATE PAGE
1. USE BLANK PAGE
2. USE COPY OF STANDARD PAGE - PROMPTS FOR WHICH STANDARD PAGE
3. USE COPY OF USER PAGE - PROMPTS FOR WHICH USER PAGE

DDN THEN GOES INTO THE EDIT/SAVE PAGE MENU.

7.13.3 MODIFY PAGE

ENTER NAME OF PAGE TO MODIFY

DDN THEN GOES INTO THE EDIT/SAVE PAGE MENU

EDIT/SAVE PAGE MENU
EDIT PAGE = YOUR PAGE
EDIT/SAVE PAGE

1. DEFINE SQUARE - TO DEFINE A SQUARE WITH A COMMAND STRING
2. ASSIGN MSTRING NAME TO SQUARE - TO DEFINE A SQUARE WITH AN MSTRING FROM A EXTERNAL FILE
3. LIST SQUARE - DISPLAY SQUARE DEFINITION
4. MOVE SQUARE - MOVE DEFINED SQUARE TO DIFFERENT SQUARE
5. COPY SQUARE - COPIES A DEFINED SQUARE TO ANOTHER SQUARE
6. DELETE SQUARE - CAN DELETE DEFINITION OF INDICATED SQUARE
7. DISPLAY PAGE - DISPLAYS CURRENT WORKING PAGE
8. SAVE PAGE AND CONTINUE
9. SAVE PAGE AND EXIT

7.13 TABLET MANAGEMENT (CONT.)

.4 RENAME PAGE - ALLOWS YOU TO RENAME A PAGE ON EDIT FILE

.5 DELETE PAGE - ALLOWS YOU TO DELETE A PAGE ON EDIT FILE

.6. DISPLAY PAGE - DISPLAYS SPECIFIED PAGE IN DESIGNATED DISPLAY AREA F.7.13.1.3

.7 LIST PAGES - LISTS INFORMATION ABOUT ALL THE PAGES ON THE CURRENT EDIT FILE

.8 CHANGE EDIT FILE - ALLOWS YOU TO CHANGE TO ACTIVE EDIT FILE NAME. IF THE NAME ENTERED IS NOT A FILE, IT WILL PROMPT IF YOU WANT IT CREATED

.9 PACK EDIT FILE - ALLOWS YOU TO MINIMIZE FILE SIZE BY ELIMINATING GAPS CAUSED BY PAGE DELETIONS

.10 COPY PAGES FROM ANOTHER FILE - WITH THIS MENU, DDN NOW ALLOWS THE COMBINING OF SEVERAL TFILES

NEW TABLET FILE FUNCTIONS

AUTOMATIC FILE RETRIEVAL - NO NEED TO EXIT DDN TO ATTACH OR DEFINE THE COMMAND/EDIT FILES. THEY CAN BE ATTACHED OR CREATED WITHIN ICEM DDN.

NOTE: IF MSTRINGS ARE USED TO DEFINE SQUARES IN A COMMAND FILE, A LOCAL FILE CALLED MSTRING WITH THE MSTRINGS USED MUST STILL EXIST.

CHANGE TO NEW FILE - CHANGING THE COMMAND/EDIT FILE IS NOW ACCOMPLISHED WITH ONE MENU PICK. ALSO, THE ACTIVE COMMAND FILE DOES NOT NECESSARILY HAVE TO BE THE EDIT FILE

LIST PAGES IN A FILE - CAN NOW LIST INFORMATION ABOUT A GIVEN COMMAND/EDIT FILE INCLUDING PAGES ON THAT FILE

COPY PAGES BETWEEN FILES - FILES CAN NOW BE COMBINED WITH A SIMPLE MENU PICK

ENTIRE PAGES CAN NOW BE DELETED FROM COMMAND/EDIT FILES

CAN NOW PACK TABLET FILES TO MINIMIZE SPACE USED

NEW ENHANCEMENTS TO TABLET PAGE DEFINITION

PAGES CAN NOW BE AUTOMATICALLY DISPLAYED DURING DEFINITION, MODIFICATION, OR BY SELECTING THE DISPLAY MENU. THIS IMPROVES EASE OF DEFINITION TREMENDOUSLY.

SQUARE INDICATION CAN NOW BE DONE FROM THE SCREEN. (I.E. THE DISPLAY OF THE TABLET GRID MATCHES THE ACTIVATE TABLET).

NOW HAVE DEFINITION/DISPLAY MODES THAT CAN BE CHANGED ON THE FLY USING V OR CNTL-V OPTIONS.

THE PAGE DISPLAY HAS MARKINGS TO INDICATE WHETHER THE SQUARE DEFINITION WAS DIRECT OR BY MSTRING.

NOW HAS A POSITIVE PAGE SAVE CHECK TO ASSURE PAGE IS SAVED. ALSO, DO NOT NEED TO REENTER PAGE NAME WHEN THE PAGE IS SAVED.

ENHANCEMENTS TO STRING SYNTAX

THE VARIABLE CONTROL CHARACTERS e AND s HAVE CHANGED

e AND s ARE NOW BOTH INPUT SUBSTITUTION CHARACTERS FROM KEYBOARD OR TABLET. THE DIFFERENCE OF THE 2 OCCURS DURING REPEATING SEQUENCES

1. s - IS A CONSTANT THAT IS ONLY ENTERED DURING THE FIRST CYCLE OF A REPEATED FUNCTION. FOR ALL SUBSEQUENT REPEATS, THIS VALUE IS SUBSTITUTED AUTOMATICALLY.
2. e - IS A VARIABLE THAT MUST BE ENTERED FOR ALL CYCLES OF A REPEATED FUNCTION.

TEXT STRING CAN NOW HAVE LOWER AS WELL AS UPPER CASE CHARACTERS. THE STRING DELIMETER IS ~ BUT STILL REQUIRES THE t DELIMETER AS WELL.

EXAMPLE:
t~ Lower Case Example ~t

COMMAND STRINGS NOW SUPPORT EMBEDDED TEXT WHICH WILL BE PRINTED TO THE SCREEN WHEN THE COMMAND STRING IS EXECUTED.

THIS TOOL CAN BE POWERFUL IN DESCRIBING FUNCTIONS TO USERS WHEN USING THEIR TABLET FILES. IT CAN ALSO BE USED FOR DEMONSTRATION OR SCRIPT FILES. THE TEXT DELIMETER FOR EMBEDDED TEXT IS . THIS DELIMETER MUST BE USED WITH t AND ~. CARE MUST BE TAKEN THAT THE DELIMETERS BE IN PROPER ORDER.

EXAMPLE:
f.9¦t~Define Point For Origin ~¦t

WILL ENTER THE POINT MENU AND PROMPT THE USER WITH Define Point For Origin

NOTE: THE ¦ IS BEFORE THE t AT BOTH THE BEGINNING AND THE END OF THE STRING.

MENU 8: DISPLAY CONTROL

THE ONLY MENU CHANGE AND ENHANCEMENT FOR THIS MENU IS IN VIEW LAYOUT CONSTRUCTION. HOWEVER, THIS SINGLE ENHANCEMENT SHOULD VASTLY IMPROVE PRODUCTIVITY IN CREATING MULTIPLE VIEW DRAWINGS BY ALLOWING THE USER TO ALIGN LAYOUT VIEWS AUTOMATICALLY. THERE HAS ALSO BEEN A MODAL ADDED TO VIEW LAYOUT CONSTRUCTION MODALS TO SET THE SCALE OF VIEWS ALIGNED.

VIEW ALIGNMENT

VIEW ALIGNMENT ALLOWS AUTOMATIC AND ACCURATE ALIGNMENT OF VIEWS ON A MULTI-VIEW DRAWING. IT CAN BE SPECIFICALLY USED TO ALIGN AN AUXILIARY VIEW TO THE VIEW IT WAS FOLDED OFF FROM .

VIEW ALIGNMENT IS LOCATED UNDER VIEW LAYOUT CONSTRUCTION AS SHOWN BELOW:

-VIEW LAYOUT CONSTRUCTION
1. MODALS
2. MOVE WINDOW
3. STRETCH WINDOW
4. ADD VIEW
5. REPLACE VIEW
6. UNBLANK VIEW
7. BLANK VIEW
8. DELETE VIEW
9. MODIFY LAYOUT NAME
10. COPY UNDER NEW NAME
11. PLACE FORMAT AROUND LAYOUT
12. **ALIGN LAYOUT VIEWS**

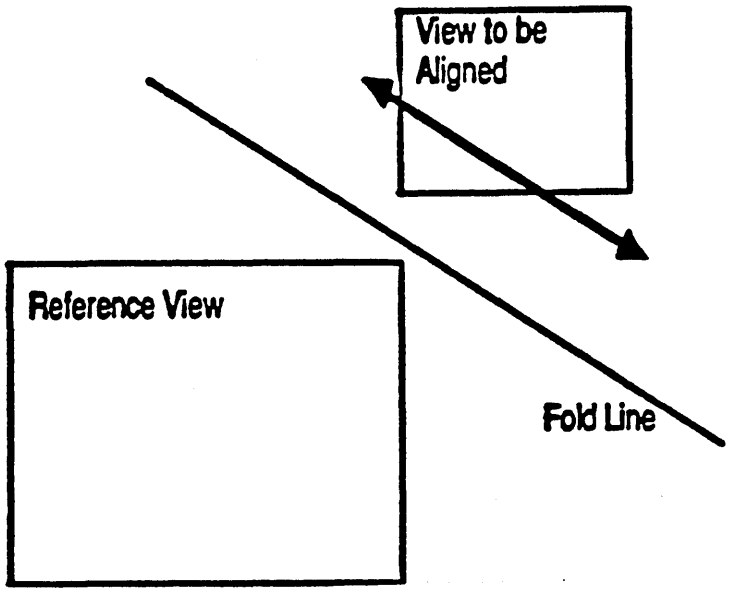
VIEW ALIGNMENT MODAL

VIEWS MAY BE ALIGNED WHICH DO NOT HAVE THE SAME SCALE. A POINT COMMON TO EACH OF THE VIEWS IS USED TO ALIGN THEM. THIS MAY BE DESIREABLE FOR ALIGNMENT OF THE VIEW OF A SHAFT END TO THE VIEW OF THE SHAFT SIDE. THE ALIGNMENT POINT WOULD THEN BE THE CENTER POINT OF THE SHAFT. ALIGNMENT OF VIEWS WITH DIFFERING SCALES IS MODALLY CONTROLLED. THE FOLLOWING MENU IS THE VIEW LAYOUT CONSTRUCTION MODAL MENU:

-VIEW LAYOUT CONSTRUCTION OPTIONS
1. LAYOUT UNITS OF MEASUREMENT
2. ENTITY DISPLAY DURING CONSTRUCTION
3. SCALE OF ALIGNED VIEW

-SCALE OF ALIGNED VIEW
1. SET TO REFERENCE VIEW SCALE (default)
2. SCALE REMAINS UNCHANGED

HOW VIEW ALIGNMENT WORKS



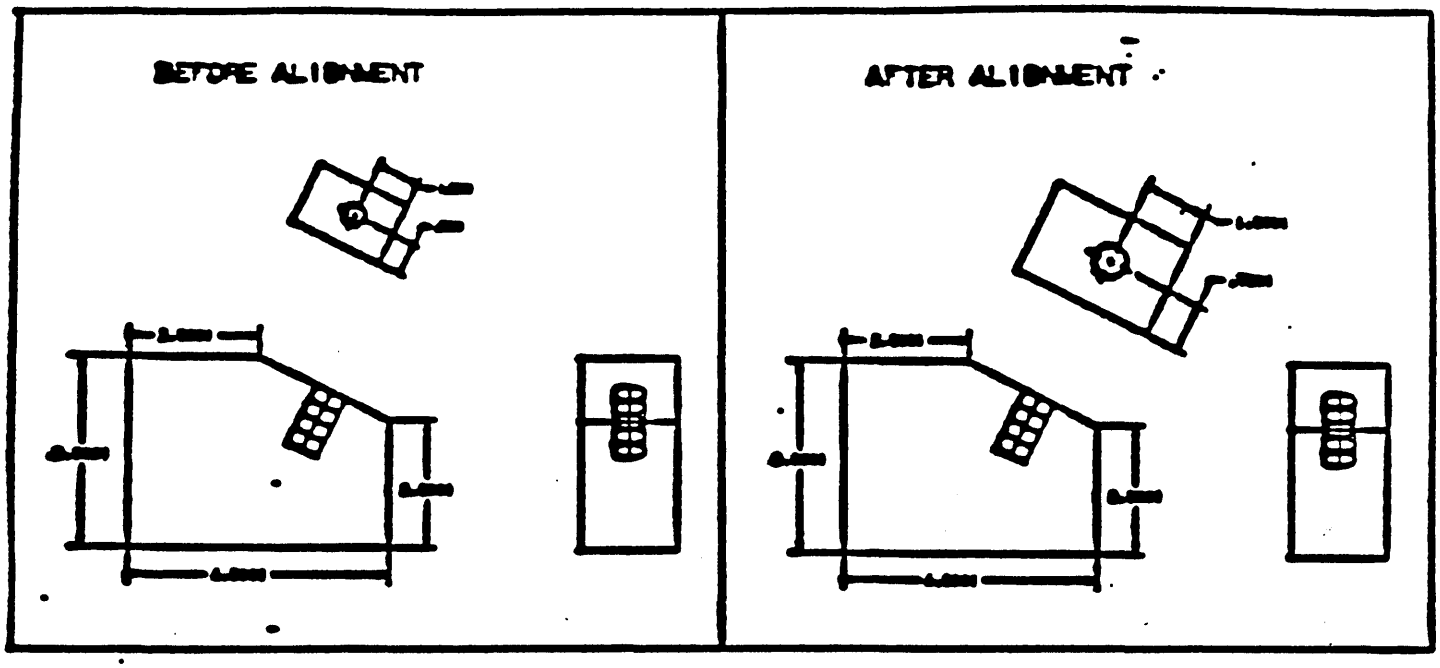
- SCALE OF ALIGNED VIEW IS SET TO THE SCALE OF THE REFERENCE VIEW IF DESIRED.

- THE WINDOW AND GEOMETRY OF THE ALIGNED VIEW IS MOVED PARALLEL TO THE IMAGINARY FOLD LINE UNTIL ALIGNMENT WITH THE REFERENCE VIEW IS ACHIEVED.

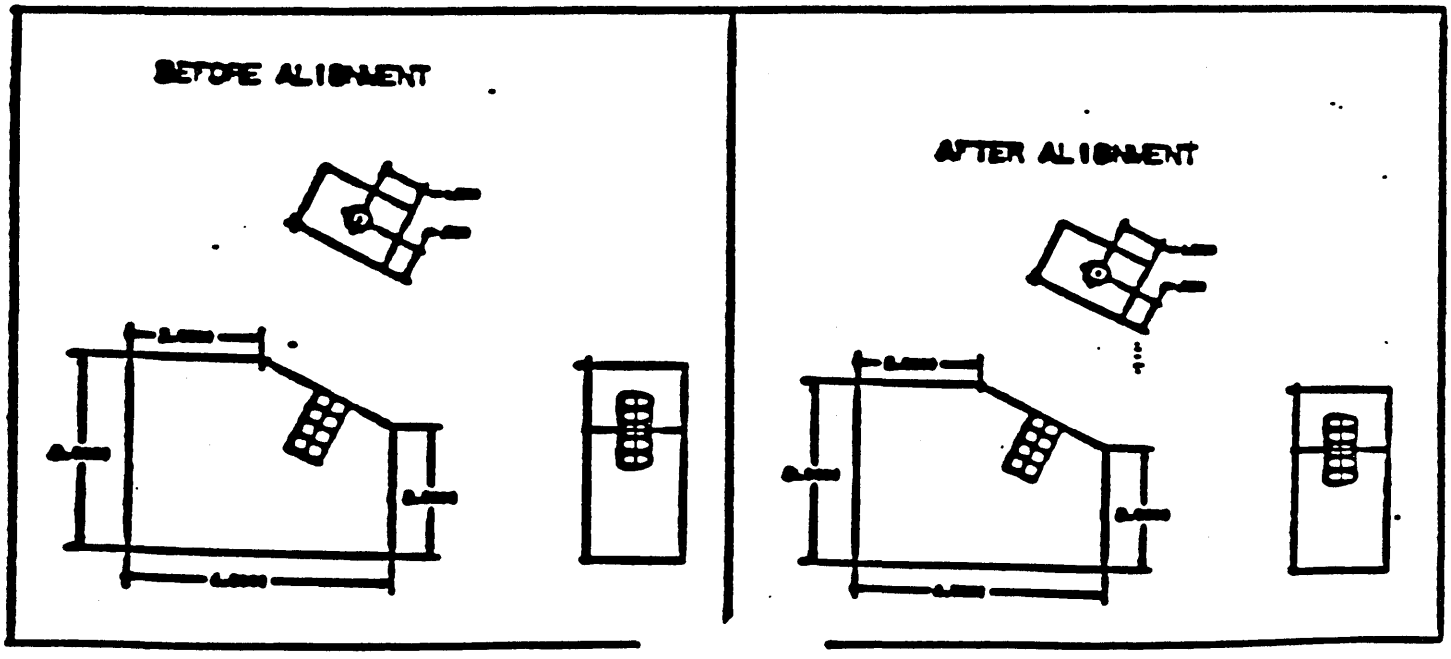
- WINDOW SIZES ARE NOT CHANGED.

VIEW ALIGNMENT

EXAMPLE #1 **SET TO REFERENCE VIEW SCALE**



EXAMPLE #2 **SCALE REMAINS UNCHANGED**



MENU 9: POINT

THE ENHANCEMENTS TO THIS MENU DEAL WITH F.9.17 FAN POINTS AND F.9.18 INCREMENTAL POINTS. THESE TWO MENUS WERE ENHANCED A GREAT DEAL.

F.9.17 FAN POINTS

IN ICEM DDN 1.57 AND EARLIER, THERE WAS ONLY ONE WAY TO CREATE FAN POINTS: BY ANSWERING PROMPTS FOR BASE POINT, A SINGLE CURVE, START ANGLE, DELTA ANGLE, AND NUMBER OF POINTS.

IN DDN 1.6, THE USER CAN RESPOND TO A COMBINATION OF START CONDITIONS AND ANY 2 OF THE FOLLOWING CONSTRAINTS: END CONDITION, NUMBER OF POINTS, AND DELTA ANGLE.

TO IMPROVE PRODUCTIVITY FURTHER, START AND END CONDITIONS CAN BE DEFINED IN ONE OF FOUR WAYS AND CAN BE SET AS MODALS IN F.1.2.2.1 AND F.1.2.2.2. (SEE PAGE 25 FOR FURTHER DEFINITION OF THESE MODALS). THESE MODALS CAN ALSO BE SET ON THE FLY USING OTHER OPTIONS (V OR CNTL-V).

F.9.17 FAN POINTS (CONT.)

CURVE SELECTION ENHANCEMENTS:

1. VALID CURVES
    1. LINES
    2. ARCS/CIRCLES
    3. CONICS
    4. 2 - D SPLINES
    5. COMPOSITE CURVES
    6. POINT SETS
    7. 3 - D SPLINES
    8. MACHINING CURVES
    9. STRINGS
    10. BEZIER CURVES
2. MULTIPLE CURVES ALLOWED UP TO A MAXIMUM OF 100
3. CURVES CAN BE CONNECTED OR RANDOM
4. SINGLE OR CHAIN SELECT SUPPORTED

F.9.18 INCREMENTAL POINTS BRINGS UP THE FOLLOWING NEW MENU:

-INCREMENT TYPE
1. ALONG XT AXIS HAVE BEEN UPGRADED TO
2. ALONG YT AXIS ALLOW MULT. CURVES
3. ALONG ONE CURVE CAN USE COMP. CURVES
4. BETWEEN 2 POINTS

CONSTRAINTS INCLUDE START AND END CONDITIONS, DELTA BETWEEN POINTS, AND NUMBER OF POINTS. IF BOTH END CONDITIONS ARE DEFINED, ONLY ONE OF THE REMAINING CONSTRAINTS NEED BE SET. IF ONLY ONE OF THE END CONDITIONS IS SET, BOTH DELTA AND NUMBER OF POINTS IS NECESSARY.

START AND END CONDITIONS CAN BE DEFINED IN ONE OF FOUR WAYS AND CAN BE PRESET AS MODALS IN F.1.2.2.3 AND F.1.2.2.4. (SEE PAGE 26 FOR FURTHER DEFINITION OF THESE MODALS). THESE MODALS CAN ALSO BE SET ON THE FLY USING OTHER OPTIONS (V OR CNRL-V).

MENU 11: ARC/CIRCLE/FILLET

ARC TANGENT TO THREE CURVES

ARC INSCRIBED IN 3 LINES HAS BEEN REPLACED WITH ARC TANGENT TO 3 CURVES. THE ARC/ CIRCLE/FILLET MENU APPEARS AS FOLLOWS:

-ARC/CIRCLE/FILLET
1. SCREEN POS AND RADIUS
2. KEY-IN CENTER AND RADIUS
3. CENTER AND RADIUS
4. CENTER AND TAN LINE
5. CENTER AND TAN CIRCLE
6. CENTER AND EDGE POINT
7. THROUGH 3 POINTS
8. MODIFY ANGLES
9. FILLET
10. **TANGENT TO 3 CURVES**
11. NORMAL TO VIEW
12. MODIFY/REPLACE
13. DIVIDE INTO N SEGMENTS.

ARC TANGENT TO THREE CURVES

- VALID ENTITIES ARE POINTS, LINES, AND ARCS.

- ARC IS TRIMMED.

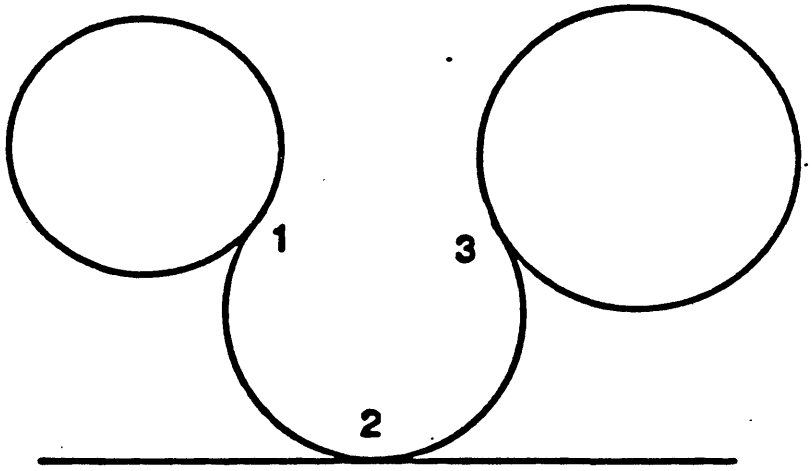
- ARC STARTS AT THE FIRST CURVE, PASSES THROUGH THE POINT OF TANGENCY WITH THE SECOND CURVE, AND ENDS AT THE THIRD CURVE.

- CURVES SHOULD BE SELECTED NEAR THEIR DESIRED POINTS OF TANGENCY WITH THE CONSTRUCTED ARC.

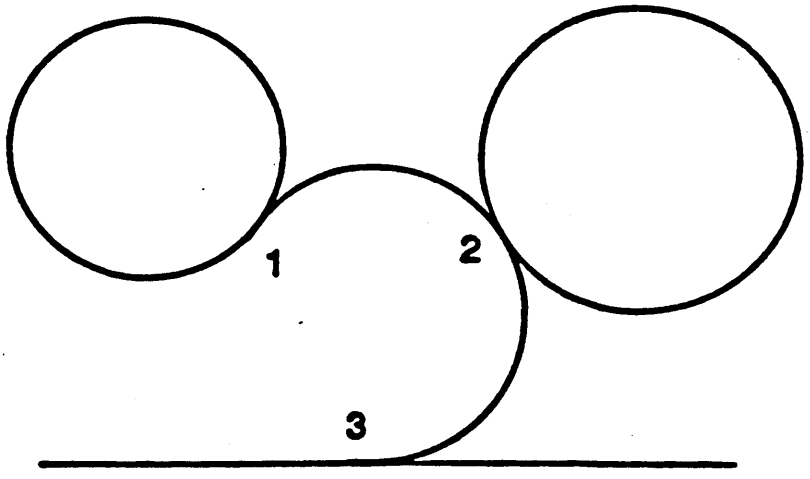
- ACCURACY IS GOOD TO BETTER THAN 9 DECIMAL DIGITS.

ARC TANGENT TO THREE CURVES

EXAMPLE #1



EXAMPLE #2



MENU 12: OTHER CURVES

TRIM/EXTEND CURVES

NEW FOR V1.6 IS THE ADDITION OF SCREEN POSITION TRIMMING/EXTENDING OF CURVES. THE NEW MENU IS SHOWN BELOW:

-TRIM/EXTEND CURVES
1. ONE SIDE - SCREEN POSITION
2. - CURVE
3. TWO SIDES - SCREEN POSITION
4. - CURVE
5. MIDDLE - SCREEN POSITION
6. - CURVE
7. TWO CURVES AT INTERSECTION

SCREEN POSITION TRIM/EXTEND

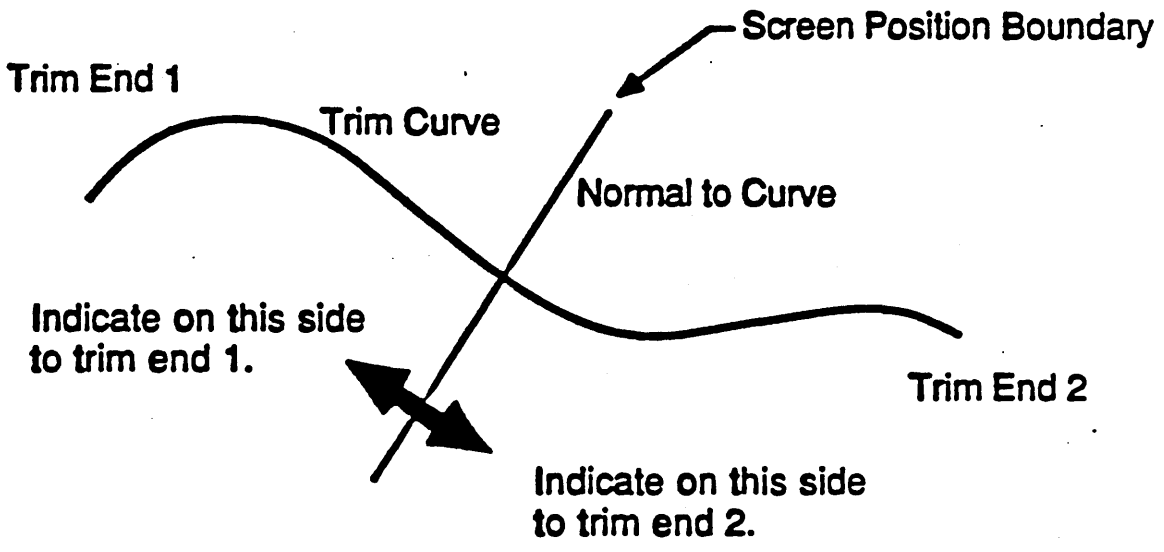
- RESPONDS TO AN ACTIVE GRID.

- 20 CURVES AT A TIME MAY BE SELECTED FOR TRIMMING/EXTENDING AT ONE TIME.

- TRIM POINT IS DETERMINED BY DROPPING A NORMAL TO EACH CURVE.

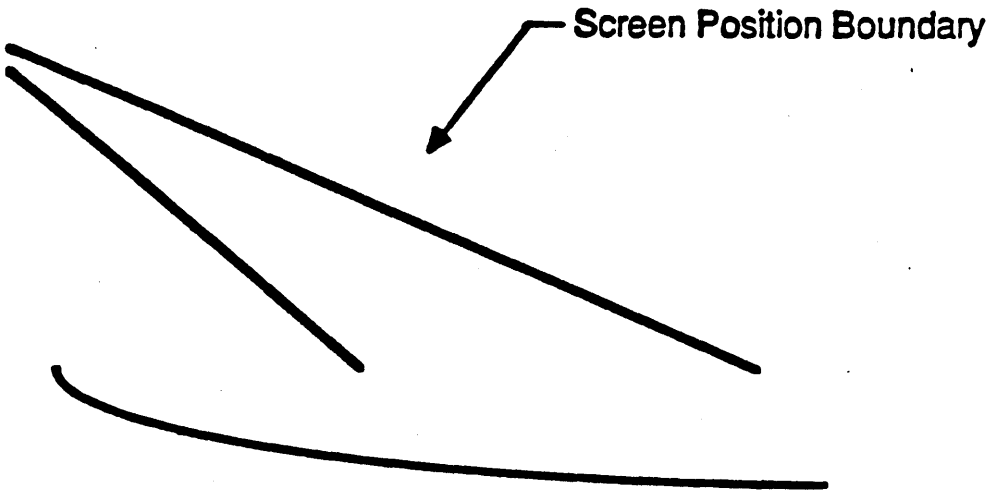
USE OF TRIM ONE END BY SCREEN POSITION

Use of Trim One End by Screen Position

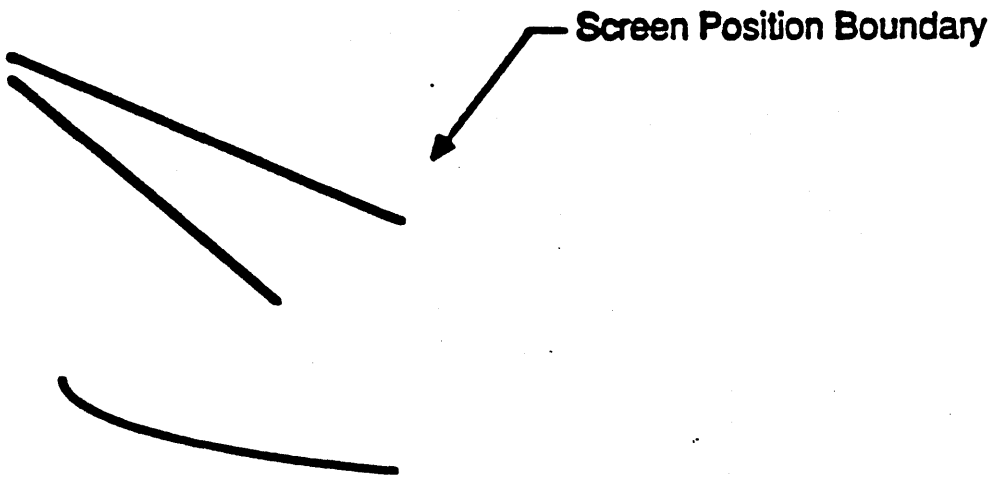


SCREEN POSITION TRIMMING EXAMPLE

ORIGINAL GEOMETRY



TRIM RESULTS



MENU 13: ENTITY MANIPULATION

1. RECT ARRAY
2. CIRC ARRAY
3. GROUP
4. MIRROR
5. TRANSLATE
6. ROTATE
7. DUPL AND MIRROR
8. DUPL AND TRANSLATE
9. DUPL AND ROTATE
10. ARRAY EXPLODE
11. STRETCH
12. TRANSLATE THEN ROTATE
13. ROTATE THEN TRANSLATE
14. DUPL/TRANSLATE ROTATE
15. DUPL/ROTATE TRANSLATE
16. PROJECTED ENTITIES

NOTE: THE MENU NUMBERS INCREASED BY ONE, STARTING WITH NO. 8, DUE TO THE ADDITION OF DUPL AND MIRROR. AS A RESULT, DUPL AND TRANSLATE WAS F.13.7 BUT IS NOW F.13.8.

F.13.4 MIRROR NO LONGER MAINTAINS BOTH THE ORIGINAL AND MIRRORED IMAGES. IT IS NOW ONLY THE MIRROR IMAGE. IF BOTH THE ORIGINAL ENTITIES AND THE MIRROR IMAGE ARE DESIRED, USE F.13.7 DUPLICATE AND MIRROR.

F.13.16 PROJECTED ENTITIES IS THE SAME FUNCTION AS F.16 IS IN EARLIER VERSIONS OF ICEM DDN.

MENU 15: ADVANCED DESIGN

DUE TO THE ADDITION OF ADVANCED DESIGN MODALS TO THE ADVANCED DESIGN MENU, ALL OTHER FUNCTIONS HAVE A MENU NUMBER ONE GREATER THAN ITS NUMBER IN VERSION 1.57.

-ADVANCED DESIGN
1. ADVANCED DESIGN MODALS
2. 3-D CURVES
3. SURFACES
4. SOLIDS
5. CROSS SECTION SLICE
6. SURFACE DEVELOPMENT

F.15.1 ADVANCED DESIGN MODALS

1. CREATED CURVE TYPE - SPECIFIES CURVE TYPE FOR 3-D CURVE CREATION
    1. MACHINING
    2. 3-D SPLINE

2. SAME POINT TOLERANCE - USED FOR MENUS 15.2.3 AND 15.2.2.2 TO SPECIFY HOW CLOSE OF AN APPROXIMATION IS MADE IN CREATING 3-D CURVES

3. SURFACE PATHS - SAME AS 1.1.8 IN PREVIOUS VERSIONS. IT CONTROLS THE NUMBER OF DISPLAY PATHS FOR SURFACE CREATION. THESE PATHS CAN BE MODIFIED USING 15.3.18.2.

F.15.2 3 - D CURVES

F.15.1.2 SURFACE EDGE CURVE IS NOW
F.15.2.2 SURFACE CURVES

1. SURFACE EDGE CURVE - SAME AS F.15.1.2 IN PREVIOUS VERSION

2. OFFSET SURFACE CURVE - TO OFFSET FROM EXISTING SURFACE CURVES

-OFFSET DIRECTION
1. ALONG SURFACE NORMALS - OFFSET FOLLOWS DIRECTION OF NORMAL
2. IN VARIABLE DIRECTION - TO USE LOCAL COORDINATES
3. NORMAL TOWARD SECOND SURFACE - USING ANOTHER SURFACE NORMAL
4. WITHIN THE SURFACE - SPECIFY A DIRECTION ON THE SURFACE

F.15.1.2.3 INTERSECTION CURVE IS NOW
F.15.2.2.3 SURFACE-SURFACE
INTERSECTION CURVE

THE PROCESS OF CREATING THESE CURVES HAS ALSO CHANGED.

- NO LONGER PROMPTS FOR DRIVE AND CHECK SURFACE. RATHER, IT PROMPTS INDICATE SURFACE FOR BOTH. THE ORDER OF SELECTION IS IRRELEVANT.

- NO LONGER ASKS FOR CURVE TYPE, TOLERANCE, OR STEP SIZE. CURVE TYPE IS SET IN MODAL 15.1.1. CREATED CURVE TYPE AND CONVERGENCE TOLERANCE IS SET BY 15.1.2 SAME POINT TOLERANCE.

- NO LONGER PROMPTS FOR START MODE.

- DUE TO LIMITATIONS, MULTIPLE ENTITIES MAY HAVE TO BE CREATED. MESSAGES TO THIS EFFECT WILL TELL USERS THIS.

- AFTER SURFACES HAVE BEEN SELECTED AND CURVES HAVE BEEN DEFINED OR MESSAGES HAVE APPEARED INDICATING OTHERWISE, DDN WILL DISPLAY:

  -INTERSECTION CURVE OPTIONS
  1. DONE - IF SATISFIED
  2. SEARCH AGAIN FOR CURVE - IF YOU SUSPECT MORE INTER-SECTIONS EXIST
  3. REFINE EXISTING CURVE - SYSTEM ADDS MORE POINTS ALONG THE CURVE CREATING A SMOOTHER ONE

- INTERSECTIONS EXECUTE FASTER AND CURVE IS OPTIMIZED

15.2.4 DRAFT CURVE

2. PROJECT TO SURFACE HAS NEW OPTION FOR DIRECTION

    1. ALONG ZT AXIS - SAME AS PREVIOUS VERSION

    2. ENTER VECTOR
        1. TRANSFORM COORDINATES
        2. MODEL COORDINATES

    NOTE: TO ENTER I, J, AND K VECTOR NAMES FOR DIRECTION

    3. EXISTING LINE OR VECTOR - SAME AS PREVIOUS VERSION

15.2.4 COMPOSITE CURVE HAS BEEN ENHANCED

- ARE NOW DISPLAYABLE ENTITIES COMPOSED OF SUBCURVES

- SUBCURVES ARE REMOVED FROM DISPLAY AND REPLACED BY THE COMPOSITE CURVE UPON DEFINITION

- SUBCURVES ARE MADE DORMANT

- SUBCURVES ARE NOT INDIVIDUALLY SELECTABLE (SINGLE SELECT FROM GROUP DOES NOT AFFECT THIS)

- CAN BE DELETED WITHOUT DELETING THE SUBCURVES

F.15.3 SURFACES

ADDED 2 NEW PICKS TO SURFACES MENU

17. BEZIER SURFACES - THIS CHOICE IS BLANKED OUT IN THE U.S., AVAILABLE ONLY IN EUROPE

18. SURFACE VIEWING - INCLUDES:
    1. SURFACE FACETTING

       - NEW FEATURE IN 1.6. THIS CHOICE ALLOWS YOU TO PICK SURFACES YOU WANT SHADED AND UPON OPT COMPLETE, SHADES THE SURFACES YOU SELECTED WITH THE SAME COLOR AS THE U-V PATHS THEY ARE DISPLAYED WITH. THE QUALITY OF THE SHADING DEPENDS ON U-V DENSITY. (NOT MEANT TO REPLACE SOLID MODELER).

    2. MODIFY SURFACE PATHS - PREVIOUSLY F.1.8

MENU 16: DRAFTING

ANSI RELATED DRAFTING FEATURES
VERSION 1.60

- RECTANGULAR COORDINATE DIMENSION
- ARC LENGTH DIMENSION
- CHAMFER DIMENSION
- DIMENSION NOT TO SCALE
- COMPOSITE GEOMETRIC TOLERANCE SYMBOL
- COUNTERBORE AND COUNTERSINK SYMBOLS
- REPETITIVE FEATURES
- SPHERICAL RADIUS AND DIAMETER

OTHER DRAFTING FEATURES AND IMPROVEMENTS IN VERSION 1.60

- AUTOMATIC TOLERANCE/LIMITS
- SECTION LINING
- BASIC BOX AROUND NOTES
- FRACTIONS
- FEET AND INCHES
- ISOMETRIC DRAFTING

MENU 16: DRAFTING

16.1 THERE ARE SEVERAL CHANGES AND ADDITIONS TO DRAFTING MODALS. (F.16.1....). THEY ARE AS FOLLOWS:

F.16.1.1.5 SPECIAL SET PREFIX
THE METHOD OF CALLING UP SPECIAL CHARACTERS AND CHANGING THE SPECIAL CHARACTER PREFIX HAS REMAINED THE SAME AS IN PREVIOUS VERSIONS. HOWEVER, 2 NEW SPECIAL CHARACTERS HAVE BEEN ADDED IN DDN VERSION 1.6.

CHARACTER ENTRY	SYMBOL	SYMBOL NAME
/B	⌴	COUNTER BORE
/C	V	COUNTER SINK

F.16.1.4 DIMENSION TEXT HAS CHANGED DUE TO SEVERAL NEW OPTIONS.

DIMENSION TEXT
1. AUTOMATIC DIMENSION TEXT - SAME AS 1.57
2. DECIMAL/FRACTIONS - SAME AS 1.57, EXCEPT WHEN IN FEET/INCHES. IT WILL PROMPT FOR ROUNDING.
3. DIMENSION TEXT PREFIX - REPLACES AUTO DIAMETER SYMBOL AND GIVES SUBMENU

F.16.1.4 DIMENSION TEXT (CONT.)

1. AUTOMATIC LINEAR DIMENSION SYMBOL - WHEN SET, IT PLACES THE DIAMETER OR RADIUS SYMBOL ON LINEAR DIMENSIONS

    1. NONE (DEFAULT)
    2. DIAMETER SYMBOL
    3. RADIUS SYMBOL

NOTE: THIS MODAL ONLY AFFECTS LINEAR DIMENSIONING. IF A DIMENSION IS CREATED WITH RADIUS OR DIAMETER DIMENSIONING, THE DIAMETER/RADIUS SYMBOL WILL AUTOMATICALLY BE DISPLAYED.

2. SPHERICAL DIAMETER/RADIUS SYMBOL

    1. ON - PLACES AN S BEFORE A DIAMETER OR RADIUS SYMBOL
    2. OFF (DEFAULT)

3. REPETITIVE FEATURES

    1. ON - WILL PROMPT USER FOR THE NUMBER OF TIMES THAT A SPECIFIC DIMENSION OCCURS AND ADDS THIS NUMBER AS A PREFIX
        EXAMPLE 4 X 01.5
    2. OFF (DEFAULT)

NOTE: IF TURNED OFF, THIS CAN BE ADDED LATER WITH F.16.13.6.3 REPLACE STRING.

F.16.1.4 DIMENSION TEXT (CONT.)

4. DIMENSIONING UNITS - SAME AS IN 1.57

5. AUTOMATIC TOLERANCE/LIMITS - ALLOWS FOR USER TO PLACE TOLERANCES/LIMITS ON DIMENSIONS AUTOMATICALLY WHEN DIMENSION IS CREATED. THIS WAS NOT AVAILABLE BEFORE.

   1. OFF (DEFAULT)

   2. ENTER PRESET TOLERANCE

      1. TOLERANCE -AUTOMATICALLY
      2. LIMITS - USES THE PRESET TOLERANCE/LIMIT YOU SPECIFY HERE
      3. SET WHEN USED - PROMPTS WHETHER YOU WANT TOLERANCES OR LIMITS AT THE TIME OF CREATION

   3. SET WHEN USED - WILL ALLOW TO SET THIS MODAL AS YOU CREATE

F.16.1.4 DIMENSION TEXT (CONT.)

6. DIMENSION TEXT ORIENTATION - ALLOWS FOR USER TO SET THE ANGLE AND PLACEMENT OF DIMENSION TEXT. THIS WAS NOT AVAILABLE BEFORE.

    1. HORIZONTAL - TO ALWAYS PLACE DIMENSION TEXT HORIZONTALLY (DEFAULT)
    2. PARALLEL - LINEAR DIMENSION ONLY

        1. MIDDLE - BREAKS DIMENSION LINE AND PLACES TEXT IN BREAK (DEFAULT)
        2. ABOVE
        3. BELOW

NOTE: 2 AND 3 PUT TEXT ABOVE/ BELOW A SOLID DIMENSION LINE

7. FOOT SYMBOL ON VALUE - APPLIES ONLY WHEN USING FEET/INCHES

    PROMPTS
    VAL> _____FT. = N._____

    ALLOWS FOR USER TO SET THE NUMBER OF FEET DESIRED TO BE THE BOUND AFTER WHICH INCH DIMENSIONS ARE DISPLAYED AS FEET.
    EXAMPLE: IF SET TO 2, 15" WILL BE DISPLAYED AS 15", BUT 25" WILL BE DISPLAYED AS 2"1".

F.16.1.14 ISOMETRIC DRAFTING REPLACES SECTION LINING CONTROL

SECTION LINING MODALS ARE NOW SET WHEN YOU ENTER F.16.3.

ISOMETRIC DRAFTING

1. DN - DISPLAY IN VIEW OF DEF ONLY - THIS ACTIVATES ISOMETRIC DRAFTING AND PLACES THE DIMENSIONS IN THE VIEW OF CREATION ONLY BY AUTOMATICALLY SELECTIVELY VIEW BLANKING THESE ENTITIES IN ALL OTHER VIEWS

2. ON - DISPLAY IN ALL VIEWS - THIS ACTIVATES ISOMETRIC DRAFTING AND WILL DISPLAY THE DRAFTING ENTITIES IN ALL VIEWS

3. OFF (DEFAULT)

ISOMETRIC DRAFTING

- WHEN CREATING DRAFTING ENTITIES WITH THIS TURNED ON, THE DRAFTING ENTITIES ARE CREATED IN THE SAME MANNER AS ANY OTHER ENTITY IN 3-D SPACE AND THE FOLLOWING TIPS MAY HELP.

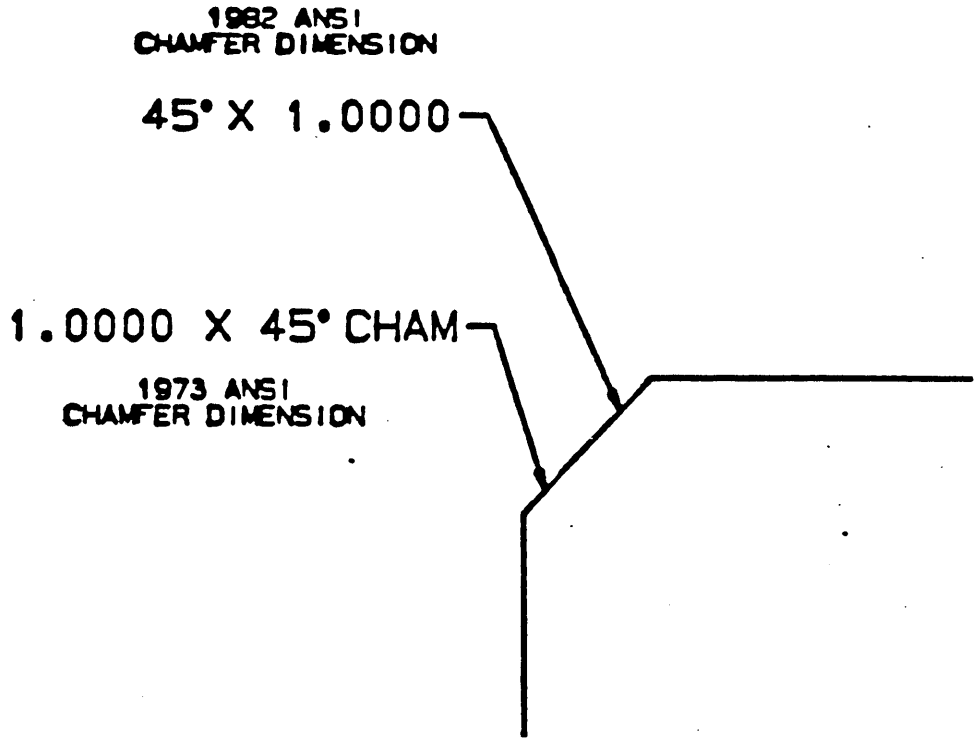
  - ALWAYS BE AWARE OF THE CURRENT WORKING DEPTH AND WORK SPACE, AS THEY WILL DETERMINE THE ACTUAL PLANE OF CREATION.

  - WHEN DETERMINING THE TYPE OF DIMENSIONING TO USE (I.E. HORIZONTAL VS. VERTICAL), IMAGINE LOOKING AT THE PART AS IF YOU WERE IN THE VIEW THE WORK SPACE IS SET TO. WITH THAT PERSPECTIVE, IS THE DESIRED DIMENSION VERTICAL OR HORIZONTAL?

  - ISOMETRICALLY CREATED DIMENSIONS CAN BE SELECTIVELY VIEW BLANKED IN THE SAME WAY AS ANY OTHER 3-D ENTITY.

16.2 DIMENSION - VERSION 1.6 INTRODUCES 3 NEW DIMENSIONING METHODS: CHAMFER, ARC LENGTH, AND RECTANGULAR COORDINATES.

9. CHAMFER - ALLOWS YOU TO INDICATE A LINE AND DIMENSION IT AS SHOWN IN THE FOLLOWING FIGURE:



NOTE: A LINE DOES NOT HAVE TO BE CREATED AS A CHAMFER TO DIMENSION IT AS A CHAMFER. THE CHAMFER WILL ALWAYS BE DIMENSIONED AS IF IT WERE 45 DEGREES (ANSI STANDARD). IT WILL TAKE THE LENGTH OF THE LINE BEING DIMENSIONED AND CALCULATE THE LEG LENGTH OF A 45 DEGREE CHAMFER. THAT LEG LENGTH IS THE CHAMFER DIMENSION GIVEN.

16.2 DIMENSION (CONT.)

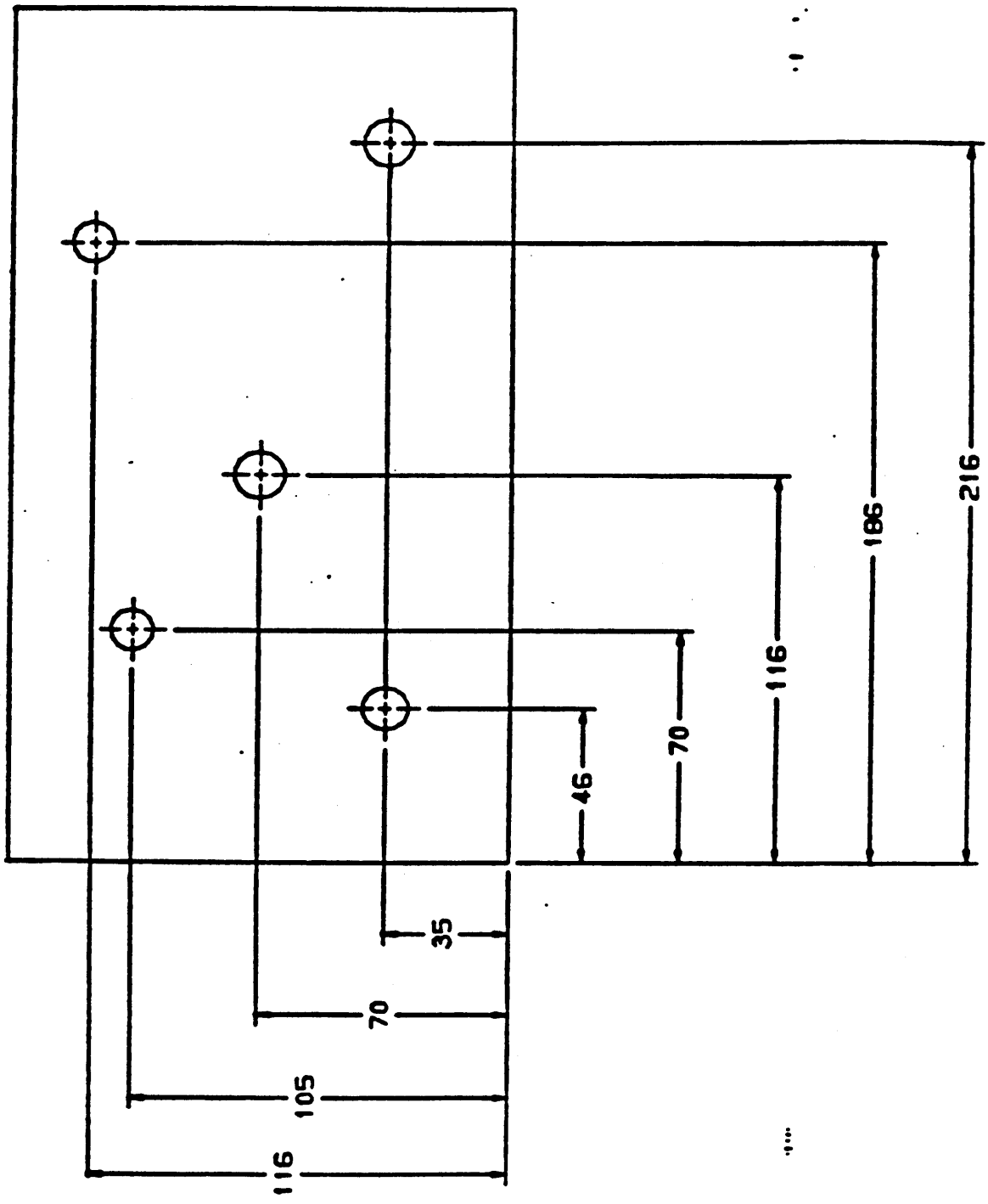
10. ARC LENGTH - ALLOWS YOU TO INDICATE AN ARC AND DIMENSION IT AS SHOWN BELOW WITH THE LENGTH OF THE CIRCUMFERENCE OF THE ARC

11. RECTANGULAR COORDINATE - CAN CREATE VERTICAL AND HORIZONTAL DIMENSION WITH RESPECT TO A PRE-DEFINED ORIGIN.

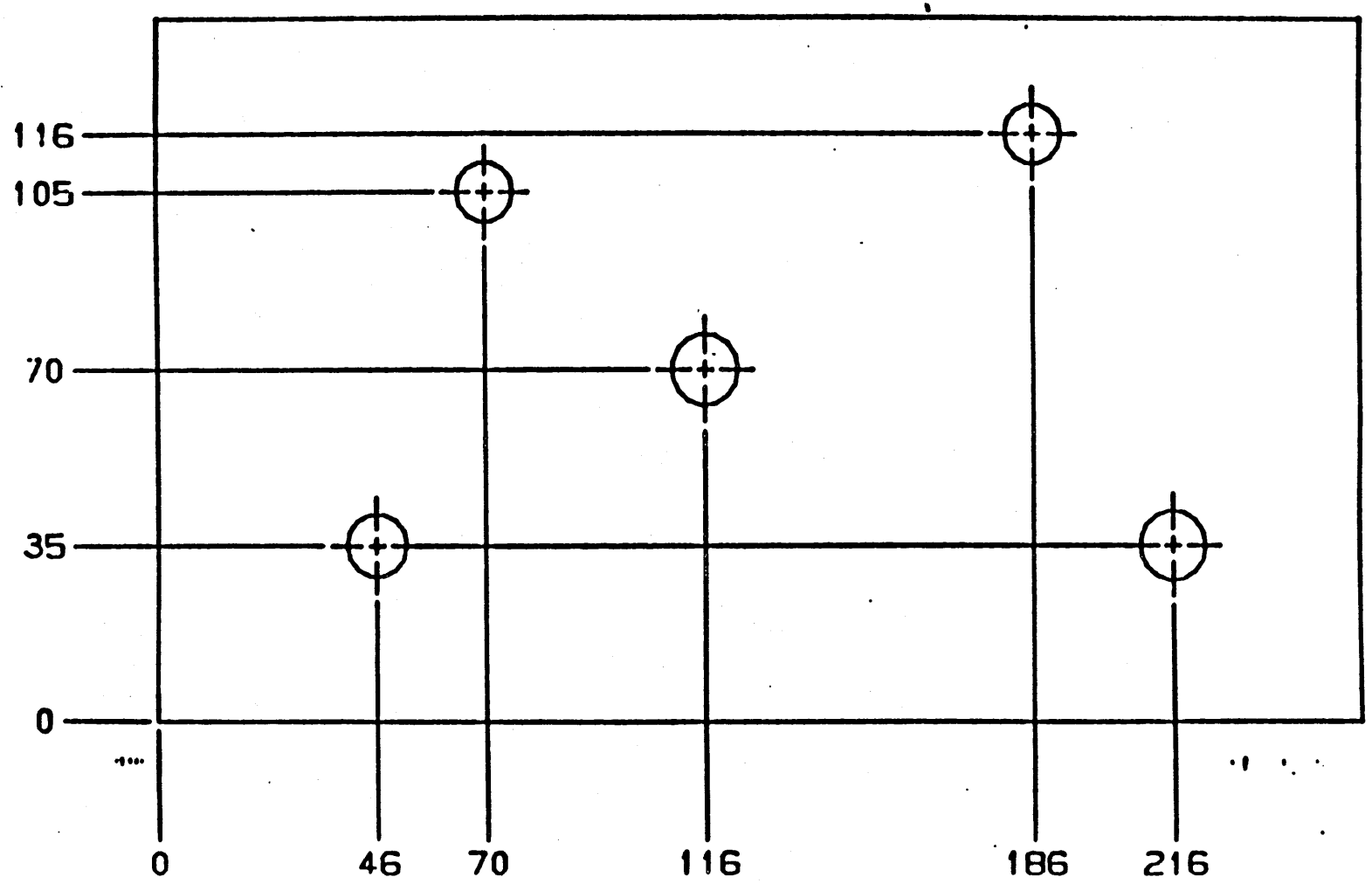
    1. DEFINE ORIGIN - MUST INDICATE A POINT FROM WHICH DIMENSIONS ARE MADE
    2. HORIZONTAL
    3. VERTICAL

NOTE: ONCE THE ORIGIN IS DEFINED WITH F.2.11.1, IT NEED NOT BE DEFINED AGAIN IN THE CURRENT PART UNLESS YOU WANT TO CHANGE THE DIMENSION REFERENCE POINT.

WITHOUT RECTANGULAR COORDINATE DIMENSIONS



RECTANGULAR COORDINATE DIMENSIONING



F.16.3 SECTION LINING IS NOW BROKEN DOWN INTO 2 SUBMENUS

1. MODALS
2. DEFINITION

SECTION LINING MODALS

1. MATERIAL TYPE

2. VISIBILITY
   1. VIEW OF DEFINITION
   2. ALL VIEWS

3. ALIGNMENT
   1. ON - CAN SELECT OTHER SECTION LINES TO MATCH THEIR SPACING

      ALIGNMENT = N.———

      MUST SET THE ALIGNMENT FACTOR FROM 0 TO 1.0.

      A 0 OR 1 SETTING GIVES FULL ALIGNMENT.

      A .5 SETTING GIVES HALF ALIGNMENT.

   2. OFF

F.16.3 SECTION LINING (CONT.)

DEFINITION

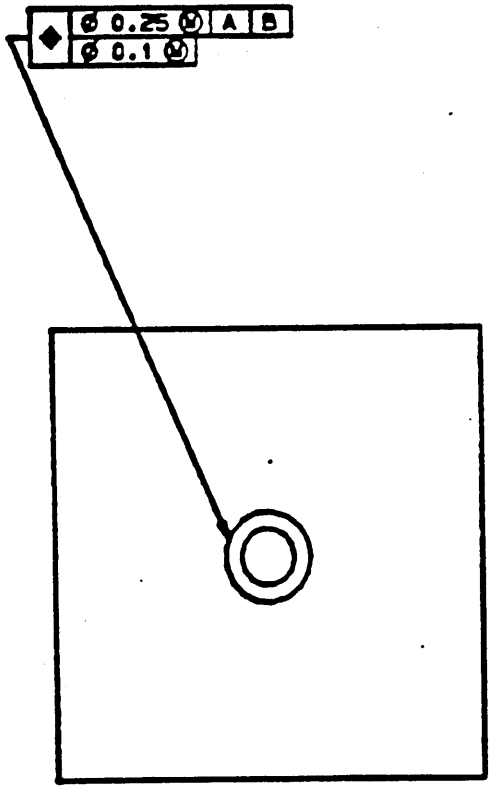
SECTION LINING HAS BE ENHANCED TO MAKE THE PROCESS MUCH MORE USER FRIENDLY.

- CAN USE NEW ENTITY SELECTION METHODS
- CAN DISALLOW PRESELECTED CURVES
- NOW HAS OPEN BOUNDARY CHECK
- CAN NOW HAVE A SMALL OPENING IN THE BOUNDARY AND STILL GET SECTION LINING TO WORK

F.16.7 GEOMETRIC TOLERANCE HAS BEEN ENHANCED TO INCLUDE COMPOSITE GEOMETRIC TOLERANCES. THIS ENHANCEMENT DIVIDED THIS MENU INTO 2 SUBMENUS.

1. GEOMETRIC TOLERANCE - SIMILAR TO EARLIER VERSION
2. COMPOSITE GEOMETRIC TOLERANCE

EXAMPLE OF COMPOSITE GEOMETRIC TOLERANCE



F.16.13 MODIFY DRAFTING ENTITY HAS THE FOLLOWING ENHANCEMENTS:

6. MODIFY TEXT HAS 2 ADDITIONAL CHOICES

4. ADD PREFIX (SUFFIX) TEXT
5. REMOVE PREFIX (SUFFIX) TEXT

BOTH 4 AND 5 ARE SIMILAR TO THE AUTOMATIC CREATION OF PREFIX TEXT DESCRIBED IN SECTION 16.1.4, AND THE CHOICE OF EITHER WILL BRING UP THE FOLLOWING MENU:

1. DIAMETER SYMBOL
2. RADIUS SYMBOL
3. SPHERICAL DIAMETER SYMBOL
4. SPHERICAL RADIUS SYMBOL
5. SQUARE SYMBOL
6. REPETITIVE FEATURES TEXT

THE CHOICE OF ANY OF THESE WILL ADD/REMOVE THESE ENTITIES AS DESCRIBED IN SECTION 16.1.4

ADDED MENU CHOICE:

18. DIMENSION NOT TO SCALE - THIS MENU CHOICE ALLOWS YOU TO SELECT AN ENTITY AND PLACES A LINE UNDER THAT ENTITY

NOTE: LABELS ARE NOT SELECTABLE.

FEET

AND

INCHES

FEET AND INCHES

GENERAL DESCRIPTION

- FEET/INCHES UNIT OF MEASURE AT ENTRY
- DATA ENTRY IN FT/IN.
- DATA DISPLAY IN FT/IN.
- DIMENSIONS WITH FT/IN.
- FRACTION ROUNDING OF FT/IN. IN SYSTEM AND DRAFTING
- CONTROL OF FOOT UNIT ON DISPLAY

RESTRICTIONS

- NOT IN GRAPL
- UNIT CONVERSION NOT AVAILABLE
- ONLY IN ANSI 73 AND 82

FEET AND INCHES

INPUT		OUTPUT
5'	5 FEET	5'0"
2"	2 INCHES	2"
5'2"	5 FEET 2 INCHES	5'2"
2" OR 2	2 INCHES	2"

FEET AND INCHES

TTT

FRACTIONS (16.1.4.2)

2"1/2	2.5 INCHES	2"1/2
1'3/8	1 FOOT .375 IN.	1'0"3/8
3'6"7/8	3 FEET 6.875 IN.	3'6"7/8

DECIMAL

3'6.875"	3 FEET 6.785 IN.	3'6.785"

FOOT SYMBOL ON VALUE (16.1.4.7)

VAL >. . FT 0	15" IS 1'-3"
VAL >. . FT 2	15' IS 15"

FEET AND INCHES

WHEN USING FRACTIONS WHEN IN FEET/ INCHES, MENU F.16.1.4.2 WILL OFFER THE FOLLOWING CHOICES FOR ROUND-OFF IN DIMENSION TEXT:

ROUNDING
1/64 INCH
1/32 INCH
1/16 INCH
1/8 INCH
1/4 INCH
1/2 INCH
1 INCH
1 FOOT

MENU 17: NUMERICAL CONTROL

THE AREAS OF THE NUMERICAL CONTROL SECTION FOR VERSION 1.60 ARE AS FOLLOWS:

- DISPLAY AND EDIT
- DRILLING
- EASY GENERATION
- GENERATION PARAMETER GROUPING
- LATHE TURNING
- LATHE DRILLING
- MACROS
- SURFACE MILLING
- SURFACE PROFILING
- TOOL DEFINITION

THE EXISTING FEATURES OF DRILLING, PROFILING, LATHE TURNING, AND LATHE DRILLING ARE EXTENSIVELY AFFECTED BY THE INTRODUCTION OF THE GENERATION PARAMETER GROUPING AND THE EASY GENERATION FEATURES. SINCE THE GPG AND EASY GEN ARE NEW, THE USAGE OF FEATURES THAT NOW INCORPORATE THEM REQUIRES TRAINING IN THE NEW FEATURES.

THE MACRO FEATURE HAS BEEN TOTALLY REWRITTEN FOR THIS RELEASE. IT HAS EXPANDED CAPABILITY AND ENHANCED USER FUNCTIONALITY. IT DOES REMAIN A SUBSET OF GPL AND THE APT LANGUAGE. IN ORDER TO PROPERLY USE THIS FEATURE, IT IS NECESSARY TO VIEW THIS AS A NEW FEATURE.

THE DISPLAY AND EDIT FEATURE HAS ALSO BEEN COMPLETELY REWRITTEN. THE TOOLPATH EXISTS NOW AS A TEXT FILE. IT CAN BE EDITED BY USING EITHER A MENU DRIVEN LINE EDITOR OR BY A COMMAND DRIVEN SCREEN EDITOR. THIS FEATURE ALSO ALLOWS TOOL SIMULATION AND MACRO EXPANSION.

THE AREAS OF SURFACE MILLING AND PROFILING ARE AGAIN AREAS THAT HAVE BEEN COMPLETELY REWRITTEN. THE FEATURES HAVE ENTIRELY NEW INTERFACES.

THE OTHER ITEMS PREVIOUSLY NOTED ARE NEW FEATURES AND THE TRAINING NECESSARY IS OFFERED IN THE NEW FEATURES CLASS. IT SHOULD BE UNDERSCORED THAT FOR PROPER USAGE OF THE N/C SECTION THE TRAINING COURSE SHOULD BE TAKEN.

Control Data Corporation

ICEM IGES TRANSLATOR

Version 2.23

June 1988

User Release Bulletin

Please make this document available to all ICEM IGES users. Control Data Corporation gives the user permission to reproduce this document.

Disclaimer

ICEM IGES is intended for use only as described in this document. Control Data cannot be responsible for the proper functioning of undescribed features or parameters.

Note

Please contact the appropriate hotline if you have questions concerning this release.

USA and Canada	800 345-9903
International	612 851-4131

SMD131974

1.0 Introduction

ICEM IGES Version 2.23 supports the tolerance stacking notation that has been introduced with ICEM DDN 1.65.

2.0 NOTES AND CAUTIONS

1. IGES V2.23 should be used in conjunction with ICEM DDN V1.65. It may be used in conjunction with ICEM DDN V1.60, V1.62, V1.63 or V1.64.

2. Not all drafting symbols supported by ICEM DDN are supported by the IGES V2.0 standard. Control Data's IGES V2.23 substitutes a blank in place of the symbols not translated. Drafting symbols unique to other vendors may not be translated to ICEM DDN.

3. IGES Drawings are translated into ICEM View Layouts. It may be necessary to adjust the view borders and view scales using DDN when restoring the resulting IPARTD files.

4. The IGES Preprocessor may fail if the IPARTD file does not have DDN type 16 entities as its first two entities. When encountering such a file, the IGES Preprocessor issues warning message 202:

   EXPECTING ENTITY TYPE 16, TRANSLATION MAY FAIL.

   If such an IPARTD file causes the IGES Preprocessor to fail, restore the IPARTD file into DDN and write it back out again. Use the new IPARTD file.

5. The Tape-to-Disk (TADI) and Disk-to-Tape (DITA) utilities use the NOS FCOPY command. FCOPY is limited to reading and writing tapes with blocking factors less then 49. (The Recommended Practices Manual for IGES, written by the IGES Standard Committee, suggests a blocking factor of 10 .)

6. When restoring IPARTD files generated by the IGES Postprocessor into DDN, it is important that the DDN part be in the same units as the IPARTD file.

CONTROL DATA CORPORATION

ICEM DDN

Version 1.65.0.00

SOFTWARE RELEASE BULLETIN

Operating System Level: NOS 2.5.3 Level 688

Date: June, 1988

DISCLAIMER

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Additional information pertinent to this release may be found in SOLVER Installation Bulletins for ICEM products.

*** URGENT ***

Please make this document available to all ICEM DDN users.

SMD131838

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1.0 INTRODUCTION

This SOFTWARE RELEASE BULLETIN (SRB) is designed to inform site analysts and ICEM DDN users of PSR/RSE corrections and enhancements which are contained in the ICEM DDN V1.65 Software System Update (SSU).

In addition, this document contains relevant comments and descriptions of changes which should be made to the ICEM DDN V1.62 Reference Manuals.

Any information not included in this SRB but pertaining to the SSU is documented on a SOLVER Installation Bulletin.

This SSU includes all corrections from the V1.64 Batched Critical Updates (BCUs) and supersedes all previous NOS ICEM V1.6 releases.

2.0 VERSION 1.65 FEATURE REVIEW

2.1 SELECTION TOLERANCE IN CHAIN SELECT

A new modal in menus F.1.11.2.4, E.7.10, and F.1.11.1 enables the user to modify the tolerance used by chain select to identify contiguous entities. These tolerances are used for all entity selections made via chain select.

Chain Selection Modals in Entity Selection Control have been increased to four items (F.1.11.2.4).

```
--- CHAIN SELECT MODALS
  1.CHAIN SELECT MODE                E/D
  2.CHAIN SELECTN METHOD             SCREEN
  3.DISALLOW PRESELECTED CURVES      OFF
  4.CHAIN SELECT TOLERANCE           0.001
```

Modals in Entity Selection have been increased to ten items (E.7.10).

```
--- MODALS
  1.REPEAT INCLUDE/EXCLUDE           ON
  2.CONSTRAINT SET DURATION          ONCE
  3.SELECTION MODIFICATION           OFF
  4.SINGLE SELECT FROM GROUP         OFF
  5.CHAIN SELECT MODE                E/D
  6.CHAIN SELECT METHOD              SCREEN
  7.DISALLOW PRESELECTED CURVES      OFF
  8.ATTENTION INDICATORS             ON
  9.CONSTRAINT SET LEVEL             CUR
 10.CHAIN SELECT TOLERANCE           0.001
```

Display Modal Status in Entity Selection Control has been increased to eleven items (F.1.11.1).

2.0 VERSION 1.65 FEATURE REVIEW
2.1 SELECTION TOLERANCE IN CHAIN SELECT

```
--- SELECTION SYSTEM MODALS
  1.CHAIN SELECT MODE                E/D
  2.CHAIN SELECT METHOD              SCRN
  3.DISALLOW PRESELECTED CURVES      OFF
  4.SINGLE SELECT FROM GROUP         OFF
  5.ATTENTION POINT OF LINES         MID
  6.REPEAT INCLUDE/EXCLUDE           ON
  7.CONSTRAINT SET DURATION          ONCE
  8.SELECTION MODIFICATION           OFF
  9.SELECTION METHOD                 SCRN
 10.HIGHLIGHTING METHOD              ATT IN
 11.CHAIN SELECT TOLERANCE           0.001
```

When the modal is selected, its current value is displayed. The default value is 0.001 inch (0.0254 millimeter). Valid input is between 0.001 inch (0.0254 mm) and 0.000000001 inch (0.000000025 mm). If invalid input is entered, an error message is output and the system reprompts you for a valid chain select tolerance.

2.2 TOLERANCE SPECIAL CHARACTER SYMBOLS FOR ANSI

Two Special Character Symbols have been added to allow greater flexibility when creating tolerances in ANSI dimensions. The additional Special Characters are used to control when tolerances should be displayed as stacked. See Table A, Special Character Symbols, for the list of all predefined characters and associated symbols.

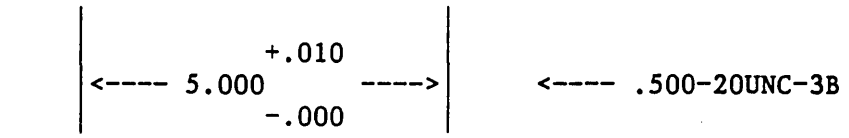
2.0 VERSION 1.65 FEATURE REVIEW
2.2 TOLERANCE SPECIAL CHARACTER SYMBOLS FOR ANSI

TABLE A SPECIAL CHARACTER SYMBOLS

Character Entry	Symbol Name
\D	Depth
\L	Left Bracket
\O	Diameter
\R	Right Bracket
\S	Square
\B	Counterbore
\C	Countersink
_	Degree
\@	Plus/minus
\+	Plus for tolerancing
\-	Minus for tolerancing
\\	Prefix character
\c	All other characters

When using ICEM DDN to place dimensions in a working drawing it is common to have tolerances and other combinations of plus or minus signs in drafting text display as stacked. At times stacking should not be done, however. The following shows an example of each.

Linear dimension with tolerance and
Radius dimension with thread callout



2.2.1 CREATING TOLERANCES VIA MENU 16.13.4.1

When creating tolerances that are not equal using the tolerance menu, the Special Character Symbol for the tolerancing plus or tolerancing minus sign will be added into the dimension text. (Equal and opposite tolerances will continue to use the plus/minus sign \@ representation). The

presence of the tolerancing Special Character Symbols signify that the text would be displayed as stacked, like the linear dimension shown on the previous page.

ICEM DDN will always create tolerances from the tolerance menu so that the text will display as stacked. Text to be displayed nonstacked on a single line may be added with the modify text menu (16.13.6).

2.2.2 UPDATING DIMENSION TEXT CONTAINING TOLERANCES

All dimension drafting entities containing tolerances will be updated to use the Tolerance Special Character Symbols. ICEM DDN will examine the text associated with the dimension to determine if tolerances are present. If tolerances are encountered, the plus or minus signs located within the text will be replaced with the Special Character Symbols for a plus or minus tolerance. On NOS, the character count for the string will be incremented by two for each pair of tolerances, because the Special Character Symbols require a two character representation.

When searching for tolerances, ICEM DDN will only allow character string representations signifying tolerances that could have been created automatically. Whether they were actually created by the tolerance menu or by the modify text menu is irrelevant since they are processed identically. The following criteria are used when searching for tolerance strings:

1. Notes and Labels are excluded.

2. Only numerics are allowed (i.e. 0123456789)-- alphabetic or other characters are not allowed, with a few exceptions outlined below.

3. Spaces within tolerances are not allowed. The only exceptions are metric zero tolerances which display as " 0" and fractional formats which use spaces in the numerator or denominator portion of the text. A space is used as a delimiter between the second tolerance and any suffix or trailing text.

4. Special character symbols are not allowed.

5. Degree symbols, foot marks, and inch marks are allowed.

6. Each line of text will be processed to locate tolerances. In the past, tolerancing was restricted to only the first line of text.

7. Only one pair of tolerances is allowed per line within the dimension. Only the first pair of tolerances encountered on a line will be updated to use the Tolerance Special Character Symbols.

The criteria mentioned above are only applicable within the substrings of dimension text that could be interpreted as tolerances.

It is possible that portions of dimension text may get incorrectly updated, either because ICEM DDN thought a tolerance was found or the text substrings could not be validated as tolerances. These occurrences will be rare and are easily reversed using the modify text menu.

2.2.3 MODIFYING TEXT WITH TOLERANCE SPECIAL CHARACTER SYMBOLS

The Tolerance Special Character Symbols may be used within any drafting entity just like any of the previous Special Character Symbols.

When placed within dimensions only, the Tolerance Special Character Symbol signals that a tolerance follows and that the text should be displayed as stacked. When used within other drafting entities, the current Prefix Character will display with the Tolerance Special Character Symbol to allow these symbols to be recognized and removed easily.

Stacked tolerances must be paired within a line. If only one Tolerance Special Character Symbol is present within a line, no text will display stacked. In addition, the current Prefix Character will display with the Tolerance Special Character Symbol. This will enable any mismatched Tolerance Special Character Symbols entered by hand to be recognized and corrected easily.

Text may be displayed as stacked within any line of dimension text.

Only one pair of tolerances is allowed on a single line of dimension text. Extra occurrences of Tolerance Special Character Symbols will display with the current Prefix Character so that the text may be corrected.

When tolerances are used along with suffix or other trailing text, a space must be used as a delimeter between the second tolerance and the suffix or trailing text.

When the unprefixed plus or minus sign is used, the text will be displayed as it was entered, with no stacking or adding of the current Prefix Character.

2.2.4 NOTES AND CAUTIONS

It is recommended that the Prefix Character be changed from the default reverse slash (\) under the following circumstances:

1. If dimensioning is being done with fractions, the reverse slash is used in the fraction text representation, causing problems interpreting the dimension text.

2. GPL uses the reverse slash to signal the beginning of a new line. Because of this conflict, the Special Character Symbols will be processed incorrectly during GPL programs.

The Prefix Character may be changed in menu 16.1.1.5 SPECIAL SET PREFIX.

2.3 POINT TO POINT GPG ENHANCEMENT

A new statement has been created for the point to point generation parameter group. The new statement "SAPPRT" replaces the statement "SRTRCT". Previously the "SRTRCT" statement offered no control over the first and last retract plane moves. The "SAPPRT" statement has the same funtionality

of the "SRTRCT" statement plus control over the first and last retract plane moves.

To more completely describe the tool motion offered by the "SAPPRT" statement the menu that is used to set "SAPPRT" options has been renamed. The menu entitled RETRACTION BETWEEN POINTS that appears in the point to point modify GPG menu has been renamed APPROACH/RETRACT. Selection options of the APPROACH/RETRACT menu remain the same as the RETRACTION BETWEEN POINTS menu:

1. NONE
2. CLEARANCE
3. RETRACT PLANE
4. PROMPT

The following question will appear when NONE or CLEARANCE is selected from the APPROACH/RETRACT menu to indicate if the first and last retract moves are to be included in the toolpath:

MOVE TO THE RETRACT PLANE BEFORE THE FIRST POINT
AND AFTER THE LAST POINT ?

The format of the "SAPPRT" statement is very similar to the old "SRTRCT" statement. The only difference is a YES or NO appearing after the minor word NONE or CLEARANCE. The possible settings of the "SAPPRT" statement are as follows:

```
SAPPRT/NONE,YES
SAPPRT/CLEAR,YES
SAPPRT/RETRCT
SAPPRT/NONE,NO
SAPPRT/CLEAR,NO
SAPPRT/PROMPT
```

The YES and NO values appearing after NONE and CLEAR control the first and last retract moves. YES indicates the first and last move are wanted in the toolpath, and NO indicates they are to be omitted from the toolpath. To maintain compatabiltiy with existing GPGs the old "SRTRCT" statement will still be readable from a file. The settings of the statement will be converted to a functionally equivalent form of the new "SAPPRT" statement whenever the old statment is read.

2.4 TAPE3 RECOVERY UTILITY

A TAPE3 restore utility is provided to assist in the recovery of parts damaged by system failure or other catastrophic events. Please see Section 7.0 for a more detailed description of this utility.

3.0 PSR CORRECTIONS INCLUDED IN THIS SSU

3.0 PSR CORRECTIONS INCLUDED IN THIS SSU

This section contains a cumulative list of problems resolved in V1.65. The full text descriptions can be obtained through SOLVER.

PRIORITY CODE: C = CRITICAL
U = URGENT
S = SERIOUS
M = MINOR

PSRS CORRECTED IN DDN V1.65

PSR #	PRI	DESCRIPTION
AD2B229	C	CLFILE GENERATION DOESN'T OUTPUT ARCSLP IN APT4 CLFILES
AD2B246	C	SURFACE MILLING ABORTS WITH "TABLES FULL" MESSAGE
AD2B257	C	PART INTEGRITY SOMETIMES REMOVES ENTITIES WHICH ARE DISPLAYED CORRECTLY
AD2B260	C	PART ON TAPE3 DID NOT CONVERT TO NOS/VE
AD2B274	C	VIEW BOUNDARY TOPS MAY BE UNCONDITIONALLY RESET (LOWERED)
AD22470	C	TRASHED TAPE3 WON'T RETRIEVE EXISTING PARTS OR CREATE NEW ONES
AD22547	C	FILLET DOESN'T WORK BETWEEN AN ARC AND A 2-DEGREE LINE
AD22706	C	FAN POINTS AND INTERSECTION POINTS ON AN ELLIPSE ARE INCORRECT
AD22764	C	CORRUPT TAPE3 CAUSED BY THE NOS DIRECT ACCESS FILE LIMITS
AD22789	C	HORIZ LEADER LINE ON DATUM FEATURE SYMBOLS BECOMES "SLANTED" BY 1.60
AD23036	C	PART FILING LEAVES VACANT SPACE
AD23351	C	PATTERN UPDATE FROM 1.62 TO 1.63 DOESN'T WORK
AD23384	C	UNABLE TO XFER HOST PART SHARING FILES FROM NOS TO IWOS 2.1 DDN 1.63
AD23470	C	SECOND +/- SIGN WILL BE STACKED ON THE FIRST LINE - WRONG
AD23503	C	TOLERANCE STACKING PROBLEMS IN V1.64, CORRUPTS DATA
AD23520	C	ENTITIES ARE MISSING FROM A DRAWING AFTER CONVERSION TO NOS/VE
AD23562	C	NC POINT/POINT PLACES GOTO RETRACT AT START & END OF TOOLPATH
AD23568	C	CANNOT RENEW PART TWICE IN THE NOS-NOS/VE MIGRATION UTILITIES
AD23577	C	SOME FILES FAIL MIGRATION IN PARTA
AD23578	C	(15.3.7) FILLET SURFACE IS STILL BROKEN - WILL NOT GENERATE FULL SURF.
AD23588	C	ICEM DATA MIGRATION UTILITY V2.0.0 FAILS AFTER PROCESSING AN IPARTD
AD2A775	U	INTERSECTION POINT BETWEEN DRAFT CURVE AND LINE IS INCORRECT
AD2B099	U	UNABLE TO RESTORE IPARTD PARTS WITH 4 DIGIT SHEET NUMBERS
AD2B107	U	PLANE THROUGH PT PERP TO TWO PLANES IS NOT WORKING
AD2B289	U	IDENTIFY ATTRIBUTE ONLY WORKS IN VIEW OF DEFINITION OF ENTITY

3.0 PSR CORRECTIONS INCLUDED IN THIS SSU

AD22368	U	(11.8)MODIFY ANGLES GIVES UNPREDICTABLE RESULTS
AD22411	U	NOTE PARALLEL TO ARC NOT FUNCTIONING CORRECTLY WITH USER DEFINED CHAR
AD22765	U	TEXT IN FRONT AND BACK VIEWS OF 3D PATTERN IS DISPLAYED AT SAME TIME
AD22766	U	PARALLEL DIMENSIONS MOVE WHEN MODIFIED F.16.2.3
AD22974	U	16.2.11 RECTANGULAR COORDINATES DO NOT WORK WHEN AUTO TAIL LOC - OFF
AD23088	U	NOT MEETING ANSI-1982 STANDARD/DEC.PL ON MM SURFACE SYMBOLS
AD23130	U	DESIRE MODAL TO SET SYSTEM TOLERANCE TO 0
AD23301	U	DASH CREATES A NEW TOLERANCE IF IT APPEARS BEFORE A +- TOLERANCE
AD23306	U	SECTION LINING CANNOT BE MODIFIED ON DATUM TARGETS
AD23354	U	WHEN CONTINUING AFTER SUSPEND, MSTRING DOES NOT WORK
AD23355	U	UPDATE OLD PARTS FROM V1.50 THRU V1.62
AD23383	U	ROTATE 3-D PART (SURFACES INCLUDED) CAUSED PROBLEMS
AD23417	U	TABLES FULL ERROR MESSAGE CAUSED BY EXCESSIVE DORMANT ENTITIES
AD23432	U	ICEM DDN N/C POINT TO POINT TOOLPATH GENERATION
AD23438	U	ASSUMPTION THAT THE FIRST LINE OF A DIMENSION WILL CONTAIN A TOLERANCE
AD23471	U	PRE 1.64 LAYOUTS WILL NOT DISPLAY TOP EDGE OF DDN DATA
AD23472	U	RADIAL/DIAMETER DIMENSION STACKING OF KEY-IN TEXT
AD23486	U	OPTIM DOESN'T OUTPUT CORRECT OUTPUT FOR DDNUTIL TO PROCESS
AD23516	U	PART NAME AND SHEET NO ON PART INTEGRITY REPORT
AD23542	U	GROUP ENTITIES WITH ATTRIBUTES ASSIGNED ARE DELETED BY PART RENEW
AD23550	U	ON NOS AND AOS/BAD ERROR MESSAGES - TEXT DELTA FROM TEXT
AD23591	U	F.12.11 CREATES CORRUPT ENTITIES THAT HAD ATTRIBUTES ATTACHED TO THEM
AD2A728	S	USERS MAY INADVERTANTLY DEFINE PATTERN LIB FILES AS GLOBAL PART FILES
AD22995	S	UNABLE TO CREATE PATTERN
AD22999	S	(16.2.11.3) VERTICAL RECT. COORD. DIMEN. FAIL UNLESS AUTO TAIL IS ON
AD23213	S	SUSPEND CAUSES MSTRING FILE TO BECOME INACCESSABLE FOR RESUMED SESSION
AD23262	S	ICEM DDN 1.62 + TEK 4111 TERMINAL
AD23339	S	NOS TAPE3 FILE SIZE SOMETIMES GROWS VERY LARGE EVEN FOR SMALL DRAWINGS
AD23405	S	MODIFICATION OF FILLET ANGLE CAUSES INTEGRITY ERRORS
AD23462	S	AFTER THE SUSPEND FUNCTION THE TABLET SHOULD MAINTAIN THE DEFINE NAME
AD23468	S	MSTRINGS IN GPL PROGRAM DISALLOW MENU PICKS PROGRAMMED IN TFILE
AD23504	S	NOTE COMMAND PRODUCES A SPACE AND % SIGN IN CHARACTER POS. 183/184
AD23505	S	FILE FOR EVALUATION: PLOT FILE CREATION FLAKY, FILE/253 PRUS TO 6310
AD23510	S	DDN 157 TOOLPATH NON-STANDARD POSTPROCESSOR WORDS LOST WHEN UPGRADING
AD23554	S	THROUGH A POINT,TANGENT TO A CURVE DOES NOT WORK WITH A SPLINE IN GPL
AD2A698	M	ARC THROUGH 3 PTS CREATES LINE WITHOUT WARNING USER
AD2A960	M	PRINTOUT FOR 5.6.7 IS INCONSISTENT WITH REF MANUAL
AD23367	M	GPL COMPILER VERSION IS NOT CONSISTANT WITH DDN VERSION 1.63
AD23488	M	ARC THRU 3 POINTS (F.11.7) GENERATES LINE UNDER CERTAIN CONDITIONS

4.0 COMPATIBILITIES

4.0 COMPATIBILITIES

4.1 VERSION NUMBERS OF RELATED ICEM APPLICATIONS

The ICEM DDN 1.65 SSU is compatible with the following Application Products under NOS 2:

DRAM V1.1
HASCO V1.1
ICEM BEND V1.2
ICEM Engineering Data Library (EDL) V1.2.7
ICEM Facilities V1.41
ICEM Hydraulics V1.3
ICEM Kinematics V1.0
ICEM Plastimould V1.1
ICEM Solid Modeler V1.13
IGES Translators V2.23
LINCAGES V1.2
MOLDFLOW V4.0
MOLDSTAR V3.0

4.2 ICEM DDN VERSION 2.0

ICEM DDN Version 1.65 contains some PSR fixes and additional enhancements in the Part Integrity area to ensure upward compatibility to ICEM V2.0 through the use of the ICEM DATA MIGRATION UTILITY. For information on these corrections, refer to sections 5.2 and 5.3.

You must use ICEM DATA MIGRATION UTILITY V2.0.2 and ICEM DDN V2.0.2 if you are using the Tolerance Special Character Symbols for ANSI.

4.3 ICEM DDN UNDER IWOS

Users of both NOS- and IWOS-based DDN must use the following versions to ensure compatibility and translation between the two systems:

IWOS: DDN 1.65
NOS: DDN 1.65

If you perform part sharing between NOS and IWOS systems, both NOS and IWOS systems must use the same version. A part can be "updated" from pre-1.65 to 1.65, but once the part is at 1.65, it cannot be read by a pre-1.65 version of ICEM DDN. The 1.65 part sharing utilities will be provided when ICEM DDN 1.65 is released on IWOS.

5.0 NOTES AND CAUTIONS

5.1 VERSION 1.65 VIEW CLIPPING

This section only applies to pre-V1.64 parts that are brought into V1.65.

With the screen size reduction that was done in V1.65, all views with the top boundary beyond the new screen boundary will appear clipped when first displayed in V1.65. This is a necessary side effect of the V1.65 tablet/screen realignment.

To correct the display, an auto max-min (Z.11) operation can be performed. (Note that for view layouts, the zoom mode should be "Entire Layout.") If you are using a different zoom scale, the scale can be easily adjusted by selecting ENTER SCALE (Z.8) and entering the following:

#*.95

This expression tells DDN to multiply the current zoom scale by the amount of the screen size reduction. The sequence, Z(tab)8(tab)#*.95, can be programmed into an MSTRING and used with an input trace script to readjust saved zoom scales in a semi-automated manner.

Please note that these readjustment operations are not required; they are desirable only if data typically displayed in the upper portion of the screen appears clipped in the SSU. If you are using this SSU only for the purpose of migration to ICEM V2, and you are not planning to use the part in V1.65, no benefit is gained by doing zoom scale readjustments prior to migration.

Parts created in or updated to V1.64 (or any V1.64 BCU) will not be affected.

5.2 PART INTEGRITY REPORT

A column titled ACTION has been added to the part integrity report. The possible actions are RMV (for removed) or MOD (for modified). In previous versions corrupt entities were always removed during part renew. It is now possible to internally modify some corrupt entities rather than having to remove them.

The part name and sheet number have been added to the banner of the part integrity report that is written to the file PRBRPLS when using the LF control card parameter.

5.3 PART INTEGRITY PSR FIXES

Corrections to part integrity have been made in response to common problems encountered by customers in the migration process. These problems manifested themselves in various ways ranging from errors in the part integrity report to failure in migration. The following problems were corrected:

- o duplicate sequence numbers
- o zero-length line compatibility with V2.0.2
- o incorrect entity form numbers
- o extra GRAPL entities
- o invalid number of views
- o incorrect COMMON values
- o bad TAB2 and TAB3 data
- o incorrect view updating

5.4 POST PROCESSOR WORD LIBRARY UPDATE

New capability has been added to version 1.65 that will allow better updating of toolpaths regarding post processor words. Before 1.65 some of the post processor words would be replaced with asterisks in the updated toolpath. This new capability only affects toolpaths being updated from a pre-1.60 version of ICEMDDN to version 1.65. Toolpaths already created in, or updated to, a 1.6x version of ICEMDDN will not be affected.

5.0 NOTES AND CAUTIONS
5.4 POST PROCESSOR WORD LIBRARY UPDATE

When updating toolpaths, you may benefit from this capability if:

- You have TAPE3 files that contain parts with a mixture of versions and at least one version is older than 1.60.

- You use more than one version of ICEM DDN and one of the versions is older than 1.60. The benefit will affect you should you decide to update the pre-1.60 part.

5.4.1 HOW PART UPDATE HANDLES TOOLPATH PPLIB WORDS BEFORE 1.65

ICEMDDN versions 1.60 and newer use a different post processor word library (PPLIB) than pre-1.60 versions. When a part is updated from a pre-1.60 version to a 1.60 or newer version, a new 1.6x PPLIB is created. The new PPLIB is just a copy of the old one. Both the old and new version of the PPLIB will now be on the UTF of the TAPE3. Part update will then use the new PPLIB to check all words in any toolpath being updated. All subsequent part updates will now use the new 1.6x PPLIB. Since PPLIBs are stored on the UTF all the parts of a TAPE3 share the same PPLIB.

A problem can arise if the new PPLIB is modified. Part update assumes the new 1.6x version of the PPLIB contains all the words that are in the pre-1.60 toolpaths. If a word is in an old toolpath, and not in the new PPLIB, part update will replace the word with asterisks in the updated toolpath.

5.4.2 HOW PART UPDATE HANDLES TOOLPATH PPLIB WORDS IN 1.65

In 1.65, part update uses the pre-1.60 version of the PPLIB if the part is pre-1.60. This means that part update does not assume that the 1.6x PPLIB contains all the words used by the old toolpaths. Any toolpath PPLIB word that is in the pre-1.60 PPLIB will be in the updated toolpath. If a PPLIB word is used by an old toolpath and not in the pre-1.60 PPLIB, the word will be replaced in the updated toolpath by the major word subclass code placed between asterisks.

Once a toolpath exists in a 1.60 or newer version, the new capability is not used. It is only used when the version of ICEMDDN is 1.65 and the part is older than 1.60.

5.0 NOTES AND CAUTIONS
5.4.2 HOW PART UPDATE HANDLES TOOLPATH PPLIB WORDS IN 1.65

If you have toolpaths in parts older than 1.60 you should consider the following three points regarding part update.

a) Part update in version 1.65 uses the pre-1.60 PPLIB to update pre-1.60 parts. The pre-1.60 PPLIB should contain all the PPLIB words used by the toolpaths that you plan to update.

b) Updating all parts on a TAPE3 at the same time is the best way of migrating to a new version. This method guards against PPLIB words of toolpaths appearing as asterisks in the updated toolpaths.

c) Part update may be slower when updating pre-1.60 parts containing toolpaths to version 1.65. This is due to the increased overhead needed to use the older PPLIB. If you are updating a large number of toolpaths the additional time needed may be significant. Updating to any 1.6x version before using version 1.65 may be faster.

5.5 SURFACE MILLING CHANGES

a) Closed boundary is no longer used in conjunction with a surface. When a surface is selected in response to the CONTROL SURFACE menu the CUTPATH type menu will not be displayed. Closed boundary represents a subset of tool control offered by the containment processing in surface milling. Since all the capability of the closed boundary exists in containment, this represents no loss in functionality.

b) When a surface is selected as the control surface, the CUT DIRECTION menu will no longer appear. The cut direction for a toolpath will be parallel with the U or V surface display paths. Whether the U or V paths are used is determined by indicating the start and end of the first cut with the graphics cursor.

5.6 3 AXIS FLANGE FEATURE REMOVED

The menu item 17.13 3 AXIS FLANGE CUTTING has been blanked due to removal of this feature. Other numerical control features in ICEM DDN allow the same toolpaths to be generated.

5.7 USING MSTRINGS AFTER SUSPEND

Prior to version 1.65, re-entering a suspended ICEMDDN session would cause an error with tablet MSTRINGS. Attempting to execute a tablet square containing an MSTRING would result in an error message. The error message would notify the user that the MSTRING was not found. All defined MSTRINGS would become inoperable. In release 1.65 this problem has been corrected.

5.8 DECREASE OF TAPE3

Prior to version 1.65, if a working part became smaller due to deleted entities and was subsequently filed, the extra unused space remained on the TAPE3. In version 1.65, this extra space is removed whenever a part is reduced in size.

6.0 POST-1.62 ICEM MANUAL CHANGES

6.0 POST-1.62 ICEM MANUAL CHANGES

6.1 CONTINUED TOOLPATH STATEMENTS IN CL FILE GENERATION

Treatment of continued toolpath statements in CL file generation:

a. The use of continuation and appended comment symbols

The continuation symbol is a single $ sign. All text following the single dollar sign is considered comment. The following line is considered to be the continuation of the current toolpath statement.

The appended text symbol is a double dollar sign $$. All text following the double dollar sign is considered comment. The statement is considered to end before the $$.

Note that $ $ will be treated as a $ and not as a $$.

The continuation and appended comment symbols are ignored in PARTNO, PPRINT, and INSERT statements. They are treated as part of the text of the statement.

The use of continuation on motion statements, circle statements, multax statements is invalid and is ignored at CL file creation.

b. New error messages

The following new error messages concerning continued toolpath statements have been added for output in the CL Print file.

```
** ERROR ** ILLEGAL CONTINUATION
** ERROR ** MINUS NOT FOLLOWED BY NUMBER
** ERROR ** EXPECTED COMMA, FOUND
** ERROR ** EXPECTED SLASH, FOUND
** ERROR ** UNEXPECTED END OF LINE
** ERROR ** EXPECTED WORD OR NUMBER, FOUND
** ERROR ** RECORD EXCEEDS MAXIMUM LENGTH
```

6.0 POST-1.62 ICEM MANUAL CHANGES
6.1 CONTINUED TOOLPATH STATEMENTS IN CL FILE GENERATION

Excerpt of a sample CL Print file :

```
1          ICEM NC CLPRINT                                    DDN  1.64

 PARTNO
 PPRINT THIS IS A TEST FOR CONTINUATION ($) AND APPENDED COMMENTS ($$).
 MODE                                  $  THE NEXT TOKEN MUST BE A SLASH
 /AVOID,2.                             $$ END OF THIS PP STATEMENT
 MODE/AVOID                            $  A ',' IS EXPECTED BUT NOT GIVEN
 20.                                   $$ ERRONEOUS CONTINUATION LINE
 ** ERROR ** EXPECTED COMMA, FOUND 20.
  MODE,AAXIS,ADJUST                     $$ MAJOR WORD NOT FOLLOWED BY A /
 ** ERROR ** EXPECTED SLASH, FOUND ,
 ...
```

6.2 GPL MSTRNG MANUAL CHANGE

On page 8-4 of Revision C of the ICEM GPL for NOS manual, immediately below the blocked NOTE is the MSTRNG statement format and its description.

Replace NORTN with NORTRN in both the format and parameter description.

6.3 GPL SPLINE MANUAL CHANGE

On page 13-7 of Revision C of the ICEM GPL for NOS manual, the third sentence in the second paragraph should read as follows:

> A minimum of three points and a maximum of 100 points can be specified.

6.4 GPL PREFIX MANUAL CHANGE

On page 19-18 of Revision C of the ICEM GPL for NOS manual, the following text should be added at the end of the second paragraph:

> Although the reverse slant is the default prefix character, it is also the default "new line" character. Since the "new line" character takes precedence over the prefix character, the PREFIX statement must always be used to to change the default when a special symbol character is used.

6.5 CURVE MESH SURFACE MANUAL CHANGE

In the ICEM DDN ADVANCED DESIGN for NOS manual, replace the description under 15.3.6 Curve Mesh Surface with the following:

In the INDICATE CURVES description:

FIXED CURVES INDICATE CURVES	Use the graphics cursor to select the fixed curves in an ordered manner. Fixed curves can be lines, arcs, conics, two-dimensional splines, composite curves, point sets, three-dimensional splines, or machining curves. Fixed curves cannot be selected end-to-end. Curves that lie end-to-end should be redefined as a composite curve before selection as a fixed curve. You must select a least 2, but not more than 30 fixed curves.
VARIABLE CURVES INDICATE CURVES	Use the graphics cursor to select the variable curves in an ordered manner. Variable curves,like fixed curves, can be of any type. Variable curves that lie end-to-end should be redefined as a composite curve before selection as a variable curve. You must select at lease 2, but not more than 30 variable curves under the following restriction: If you select "1. WITH TWIST VECTORS," the product of the number of fixed curves times the number of variable curves cannot exceed 203. = If you select "2. LINEARLY BLENDED," the product cannot exceed 509.

6.6 NEW ICEM DDN CONTROL CARD PARAMETERS 'RO' AND 'LF'

The following should be added to the list of optional ICEM DDN parameter settings found on pages 1-11 through 1-16 of the ICEM Design/Drafting Introduction and System Controls manual.

LF List To File. Writes to specific local files some of the lists displayed on the screen during an ICEM DDN session. Listings will also be displayed on the screen unless the RO (Repaint Off) parameter is set. Default: Off.

LF Sets List To File on.

The following local files are produced when the respective list is generated from an ICEM DDN menu pick and LF is on. These files are always appended to, not overwritten. The list generated on the local file is always a complete list even if 'n' or '[' are entered at the continue listing prompt for screen display. A message indicates success or failure in writing to the local list file.

ENTLS	Database part entity list: (f.6.6.1.3).
GPARTLS	Global parts file list: (f.6.1.1.3), (f.6.1.2.3).
GUTFLS	Global UTF file list: (f.6.5.4.3).
IPARTLS	Independent parts file list: (f.6.1.9), (f.6.1.10).
PARTLS	Database file (TAPE3) parts list: (f.6.1.3), also by entering 'list' when creating a new, or retrieving an existing, TAPE3 part.
PRBRPLS	Problem report list: (f.6.1.11.1), (f.6.1.11.2).
UTFLS	Database UTF list: (f.6.5.1).

RO Repaint Off. Disables redrawing of the display area and the generation of new entities in the display area. R entered as a function key will have no effect.
Default: Off.

RO Disables redrawing. Repaint Off is on.

With Repaint Off enabled, specific lists which can also be written to local files will not be generated to the display area. See the LF parameter to determine which lists can be generated to local files.

6.7 CLFILE TRANSLATION

This utility to translate the binary formatted CL data from the neutral format CL file and vice versa is included with the 1.65 release of ICEM DDN, however, it is executed directly from the operating system level.

Alternate input and output files can be used as the first two parameters on the execution statement. The alternate input file contains the same data as would be entered at an interactive session.

The execution statement is as follows:

```
ICEMCLT[,ALTIN] [,ALTOUT]
```

All data files needed should be local.

Upon execution, an entry banner is displayed, showing the current version of the release.

```
ICEM CL FILE TRANSLATOR

COPYRIGHT CONTROL DATA CORPORATION
1987

REVISION 1.0
ICEM DDN 1.64
```

(NOTE - The CL File Translator that was provided for ICEM DDN 1.64 also works for ICEM DDN 1.65)

The system then displays the SELECT TRANSLATOR FUNCTION menu with the current settings:

```
---SELECT TRANSLATOR FUNCTION
1.EXIT
2.GENERATE BINARY CL FILE
3.GENERATE NEUTRAL CL FILE
4.BINARY CL DATA FORMAT        - APT IV
5.BINARY CL FILE NAME          - CLFILE
6.NEUTRAL CL FILE NAME         - CLTAPE
```

Enter:

1 To end the translator session.

2 To generate a binary CL file from a neutral format CL data file. If you choose option 2, the system displays:

GENERATING (format) CL FILE (filename)
FROM NEUTRAL CL FILE (filename)

The CL file with the set file name is generated from the neutral CL data file with the set name. Any data already in the CL file is overwritten, even if generated in the same session.

After a successful translation the following message appears:

nn RECORDS WRITTEN TO THE CLFILE
NO ERRORS ENCOUNTERED

You are then returned to the main menu.

After an unsuccessful translation, one of the following messages appears:

a) NEUTRAL DATA FILE NOT RECOGNIZED
CHECK FILE NAME OR FILE HEADER

Action : - Check if the correct file name is set.
- Check if the file header was corrupted (see neutral file format definition).

Result : - No CL data written to CL file.

b) NEUTRAL DATA FILE EMPTY OR NOT FOUND
CHECK FILE NAME
CHECK IF FILE IS LOCAL

Action : - Check if the correct file name is set.
- Check if the file is local

Result : - No CL data written to CL file.

c) NEUTRAL DATA FILE IS CORRUPT
AT OR AROUND RECORD record number
CHECK FILE NAME OR EDIT ERRORS

Action : - Check if the correct file name is set.
- May occur after manual editing.

Result : - Check CL file contents.

3 To generate a neutral format CL data file from a binary CL file. If you choose option 3, the system displays:

GENERATING NEUTRAL CL FILE (filename)
FROM (format) CL FILE (filename)

The neutral CL data file with the set name is generated from the CL file with the set name. Any data already in the neutral data CL file is overwritten, even if generated in the same session.

After a successful translation, the following message appears:

nn RECORDS WRITTEN TO THE CLFILE
NO ERRORS ENCOUNTERED

You are then returned to the main menu.

After an unsuccessful translation, one of the following messages appears:

a) END OF CL FILE ENCOUNTERED BEFORE FINI
CHECK CL FILE FOR FINI,
CHECK CL FILE NAME, FORMAT AND CONTENT.

Action:
- Check if the CL file contains a FINI.
- Check if the correct CL file name is set.
- Check if the correct CL data format was chosen.
- Check if the file is available and contains the expected data.

Result:
- Check neutral format CL data file.

b) BINARY FILE READ ERROR
CHECK FILE NAME, FORMAT AND CONTENT

Action:
- Check if the correct CL data format was chosen.
- Check if the file contains data.

Result: No neutral format CL data generated.

4 To be prompted for binary CL file format, the system displays the following menu. Enter 1 to return to the main menu

without changing the format. Enter 2 or 3 to select the desired format. Enter] or [to return to the main menu without changing the format.

```
---SELECT BINARY CL FILE FORMAT
1.EXIT
2.CDC APT III
3.CDC APT IV
```

5 To be prompted for the binary CL file name, the system displays:

ENTER CL DATA FILE NAME ?	Enter a valid file name. Enter] or [if the current file name is to be retained.

To be prompted for the neutral format CL data file name, the system displays:

ENTER NEUTRAL FORMAT CL DATA FILE NAME ?	Enter a valid file name, Enter] or [if the current file name is to be retained.

If an invalid file name is entered, the system displays:

```
FILE NAME NOT VALID
```

In this case, the original file name is retained.

6.7.1 ALTERNATE INPUT FILE FORMAT

The contents of an alternate input file must be identical to the data that would be entered in an interactive session at the main menu and performing the desired translation(s).

Examples:

1. A neutral file CLFILE has to be translated to an APT IV binary CL File CLTAPE. In an interactive session, at the main menu, first a 2 is entered to generate the binary CL file. Then a 1 is entered to end the session

6.0 POST-1.62 ICEM MANUAL CHANGES
6.7.1 ALTERNATE INPUT FILE FORMAT

The alternate input file contains 2 lines:

```
2
1
```

2. An APT III binary CL file CLTAP1 has to be translated to a neutral format CL File CLNEUT. In an interactive session, at the main menu, the following is entered:

```
4 , change the binary CL file format
3 , set the format to APT III
5 , change the binary CL file name
CLTAP1 , the binary CL file name
6 , change the neutral CL file name
CLNEUT , the neutral CL file name
2 , generate the neutral CL file
1 , exit.
```

The alternate input file contains 8 lines:

```
4
3
5
CLTAP1
6
CLNEUT
2
1
```

6.7.2 NEUTRAL FORMAT DEFINITION

An APT CL File consists of a set of data records. Each data record has an integer and real part. The integer part contains general information as the type, number and length of the record. The real data part contains the specific record data, in real, integer or character form.

To be able to transfer this data from one operating system to another, it is written out in a neutral format on an ASCII file.

The file is a sequential, formatted file, containing character data. The file contains variable length records, lines, with a maximum length of 130 characters.

6.7.2.1 Definitions

data type specifier:

single upper case character, indicating the data type of the data in the following field. Three data type specifiers are defined:

I: preceeds an integer number data field
F: preceeds an floating point number data field
A: preceeds a character data field

data field:

fixed length character string containing the data corresponding to one logical CL data word. The length is data type dependent.

data element:

a data type specifier followed by the data field.

integer data element:

the data specifier I followed by a fixed length character representation of an integer number.

e.g.: I 2000 represents the integer 2000 in a ten character integer data field.

floating point data element:

the data specifier F followed by a fixed length character representation of a floating number in exponential format: A one character sign field, a normalized fixed length mantissa without decimal point, a one character sign field and a fixed length exponent.

e.g.: F+5000000000000000+0001 represents the floating point number 5. with a 16 character mantissa and a 4 character exponent.

character data element:

the data specifier A followed by a fixed length character string. The length is always 6.

e.g.: ACL DAT represents the string 'CL DAT'

6.7.2.2 File header

The file header serves three purposes:

1. Define the end of record character.
2. Define the formats of the record data for integer, floating point and character data.
3. Prevent backspacing from the first record.

The file header consists of 11 characters:

position(s)	definition/purpose	value	range
1	end of record character	;	any character except I,F,A
2	integer format specifier	I	I
3-4	integer field length	10	1-10
5	floating format specifier	F	F
6	exponent field length	4	1-5
7-8	mantissa field length	16	1-20
9	character format specifier	A	A
10	character field length	6	6
11	end of record character	;	must be the same as pos 1

The standard file header record for CL file in the ICEM DDN environment:

```
;I10F416A6;
```

6.7.2.3 CL data record

A CL data record is a concatenation of data elements spanning one or more lines of 130 characters or less and with the end of record character as the last character. A data element must be fully contained on one line.

6.7.2.4 End of file record

The end of the file is indicated by a null record. A null record consists of a one character line, the end of line character.

The standard end of file record for CL file in the ICEM DDN

environment will then be:

```
;
```

Note that the end of record character as the only data on a line does not necessarily constitute a null record. It could be the closing character of a record spanning one or more previous lines.

6.7.2.5 Example

APT representation:

```
PARTNO EXAMPLE OF A NEUTRAL CL DATA FILE
FROM/0,0,0
GOTO/5,5,5
FINI
```

Neutral CL data file (the line length is limited to 70 for the example):

```
;I10F416A6;
I         9I         1I      2000I      1045A EXAMPALE OF AA NEUT
ARAL CLADATA FAILE   ;
I         8I         2I      5000I         3A      I         0
F+0000000000000000+0000F+0000000000000000+0000F+0000000000000000+0000;
I         8I         3I      5000I         5A      I         0
F+5000000000000000+0001F+5000000000000000+0001F+5000000000000000+0001;
I         3I         4I     14000I         0;
;
```

6.7.3 CL FILE STRUCTURE

The CL File consists of a sequential set of records. Each record is defined by a record class, a sub code and further instructions. The clqss groups similar types of records and is also called the record type.

Listed below are the standard defined record formats:

Wn = word n of the current record
W1 = record sequence number, refer to the physical formats for details

---

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6.7.3 CL FILE STRUCTURE

Record Type 2000: Post processor Commands

W1 = record sequence number
W2 = 2000
W3 = major word sub code (see postprocessor library, major word codes)
W4 = minor word codes and/or parameters (see postprocessor library, minor word codes)
...

Specific Formats:

PPRINT, PARTNO, INSERT: W4... = up to 66 characters of text, blank filled on the right
ARCSLP: W3 = 1029 (Default)
W4 = START W5 = s,slope W6 = ENDARC W7 = e,slope, W8 = RADIUS, W9 = r, W10 = CCLW or CLW

Record Type 3000: Surface Data

Circle records are the only surface data carried through into a CL file:

W1 = record sequence number
W2 = 3000
W3 = 2 Surface Use Indicator (Drive Surface)
W4 = 1 Surface Condition Indicator (TO)
W5 = 4 Surface Type Indicator (CIRCLE)
W6 = 9 Number of words in the canonical form
W7 = ' ' Surface name (Blank)
W8 = 0 Surface name subscript
W9 = xc
W10= yc Coordinates of the circle center
W11= zc
W12= i
W13= j Circle plane normal
W14= k
W15= r Circle radius

Record Type 5000: Directions, Points and Parameters

W1 = record sequence number
W2 = 5000

W3 = 3	FROM	= 4 GODLTA		= 5 GOTO		= 6 Continuation		
W4 = ' '	Point or Vector name (Blank)							
W5 = 0	Name subscript							
W6 = xp		xv		xp(1)		xp(n+1)		
W7 = yp		yv		yp(1)		yp(n+1)		
W8 = zp		zv		zp(1)		zp(n+1)		
W9 = i		i		ip(1)		ip(n+1)		
W10= j	(Multax only)	j	(id.)	jp(1)	(id.)	jp(n+1)	(id.)	

6.0 POST-1.62 ICEM MANUAL CHANGES
6.7.3 CL FILE STRUCTURE

W11= k		k		kp(1)		kp(n+1)
... (Additional point coordinate sets for W3 = 5 or 6 only)						
W5 +n				xp(n)		xp(2n)
W6 +n				yp(n)		yp(2n)
W7 +n				zp(n)		zp(2n)
W8 +n				ip(n)		ip(2n)
W9 +n				jp(n)	(id.)	jp(2n) (id.)
W10+n		k		kp(n)		kp(2n)

A maximum number of 240 reals is written out in a GOTO or Continuation record.

Record Type 6000: ARELEM Flags, Specifications, and Parameters

W1 = record sequence number
W2 = 6000
W3 = 4 INTOL
5 OUTTOL
W5 = t tolerance

Record Type 9000: ARELEM Parameters

W1 = record sequence number
W2 = 9000
W3 = 2 MULTAX
W5 = 0 OFF
= 1 ON

And for an ISO standard CL file:

W1 = record sequence number
W2 = 9000
W3 = 9 UNITS
W4 = 171 MM
= 172 CM
= 173 INCH =
= 174 FT
W5 = n scaling factor or null

Record Type 14000: Termination

W1 = record sequence number
W2 = 14000, FINI
W3 = 0

6.8 IPARTD SAVE

Following the Independent Save information on page 2-21 of the ICEM Design/Drafting Data Management manual, insert:

> "A maximum of 90 parts may be saved on a single IPARTD file. If you attempt to save more than 90 parts, the system will issue an error message and will not save the part onto the IPARTD file."

6.9 IPARTD MODALS

In order to provide increased flexibility in the IPARTD feature, menu 6.1.12 IPARTD MODALS has been added. This menu item currently contains one new modal, the COMBINING VIEWS modal.

The following documentation on IPARTD MODALS should be inserted after page 2-25 of the ICEM Design/Drafting Data Management manual:

6.1.12 IPARTD MODALS

With ICEM DDN V1.65, there is a modal available for use in restoring IPARTD files. Additional modals may be added if necessary.

The current modal setting is displayed to the right of the modal.

```
---IPARTD MODALS
 1.COMBINING VIEWS       current modal setting
```

Enter:

1 To change the COMBINING VIEWS modal.

] or [To return to the PART MANAGEMENT menu.

6.0 POST-1.62 ICEM MANUAL CHANGES
6.9 IPARTD MODALS

If you select 1.COMBINING VIEWS, the following menu will be displayed:

```
---COMBINING VIEWS
 1.COMBINE VIEWS WHEN RESTORING
 2.DO NOT COMBINE VIEWS WHEN RESTORING
```

Enter:

1 To combine views with identical view matrices when restoring parts from IPARTD.

2 To not combine views with identical view matrices when restoring. This is the system default.

] To return to the PART MANAGEMENT menu.

[To return to the IPARTD MODALS menu.

If you choose to combine views, an entity displayed in any of the combined views will be displayed in the resultant view. The view names of the eliminated views will be unavailable after they have been combined.

Most users will not want their views combined. View combining was motivated by a very old IGES problem which has long since been resolved.

6.10 TAPE9 PLOT FILE OPTIMIZER

With some plotters, especially pen plotters, it is desirable to optimize the graphics data on the plot file before plotting it on the device. The Plot Optimizer sorts the graphics data and removes duplicate, collinear, and zero-length lines, thus reducing pen motion and increasing plotter throughput. A number of parameters are available for controlling the level of optimization.

To execute the Plot File Optimizer, enter the following command:

```
OPTIM[,param1] [,param2] [,param3],... [,paramN]
```

where

6.0 POST-1.62 ICEM MANUAL CHANGES
6.10 TAPE9 PLOT FILE OPTIMIZER

I Input plot file.
Default input plot file name is TAPE9.

O Output plot file.
Default output plot file name is TAPE9.

ZERO Zero length vector optimization. Valid values are ON and OFF. The default is OFF.
When ZERO=ON, the optimizer removes zero length vectors.

DUP Duplicate vector optimization. Valid values are ON and OFF. The default is OFF.
When DUP=ON, the optimizer removes duplicate vectors.

COIN Coincident vector optimization. Valid values are ON and OFF. The default is OFF.
When COIN=ON, the optimizer combines collinear and overlapping lines. Note that COIN=ON removes a larger set of plot file vectors, since it combines a group of vectors into a single vector.

PC Pen change optimization. Valid values are ON and OFF. The default is OFF.
When PC=ON, the optimizer reduces the number of pen change commands on the plot file. This option is useful when it is known that the target plotting device stores its pens in a carousel, making frequent pen changes costly.

GRID Grid square optimization. Valid values are ON and OFF. The default is OFF.
When GRID=ON, the optimizer places a grid over the plot to improve optimizer performance. Vectors are eliminated from the plot file based on the grid square which contains their endpoints. With GRID=OFF, the optimizer removes a larger set of vectors at the expense of more processing time.

STATS Statistics option. Valid values are ON and OFF. The default is OFF.
When STATS=ON, optimization statistics are written to the job's output file. This option provides information that the installer can use in determining appropriate settings for the ZERO, DUP, COIN, PC and GRID parameters. It should be turned off for production runs.

Depending on hardware and software factors involved in the plotting processes, adjustments to ZERO, DUP, COIN, PC, and GRID should be made, allowing for appropriate trade-offs between optimizer processing time and plotter throughput time.

Diagnostic messages are written to the file "OPTERR."

6.10.1 OPTIM RESTRICTIONS

The program makes use of the temporary files 'ZZZZTXT,' 'ZZZZT9A,' and 'ZZZZT90,' so neither the input or the output file should have these names.

6.10.2 OPTIM ERROR MESSAGES

CAN'T OPEN INTERNAL SCRATCH FILE.

This message occurs during initialization when the scratch file is being opened. The usual cause is that the file already exists in an unknown format, or a system error.

CAN'T OPEN PLOT FILE FOR READING.

This message occurs during initialization when the input file is being opened. The usual cause is that the file does not exist.

CAN'T OPEN PLOT FILE FOR WRITING.

This message occurs when the output file is being opened.

CHARACTER COUNT < 0.

This message occurs when a text command is found with a character count that is less than zero.

CHARACTER COUNT EXCEEDS MAXIMUM.

This message occurs when a text command is found with a character count that exceeds the maximum (currently limited to 200 by UNIPLOT).

6.0 POST-1.62 ICEM MANUAL CHANGES
6.10.2 OPTIM ERROR MESSAGES

CHARACTER STRING TOO LONG.

This message occurs when a text command is found with a character string that is longer than the maximum. This can only occur on NOS, since on NOS the string is stored in 6/12 format and the number of characters needed to represent an ASCII string may be up to twice as many as on an ASCII machine.

COMMAND TYPE NOT SUPPORTED.

This message occurs while the plot commands are being read from the input file. This message will appear if the input file contains commands other than move, draw, change pen, end-of-plot, end-of-file, or text commands.

DUPLICATE VECTOR OPTION INVALID.

This message occurs if the DUP parameter is set to a value other than OFF or ON.

ERROR OCCURRED OPENING LIST FILE

An error occurred trying to open the file which contains fatal error messages.

ERROR OCCURRED READING PLOT FILE.

This message occurs while the plot commands are being read from the input file. The usual cause is that the input file is not formatted correctly.

GRID OPTION INVALID.

This message occurs if the GRID parameter is set to a value other than OFF or ON.

INVALID PARAMETER.

This message occurs when an unknown control card parameter keyword is passed to the optimizer.

6.0 POST-1.62 ICEM MANUAL CHANGES
6.10.2 OPTIM ERROR MESSAGES

KEYWORD = VALUE EXPECTED.

This message occurs during initialization when any control card parameter information is passed to the optimizer using a form other than 'keyword=value'.

PEN CHANGE OPTION INVALID.

This message occurs if the PC parameter is set to a value other than OFF or ON.

PLOT FILE VERSION NOT SUPPORTED.

This message occurs during validation of the plot file header. The usual cause is the header is missing.

PLOT OPTIMIZER ABORT. UNKNOWN CAUSE.

Message is self-explanatory.

PREMATURE END OF PLOT FILE.

This message occurs while the plot commands are being read from the input file. The cause is that the end of input file is sensed before the end of plot file command is found.

STATISTICS OPTION INVALID.

This message occurs if the STATS parameter is set to a value other than OFF or ON.

ZERO LENGTH VECTOR OPTION INVALID.

This message occurs if the ZERO parameter is set to a value other than OFF or ON.

6.11 INCREMENTAL POINTS ON ELLIPSES AND HYPERBOLAS

Following the text on page 1-22 of the ICEM Design/Drafting Basic Construction for NOS manual, add the following note:

> "If you desire evenly spaced incremental points along an ellipse or hyperbola, a Bezier Curve representation of the ellipse or hyperbola can be used. This is done by using F.15.2.7.1.4 CONVERSION to approximate the curve by a Bezier curve. (This function does not change the initial curve in any way.) Evenly spaced incremental points can then be placed along the Bezier curve."

6.12 MSTRNG STATEMENT IN GPL

The following note should be added to page 8-4 of the ICEM Design/Drafting GPL for NOS manual:

> "Caution should be used when GPL programs which contain MSTRNG statements are initiated from a programmed tablet square. None of the tablet square commands following the GPL program name will be executed."

6.13 CHAIN SELECT TOLERANCE

The following menu item should be added under MODALS on page 2-18 of the ICEM Design/Drafting Introduction and System Controls for NOS manual:

10.CHAIN SELECT TOLERANCE 0.001 to 0.000000001 inch

The following note should be added to page 2-21 of the ICEM Design/Drafting Introduction and System Controls for NOS manual:

6.0 POST-1.62 ICEM MANUAL CHANGES
6.13 CHAIN SELECT TOLERANCE

10 If you select 10.CHAIN SELECT TOLERANCE from the Modals menu, you can set the tolerance that is used by chain select to identify contiguous entities. The system displays:

CHAIN SELECT TOL = n.nnnn

When the modal is selected, its current value is displayed. Enter the desired chain select tolerance. The default value is 0.001 inch (0.0254 millimeter). Valid input is between 0.001 inch (0.0254 mm) and 0.000000001 inch (0.000000025 mm). If invalid input is entered, an error message is output and the system reprompts you for a valid chain select tolerance.

The following menu item should be added under DISPLAY SELECTION SYSTEM MODALS on page 3-29 of the ICEM Design/Drafting Introduction and System Controls for NOS manual:

11.CHAIN SELECT TOLERANCE 0.001

The following menu item should be added under CHAIN SELECT MODALS on page 3-30 of the ICEM Design/Drafting Introduction and System Controls for NOS manual:

4.CHAIN SELECT TOLERANCE 0.001

Enter 4 to change the chain select tolerance value

The following note should be added to page 3-31 of the ICEM Design/Drafting Introduction and System Controls for NOS manual:

If you select 4.CHAIN SELECT TOLERANCE from the Chain Select Modals menu, you can set the tolerance that is used by chain select to identify contiguous entities. The system displays:

CHAIN SELECT TOL = n.nnnn

When the modal is selected, its current value is displayed. Enter the desired chain select tolerance. The default value is 0.001 inch (0.0254 millimeter). Valid input is between 0.001 inch (0.0254 mm) and 0.000000001 inch (0.000000025 mm). If invalid input is entered, an error message is output and the system reprompts you for a valid chain select tolerance.

6.14 TOLERANCE SPECIAL CHARACTER SYMBOLS FOR ANSI

The following symbols should be added to Table 1-1 on page 1-7 of the ICEM Design/Drafting Drafting Functions for NOS manual:

Character Entry	Symbol	Symbol Name
\+	+	Plus for tolerancing
\-	-	Minus for tolerancing

The following note should be added to page 1-94 of the ICEM Design/Drafting Drafting Functions for NOS manual:

"ICEM DDN will always create tolerances from the tolerance menu so that the text will display as stacked. Text to be displayed nonstacked on a single line may be added with the modify text menu (16.13.6)."

7.0 NOS TAPE3 RESTORE UTILITY

7.1 INTRODUCTION

This document describes how the NOS TAPE3 Restore Utility works. The program restores a damaged TAPE3 by reading the damaged parts and copying them off onto the file TAPE2. The part index and the first sector are reconstructed and updated.

This utility is useful when the part file is truncated, the part index lost, or the first sector is overwritten. ICEMDDN will abort if the first sector is overwritten. If the part is truncated and/or the part index is lost, ICEMDDN will indicate that there are no parts, bad parts, or a bad index on the TAPE3.

It is recommended that an experienced analyst work with such part files to determine the appropriateness of using the CONVT3 program, to help insure proper recovery of as many parts as possible, and to investigate the original cause of the problem.

7.2 APPLICABLE DOCUMENTS

The format of the TAPE3 file is documented in the ICEM DDN V1.64 System Programmer's Reference Manual.

7.3 PROGRAM DESCRIPTION

The program reads the damaged part file and looks for a correctly formatted first sector. If the first sector is incorrect, a new one is generated and the user is informed. The program then looks for part separators and copies each part and the first sector off to TAPE2. After the last part is found, the part index is generated and the first sector part length is updated.

Inactive parts can also be found in the part file. Because the part index is the usual area of the part file to be lost, CONVT3 cannot tell dormant parts from active ones. Thus, more than one copy of a part can be recovered. In order to uniquely identify duplicate parts, a program-generated name is appended to the the front of these part names. The last 10 characters of the 70 character part name are dropped. This is necessary in order to guarantee that the part name is unique.

Each part will have the name "RESTORExxx" as the first ten characters of the part name. The xxx starts at 1 and increases by 1 for each part on the file.

7.4 INSTALLATION OF CONVT3

There are two ways that CONVT3 can be installed:

1. The program can be SYSEDITed into the operating system or built into the deadstart file so that the user simply enters "CONVT3" to execute it.

2. The program can be executed by attaching the file and by entering the file name.

7.5 CONVT3 PROGRAM EXECUTION

This program requires the damaged part file be local and named TAPE3. The program will generate a new part file named TAPE2. The damaged parts should be brought up with ICEMDDN to verify if they are correct. A run through part renew or part check is recommended. When a part file is damaged because of an unknown bug, hardware failure, or track limit, the parts on the part file can be harmed in any number of ways. Therefore, it is important to check the part to find what is damaged. It is possible that a bad part can cause the ICEMDDN product to abort. These parts should be deleted from the recovered part file.

7.6 NOTES AND CAUTIONS

When CONVT3 program is run, the UTF data and pre-V1.60 patterns are dropped.

7.7 CONVT3 PROGRAM OUTPUT

The CONVT3 program lists the parts being processed as follows:

```
PROCESSING =
part name
SHEET = sheet number

part name
SHEET = sheet number
   .
   .
   .

NUMBER OF PARTS = number of parts
TAPE2 LENGTH = length of tape2
RESTORATION COMPLETE - RESTORED PARTS ON TAPE2
   STOP RESTORATION COMPLETE
```

The CONVT3 program issues the following error messages:

Message	Description and Error Handling
EMPTY OR IMPROPERLY FORMATTED TAPE3 and/or NO PARTS FOUND - ABORT	The file TAPE3 does not have a ICEMDDN first sector on it and no parts were found before the end of the record.
READ ERROR - ABORT or WRITE ERROR - ABORT	An unrecovered disk error occurred on a CONVT3 working file.
FIRST SECTOR OF TAPE3 IS NOT CORRECTLY FORMATTED and FIRST SECTOR RECONSTRUCTED	This is an informative message that the beginning of the part file was overwritten or an incorrect file was used as input to the CONVT3 program. The CONVT3 program will generate a new first sector on TAPE2 and continue scanning for parts.

end

CONTROL DATA CORPORATION

ICEM DDN

Version 1.65.0.00

SOFTWARE RELEASE BULLETIN

Operating System Level: NOS 2.5.3 Level 688

Date: June, 1988

DISCLAIMER

NOS and its product set are intended for use only as described in this document. Control Data cannot be responsible for the proper functioning of undescribed features or parameters.

*** NOTE ***

Please call the following HOTLINE numbers if you have any problems or questions:

1-800-345-9903 U.S. and Canada
1-612-851-4131 International

Additional information pertinent to this release may be found in SOLVER Installation Bulletins for ICEM products.

*** URGENT ***

Please make this document available to all ICEM DDN users.

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1.0 INTRODUCTION

This SOFTWARE RELEASE BULLETIN (SRB) is designed to inform site analysts and ICEM DDN users of PSR/RSE corrections and enhancements which are contained in the ICEM DDN V1.65 Software System Update (SSU).

In addition, this document contains relevant comments and descriptions of changes which should be made to the ICEM DDN V1.62 Reference Manuals.

Any information not included in this SRB but pertaining to the SSU is documented on a SOLVER Installation Bulletin.

This SSU includes all corrections from the V1.64 Batched Critical Updates (BCUs) and supersedes all previous NOS ICEM V1.6 releases.

2.0 VERSION 1.65 FEATURE REVIEW

2.1 SELECTION TOLERANCE IN CHAIN SELECT

A new modal in menus F.1.11.2.4, E.7.10, and F.1.11.1 enables the user to modify the tolerance used by chain select to identify contiguous entities. These tolerances are used for all entity selections made via chain select.

Chain Selection Modals in Entity Selection Control have been increased to four items (F.1.11.2.4).

```
--- CHAIN SELECT MODALS
  1.CHAIN SELECT MODE                E/D
  2.CHAIN SELECTN METHOD             SCREEN
  3.DISALLOW PRESELECTED CURVES      OFF
  4.CHAIN SELECT TOLERANCE           0.001
```

Modals in Entity Selection have been increased to ten items (E.7.10).

```
--- MODALS
  1.REPEAT INCLUDE/EXCLUDE           ON
  2.CONSTRAINT SET DURATION          ONCE
  3.SELECTION MODIFICATION           OFF
  4.SINGLE SELECT FROM GROUP         OFF
  5.CHAIN SELECT MODE                E/D
  6.CHAIN SELECT METHOD              SCREEN
  7.DISALLOW PRESELECTED CURVES      OFF
  8.ATTENTION INDICATORS             ON
  9.CONSTRAINT SET LEVEL             CUR
 10.CHAIN SELECT TOLERANCE           0.001
```

Display Modal Status in Entity Selection Control has been increased to eleven items (F.1.11.1).

2.0 VERSION 1.65 FEATURE REVIEW
2.1 SELECTION TOLERANCE IN CHAIN SELECT

```
--- SELECTION SYSTEM MODALS
  1.CHAIN SELECT MODE                E/D
  2.CHAIN SELECT METHOD              SCRN
  3.DISALLOW PRESELECTED CURVES      OFF
  4.SINGLE SELECT FROM GROUP         OFF
  5.ATTENTION POINT OF LINES         MID
  6.REPEAT INCLUDE/EXCLUDE           ON
  7.CONSTRAINT SET DURATION          ONCE
  8.SELECTION MODIFICATION           OFF
  9.SELECTION METHOD                 SCRN
 10.HIGHLIGHTING METHOD              ATT IN
 11.CHAIN SELECT TOLERANCE           0.001
```

When the modal is selected, its current value is displayed. The default value is 0.001 inch (0.0254 millimeter). Valid input is between 0.001 inch (0.0254 mm) and 0.000000001 inch (0.000000025 mm). If invalid input is entered, an error message is output and the system reprompts you for a valid chain select tolerance.

2.2 TOLERANCE SPECIAL CHARACTER SYMBOLS FOR ANSI

Two Special Character Symbols have been added to allow greater flexibility when creating tolerances in ANSI dimensions. The additional Special Characters are used to control when tolerances should be displayed as stacked. See Table A, Special Character Symbols, for the list of all predefined characters and associated symbols.

1.65

LOCAL ASSIST = OFF

PSR SUBMITS AS "STANDING"

IN FDC "SET LOCAL CHANGE CMD"

TEAM/IIA/N

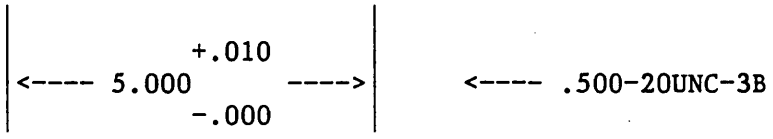
2.0 VERSION 1.65 FEATURE REVIEW
2.2 TOLERANCE SPECIAL CHARACTER SYMBOLS FOR ANSI

TABLE A SPECIAL CHARACTER SYMBOLS

Character Entry	Symbol Name
\D	Depth
\L	Left Bracket
\O	Diameter
\R	Right Bracket
\S	Square
\B	Counterbore
\C	Countersink
_	Degree
\@	Plus/minus
\+	Plus for tolerancing
\-	Minus for tolerancing
\\	Prefix character
\c	All other characters

When using ICEM DDN to place dimensions in a working drawing it is common to have tolerances and other combinations of plus or minus signs in drafting text display as stacked. At times stacking should not be done, however. The following shows an example of each.

Linear dimension with tolerance and
Radius dimension with thread callout



2.2.1 CREATING TOLERANCES VIA MENU 16.13.4.1

When creating tolerances that are not equal using the tolerance menu, the Special Character Symbol for the tolerancing plus or tolerancing minus sign will be added into the dimension text. (Equal and opposite tolerances will continue to use the plus/minus sign \@ representation). The

presence of the tolerancing Special Character Symbols signify that the text would be displayed as stacked, like the linear dimension shown on the previous page.

ICEM DDN will always create tolerances from the tolerance menu so that the text will display as stacked. Text to be displayed nonstacked on a single line may be added with the modify text menu (16.13.6).

2.2.2 UPDATING DIMENSION TEXT CONTAINING TOLERANCES

All dimension drafting entities containing tolerances will be updated to use the Tolerance Special Character Symbols. ICEM DDN will examine the text associated with the dimension to determine if tolerances are present. If tolerances are encountered, the plus or minus signs located within the text will be replaced with the Special Character Symbols for a plus or minus tolerance. On NOS, the character count for the string will be incremented by two for each pair of tolerances, because the Special Character Symbols require a two character representation.

When searching for tolerances, ICEM DDN will only allow character string representations signifying tolerances that could have been created automatically. Whether they were actually created by the tolerance menu or by the modify text menu is irrelevant since they are processed identically. The following criteria are used when searching for tolerance strings:

1. Notes and Labels are excluded.

2. Only numerics are allowed (i.e. 0123456789)-- alphabetic or other characters are not allowed, with a few exceptions outlined below.

3. Spaces within tolerances are not allowed. The only exceptions are metric zero tolerances which display as " 0" and fractional formats which use spaces in the numerator or denominator portion of the text. A space is used as a delimiter between the second tolerance and any suffix or trailing text.

4. Special character symbols are not allowed.

5. Degree symbols, foot marks, and inch marks are allowed.

6. Each line of text will be processed to locate tolerances. In the past, tolerancing was restricted to only the first line of text.

7. Only one pair of tolerances is allowed per line within the dimension. Only the first pair of tolerances encountered on a line will be updated to use the Tolerance Special Character Symbols.

The criteria mentioned above are only applicable within the substrings of dimension text that could be interpreted as tolerances.

It is possible that portions of dimension text may get incorrectly updated, either because ICEM DDN thought a tolerance was found or the text substrings could not be validated as tolerances. These occurrences will be rare and are easily reversed using the modify text menu.

2.2.3 MODIFYING TEXT WITH TOLERANCE SPECIAL CHARACTER SYMBOLS

The Tolerance Special Character Symbols may be used within any drafting entity just like any of the previous Special Character Symbols.

When placed within dimensions only, the Tolerance Special Character Symbol signals that a tolerance follows and that the text should be displayed as stacked. When used within other drafting entities, the current Prefix Character will display with the Tolerance Special Character Symbol to allow these symbols to be recognized and removed easily.

Stacked tolerances must be paired within a line. If only one Tolerance Special Character Symbol is present within a line, no text will display stacked. In addition, the current Prefix Character will display with the Tolerance Special Character Symbol. This will enable any mismatched Tolerance Special Character Symbols entered by hand to be recognized and corrected easily.

2.0 VERSION 1.65 FEATURE REVIEW
2.2.3 MODIFYING TEXT WITH TOLERANCE SPECIAL CHARACTER SYMBOLS

Text may be displayed as stacked within any line of dimension text.

Only one pair of tolerances is allowed on a single line of dimension text. Extra occurrences of Tolerance Special Character Symbols will display with the current Prefix Character so that the text may be corrected.

When tolerances are used along with suffix or other trailing text, a space must be used as a delimeter between the second tolerance and the suffix or trailing text.

When the unprefixed plus or minus sign is used, the text will be displayed as it was entered, with no stacking or adding of the current Prefix Character.

2.2.4 NOTES AND CAUTIONS

It is recommended that the Prefix Character be changed from the default reverse slash (\) under the following circumstances:

1. If dimensioning is being done with fractions, the reverse slash is used in the fraction text representation, causing problems interpreting the dimension text.

2. GPL uses the reverse slash to signal the beginning of a new line. Because of this conflict, the Special Character Symbols will be processed incorrectly during GPL programs.

The Prefix Character may be changed in menu 16.1.1.5 SPECIAL SET PREFIX.

2.3 POINT TO POINT GPG ENHANCEMENT

A new statement has been created for the point to point generation parameter group. The new statement "SAPPRT" replaces the statement "SRTRCT". Previously the "SRTRCT" statement offered no control over the first and last retract plane moves. The "SAPPRT" statement has the same funtionality

of the "SRTRCT" statement plus control over the first and last retract plane moves.

To more completely describe the tool motion offered by the "SAPPRT" statement the menu that is used to set "SAPPRT" options has been renamed. The menu entitled RETRACTION BETWEEN POINTS that appears in the point to point modify GPG menu has been renamed APPROACH/RETRACT. Selection options of the APPROACH/RETRACT menu remain the same as the RETRACTION BETWEEN POINTS menu:

1. NONE
2. CLEARANCE
3. RETRACT PLANE
4. PROMPT

The following question will appear when NONE or CLEARANCE is selected from the APPROACH/RETRACT menu to indicate if the first and last retract moves are to be included in the toolpath:

MOVE TO THE RETRACT PLANE BEFORE THE FIRST POINT
AND AFTER THE LAST POINT ?

The format of the "SAPPRT" statement is very similar to the old "SRTRCT" statement. The only difference is a YES or NO appearing after the minor word NONE or CLEARANCE. The possible settings of the "SAPPRT" statement are as follows:

```
SAPPRT/NONE,YES
SAPPRT/CLEAR,YES
SAPPRT/RETRCT
SAPPRT/NONE,NO
SAPPRT/CLEAR,NO
SAPPRT/PROMPT
```

The YES and NO values appearing after NONE and CLEAR control the first and last retract moves. YES indicates the first and last move are wanted in the toolpath, and NO indicates they are to be omitted from the toolpath. To maintain compatabiltiy with existing GPGs the old "SRTRCT" statement will still be readable from a file. The settings of the statement will be converted to a functionally equivalent form of the new "SAPPRT" statement whenever the old statment is read.

2.4 TAPE3 RECOVERY UTILITY

A TAPE3 restore utility is provided to assist in the recovery of parts damaged by system failure or other catastrophic events. Please see Section 7.0 for a more detailed description of this utility.

3.0 PSR CORRECTIONS INCLUDED IN THIS SSU

3.0 PSR CORRECTIONS INCLUDED IN THIS SSU

This section contains a cumulative list of problems resolved in V1.65. The full text descriptions can be obtained through SOLVER.

PRIORITY CODE: C = CRITICAL
U = URGENT
S = SERIOUS
M = MINOR

PSRS CORRECTED IN DDN V1.65

PSR #	PRI	DESCRIPTION
AD2B229	C	CLFILE GENERATION DOESN'T OUTPUT ARCSLP IN APT4 CLFILES
AD2B246	C	SURFACE MILLING ABORTS WITH "TABLES FULL" MESSAGE
AD2B257	C	PART INTEGRITY SOMETIMES REMOVES ENTITIES WHICH ARE DISPLAYED CORRECTLY
AD2B260	C	PART ON TAPE3 DID NOT CONVERT TO NOS/VE
AD2B274	C	VIEW BOUNDARY TOPS MAY BE UNCONDITIONALLY RESET (LOWERED)
AD22470	C	TRASHED TAPE3 WON'T RETRIEVE EXISTING PARTS OR CREATE NEW ONES
AD22547	C	FILLET DOESN'T WORK BETWEEN AN ARC AND A 2-DEGREE LINE
AD22706	C	FAN POINTS AND INTERSECTION POINTS ON AN ELLIPSE ARE INCORRECT
AD22764	C	CORRUPT TAPE3 CAUSED BY THE NOS DIRECT ACCESS FILE LIMITS
AD22789	C	HORIZ LEADER LINE ON DATUM FEATURE SYMBOLS BECOMES "SLANTED" BY 1.60
AD23036	C	PART FILING LEAVES VACANT SPACE
AD23351	C	PATTERN UPDATE FROM 1.62 TO 1.63 DOESN'T WORK
AD23384	C	UNABLE TO XFER HOST PART SHARING FILES FROM NOS TO IWOS 2.1 DDN 1.63
AD23470	C	SECOND +/- SIGN WILL BE STACKED ON THE FIRST LINE - WRONG
AD23503	C	TOLERANCE STACKING PROBLEMS IN V1.64, CORRUPTS DATA
AD23520	C	ENTITIES ARE MISSING FROM A DRAWING AFTER CONVERSION TO NOS/VE
AD23562	C	NC POINT/POINT PLACES GOTO RETRACT AT START & END OF TOOLPATH
AD23568	C	CANNOT RENEW PART TWICE IN THE NOS-NOS/VE MIGRATION UTILITIES
AD23577	C	SOME FILES FAIL MIGRATION IN PARTA
AD23578	C	(15.3.7) FILLET SURFACE IS STILL BROKEN - WILL NOT GENERATE FULL SURF.
AD23588	C	ICEM DATA MIGRATION UTILITY V2.0.0 FAILS AFTER PROCESSING AN IPARTD
AD2A775	U	INTERSECTION POINT BETWEEN DRAFT CURVE AND LINE IS INCORRECT
AD2B099	U	UNABLE TO RESTORE IPARTD PARTS WITH 4 DIGIT SHEET NUMBERS
AD2B107	U	PLANE THROUGH PT PERP TO TWO PLANES IS NOT WORKING
AD2B289	U	IDENTIFY ATTRIBUTE ONLY WORKS IN VIEW OF DEFINITION OF ENTITY

3.0 PSR CORRECTIONS INCLUDED IN THIS SSU

AD22368	U	(11.8)MODIFY ANGLES GIVES UNPREDICTABLE RESULTS
AD22411	U	NOTE PARALLEL TO ARC NOT FUNCTIONING CORRECTLY WITH USER DEFINED CHAR
AD22765	U	TEXT IN FRONT AND BACK VIEWS OF 3D PATTERN IS DISPLAYED AT SAME TIME
AD22766	U	PARALLEL DIMENSIONS MOVE WHEN MODIFIED F.16.2.3
AD22974	U	16.2.11 RECTANGULAR COORDINATES DO NOT WORK WHEN AUTO TAIL LOC - OFF
AD23088	U	NOT MEETING ANSI-1982 STANDARD/DEC.PL ON MM SURFACE SYMBOLS
AD23130	U	DESIRE MODAL TO SET SYSTEM TOLERANCE TO 0
AD23301	U	DASH CREATES A NEW TOLERANCE IF IT APPEARS BEFORE A +- TOLERANCE
AD23306	U	SECTION LINING CANNOT BE MODIFIED ON DATUM TARGETS
AD23354	U	WHEN CONTINUING AFTER SUSPEND, MSTRING DOES NOT WORK
AD23355	U	UPDATE OLD PARTS FROM V1.50 THRU V1.62
AD23383	U	ROTATE 3-D PART (SURFACES INCLUDED) CAUSED PROBLEMS
AD23417	U	TABLES FULL ERROR MESSAGE CAUSED BY EXCESSIVE DORMANT ENTITIES
AD23432	U	ICEM DDN N/C POINT TO POINT TOOLPATH GENERATION
AD23438	U	ASSUMPTION THAT THE FIRST LINE OF A DIMENSION WILL CONTAIN A TOLERANCE
AD23471	U	PRE 1.64 LAYOUTS WILL NOT DISPLAY TOP EDGE OF DDN DATA
AD23472	U	RADIAL/DIAMETER DIMENSION STACKING OF KEY-IN TEXT
AD23486	U	OPTIM DOESN'T OUTPUT CORRECT OUTPUT FOR DDNUTIL TO PROCESS
AD23516	U	PART NAME AND SHEET NO ON PART INTEGRITY REPORT
AD23542	U	GROUP ENTITIES WITH ATTRIBUTES ASSIGNED ARE DELETED BY PART RENEW
AD23550	U	ON NOS AND AOS/BAD ERROR MESSAGES - TEXT DELTA FROM TEXT
AD23591	U	F.12.11 CREATES CORRUPT ENTITIES THAT HAD ATTRIBUTES ATTACHED TO THEM
AD2A728	S	USERS MAY INADVERTANTLY DEFINE PATTERN LIB FILES AS GLOBAL PART FILES
AD22995	S	UNABLE TO CREATE PATTERN
AD22999	S	(16.2.11.3) VERTICAL RECT. COORD. DIMEN. FAIL UNLESS AUTO TAIL IS ON
AD23213	S	SUSPEND CAUSES MSTRING FILE TO BECOME INACCESSABLE FOR RESUMED SESSION
AD23262	S	ICEM DDN 1.62 + TEK 4111 TERMINAL
AD23339	S	NOS TAPE3 FILE SIZE SOMETIMES GROWS VERY LARGE EVEN FOR SMALL DRAWINGS
AD23405	S	MODIFICATION OF FILLET ANGLE CAUSES INTEGRITY ERRORS
AD23462	S	AFTER THE SUSPEND FUNCTION THE TABLET SHOULD MAINTAIN THE DEFINE NAME
AD23468	S	MSTRINGS IN GPL PROGRAM DISALLOW MENU PICKS PROGRAMMED IN TFILE
AD23504	S	NOTE COMMAND PRODUCES A SPACE AND % SIGN IN CHARACTER POS. 183/184
AD23505	S	FILE FOR EVALUATION: PLOT FILE CREATION FLAKY, FILE/253 PRUS TO 6310
AD23510	S	DDN 157 TOOLPATH NON-STANDARD POSTPROCESSOR WORDS LOST WHEN UPGRADING
AD23554	S	THROUGH A POINT,TANGENT TO A CURVE DOES NOT WORK WITH A SPLINE IN GPL
AD2A698	M	ARC THROUGH 3 PTS CREATES LINE WITHOUT WARNING USER
AD2A960	M	PRINTOUT FOR 5.6.7 IS INCONSISTENT WITH REF MANUAL
AD23367	M	GPL COMPILER VERSION IS NOT CONSISTANT WITH DDN VERSION 1.63
AD23488	M	ARC THRU 3 POINTS (F.11.7) GENERATES LINE UNDER CERTAIN CONDITIONS

4.0 COMPATIBILITIES

4.1 VERSION NUMBERS OF RELATED ICEM APPLICATIONS

The ICEM DDN 1.65 SSU is compatible with the following Application Products under NOS 2:

DRAM V1.1
HASCO V1.1
ICEM BEND V1.2
ICEM Engineering Data Library (EDL) V1.2.7
ICEM Facilities V1.41
ICEM Hydraulics V1.3
ICEM Kinematics V1.0
ICEM Plastimould V1.1
ICEM Solid Modeler V1.13
IGES Translators V2.23
LINCAGES V1.2
MOLDFLOW V4.0
MOLDSTAR V3.0

4.2 ICEM DDN VERSION 2.0

ICEM DDN Version 1.65 contains some PSR fixes and additional enhancements in the Part Integrity area to ensure upward compatibility to ICEM V2.0 through the use of the ICEM DATA MIGRATION UTILITY. For information on these corrections, refer to sections 5.2 and 5.3.

You must use ICEM DATA MIGRATION UTILITY V2.0.2 and ICEM DDN V2.0.2 if you are using the Tolerance Special Character Symbols for ANSI.

4.3 ICEM DDN UNDER IWOS

Users of both NOS- and IWOS-based DDN must use the following versions to ensure compatibility and translation between the two systems:

IWOS: DDN 1.65
NOS: DDN 1.65

If you perform part sharing between NOS and IWOS systems, both NOS and IWOS systems must use the same version. A part can be "updated" from pre-1.65 to 1.65, but once the part is at 1.65, it cannot be read by a pre-1.65 version of ICEM DDN. The 1.65 part sharing utilities will be provided when ICEM DDN 1.65 is released on IWOS.

5.0 NOTES AND CAUTIONS

5.1 VERSION 1.65 VIEW CLIPPING

This section only applies to pre-V1.64 parts that are brought into V1.65.

With the screen size reduction that was done in V1.65, all views with the top boundary beyond the new screen boundary will appear clipped when first displayed in V1.65. This is a necessary side effect of the V1.65 tablet/screen realignment.

To correct the display, an auto max-min (Z.11) operation can be performed. (Note that for view layouts, the zoom mode should be "Entire Layout.") If you are using a different zoom scale, the scale can be easily adjusted by selecting ENTER SCALE (Z.8) and entering the following:

#*.95

This expression tells DDN to multiply the current zoom scale by the amount of the screen size reduction. The sequence, Z(tab)8(tab)#*.95, can be programmed into an MSTRING and used with an input trace script to readjust saved zoom scales in a semi-automated manner.

Please note that these readjustment operations are not required; they are desirable only if data typically displayed in the upper portion of the screen appears clipped in the SSU. If you are using this SSU only for the purpose of migration to ICEM V2, and you are not planning to use the part in V1.65, no benefit is gained by doing zoom scale readjustments prior to migration.

Parts created in or updated to V1.64 (or any V1.64 BCU) will not be affected.

5.2 PART INTEGRITY REPORT

A column titled ACTION has been added to the part integrity report. The possible actions are RMV (for removed) or MOD (for modified). In previous versions corrupt entities were always removed during part renew. It is now possible to internally modify some corrupt entities rather than having to remove them.

The part name and sheet number have been added to the banner of the part integrity report that is written to the file PRBRPLS when using the LF control card parameter.

5.3 PART INTEGRITY PSR FIXES

Corrections to part integrity have been made in response to common problems encountered by customers in the migration process. These problems manifested themselves in various ways ranging from errors in the part integrity report to failure in migration. The following problems were corrected:

- o duplicate sequence numbers
- o zero-length line compatibility with V2.0.2
- o incorrect entity form numbers
- o extra GRAPL entities
- o invalid number of views
- o incorrect COMMON values
- o bad TAB2 and TAB3 data
- o incorrect view updating

5.4 POST PROCESSOR WORD LIBRARY UPDATE

New capability has been added to version 1.65 that will allow better updating of toolpaths regarding post processor words. Before 1.65 some of the post processor words would be replaced with asterisks in the updated toolpath. This new capability only affects toolpaths being updated from a pre-1.60 version of ICEMDDN to version 1.65. Toolpaths already created in, or updated to, a 1.6x version of ICEMDDN will not be affected.

When updating toolpaths, you may benefit from this capability if:

- You have TAPE3 files that contain parts with a mixture of versions and at least one version is older than 1.60.

- You use more than one version of ICEM DDN and one of the versions is older than 1.60. The benefit will affect you should you decide to update the pre-1.60 part.

5.4.1 HOW PART UPDATE HANDLES TOOLPATH PPLIB WORDS BEFORE 1.65

ICEMDDN versions 1.60 and newer use a different post processor word library (PPLIB) than pre-1.60 versions. When a part is updated from a pre-1.60 version to a 1.60 or newer version, a new 1.6x PPLIB is created. The new PPLIB is just a copy of the old one. Both the old and new version of the PPLIB will now be on the UTF of the TAPE3. Part update will then use the new PPLIB to check all words in any toolpath being updated. All subsequent part updates will now use the new 1.6x PPLIB. Since PPLIBs are stored on the UTF all the parts of a TAPE3 share the same PPLIB.

A problem can arise if the new PPLIB is modified. Part update assumes the new 1.6x version of the PPLIB contains all the words that are in the pre-1.60 toolpaths. If a word is in an old toolpath, and not in the new PPLIB, part update will replace the word with asterisks in the updated toolpath.

5.4.2 HOW PART UPDATE HANDLES TOOLPATH PPLIB WORDS IN 1.65

In 1.65, part update uses the pre-1.60 version of the PPLIB if the part is pre-1.60. This means that part update does not assume that the 1.6x PPLIB contains all the words used by the old toolpaths. Any toolpath PPLIB word that is in the pre-1.60 PPLIB will be in the updated toolpath. If a PPLIB word is used by an old toolpath and not in the pre-1.60 PPLIB, the word will be replaced in the updated toolpath by the major word subclass code placed between asterisks.

Once a toolpath exists in a 1.60 or newer version, the new capability is not used. It is only used when the version of ICEMDDN is 1.65 and the part is older than 1.60.

5.0 NOTES AND CAUTIONS
5.4.2 HOW PART UPDATE HANDLES TOOLPATH PPLIB WORDS IN 1.65

If you have toolpaths in parts older than 1.60 you should consider the following three points regarding part update.

a) Part update in version 1.65 uses the pre-1.60 PPLIB to update pre-1.60 parts. The pre-1.60 PPLIB should contain all the PPLIB words used by the toolpaths that you plan to update.

b) Updating all parts on a TAPE3 at the same time is the best way of migrating to a new version. This method guards against PPLIB words of toolpaths appearing as asterisks in the updated toolpaths.

c) Part update may be slower when updating pre-1.60 parts containing toolpaths to version 1.65. This is due to the increased overhead needed to use the older PPLIB. If you are updating a large number of toolpaths the additional time needed may be significant. Updating to any 1.6x version before using version 1.65 may be faster.

5.5 SURFACE MILLING CHANGES

a) Closed boundary is no longer used in conjunction with a surface. When a surface is selected in response to the CONTROL SURFACE menu the CUTPATH type menu will not be displayed. Closed boundary represents a subset of tool control offered by the containment processing in surface milling. Since all the capability of the closed boundary exists in containment, this represents no loss in functionality.

b) When a surface is selected as the control surface, the CUT DIRECTION menu will no longer appear. The cut direction for a toolpath will be parallel with the U or V surface display paths. Whether the U or V paths are used is determined by indicating the start and end of the first cut with the graphics cursor.

5.6 3 AXIS FLANGE FEATURE REMOVED

The menu item 17.13 3 AXIS FLANGE CUTTING has been blanked due to removal of this feature. Other numerical control features in ICEM DDN allow the same toolpaths to be generated.

5.7 USING MSTRINGS AFTER SUSPEND

Prior to version 1.65, re-entering a suspended ICEMDDN session would cause an error with tablet MSTRINGS. Attempting to execute a tablet square containing an MSTRING would result in an error message. The error message would notify the user that the MSTRING was not found. All defined MSTRINGS would become inoperable. In release 1.65 this problem has been corrected.

5.8 DECREASE OF TAPE3

Prior to version 1.65, if a working part became smaller due to deleted entities and was subsequently filed, the extra unused space remained on the TAPE3. In version 1.65, this extra space is removed whenever a part is reduced in size.

6.0 POST-1.62 ICEM MANUAL CHANGES

6.1 CONTINUED TOOLPATH STATEMENTS IN CL FILE GENERATION

Treatment of continued toolpath statements in CL file generation:

a. The use of continuation and appended comment symbols

The continuation symbol is a single $ sign. All text following the single dollar sign is considered comment. The following line is considered to be the continuation of the current toolpath statement.

The appended text symbol is a double dollar sign $$. All text following the double dollar sign is considered comment. The statement is considered to end before the $$.

Note that $ $ will be treated as a $ and not as a $$.

The continuation and appended comment symbols are ignored in PARTNO, PPRINT, and INSERT statements. They are treated as part of the text of the statement.

The use of continuation on motion statements, circle statements, multax statements is invalid and is ignored at CL file creation.

b. New error messages

The following new error messages concerning continued toolpath statements have been added for output in the CL Print file.

```
** ERROR ** ILLEGAL CONTINUATION
** ERROR ** MINUS NOT FOLLOWED BY NUMBER
** ERROR ** EXPECTED COMMA, FOUND
** ERROR ** EXPECTED SLASH, FOUND
** ERROR ** UNEXPECTED END OF LINE
** ERROR ** EXPECTED WORD OR NUMBER, FOUND
** ERROR ** RECORD EXCEEDS MAXIMUM LENGTH
```

6.0 POST-1.62 ICEM MANUAL CHANGES
6.1 CONTINUED TOOLPATH STATEMENTS IN CL FILE GENERATION

Excerpt of a sample CL Print file :

```
1          ICEM NC CLPRINT                                DDN  1.64

 PARTNO
 PPRINT THIS IS A TEST FOR CONTINUATION ($) AND APPENDED COMMENTS ($$).
 MODE                                $  THE NEXT TOKEN MUST BE A SLASH
 /AVOID,2.                           $$ END OF THIS PP STATEMENT
 MODE/AVOID                          $  A ',' IS EXPECTED BUT NOT GIVEN
 20.                                 $$ ERRONEOUS CONTINUATION LINE
 ** ERROR **  EXPECTED COMMA, FOUND 20.
  MODE,AAXIS,ADJUST                   $$ MAJOR WORD NOT FOLLOWED BY A /
 ** ERROR **  EXPECTED SLASH, FOUND ,
 ...
```

6.2 GPL MSTRNG MANUAL CHANGE

On page 8-4 of Revision C of the ICEM GPL for NOS manual, immediately below the blocked NOTE is the MSTRNG statement format and its description.

Replace NORTN with NORTRN in both the format and parameter description.

6.3 GPL SPLINE MANUAL CHANGE

On page 13-7 of Revision C of the ICEM GPL for NOS manual, the third sentence in the second paragraph should read as follows:

> A minimum of three points and a maximum of 100 points can be specified.

6.4 GPL PREFIX MANUAL CHANGE

On page 19-18 of Revision C of the ICEM GPL for NOS manual, the following text should be added at the end of the second paragraph:

> Although the reverse slant is the default prefix character, it is also the default "new line" character. Since the "new line" character takes precedence over the prefix character, the PREFIX statement must always be used to to change the default when a special symbol character is used.

6.5 CURVE MESH SURFACE MANUAL CHANGE

In the ICEM DDN ADVANCED DESIGN for NOS manual, replace the description under 15.3.6 Curve Mesh Surface with the following:

In the INDICATE CURVES description:

FIXED CURVES INDICATE CURVES	Use the graphics cursor to select the fixed curves in an ordered manner. Fixed curves can be lines, arcs, conics, two-dimensional splines, composite curves, point sets, three-dimensional splines, or machining curves. Fixed curves cannot be selected end-to-end. Curves that lie end-to-end should be redefined as a composite curve before selection as a fixed curve. You must select a least 2, but not more than 30 fixed curves.
VARIABLE CURVES INDICATE CURVES	Use the graphics cursor to select the variable curves in an ordered manner. Variable curves,like fixed curves, can be of any type. Variable curves that lie end-to-end should be redefined as a composite curve before selection as a variable curve. You must select at lease 2, but not more than 30 variable curves under the following restriction: If you select "1. WITH TWIST VECTORS," the product of the number of fixed curves times the number of variable curves cannot exceed 203. If you select "2. LINEARLY BLENDED," the product cannot exceed 509.

6.6 NEW ICEM DDN CONTROL CARD PARAMETERS 'RO' AND 'LF'

The following should be added to the list of optional ICEM DDN parameter settings found on pages 1-11 through 1-16 of the ICEM Design/Drafting Introduction and System Controls manual.

6.0 POST-1.62 ICEM MANUAL CHANGES
6.6 NEW ICEM DDN CONTROL CARD PARAMETERS 'RO' AND 'LF'

LF List To File. Writes to specific local files some of the lists displayed on the screen during an ICEM DDN session. Listings will also be displayed on the screen unless the RO (Repaint Off) parameter is set. Default: Off.

LF Sets List To File on.

The following local files are produced when the respective list is generated from an ICEM DDN menu pick and LF is on. These files are always appended to, not overwritten. The list generated on the local file is always a complete list even if 'n' or '[' are entered at the continue listing prompt for screen display. A message indicates success or failure in writing to the local list file.

ENTLS	Database part entity list: (f.6.6.1.3).
GPARTLS	Global parts file list: (f.6.1.1.3), (f.6.1.2.3).
GUTFLS	Global UTF file list: (f.6.5.4.3).
IPARTLS	Independent parts file list: (f.6.1.9), (f.6.1.10).
PARTLS	Database file (TAPE3) parts list: (f.6.1.3), also by entering 'list' when creating a new, or retrieving an existing, TAPE3 part.
PRBRPLS	Problem report list: (f.6.1.11.1), (f.6.1.11.2).
UTFLS	Database UTF list: (f.6.5.1).

RO Repaint Off. Disables redrawing of the display area and the generation of new entities in the display area. R entered as a function key will have no effect.
Default: Off.

RO Disables redrawing. Repaint Off is on.

With Repaint Off enabled, specific lists which can also be written to local files will not be generated to the display area. See the LF parameter to determine which lists can be generated to local files.

6.7 CLFILE TRANSLATION

This utility to translate the binary formatted CL data from the neutral format CL file and vice versa is included with the 1.65 release of ICEM DDN, however, it is executed directly from the operating system level.

Alternate input and output files can be used as the first two parameters on the execution statement. The alternate input file contains the same data as would be entered at an interactive session.

The execution statement is as follows:

```
ICEMCLT[,ALTIN] [,ALTOUT]
```

All data files needed should be local.

Upon execution, an entry banner is displayed, showing the current version of the release.

```
ICEM CL FILE TRANSLATOR

COPYRIGHT CONTROL DATA CORPORATION
1987

REVISION 1.0
ICEM DDN 1.64
```

(NOTE - The CL File Translator that was provided for ICEM DDN 1.64 also works for ICEM DDN 1.65)

The system then displays the SELECT TRANSLATOR FUNCTION menu with the current settings:

```
---SELECT TRANSLATOR FUNCTION
1.EXIT
2.GENERATE BINARY CL FILE
3.GENERATE NEUTRAL CL FILE
4.BINARY CL DATA FORMAT        - APT IV
5.BINARY CL FILE NAME          - CLFILE
6.NEUTRAL CL FILE NAME         - CLTAPE
```

Enter:

1 To end the translator session.

2 To generate a binary CL file from a neutral format CL data file. If you choose option 2, the system displays:

```
GENERATING (format) CL FILE (filename)
FROM NEUTRAL CL FILE (filename)
```

The CL file with the set file name is generated from the neutral CL data file with the set name. Any data already in the CL file is overwritten, even if generated in the same session.

After a successful translation the following message appears:

```
nn RECORDS WRITTEN TO THE CLFILE
NO ERRORS ENCOUNTERED
```

You are then returned to the main menu.

After an unsuccessful translation, one of the following messages appears:

a)
```
NEUTRAL DATA FILE NOT RECOGNIZED
CHECK FILE NAME OR FILE HEADER
```

Action : - Check if the correct file name is set.
- Check if the file header was corrupted (see neutral file format definition).

Result : - No CL data written to CL file.

b)
```
NEUTRAL DATA FILE EMPTY OR NOT FOUND
CHECK FILE NAME
CHECK IF FILE IS LOCAL
```

Action : - Check if the correct file name is set.
- Check if the file is local

Result : - No CL data written to CL file.

c)
```
NEUTRAL DATA FILE IS CORRUPT
AT OR AROUND RECORD record number
CHECK FILE NAME OR EDIT ERRORS
```

Action : - Check if the correct file name is set.
- May occur after manual editing.

Result : - Check CL file contents.

3 To generate a neutral format CL data file from a binary CL file. If you choose option 3, the system displays:

GENERATING NEUTRAL CL FILE (filename)
FROM (format) CL FILE (filename)

The neutral CL data file with the set name is generated from the CL file with the set name. Any data already in the neutral data CL file is overwritten, even if generated in the same session.

After a successful translation, the following message appears:

nn RECORDS WRITTEN TO THE CLFILE
NO ERRORS ENCOUNTERED

You are then returned to the main menu.

After an unsuccessful translation, one of the following messages appears:

a) END OF CL FILE ENCOUNTERED BEFORE FINI
CHECK CL FILE FOR FINI,
CHECK CL FILE NAME, FORMAT AND CONTENT.

Action:
- Check if the CL file contains a FINI.
- Check if the correct CL file name is set.
- Check if the correct CL data format was chosen.
- Check if the file is available and contains the expected data.

Result:
- Check neutral format CL data file.

b) BINARY FILE READ ERROR
CHECK FILE NAME, FORMAT AND CONTENT

Action:
- Check if the correct CL data format was chosen.
- Check if the file contains data.

Result: No neutral format CL data generated.

4 To be prompted for binary CL file format, the system displays the following menu. Enter 1 to return to the main menu

without changing the format. Enter 2 or 3 to select the desired format. Enter] or [to return to the main menu without changing the format.

```
---SELECT BINARY CL FILE FORMAT
1.EXIT
2.CDC APT III
3.CDC APT IV
```

5 To be prompted for the binary CL file name, the system displays:

ENTER CL DATA FILE NAME ?	Enter a valid file name. Enter] or [if the current file name is to be retained.

To be prompted for the neutral format CL data file name, the system displays:

ENTER NEUTRAL FORMAT CL DATA FILE NAME ?	Enter a valid file name, Enter] or [if the current file name is to be retained.

If an invalid file name is entered, the system displays:

```
FILE NAME NOT VALID
```

In this case, the original file name is retained.

6.7.1 ALTERNATE INPUT FILE FORMAT

The contents of an alternate input file must be identical to the data that would be entered in an interactive session at the main menu and performing the desired translation(s).

Examples:

1. A neutral file CLFILE has to be translated to an APT IV binary CL File CLTAPE. In an interactive session, at the main menu, first a 2 is entered to generate the binary CL file. Then a 1 is entered to end the session

6.0 POST-1.62 ICEM MANUAL CHANGES
6.7.1 ALTERNATE INPUT FILE FORMAT

The alternate input file contains 2 lines:

```
2
1
```

2. An APT III binary CL file CLTAP1 has to be translated to a neutral format CL File CLNEUT. In an interactive session, at the main menu, the following is entered:

```
4 , change the binary CL file format
3 , set the format to APT III
5 , change the binary CL file name
CLTAP1 , the binary CL file name
6 , change the neutral CL file name
CLNEUT , the neutral CL file name
2 , generate the neutral CL file
1 , exit.
```

The alternate input file contains 8 lines:

```
4
3
5
CLTAP1
6
CLNEUT
2
1
```

6.7.2 NEUTRAL FORMAT DEFINITION

An APT CL File consists of a set of data records. Each data record has an integer and real part. The integer part contains general information as the type, number and length of the record. The real data part contains the specific record data, in real, integer or character form.

To be able to transfer this data from one operating system to another, it is written out in a neutral format on an ASCII file.

The file is a sequential, formatted file, containing character data. The file contains variable length records, lines, with a maximum length of 130 characters.

6.7.2.1 Definitions

data type specifier:

single upper case character, indicating the data type of the data in the following field. Three data type specifiers are defined:

I: preceeds an integer number data field
F: preceeds an floating point number data field
A: preceeds a character data field

data field:

fixed length character string containing the data corresponding to one logical CL data word. The length is data type dependent.

data element:

a data type specifier followed by the data field.

integer data element:

the data specifier I followed by a fixed length character representation of an integer number.

e.g.: I 2000 represents the integer 2000 in a ten character integer data field.

floating point data element:

the data specifier F followed by a fixed length character representation of a floating number in exponential format: A one character sign field, a normalized fixed length mantissa without decimal point, a one character sign field and a fixed length exponent.

e.g.: F+5000000000000000+0001 represents the floating point number 5. with a 16 character mantissa and a 4 character exponent.

character data element:

the data specifier A followed by a fixed length character string. The length is always 6.

e.g.: ACL DAT represents the string 'CL DAT'

6.7.2.2 File header

The file header serves three purposes:

1. Define the end of record character.
2. Define the formats of the record data for integer, floating point and character data.
3. Prevent backspacing from the first record.

The file header consists of 11 characters:

position(s)	definition/purpose	value	range
1	end of record character	;	any character except I,F,A
2	integer format specifier	I	I
3-4	integer field length	10	1-10
5	floating format specifier	F	F
6	exponent field length	4	1-5
7-8	mantissa field length	16	1-20
9	character format specifier	A	A
10	character field length	6	6
11	end of record character	;	must be the same as pos 1

The standard file header record for CL file in the ICEM DDN environment:

```
;I10F416A6;
```

6.7.2.3 CL data record

A CL data record is a concatenation of data elements spanning one or more lines of 130 characters or less and with the end of record character as the last character. A data element must be fully contained on one line.

6.7.2.4 End of file record

The end of the file is indicated by a null record. A null record consists of a one character line, the end of line character.

The standard end of file record for CL file in the ICEM DDN

6.0 POST-1.62 ICEM MANUAL CHANGES
6.7.2.4 End of file record

environment will then be:

```
;
```

Note that the end of record character as the only data on a line does not necessarily constitute a null record. It could be the closing character of a record spanning one or more previous lines.

6.7.2.5 Example

APT representation:

```
PARTNO EXAMPLE OF A NEUTRAL CL DATA FILE
FROM/0,0,0
GOTO/5,5,5
FINI
```

Neutral CL data file (the line length is limited to 70 for the example):

```
;I10F416A6;
I         9I         1I      2000I      1045A EXAMPALE OF AA NEUT
ARAL CLADATA FAILE   ;
I         8I         2I      5000I         3A      I         0
F+0000000000000000+0000F+0000000000000000+0000F+0000000000000000+0000;
I         8I         3I      5000I         5A      I         0
F+5000000000000000+0001F+5000000000000000+0001F+5000000000000000+0001;
I         3I         4I     14000I         0;
;
```

6.7.3 CL FILE STRUCTURE

The CL File consists of a sequential set of records. Each record is defined by a record class, a sub code and further instructions. The clqss groups similar types of records and is also called the record type.

Listed below are the standard defined record formats:

Wn = word n of the current record
W1 = record sequence number, refer to the physical formats for details

6.0 POST-1.62 ICEM MANUAL CHANGES
6.7.3 CL FILE STRUCTURE

Record Type 2000: Post processor Commands

W1 = record sequence number
W2 = 2000
W3 = major word sub code (see postprocessor library, major word codes)
W4 = minor word codes and/or parameters (see postprocessor library, minor word codes)
...

Specific Formats:

PPRINT, PARTNO, INSERT: W4... = up to 66 characters of text, blank filled on the right
ARCSLP: W3 = 1029 (Default)
W4 = START W5 = s,slope W6 = ENDARC W7 = e,slope, W8 = RADIUS, W9 = r, W10 = CCLW or CLW

Record Type 3000: Surface Data

Circle records are the only surface data carried through into a CL file:

W1 = record sequence number
W2 = 3000
W3 = 2 Surface Use Indicator (Drive Surface)
W4 = 1 Surface Condition Indicator (TO)
W5 = 4 Surface Type Indicator (CIRCLE)
W6 = 9 Number of words in the canonical form
W7 = ' ' Surface name (Blank)
W8 = 0 Surface name subscript
W9 = xc
W10= yc Coordinates of the circle center
W11= zc
W12= i
W13= j Circle plane normal
W14= k
W15= r Circle radius

Record Type 5000: Directions, Points and Parameters

W1 = record sequence number
W2 = 5000
W3 = 3 FROM = 4 GODLTA = 5 GOTO = 6 Continuation
W4 = ' ' Point or Vector name (Blank)
W5 = 0 Name subscript

W6 =	xp		xv		xp(1)		xp(n+1)	
W7 =	yp		yv		yp(1)		yp(n+1)	
W8 =	zp		zv		zp(1)		zp(n+1)	
W9 =	i		i		ip(1)		ip(n+1)	
W10=	j	(Multax only)	j	(id.)	jp(1)	(id.)	jp(n+1)	(id.)

W11= k		k		kp(1)		kp(n+1)
... (Additional point coordinate sets for W3 = 5 or 6 only)						
W5 +n				xp(n)		xp(2n)
W6 +n				yp(n)		yp(2n)
W7 +n				zp(n)		zp(2n)
W8 +n				ip(n)		ip(2n)
W9 +n				jp(n)	(id.)	jp(2n) (id.)
W10+n		k		kp(n)		kp(2n)

A maximum number of 240 reals is written out in a GOTO or Continuation record.

Record Type 6000: ARELEM Flags, Specifications, and Parameters

W1 = record sequence number
W2 = 6000
W3 = 4 INTOL
5 OUTTOL
W5 = t tolerance

Record Type 9000: ARELEM Parameters

W1 = record sequence number
W2 = 9000
W3 = 2 MULTAX
W5 = 0 OFF
= 1 ON

And for an ISO standard CL file:

W1 = record sequence number
W2 = 9000
W3 = 9 UNITS
W4 = 171 MM
= 172 CM
= 173 INCH
= 174 FT
W5 = n scaling factor or null

Record Type 14000: Termination

W1 = record sequence number
W2 = 14000, FINI
W3 = 0

6.8 IPARTD SAVE

Following the Independent Save information on page 2-21 of the ICEM Design/Drafting Data Management manual, insert:

> "A maximum of 90 parts may be saved on a single IPARTD file. If you attempt to save more than 90 parts, the system will issue an error message and will not save the part onto the IPARTD file."

6.9 IPARTD MODALS

In order to provide increased flexibility in the IPARTD feature, menu 6.1.12 IPARTD MODALS has been added. This menu item currently contains one new modal, the COMBINING VIEWS modal.

The following documentation on IPARTD MODALS should be inserted after page 2-25 of the ICEM Design/Drafting Data Management manual:

6.1.12 IPARTD MODALS

With ICEM DDN V1.65, there is a modal available for use in restoring IPARTD files. Additional modals may be added if necessary.

The current modal setting is displayed to the right of the modal.

```
---IPARTD MODALS
 1.COMBINING VIEWS      current modal setting
```

Enter:

1 To change the COMBINING VIEWS modal.

] or [To return to the PART MANAGEMENT menu.

If you select 1.COMBINING VIEWS, the following menu will be displayed:

```
---COMBINING VIEWS
 1.COMBINE VIEWS WHEN RESTORING
 2.DO NOT COMBINE VIEWS WHEN RESTORING
```

Enter:

1 To combine views with identical view matrices when restoring parts from IPARTD.

2 To not combine views with identical view matrices when restoring. This is the system default.

] To return to the PART MANAGEMENT menu.

[To return to the IPARTD MODALS menu.

If you choose to combine views, an entity displayed in any of the combined views will be displayed in the resultant view. The view names of the eliminated views will be unavailable after they have been combined.

Most users will not want their views combined. View combining was motivated by a very old IGES problem which has long since been resolved.

6.10 TAPE9 PLOT FILE OPTIMIZER

With some plotters, especially pen plotters, it is desirable to optimize the graphics data on the plot file before plotting it on the device. The Plot Optimizer sorts the graphics data and removes duplicate, collinear, and zero-length lines, thus reducing pen motion and increasing plotter throughput. A number of parameters are available for controlling the level of optimization.

To execute the Plot File Optimizer, enter the following command:

```
OPTIM[,param1] [,param2] [,param3],... [,paramN]
```

where

6.0 POST-1.62 ICEM MANUAL CHANGES
6.10 TAPE9 PLOT FILE OPTIMIZER

I Input plot file.
Default input plot file name is TAPE9.

O Output plot file.
Default output plot file name is TAPE9.

ZERO Zero length vector optimization. Valid values are ON and OFF. The default is OFF.
When ZERO=ON, the optimizer removes zero length vectors.

DUP Duplicate vector optimization. Valid values are ON and OFF. The default is OFF.
When DUP=ON, the optimizer removes duplicate vectors.

COIN Coincident vector optimization. Valid values are ON and OFF. The default is OFF.
When COIN=ON, the optimizer combines collinear and overlapping lines. Note that COIN=ON removes a larger set of plot file vectors, since it combines a group of vectors into a single vector.

PC Pen change optimization. Valid values are ON and OFF. The default is OFF.
When PC=ON, the optimizer reduces the number of pen change commands on the plot file. This option is useful when it is known that the target plotting device stores its pens in a carousel, making frequent pen changes costly.

GRID Grid square optimization. Valid values are ON and OFF. The default is OFF.
When GRID=ON, the optimizer places a grid over the plot to improve optimizer performance. Vectors are eliminated from the plot file based on the grid square which contains their endpoints. With GRID=OFF, the optimizer removes a larger set of vectors at the expense of more processing time.

STATS Statistics option. Valid values are ON and OFF. The default is OFF.
When STATS=ON, optimization statistics are written to the job's output file. This option provides information that the installer can use in determining appropriate settings for the ZERO, DUP, COIN, PC and GRID parameters. It should be turned off for production runs.

Depending on hardware and software factors involved in the plotting processes, adjustments to ZERO, DUP, COIN, PC, and GRID should be made, allowing for appropriate trade-offs between optimizer processing time and plotter throughput time.

6.0 POST-1.62 ICEM MANUAL CHANGES
6.10 TAPE9 PLOT FILE OPTIMIZER

Diagnostic messages are written to the file "OPTERR."

6.10.1 OPTIM RESTRICTIONS

The program makes use of the temporary files 'ZZZZTXT,' 'ZZZZT9A,' and 'ZZZZT90,' so neither the input or the output file should have these names.

6.10.2 OPTIM ERROR MESSAGES

CAN'T OPEN INTERNAL SCRATCH FILE.

This message occurs during initialization when the scratch file is being opened. The usual cause is that the file already exists in an unknown format, or a system error.

CAN'T OPEN PLOT FILE FOR READING.

This message occurs during initialization when the input file is being opened. The usual cause is that the file does not exist.

CAN'T OPEN PLOT FILE FOR WRITING.

This message occurs when the output file is being opened.

CHARACTER COUNT < 0.

This message occurs when a text command is found with a character count that is less than zero.

CHARACTER COUNT EXCEEDS MAXIMUM.

This message occurs when a text command is found with a character count that exceeds the maximum (currently limited to 200 by UNIPLOT).

6.0 POST-1.62 ICEM MANUAL CHANGES
6.10.2 OPTIM ERROR MESSAGES

CHARACTER STRING TOO LONG.

This message occurs when a text command is found with a character string that is longer than the maximum. This can only occur on NOS, since on NOS the string is stored in 6/12 format and the number of characters needed to represent an ASCII string may be up to twice as many as on an ASCII machine.

COMMAND TYPE NOT SUPPORTED.

This message occurs while the plot commands are being read from the input file. This message will appear if the input file contains commands other than move, draw, change pen, end-of-plot, end-of-file, or text commands.

DUPLICATE VECTOR OPTION INVALID.

This message occurs if the DUP parameter is set to a value other than OFF or ON.

ERROR OCCURRED OPENING LIST FILE

An error occurred trying to open the file which contains fatal error messages.

ERROR OCCURRED READING PLOT FILE.

This message occurs while the plot commands are being read from the input file. The usual cause is that the input file is not formatted correctly.

GRID OPTION INVALID.

This message occurs if the GRID parameter is set to a value other than OFF or ON.

INVALID PARAMETER.

This message occurs when an unknown control card parameter keyword is passed to the optimizer.

6.0 POST-1.62 ICEM MANUAL CHANGES
6.10.2 OPTIM ERROR MESSAGES

KEYWORD = VALUE EXPECTED.

This message occurs during initialization when any control card parameter information is passed to the optimizer using a form other than 'keyword=value'.

PEN CHANGE OPTION INVALID.

This message occurs if the PC parameter is set to a value other than OFF or ON.

PLOT FILE VERSION NOT SUPPORTED.

This message occurs during validation of the plot file header. The usual cause is the header is missing.

PLOT OPTIMIZER ABORT. UNKNOWN CAUSE.

Message is self-explanatory.

PREMATURE END OF PLOT FILE.

This message occurs while the plot commands are being read from the input file. The cause is that the end of input file is sensed before the end of plot file command is found.

STATISTICS OPTION INVALID.

This message occurs if the STATS parameter is set to a value other than OFF or ON.

ZERO LENGTH VECTOR OPTION INVALID.

This message occurs if the ZERO parameter is set to a value other than OFF or ON.

6.11 INCREMENTAL POINTS ON ELLIPSES AND HYPERBOLAS

Following the text on page 1-22 of the ICEM Design/Drafting Basic Construction for NOS manual, add the following note:

> "If you desire evenly spaced incremental points along an ellipse or hyperbola, a Bezier Curve representation of the ellipse or hyperbola can be used. This is done by using F.15.2.7.1.4 CONVERSION to approximate the curve by a Bezier curve. (This function does not change the initial curve in any way.) Evenly spaced incremental points can then be placed along the Bezier curve."

6.12 MSTRNG STATEMENT IN GPL

The following note should be added to page 8-4 of the ICEM Design/Drafting GPL for NOS manual:

> "Caution should be used when GPL programs which contain MSTRNG statements are initiated from a programmed tablet square. None of the tablet square commands following the GPL program name will be executed."

6.13 CHAIN SELECT TOLERANCE

The following menu item should be added under MODALS on page 2-18 of the ICEM Design/Drafting Introduction and System Controls for NOS manual:

10.CHAIN SELECT TOLERANCE 0.001 to 0.000000001 inch

The following note should be added to page 2-21 of the ICEM Design/Drafting Introduction and System Controls for NOS manual:

6.0 POST-1.62 ICEM MANUAL CHANGES
6.13 CHAIN SELECT TOLERANCE

10 If you select 10.CHAIN SELECT TOLERANCE from the Modals menu, you can set the tolerance that is used by chain select to identify contiguous entities. The system displays:

CHAIN SELECT TOL = n.nnnn

When the modal is selected, its current value is displayed. Enter the desired chain select tolerance. The default value is 0.001 inch (0.0254 millimeter). Valid input is between 0.001 inch (0.0254 mm) and 0.000000001 inch (0.000000025 mm). If invalid input is entered, an error message is output and the system reprompts you for a valid chain select tolerance.

The following menu item should be added under DISPLAY SELECTION SYSTEM MODALS on page 3-29 of the ICEM Design/Drafting Introduction and System Controls for NOS manual:

11.CHAIN SELECT TOLERANCE 0.001

The following menu item should be added under CHAIN SELECT MODALS on page 3-30 of the ICEM Design/Drafting Introduction and System Controls for NOS manual:

4.CHAIN SELECT TOLERANCE 0.001

Enter 4 to change the chain select tolerance value

The following note should be added to page 3-31 of the ICEM Design/Drafting Introduction and System Controls for NOS manual:

If you select 4.CHAIN SELECT TOLERANCE from the Chain Select Modals menu, you can set the tolerance that is used by chain select to identify contiguous entities. The system displays:

CHAIN SELECT TOL = n.nnnn

When the modal is selected, its current value is displayed. Enter the desired chain select tolerance. The default value is 0.001 inch (0.0254 millimeter). Valid input is between 0.001 inch (0.0254 mm) and 0.000000001 inch (0.000000025 mm). If invalid input is entered, an error message is output and the system reprompts you for a valid chain select tolerance.

6.14 TOLERANCE SPECIAL CHARACTER SYMBOLS FOR ANSI

The following symbols should be added to Table 1-1 on page 1-7 of the ICEM Design/Drafting Drafting Functions for NOS manual:

Character Entry	Symbol	Symbol Name
\+	+	Plus for tolerancing
\-	-	Minus for tolerancing

The following note should be added to page 1-94 of the ICEM Design/Drafting Drafting Functions for NOS manual:

"ICEM DDN will always create tolerances from the tolerance menu so that the text will display as stacked. Text to be displayed nonstacked on a single line may be added with the modify text menu (16.13.6)."

7.0 NOS TAPE3 RESTORE UTILITY

7.1 INTRODUCTION

This document describes how the NOS TAPE3 Restore Utility works. The program restores a damaged TAPE3 by reading the damaged parts and copying them off onto the file TAPE2. The part index and the first sector are reconstructed and updated.

This utility is useful when the part file is truncated, the part index lost, or the first sector is overwritten. ICEMDDN will abort if the first sector is overwritten. If the part is truncated and/or the part index is lost, ICEMDDN will indicate that there are no parts, bad parts, or a bad index on the TAPE3.

It is recommended that an experienced analyst work with such part files to determine the appropriateness of using the CONVT3 program, to help insure proper recovery of as many parts as possible, and to investigate the original cause of the problem.

7.2 APPLICABLE DOCUMENTS

The format of the TAPE3 file is documented in the ICEM DDN V1.64 System Programmer's Reference Manual.

7.3 PROGRAM DESCRIPTION

The program reads the damaged part file and looks for a correctly formatted first sector. If the first sector is incorrect, a new one is generated and the user is informed. The program then looks for part separators and copies each part and the first sector off to TAPE2. After the last part is found, the part index is generated and the first sector part length is updated.

Inactive parts can also be found in the part file. Because the part index is the usual area of the part file to be lost, CONVT3 cannot tell dormant parts from active ones. Thus, more than one copy of a part can be recovered. In order to uniquely identify duplicate parts, a program-generated name is appended to the the front of these part names. The last 10 characters of the 70 character part name are dropped. This is necessary in order to guarantee that the part name is unique.

Each part will have the name "RESTORExxx" as the first ten characters of the part name. The xxx starts at 1 and increases by 1 for each part on the file.

7.4 INSTALLATION OF CONVT3

There are two ways that CONVT3 can be installed:

1. The program can be SYSEDITed into the operating system or built into the deadstart file so that the user simply enters "CONVT3" to execute it.

2. The program can be executed by attaching the file and by entering the file name.

7.5 CONVT3 PROGRAM EXECUTION

This program requires the damaged part file be local and named TAPE3. The program will generate a new part file named TAPE2. The damaged parts should be brought up with ICEMDDN to verify if they are correct. A run through part renew or part check is recommended. When a part file is damaged because of an unknown bug, hardware failure, or track limit, the parts on the part file can be harmed in any number of ways. Therefore, it is important to check the part to find what is damaged. It is possible that a bad part can cause the ICEMDDN product to abort. These parts should be deleted from the recovered part file.

7.6 NOTES AND CAUTIONS

When CONVT3 program is run, the UTF data and pre-V1.60 patterns are dropped.

7.7 CONVT3 PROGRAM OUTPUT

The CONVT3 program lists the parts being processed as follows:

```
PROCESSING =
part name
SHEET = sheet number

part name
SHEET = sheet number
   .
   .
   .

NUMBER OF PARTS = number of parts
TAPE2 LENGTH = length of tape2
RESTORATION COMPLETE - RESTORED PARTS ON TAPE2
   STOP RESTORATION COMPLETE
```

The CONVT3 program issues the following error messages:

Message	Description and Error Handling
EMPTY OR IMPROPERLY FORMATTED TAPE3 and/or NO PARTS FOUND - ABORT	The file TAPE3 does not have a ICEMDDN first sector on it and no parts were found before the end of the record.
READ ERROR - ABORT or WRITE ERROR - ABORT	An unrecovered disk error occurred on a CONVT3 working file.
FIRST SECTOR OF TAPE3 IS NOT CORRECTLY FORMATTED and FIRST SECTOR RECONSTRUCTED	This is an informative message that the beginning of the part file was overwritten or an incorrect file was used as input to the CONVT3 program. The CONVT3 program will generate a new first sector on TAPE2 and continue scanning for parts.

end

CONTROL DATA CORPORATION

DATE ASSEMBLY NO | CORPORATE FILE NUMBER | SCMA | PAGE 1 OF 2

06/27/88 6R285 | 2043520008 | 102716

SOFTWARE/CONTROLWARE MOVEMENT AUTHORIZATION
(NOT AN INVOICE)

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2621 VAN BUREN AVE.
NORRISTOWN, PA 19446

CUSTOMER P.O.	TRANSMIT NO	SALES REP	DEPT	ACCOUNT
		SUBMITTER		

SELLING OFFICE	INSTALLING OFFICE	SYSTEM TYPE	SYSTEM SERIAL	DIVISION CODE	FACILITY CODE	PROJECT NUMBER
FXX	FXX	CY830	00618	0150/	VFDZON	

PRODUCT NUMBER	RELEASE LEVEL	PRODUCT NAME	VER	PROD QTY
D830-122	688B	ICEM IGES TRNSLTR	223	1

COMPONENT NUMBER	COMPONENT NAME	VER	COMP TY TYPE	MN	COMP QTY	UNIT PRICE	EXTND PRICE	EXTND QTY	CP AV	BACK-ORDER
REL38A	IGESV223	223	600		1	0.00	0.00	1	S	
SMD131461	INSTALL BULLETIN		MEMO		1	0.00	0.00	1	S	
SMD131973	INSTALL INSTR	223	MEMO		1	0.00	0.00	1	S	
SMD131974	IGES URB	223	MEMO		1	0.00	0.00	1	S	
77987785	INSTALL SURVEY		MEMO		1	0.00	0.00	1	S	
ORDER PROCESSING CHARGE							0.00	5		
PRODUCT CHARGE							0.00			

PRODUCT NUMBER	RELEASE LEVEL	PRODUCT NAME	VER	PROD QTY
H830-110	688A	ICEM DESIGN/DRAFT	165	1

COMPONENT NUMBER	COMPONENT NAME	VER	COMP TY TYPE	MN	COMP QTY	UNIT PRICE	EXTND PRICE	EXTND QTY	CP AV	BACK-ORDER
REL68	ICEMDD	165	2400		1	0.00	0.00	1	S	
REL68C	ICEMGPL	165	600		1	0.00	0.00	1	S	
SMD131461	INSTALL BULLETIN		*COMPONENT DUPLICATED IN THIS ORDER*							

FREIGHT

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06/27/88	6R285	2043520008	102716	

SOFTWARE/CONTROLWARE MOVEMENT AUTHORIZATION
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PRODUCT NUMBER	RELEASE LEVEL	PRODUCT NAME	VER	PROD QTY
H830-110	688A	ICEM DESIGN/DRAFT	165	1

COMPONENT NUMBER	COMPONENT NAME	VER	COMP TYPE	TY MN	COMP QTY	UNIT PRICE	EXTND PRICE	EXTND QTY	CP AV	BACK-ORDER
SMD131838	ICEM DDN SRB	165	MEMO		1	0.00	0.00	1	S	
SMD131839	INSTALL INSTR	165	MEMO		1	0.00	0.00	1	S	
77987785	INSTALL SURVEY		*COMPONENT DUPLICATED IN THIS ORDER*							
ORDER PROCESSING CHARGE							0.00	4		
PRODUCT CHARGE							0.00			

TOTAL ORDER PROCESSING CHARGE	0.00	9	
TOTAL PRODUCT CHARGE	0.00	2	
TOTAL ORDER CHARGE	0.00	U.S. DOLLARS	

MISCELLANEOUS CONTENTS:

002 - 600
001 - 2400

C O N T R O L D A T A C O R P O R A T I O N

DATE ASSEMBLY NO CORPORATE FILE NUMBER SCMA PAGE 1

06/27/88 6R285 2043520008 102716

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CUSTOMER P.O.	TRANSMIT NO	SALES REP	DEPT	ACCOUNT
		SUBMITTER		

SELLING OFFICE	INSTALLING OFFICE	SYSTEM TYPE	SYSTEM SERIAL	DIVISION CODE	FACILITY CODE	PROJECT NUMBER
FXX	FXX	CY830	00618	0150/	VFDZON	

PRODUCT NUMBER	RELEASE LEVEL	PRODUCT NAME	VER	PROD QTY
D830-122	688B	ICEM IGES TRNSLTR	223	1

COMPONENT NUMBER	COMPONENT NAME	VER	COMP TYPE	TY COMP MN QTY	UNIT PRICE	EXTND PRICE	EXTND QTY	CP AV	BACK-ORDER
REL38A	IGESV223	223	600	1	0.00	0.00	1	S	
SMD131461	INSTALL BULLETIN		MEMO	1	0.00	0.00	1	S	
SMD131973	INSTALL INSTR	223	MEMO	1	0.00	0.00	1	S	
SMD131974	IGES URB	223	MEMO	1	0.00	0.00	1	S	
77987785	INSTALL SURVEY		MEMO	1	0.00	0.00	1	S	
ORDER PROCESSING CHARGE						0.00	5		
PRODUCT CHARGE						0.00			

H830-110	688A	ICEM DESIGN/DRAFT	165	1					
REL68	ICEMDD	165	2400	1	0.00	0.00	1	S	
REL68C	ICEMGPL	165	600	1	0.00	0.00	1	S	
SMD131461	INSTALL BULLETIN	*COMPONENT DUPLICATED IN THIS ORDER*							

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77987785	INSTALL SURVEY		*COMPONENT DUPLICATED IN THIS ORDER*							
ORDER PROCESSING CHARGE							0.00	4		
PRODUCT CHARGE							0.00			

TOTAL ORDER PROCESSING CHARGE	0.00	9
TOTAL PRODUCT CHARGE	0.00	2
TOTAL ORDER CHARGE	0.00	U.S. DOLLARS

MISCELLANEOUS CONTENTS:

002 - 600
001 - 2400

INSTALLATION BULLETIN INFORMATION
(10/21/87)

**** IMPORTANT - PLEASE FOLLOW THE BELOW PROCEDURE ****
**** BEFORE INSTALLING THIS PRODUCT ****

Control Data Corporation provides its customers with an on-line method of obtaining current information about its products.

One of the on-line information sources is called an INSTALLATION BULLETIN. An Installation Bulletin can contain information helpful in installing and executing Control Data products.

Before installing this product, please contact your local Control Data office or follow the below procedure to determine if an Installation Bulletin exists.

1. The on-line system resides in the Control Data Sunnyvale California facility.

   You will need a terminal and 300 or 1200 baud modem.

   Please dial: (408) 734-6100

2. When the computer system answers your call (a high pitched sound),
   enter: (carriage return key)
   enter: (carriage return key)

3. The system will respond with:
   FAMILY:

SMD131461

4. Enter: ,SOLVER, SOLVER (carriage return key)

5. The system will respond with:
   OVER...

6. Enter: (carriage return key)

7. The system will respond with:
   Please enter your site code and password:
   Site Password

8. Enter: CDCCIM,9P2PK (carriage return key)

9. The system will respond with the following menu:
   Your choices are:
   1 Search PSR Data Base
   2 Retrieve Installation Bulletins
   3 Report a new problem or change an existing PSR
   BYE to end this session
   HELP if you want help

   Enter your main menu choice:

10. Enter: 2 (carriage return key)

11. The system will respond with the below menu:
    Installation Bulletins are available for:
    1 ICEM
    2 ICEM 2.0.0
    CARRIAGE RETURN for main menu

    Enter your IB choice:

12. Enter: 1 (carriage return key)
or
2 (carriage return key)

13. The system will respond with the below menu:
Release:ICEM
1 Display all Installation Bulletins
2 Display all Installation Bulletins entered or changed since a specified date
3 Display all new or changed IBs since your last IB retrieve (YY/MM/DD)
4 Display topic index for this release
CARRIAGE RETURN for previous menu

Enter your IB choice:

14. Enter: 1 (carriage return key)

15. The system will respond by printing all Installation Bulletins for the ICEM products. The system will occasionally pause to allow the reading of a page of text. To continue, enter the carriage return key.

16. Once the system has printed all Installation Bulletins, the menu in step 11 above will appear.

Enter: (carriage return key)

17. The system will respond with the menu in step 9 above.

18. Enter: BYE (carriage return key)

19. The system will then log you off. You may now disconnect the telephone call.

end

Control Data Corporation

ICEM IGES TRANSLATOR

Version 2.23

Operating System Level: NOS 2.5.3 Level 688

June 1988

Installation Instructions

Disclaimer

ICEM IGES should be installed only as described in this document. Control Data cannot be responsible for the proper functioning of undescribed features or parameters.

Note

Please contact the appropriate hotline if you have questions concerning installation.

USA and Canada	800 345-9903
International	612 851-4131

SMD131973

1.0 DESCRIPTION

ICEM IGES Translators allows the user to receive and/or transfer geometry-based information between non-CDC CAD/CAM systems and the ICEM system. ICEM IGES runs under NOS 2.

2.0 HARDWARE REQUIREMENTS

ICEM IGES Translators requires the minimum hardware configuration for NOS.

3.0 RELEASE MATERIALS

The IGES Translators are released on 9-track tape (VSN=REL38A). The following files are included:

File 1:	INSTALL	the IGES installation procedure
File 2:	IGPROC	the IGES execution procedure file
File 3:	IGESICT	the IGES Postprocessor - IGES to IPARTD translator
File 4:	IGESCIT	the IGES Preprocessor - IPARTD to IGES translator
File 5:	IGESVER	an IGES file - used for verification testing
File 6:	IGESLST	a translator list file - used for verification testing

4.0 INSTALLATION PROCEDURE

ICEM IGES is installed by executing the install procedure which is the first file on the IGES tape; the installation must be run interactively. It is recommended that ICEM IGES be installed on user number APPLLIB with a user index of 377774.

The installation procedure creates the following files and makes them permanent on the installation catalog:

Indirect-access file	Direct-access files
IGPROC	IGESICT
	IGESCIT

The installer must be sure that the permanent files do not exist with the same names as the files generated in the installation procedure.

- To install IGES on APPLLIB, enter the following commands from the System Console:

```
X.DIS.
SUI,377774.
LABEL,TAPE,R,L=IGESV223,VSN=REL38A,F=I,D=PE.
COPYBF,TAPE,INSTALL.
INSTALL.
DROP.
```

- To install IGES on a user number other than APPLLIB, log onto that user number using any terminal and enter the following commands:

```
LABEL,TAPE,R,L=IGESV223,VSN=REL38A,F=I,D=PE.
COPYBF,TAPE,INSTALL.
INSTALL,user_number.        (user_number is the user number that
                             you are logged onto.)
```

  Edit the file, IGPROC, to modify the default for the AUN parameter. Change the user number from APPLLIB to the NOS user number that the files actually reside in.

- A successful installation is indicated with the following message:
  "INSTALLATION COMPLETE; VERIFY GOOD".

- An unsuccessful installation is indicated with the following message:
  "INSTALLATION ABORTED."

5.0 VERIFICATION PROCEDURE

The installation procedure performs a verification test to assure a correct installation ICEM IGES. The "INSTALLATION COMPLETE; VERIFY GOOD" message indicates that the verification test was successful. No further verification testing is necessary.

CONTROL DATA CORPORATION

ICEM DDN VERSION 1.65
INSTALLATION INSTRUCTIONS
NOS Operating System Level: NOS 2 Level 688

Date: 6/88

DISCLAIMER

NOS and its product set are intended for use only as described in this document. Control Data cannot be responsible for the proper functioning of undescribed features or parameters.

SMD131839

4197c

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Section III	Installation Instructions	
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Section V	Plotter Verification	Page 7

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I. Release Description

ICEM DDN is a computer-aided design and computer-aided manufacturing (CAD/CAM) system that runs under the NOS and NAM/IAF communications package.

ICEM Design/Drafting Package

The ICEM Design/Drafting file contains overlays for Basic Geometry, ANSI Mechanical Drafting, and Geometric Analysis. For International Drafting Standards, see Appendix A.

ICEM Advanced Design Package

The ICEM Advanced Design consists of all the overlays in the ICEM Design/Drafting plus additional overlays for Advanced Design.

ICEM Numerical Control Package

The ICEM Numerical Control consists of all overlays in ICEM Design/Drafting and ICEM Advanced Design, plus additional overlays for Numerical Control.

ICEM GPL

ICEM GPL is a high level computer language designed to provide a user with features of the ICEM DDN product. The features are provided parametrically from within algorithms.

The ICEM GPL system consists of two parts: an interpreter located within the standard ICEM DDN and a stand-alone compiler. Source GPL programs must first be compiled before those programs can be interpreted by ICEM DDN.

The ICEM GPL compiler is provided with the purchase of any portion of ICEM DDN (Design/Drafting, Advanced Design, or Numerical Control).

Hardware Requirements

ICEM DDN requires the minimum hardware configuration for NOS and NAM/IAF. A maximum field length of 170,300 octal is required for execution. The user station is a Tektronix 4014 or 4016 with Extended Graphics, Tektronix 4105, 4107, 4109, 4113, 4114, 4115, or 4125, IEW 790 with TEKEM and Control Data Corporation 721.

II. Tape Formats and Files

All tapes are nine-track made with a density of 1600 cpi (D=PE) . All tapes are ANSI-labeled and in INTERNAL format (LB=KL,F=I) .

VSN=REL68 L=ICEMDD	VSN=REL68A L=ICEMAD	VSN=REL68B L=ICEMNC	VSN=REL68C L=ICEMGPL
#1 INSTALL	#1 INSTALL	#1 INSTALL	#1 INSTALL
#2 ICEMDDN	#2 ICEMAD	#2 ICEMNC	#2 GPL
#3 DDNSRB	#3 COPYLDR	#3 COPYLDR	#3 GTGT
#4 DDNVER		#4 PPFULL	#4 GOLIB
#5 DDNVIT			#5 PFX1660
#6 DDNUTIL			#6 PFX6016
#7 OPTIM			#7 XREC170
#8 VERUTIL			#8 XTRX170
#9 TAPE9			
#10 ICEMCLT			
#11 CONVT3			

Description of Files

(I) Indirect Access File (D) Direct Access File

COPYLDR	(I)	is a copy utility used in the integration of the Advanced Design or Numerical Control overlays into ICEM DDN Design/Drafting.
DDNSRB	(D)	is a text file containing the Software Release Bulletin. This document explains the new features and provides general information regarding this release.
DDNUTIL	(I)	is the relocatable binary for the interface between ICEM DDN draw files and UNIPLOT/UNIPOST.
DDNVER	(I)	is a CCL verification procedure file for the installation test of ICEM DDN.
DDNVIT	(I)	is a verification script input file for ICEM DDN.
GOLIB	(D)	is the absolute binary for the ICEM GPL interface.
GPL	(D)	is the absolute binary of the ICEM GPL Compiler.

GTGT	(D)	is the GRAPL-to-GPL Translator. See Appendix C for information on how to use this translator.
ICEMAD	*	is the module of Advanced Design overlays only. It is integrated into ICEMDDN upon the execution of the INSTALL Procedure on tape REL68A.
ICEMDDN	(D)	is the absolute binary for ICEM DDN zero overlay and the primary overlays.
ICEMNC	*	is the module of Numerical Control overlays. It is integrated into ICEMDDN upon the execution of the INSTALL procedure on tape REL68B.
INSTALL	*	is a CCL procedure to transfer the files on tape to disk under the user number under which the procedure is executed. The files are stored as either Direct (D) access files or as INDIRECT (I) access files depending on file size. All files are unloaded as PUBLIC, READ-ONLY files.
OPTIM	(D)	Plot file Optimizer
PFX1660	(D)	is the absolute binary for translating CY120 to CY170 IPARTD part files.
PFX6016	(D)	is the absolute binary for translating CY170 to CY120 IPARTD part files.
PPFULL	(D)	is a text file containing expounded PP word library.
TAPE9	(I)	is a verification data file for DDNUTIL and OPTIM.
VERUTIL	(I)	is a CCL verification procedure file for the installation test of ICEM DDN plotter interface.
XREC170	(I)	is an absolute binary needed for IPARTD file to file transferring when using HAMLET.
XTRX170	(I)	is an absolute binary needed for IPARTD file to file transferring when using HAMLET.
PPFULL	(I)	Is a text file containing expanded PP word library.
ICEMCLT	(D)	CLFILE translator.
CONVT3	(D)	TAPE3 restore utility.

* These files are temporary files used during the execution of the INSTALL procedure.

III. Installation Instructions

Installation of ICEM DDN Design/Drafting only

Two tapes are needed to install the complete ICEM DDN Design/Drafting package. They are REL68 and REL68C. The tapes can be installed on any user number, however, it is recommended they be installed on user number APPLLIB from the console. The instructions assume the tapes are being installed from the console. If not, begin at the LABEL command and disregard the DROP at the end.

```
X.DIS
SUI,377774.

LABEL,TAPE,VSN=REL68,L=ICEMDD,D=PE,F=I,NT.
BEGIN,,TAPE.

DROP.
```

Informational notes are displayed on the screen during the installation. The INSTALL procedure for REL68 will prompt the user when REL68C needs to be mounted on the tape drive.

See Section IV for ICEM DDN Verification instructions.
See Section V for ICEM DDN Plotter Interface Verification.
See Appendix D, Section 3.2 for comments concerning having ICEM DDN as system resident.

Installation of ICEM DDN Advanced Design and Design/Drafting

Three tapes are needed to install the ICEM DDN Advanced Design package. They are REL68, REL68A and REL68C. The tapes can be installed on any user number, however, it is recommended they be installed on user number APPLLIB from the console. If not, begin at the LABEL command and disregard the DROP at the end.

```
X.DIS
SUI,377774.

LABEL,TAPE,VSN=REL68A,L=ICEMAD,D=PE,F=I,NT.
BEGIN,,TAPE.

DROP.
```

Informational messages are displayed on the screen as necessary. The INSTALL procedure for REL68A will prompt the user when REL68 and REL68C need to be mounted on the tape drive.

See Section IV for ICEM DDN Verification instructions.
See Section V for ICEM DDN Plotter Interface Verification.
See Appendix D, Section 3.2 for comments concerning having ICEM DDN as system resident.

Installation of ICEM DDN Numerical Control, Advanced Design and Design/Drafting

Four tapes are needed to install the ICEM DDN Numerical Control package. They are REL68, REL68A, REL68B and REL68C. The tapes can be installed on any user number, however, it is recommended they be installed on user number APPLLIB from the console. The instructions assume the tapes are being installed from the console. If not, begin at the LABEL command and disregard the DROP at the end.

```
X.DIS
SUI,377774.

LABEL,TAPE,VSN=REL68B,L=ICEMNC,D=PE,F=I,NT.
BEGIN,,TAPE.

DROP.
```

Informational messages are displayed on the screen as necessary. The INSTALL procedure for REL68B will prompt the user when REL68A, REL68C, and REL68 need to be mounted on the tape drive.

See Section IV for ICEM DDN Verification instructions.
See Section V for ICEM DDN Plotter Interface Verification.
See Appendix D, Section 3.2 for comments concerning having ICEM DDN as system resident.

IV. Verification of the ICEM DDN (all packages)

Log into NOS using one of the valid terminal types. Valid terminal types and set-up information can be found in APPENDIX B. In the instructions below, the use of 'username' should be replaced with the user number where the files were installed. The use of 'baudrate' should be replaced by the first digit of the baud rate of the communications line. For example, 3 is the baud rate of 300, 1 is the baud rate of 1200, etc. The use of 'terminal type' should be replaced by the user's type of terminal. The default is T4014. The terminal type specified must be one of the valid terminal types listed on page 3.

```
GET,DDNVER/UN='username'.
DDNVER,'baudrate','username', 'terminal type'.
```

Ignore the request for input. It is being supplied by the verification input file. The output is emulating a Tektronix 4014 terminal. The result should match the display in figure ICEM DDN-1.

V. Verification of the ICEM DDN Plotter Interface

Log into NOS using one of the valid terminal types. Valid terminal types and set-up information can be found in APPENDIX B. In the instructions below, the use of 'username' should be replaced with the user number where the files were installed and where UNIPLOT/UNIPOST files reside. It is assumed ICEM DDN plotter interfacer files are installed on the same user number as UNIPLOT/UNIPOST.

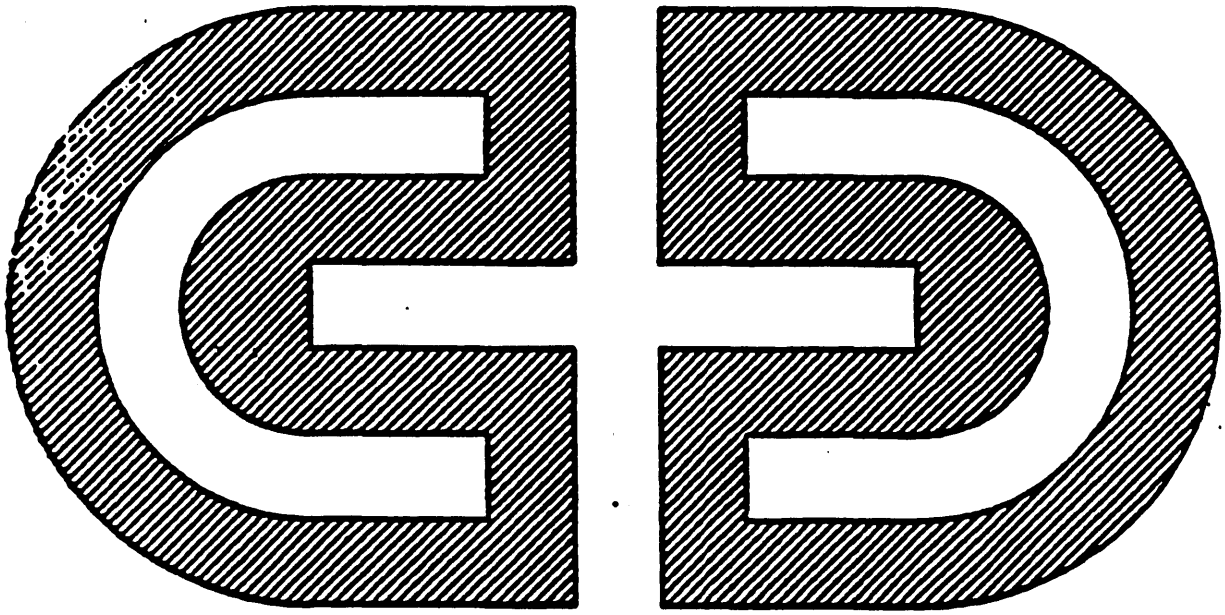
```
GET,VERUTIL/UN='username'.
VERUTIL,'username'.
```

The procedure VERUTIL executes UNIPOST. UNIPOST will prompt you in the following manner.

AUTOMATIC HARDCOPY (Y/N) ?	Specify Y if a hardcopy is desired and is available; specify N if not.
2. 4010 ASYNCHRONOUS 4. 4014 ASYNCHRONOUS 6. 4014 EGM ASYNCHRONOUS	Specify 6 as Tektronix terminal type.
ENTER BAUD RATE ?	Enter the baud rate of the communication line (example 1200, 9600, etc).

The screen will display the CDC logo (ICEM DDN-1). When the logo is drawn, crosshairs will appear. Press any key (A through Z) and the screen will clear and return you to NOS.

NOTE: Refer to the UNIPLOT Reference Manual for additional information.



CONTROL DATA
ICEM DDN

FIGURE ICEM DDN - 1

APPENDIX A
INSTALLATION INSTRUCTIONS

International Drafting Standards

- German Drafting Standard (DIN) library and installation instructions are available by contacting the Control Data CAE software development manager in Frankfurt, Germany.

  - Control Data GMBH
  - Stresemannallee 30
    6000 Frankfurt Main 70
    West Germany

- French Drafting Standard library is unavailable. Questions may be answered by the Control Data CAE software development manager, Paris.

  - Control Data France
    27 Cours Des Petites Ecuries
    B.P. 139
    77315 Marne LaVallee, Cedex 2
    France

- British Drafting Standard library is unavailable. Questions may be answered by the Control Data design/drafting analyst in London.

  - Control Data Limited
    Control Data House
    179-199 Shaftesbury Avenue
    London WC2H 8AX

- Swedish Drafting Standard library and installation instructions are available by contacting the design/drafting analyst in Goteborg, Sweden.

  - Control Data AB
    CAD/CAM Applications
    Box 10, Baldersgatan 4
    S-40120 Gothenburg
    Sweden

- Japanese Drafting Standard library and installation instructions are available by contacting the design/drafting analyst in Tokyo, Japan.

  - Control Data Japan, LTD.
    Sunshine Bldg., 27th F.
    1-1 Higashi-Ikebukuro 3-Chome
    Toshima-Ku
    Tokyo 170, Japan

- Chinese Drafting Standard Library and installation instructions are available by contacting the design/drafting analyst in Tokyo, Japan.

  - Control Data Japan, LTD.
    Sunshine Bldg., 27th F.
    1-1 Higashi-Ikebukuro 3-Chome
    Toshima-Ku
    Tokyo 170, Japan

APPENDIX B

TERMINAL SET UP PROCEDURES

The terminal used for the installation of ICEM DDN must be initialized. Instructions for initializing the 4014, 4016, 4105, 4107, 4109, 4113, 4114, 4115, and 4125 Tektronix terminals follow. Please refer to IEW790 with TEKEM manuals for 790 terminal initialization.

TEKTRONIX 4014 and 4016 TERMINALS.

1. The following terminal strapping options are for initial terminal installation.

   a. ECHO - ON
   b. GIN terminators - CR only
   c. CR effect - CR
   d. LF effect - LF

2. Turn the terminal power on. The 4014 POWER switch is on the front lower right corner of the pedestal stand. The 4016 POWER switch is located on the right side of the terminal head. The green POWER indicator, located on the keyboard, will light when power is switched on.

3. Allow the terminal to warm up. Warm up is complete when pressing the RESET PAGE key completely clears the screen.

4. Set the ASCII/ALT switch to the ASCII position.

5. Initialize the OPTION 1 or OPTION 20 according to the procedure below, as applicable.

6. To obtain the small character size, set the terminal to LOCAL mode. Press the ESC key and the ; (semicolon) key together and return to LINE mode.

7. Dial the appropriate telephone number, if applicable.

8. Press the RETURN key to obtain the login FAMILY message.

OPTION 1 INITIALIZATION

1. Select the appropriate baud rate switch setting using the BAUD RATE switch located at the rear of the pedestal stand.

2. Set the HALF/FULL DUPLEX switch to FULL.

3. Set the INTF/OFF/AUX switch to INTF.

4. Set the TTY LOCK key.

OPTION 20 INSTALLATION

- - NOTE - -
If the terminal is equipped with both the OPTION 1 and the OPTION 20, set the INTF/OFF/AUX switch of the OPTION 1 to OFF.

(Asynchronous lines only). Place the terminal in LOCAL mode. Press the SHIFT key and the CNTL key together. While both the SHIFT and CNTL keys are depressed, press and release the RESET key; then press the P key and release all keys. Place the terminal in LINE mode. Set the CODE EXPANDER switch to OFF.

TEKTRONIX 4105, 4107, 4113, 4114, 4115 and 4125 TERMINALS

Complete the following to set up the Tektronix 4113, 4114, 4115 or 4125 terminal.

1. Turn the terminal power on by pushing the POWER button.

2. Allow the terminal to initialize (some keys on the keyboard remain lit until the terminal has completed its initialization).

3. Press the SET UP key so the terminal operating modes can be changed at the keyboard. An asterisk (*) should appear to the left of the cursor.

4. Enter:

   STA

   to display the released terminal status settings.

5. Ensure the terminal has the following settings. The remaining Tektronix 4105, 4107, 4109, 4113, 4114, 4115, and 4125 terminal status settings will either be set by ICEM DDN or will not affect the operation of ICEM DDN. To change a setting, reenter the new setting.

Status	4105, 4107, 4109	4113, 4114, 4115, 4125
TBSTATUS emulation only	Not Applicable	Out for 4014
TBHEADER CHARS emulation only	Not Applicable	Out for 4014
RLINE LENGTH	140	140
ECHO	Yes	Yes
LOCK KEYBOARD	No	No
SNOOPY	No	No
BAUDRATE	Applicable Baud Rate	Applicable Baud Rate
FLAGGING	INPUT	INPUT
EOLSTRING	Not Applicable	Not Applicable
BLOCKMODE	No	No (4113 only)
BREAKTIME	100	100

Status	4105, 4107, 4109	4113, 4114, 4115, 4125
QUEUESIZE	8100	8100
DUPLEX	Not Applicable	Full (4113 only)
XMTDELAY	0	0
XMTLIMIT	Applicable Baud Rate	Applicable Baud Rate
BYPASS CANCEL		
Without Echoplex	NL	NL
With Echoplex	LF	LF

APPENDIX C

Using the GPL Compiler

Log into NOS using one of the valid terminal types. Valid terminal types and set-up information can be found in APPENDIX B. In the instructions below, the use of 'username' should be replaced with the user number where the files were installed. In addition, 'source program' should be replaced by the file name of your GPL program; 'grapl program' should be replaced by your translated GRAPL program file name; 'output file name' should be replaced by our output file name (default is OUTPUT); 'list file name' should be replaced by the file name you wish the translated program to be put on.

To create a new GPL object library:

```
ATTACH,GPL/UN='username'.
GET,'source program'.
GPL,I='source program',L=GPLLIST.
DEFINE,GPLLIB.
LIBEDIT,B=GPLOBJ,P=GPLLIB,C,Z./*BUILD GPLD.
REWIND,*.
```

To add additional compiled programs to an existing GPL object library:

```
ATTACH,GPL/UN='username'.
GET,'source program'.
GPL,I='source program',L=GPLLIST.
ATTACH,GPLLIB/M=W.
LIBEDIT,B=GPLOBJ,P=GPLLIB,C,Z./*BUILD GPLD.
REWIND,*.
```

Using the GRAPL to GPL Translator GTGT

Example:

```
ATTACH,GTGT/UN='username'
GET,'grapl program'
GTGT,I='grapl program',O='output file',L='list file'
```

--NOTE--

THE TRANSLATION IS NOT ALWAYS 100%.
CHECK FOR REMARKS IN THE GPL SOURCE OUTPUT.
(For more information, see Appendix F of the ICEM GPL Reference Manual.)

APPENDIX D

CYBER 800 TUNING GUIDE

FOR ICEM DDN

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1.0 INTRODUCTION:

1.0 INTRODUCTION:

1.1 BACKGROUND - PROBLEMS

This guide will explore possible solutions to some of the common tuning situations.

The main problem is that users are expecting to set-up and play the hardware/software with no adjustments. This practice causes the site to run with the default setup parameters which were built for a small job environment. DDN is usually overlay bound and has a rather large field length. Depending on the disk configuration, the site is usually disk bound due to overlay loading and swapping DDN to disk. In the cases where the site has a lot of memory, the memory is not being utilized because no one has designated it as a "DE" equipment for DDN overlays and/or a swap device.

Because system analysts don't have a quantitative method of ascertaining what tuning functions cause improvements, tuning is not attempted. By using CPD, CTIME, RTIME, and ICEM DDN trace files, an objective index of performance can be obtained and improvements made.

2.0 OVERVIEW OF 800'S

2.0 OVERVIEW OF 800'S

2.1 800 FEATURES

The 800 has the following features:

* The 800 has a high speed central processing unit that runs with a memory that can be very large - 2 to 128 megabytes (262 thousand to 16 Million central memory words).
* The cache memory speeds up effective memory cycle.
* Peripheral processors operate at 4 times the original PPU speed.
* The 800 microcoded instruction set allows both NOS and NOS/VE operating systems to exist and run in the same machine (dual state).
* The range of ability for each machine has more than one dimension. As you go up the line in CPU power, the memory size can also be upgraded.

The following chart shows the different models and the allowed memory size options and multiple CPU option:

MODEL	MEMORY SIZE OPTION (Megabytes)									
	2	4	8	12	16	32	64	96	128	Dual CPU
810	X	X	X	X	X	X				NO
810A			X	X	X	X	X			NO
815	X	X	X	X	X	X				NO
825	X	X	X	X	X	X				NO
830	X	X	X	X	X	X				YES
830A					X	X	X			YES
835		X	X	X	X					NO
840					X	X	X	X	X	NO
845		X	X	X	X	X	X	X	X	NO
850					X	X	X	X	X	NO
855		X	X	X	X	X	X	X	X	YES
860					X	X	X	X	X	YES
870					X	X	X	X	X	YES
990					X	X				YES
990E					X	X	X	X	X	NO
995E					X	X	X	X	X	YES

2.0 OVERVIEW OF 800'S
2.1 800 FEATURES

. The 840A, 850A, 860A and 870A have an I/O subsystem of 20 PPUs and 24 channels.

. In dual state only one processor can be executing in the CYBER 170 mode.

. Currently 16 megabytes is the maximum memory that NOS can use.

It is the memory expansion characteristic that is most interesting for large applications like DDN. It has been observed that customers are overlooking the ability of the 800 to use this memory in many different ways.

2.2 800 MEMORY USE

The 800 memory can be used in the following ways:

(1) Job area - the job execution area is normally about 262K but can be bigger or smaller. Don't allocate more job area than it is possible to use (i.e. job area <= number of control points x max job length).

(2) Swap area - Rather than roll the job to disk, it can be swapped from memory to memory to avoid the disk accesses.

(3) System resident - specific overlays and/or PPU programs can be stored and retrieved from memory to avoid disk accesses.

(4) Buffer area for buffered disks.

(5) NOS/VE execution area.

All the above memory allocations are controlled by deadstart parameters in the CMR, EQPD, and IPRD decks. The EQPDxx entry for UEM is - "EQ005=DE,ST=ON,ET=EM,SZ=4000." (1 million words of UEM). The IPRDxx entry for the secondary rollout threshold is - "SRST=2000" (The maximum of 200,000 job field length will be rolled to the secondary rollout).

3.0 TUNING METHODS

3.0 TUNING METHODS

3.1 STEPS FOR TUNING

The following is a summary of the steps one can go through to tune 800s for ICEM DDN:

1) Run CPD - Find what the bottlenecks are. Tune by making NOS configuration changes such as system resident and channel/disk configuration (see section 3.5).

Check disk use percentages from the CPD run. 50-60% is pretty high. Moving overlays to CM or UEM and/or allowing ICEM DDN to run as system resident will help speed up the product and decrease disk access. Also, try to arrange your configuration so that equal access is occurring across all disk channels. Avoid channel 0 because it cannot be alternated in each mass storage device Equipment Status Table (EST) entry.

2) Run ICEM DDN with the T option on and collect overlay load numbers (CT file) for a given script. The IT file, resulting from the T option run is used for input (I=lfn) so that the run can be repeated for comparison after each tuning attempt (base timing). A program included in the appendix counts and sorts the counts by overlay for each overlay that was loaded during the script execution.

3) Based on CPD and the CT counts, move selected overlays into CM (Central Memory) and/or UEM (Unified Extended Memory). In level 630 of NOS a limited number of overlays can be put in CM, and near 400K the system hangs. The work around is to put additional overlays in UEM. At this level of the system, there does not seem to be any performance difference between overlay loading from CM or UEM.

4) Recheck response time by running a script in a quiet system with CTIME and RTIME control cards on each side of the ICEM DDN call. These numbers will tell you the amount of CPU time and real time used to make the run. Also, rerun CPD to check what is happening to the system resources. There is a Timesharing Instrumentation Package which measures response time, think time and transaction rates of IAF (LDS Publication number 15190016). This package will show how tuning has affected response time.

3.2 DDN SYSTEM RESIDENT

The advantage of having DDN system resident is that when it is in the system, more than one copy of the code is available from multiple disk channels. Also, selected overlays can be resident in CM.

Don't bother moving ICEM DDN to the system if you have only one channel to disk and you don't want to move overlays to CM or UEM. Also, remember that ICEM DDN will increase your system file by about 100K PRUs on each device that is designated as a system device.

On small capacity disk systems put ICEM DDN on the deadstart tape rather than on a permanent file which is SYSEDITed after deadstart. This will save 100K PRUs of permanent file space.

GPL overlays must be on a local file at execution time for GPL users. It currently does not run any other way.

Make an entry in the LIBDxx deck of "*FL ABS/ICEMDDN-6560" so that it will execute from the system file.

3.3 DDN OVERLAYS IN CENTRAL MEMORY

The problem with NOS 800 performance is caused by DDN having to load overlays from the disk. Generally, if the most frequently called overlays can reside in memory, the disk accesses will be much lower. If all the overlays that are called are put in memory, a script will run as well as it would on NOS/VE (virtual environment). Of course, the data caching won't be as good as VE but the performance should be considerably better than before the overlays were put in CM.

3.0 TUNING METHODS
3.3 DDN OVERLAYS IN CENTRAL MEMORY

Following is an example of the performance improvement on an 855 with the overlays in CM and other numbers showing relative performance:

SYSTEM	Running time	CPU time	Comment
760 NOS	374	13	DDN153 on 844s (System file)
855 NOS/VE	18	12	DDN153 on FMD's
830 NOS/VE	78	48	" " "
810 NOS/VE	138	78	" " "
760 NOS	371	7	DDN157 on 844s (System file)
760 NOS	291	7	DDN157 on FMDs (Local file)
855 NOS	267	9	DDN157 on Disk (System file)
855 NOS	160	9	3 overlays in CM+System file

The 100 second improvement for the 855 NOS is caused by reducing disk accesses. In theory, if all the overlays that are called are put in memory, the script would run as well as the 855 NOS/VE (18 seconds).

Also, notice the CPU time for each of the above machines. The CPU time requirement for DDN157 is less than DDN153. The 830 and 810 is 4 and 6 times less capable than the 760 or 855. If the site is CPU bound, the moving of the overlays into memory may not help response time during periods of CPU saturation.

The following table summarizes the overlay situation with a typical script:

Overlay	Load Count	Field Length of Overlay*	Accumulated Sum*
CL04	276	53040	54K
CL52	247	52551	126K
CL02	136	43215	171K
CL72	135	23066	215K
CL270	97	44031	261K
CL75	88	60042	340K
CL51	62	54513	415K
CL14	56	41300	457K
CL54	48	30441	507K

* Field length and sum are in octal.

3.0 TUNING METHODS
3.3 DDN OVERLAYS IN CENTRAL MEMORY

These 9 overlays were loaded 1145 times. There were 1442 overlay loads in all with a total of 32 overlays used.

After the 4th or 5th most frequently loaded overlay, the payoff from having the overlay in Central Memory (CM) goes down. The rest of the CM can be used for swap area. Both of these uses take away some CPU usage that would be normally available to user programs. But because most sites are disk bound, the swapping and overlay loading from memory to memory saves on disk access and speeds up the user response time.

If CPD runs and RTIME and CTIME control cards are used around a script run before and after these tuning suggestions, the effect can be measured. With less disk access the product (ICEM DDN) will speed up and will make more use of the CPU so that swapping and overlay loading will occur faster. This can have a secondary effect of causing more CPU utilization due to more jobs (through CPU swapping) having access to the CPU and less disk access due to overlay loading from memory to memory loading. This secondary effect may necessitate a reduction in the the job switch delay so that the CPU is shared better between competing jobs. In any case, the above tuning should have a positive effect on response time for the average ICEM DDN user.

3.4 CPU BOUND 800

If your site is CPU bound (95-99%) , the moving of the overlays to Central Memory may cause the individual ICEM user to run a lot faster but when a large terminal load is present the total throughput may decrease. You may take steps to decrease the CPU usage to optimize. Because the CPU is used to move overlays around in memory, the moving of overlays to disk may decrease CPU usage. This will slow down the terminal response for the user at light loaded times but should make the user at CPU bound times run better. This situation seems to be rather rare and is found only on the 825s and lower machines. In determining if your site is CPU bound don't be mislead by maintenance jobs or batch jobs which soak up the CPU when the time-sharing jobs are not running.

3.5 CPD READING

CPD or TRACER (NOS System Maintenance Reference Manual - 60459300) and PROBE are used for statistical analysis of your

system performance. The data is used to determine areas where problems occur, where improvements in design and system tuning can be made. These products work by periodically gathering data about the system and writing the data to a file.

TRACER is made up of 4 programs:

1) ICPD - Starts up CPD PPU program
2) CPD - CPD is a dedicated PPU program which monitors system activity. Data is written to a direct access permanent file for future analysis.
3) ACPD - A post-processor program which generates an output report from the direct access permanent file written by CPD.

See the NOS Maintenance manual (60459300) for details of calling parameters for TRACER. The following sequence will start and complete TRACER operation:

1) ICPD,p1,p2,...pn. (starts CPD up)
2) ENDCPD. (ends CPD data gathering)
3) ACPD,p1,p2,...pn. (processes the CPD data and generates a report)

The ACPD report is in three sections -

1. System parameters and EST configuration.
2. System Control Information.
3. Interval Samples.

3.5.1 SYSTEM PARAMETERS AND EST CONFIGURATION

The System Parameters relate such things as the start date and time, report interval, memory size, UEM, number of PPUs and various lengths of software tables. The EST table is dumped showing the channel and disk connections.

3.5.2 SYSTEM CONTROL INFORMATION

The System Control Information relates what the priority is for each job class. The BC, TS, and DI classes are especially important to good system response. The BC and DI should have a lower PR (CPU priority) than the TS class. This will allow time-sharing to always get the CPU before BC or DI can get it.

3.0 TUNING METHODS
3.5.2 SYSTEM CONTROL INFORMATION

The other important parameters are the UP (upper priority limit) and LP (lower priority limit). These parameters are set based on how often batch jobs are rolled in and out without ever getting executed. If there is usually a lot of CM available, the UP and LP can be lower for batch and detached jobs than for time-sharing jobs. These parameters control the rolling out of batch or detached jobs when a time-sharing job requests more memory than what is currently available. If the execution memory is small in comparison to the field length requests, the batch and detached jobs should have the same UP and LP so that jobs are not rolled in and out without doing any work. The NJ parameter can help this situation. By controlling the number of batch jobs that can execute at the same time, the batch field length can be controlled. The NJ parameter for time-sharing controls the number of users allowed.

The FL and AM parameters for each job class can be designated to limit by job and/or job class how much Field Length (FL) may be used and when to schedule the job to CM. These parameters can be used to partition the memory by job class and run specific jobs at a selected time of the day.

The CM parameter controls how long the UP priorities are in effect. With faster CPUs a sort duration 4-5 seconds is desired so that users that are running batch jobs in time-sharing mode are dropped down to the batch priority (assuming that batch priority is the same as the time-sharing lower bound priority). Thus, short duration time-sharing tasks will get the most attention.

3.5.3 INTERVAL SAMPLE

The following table shows some of the parameters and what action might be taken to improve performance when a high percentage of use is shown:

Parameter (high percentage)	Cause/Information
PPUS ACTIVE	Not enough Disk Channels or PPUs.
NO PPU AVAILABLE	Same as PPUS ACTIVE.
CHANNEL ACTIVE	50-60+ up means that more disk channels will improve response time.
CPU USAGE -	
IDLE	High idle percent means the CPU is not being used - could be caused by the system being disk bound.
SYSTEM	System Software using excessive CPU.

3.0 TUNING METHODS
3.5.3 INTERVAL SAMPLE

SUB-SYS	Same as SYSTEM.
SYS ORG	Same as SYSTEM.
USER	You are getting as much as you can out of the system. Application CPU usage may be excessive.
FL AVAILABLE	Large percent is good - lots of room to run jobs. If coupled with secondary rollout filling up, FL needs to be moved to the secondary rollout area.
IAF USERS	Number of users.
TRACKS AVAILABLE	When a device has only 10% of its tracks available the system automatically does not use this device for TEMP files.

TOTAL ROLLOUTS	The statistics on total and secondary rollouts
SECONDARY ROLLOUTS	will tell you if your secondary rollout threshold
TOTAL SECTORS ROLLED	is large enough and how much your secondary rollout
SECONDARY SECTORS ROLLED	device is being used.

INSUFFICIENT CM	Number of times no CM was available to bring in a job.
NO CONTROL POINT	This number will tell you if you have enough control points defined.

3.6 PROBE

The PROBE utility measures the following:

1) The number of times a PP routine was loaded.
2) The number of CIO RA+1 requests by function number.
3) The number of PP requests to CPUMTR by function number.
4) The number of MTR requests to CPUMTR by function number.
5) The statistical data accumulated in low central memory - includes such items as number of sectors rolled and number of rollouts.

PROBE data gathering is enabled at deadstart time by an IPRDECK entry. SYSEDIT resets the PROBE data tables to zero.

PROBE is useful in moving PP routines to CM when they are called frequently enough, thus improving system performance.

3.7 CONSOLE WATCHING

Many times all the various tools are not as useful as just watching the system console for signs of thrashing and/or particular user abuse. The following items are worth watching for:

1) Users running batch jobs in time-sharing mode.
2) Batch jobs that are being rolled in but not getting the CPU before they are rolled out again.

3.0 TUNING METHODS
3.7 CONSOLE WATCHING

3) Jobs that have excessive resource requests over extended peri s.
4) Maintenance jobs running at too high a priority and/or too many running. One job (CT7) is probably enough. Too many maintenance jobs cause a forced rollout every time a time-sharing job is brought in.
5) Permanent file dumping and loading during the prime shift will slow down or stop any PF requests by your users.
6) NOS/VE running in a dual 800 can have a default priority that allows NOS/VE to take the CPU away from NOS.

4.0 PERMANENT/TEMP FILE ALLOCATION

It has been found that allowing temporary and permanent files to be allocated on every device seems to be the best strategy to spread the load onto as many units as possible.

5.0 EDL TUNING

5.0 EDL TUNING

In many sites the Engineering Data Library (EDL) runs with ICEM DDN and can contribute to excessive resource use. The following EDL file (IMF2STF/UN=IMF) should have the following values for best performance:

```
3 NUMBER OF USER PROCESSES TO CHECK FOR EACH MTR LOOP
2 SEMI-IDLE RECALL TIME (MILLISECONDS)
15 ACTIVE RECALL TIME (MILLISECONDS)
1 K-DISPLAY REFRESH CYCLE
50 MAX NUMBER OF TIMES IDLE BEFORE SCP SWAP-OUT
30 MAX NUMBER OF CONNECTED USERS
10 MAX NUMBER OF OPEN DATA-BASES
170 MAX NUMBER OF ATTACHED FILES
3 NUMBER OF ALLOCATED USER STACKS
5 NUMBER OF INPUT BUFFERS
1 NUMBER OF INPUT QUEUE ENTRIES
3 NUMBER OF I/O BUFFERS
0 NUMBER OF TRANSACTION FILES ON ECS
1 NUMBER OF LONG WAKE-UP WAITS ALLOWED AT STACK
2 NUMBER OF SHORT WAKE-UP WAITS ALLOWED AT STACK
6000 LONG WAKE-UP WAIT SWAP-OUT DELAY
4000 SHORT WAKE-UP WAIT SWAP-OUT DELAY
30 PARCEL STACK PREEMPTION DELAY
30 SINGLE READ STACK PREEMPTION DELAY
1 TRACE
```

The file DEFSTF/UN=IMF (installation file for IMF) should be used as a model. The default values which have been changed above are:

```
ACTIVE RECALL TIME = 30
TRACE = 1
```

Also, journal logging may be turned off for the EDL database. This will save considerable overhead. However, if the system crashes with the database open, the database file may have to be reloaded from the last permanent file backup, instead of being recovered to the point of failure.

To turn off journal logging, log into the account where the EDL database file E120DDB resides, and type the following commands:

```
GET,CHLOG21/UN=IMF
CHLOG21,OFF,E120DDB,E120LOG.
```

6.0 CONCLUSION

6.0 CONCLUSION

Due to the many ways DDN is used, and considering the many other applications that are run on 800s, the tuning recommendations may or may not be applicable.

If after you have tried to tune your system it still has bad response time, please send CIM Field Support the following information and they will try to assist you:

1. Your name and phone number.
2. Describe response time with the general areas of DDN that are used.
3. Computer model (810, 830, 860, etc.), memory size, and length of time your system has been running DDN.
4. NOS level of the operating system and indicate if running dual state.
5. Disk configuration - Channels, disk models, and hookup configuration.
6. DE entry - memory allocation - Job area, overlay, and swap area.
7. List the names of DDN overlays that are resident in memory.
8. If possible, include a Tracer listing which contains much of the above information. The Tracer listing should be from an average day.

7.0 APPENDIX

7.0 APPENDIX

The following procedure and program will count the times each overlay is called and the total number of overlays called by processing the CT file which is output from a ICEM DDN run with the T option on:

```
.PROC,SORTCT.
PACK,CT,TAPE2.
FILE,TAPE2,BT=C,RT=U.
FTN5,I=SORTC,B=LGO,L=L,OPT=2.
LGO.
NOTE./ RESULTS ON FILE LIST.
.DATA,SORTC.
      PROGRAM SORTCT(INPUT,OUTPUT,TAPE2,LIST,TAPE1=LIST)
      INTEGER IBUF,INUM(512)
      REWIND 1
      REWIND 2
      ITOTAL = 0
 5    READ(2,END=15)IBUF
      IF(IBUF .GT. 512)GO TO 5
      IF(IBUF .LT. 0)GO TO 5
      INUM(IBUF) = INUM(IBUF)+1
      ITOTAL = ITOTAL+1
      GO TO 5

C     DONE READING CT.

 15   WRITE(1,3000)
      DO 30 J=1,512
      K = 0
      LASTBG = 0
      DO 20 I=1,512
      IF(INUM(I) .GT. LASTBG) THEN
         LASTBG = INUM(I)
         K = I
      ENDIF
 20   CONTINUE
      IF(LASTBG .EQ. 0)GO TO 9000
      WRITE(1,1000) K,INUM(K)
      INUM(K) = 0
 30   CONTINUE
 9000 WRITE(1,2000) ITOTAL
 1000 FORMAT (' CL - ',03,3X,I10)
 2000 FORMAT (' SUM = ',I10)
 3000 FORMAT ('1','OVERLAY NUMBER','   COUNT')
      END
```

end

CONTROL DATA CORPORATION

D... ASSEMBLY NO CORPORATE FILE NUMBER SCMA PAGE 1 OF 2

10/31/88 AV013 2043520022 111367

SOFTWARE/CONTROLWARE MOVEMENT AUTHORIZATION
(NOT AN INVOICE)

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NORRISTOWN, PA 19403

CUSTOMER P.O.	TRANSMIT NO	SALES REP	DEPT	ACCOUNT
		SUBMITTER		

SELLING OFFICE	INSTALLING OFFICE	SYSTEM TYPE	SYSTEM SERIAL	DIVISION CODE	FACILITY CODE	PROJECT NUMBER
FXX	FXX	CY830	00618	0150/		

PRODUCT NUMBER	RELEASE LEVEL	PRODUCT NAME	VER	PROD QTY
D830-207	708	ICEM ENGR DTA LIB	128	1

COMPONENT NUMBER	COMPONENT NAME	VER	COMP TYPE	TY MN	COMP QTY	UNIT PRICE	EXTND PRICE	EXTND QTY	CP AV	BACK-ORDER
REL76A	EDL128	128	1200		1	0.00	0.00	1	S	
SMD131461	INSTALL BULLETIN		MEMO		1	0.00	0.00	1	S	
SMD132189	INSTALL INSTR	128	MEMO		1	0.00	0.00	1	S	
SMD132190	EDL URB	128	MEMO		1	0.00	0.00	1	S	
77987785	INSTALL SURVEY		MEMO		1	0.00	0.00	1	S	
ORDER PROCESSING CHARGE							0.00			
PRODUCT CHARGE							0.00			

TOTAL ORDER PROCESSING CHARGE	0.00		
TOTAL PRODUCT CHARGE	0.00	1	
TOTAL ORDER CHARGE	0.00	U.S. DOLLARS	

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SOFTWARE/CONTROLWARE MOVEMENT AUTHORIZATION
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MISCELLANEOUS CONTENTS:

001 - 1200

BUILD LEVEL A

INSTALLATION BULLETIN INFORMATION
JULY 9, 1988

*** IMPORTANT - PLEASE FOLLOW THE BELOW PROCEDURE ***
BEFORE INSTALLING THIS PRODUCT ***

Control Data Corporation provides its customers with an on-line method of obtaining current information about its products.

One of the on-line information sources is called an INSTALLATION BULLETIN. An Installation Bulletin can contain information helpful in installing and executing Control Data products.

Before installing this product, please contact your local Control Data office or follow the below procedure to determine if an Installation Bulletin exists.

All sites should from time to time follow this procedure to review any recent Installation Bulletins that apply to them.

1. The on-line system resides in a Control Data Minnesota Facility.

   You will need a terminal and a 2400 or lower baud modem.

   Please dial: (612) 858-3400

2. The computer will answer your call (a high pitched sound) and respond with:

   PLEASE ENTER A COMMAND.

3. Enter: CREC CSS (carriage return key)

4. The system will respond with:

   FAMILY:

5. Enter: CSS,SOLVER,SOLVER (carriage return key)

6. The system will respond with:

   Please enter your site code and password:
   Site Password

7. Enter: CDCCIM,9P2PK (carriage return key)

SMD131461

8. The system will respond with the following menu:

```
Your choices are:
1     Search PSR Data Base
2     Retrieve Installation Bulletins
3     Report a new problem or change an existing PSR
BYE   to end this session
HELP  if you want help

Enter your main menu choice:
```

9. Enter: 2 (carriage return key)

10. The system will respond with the menu below:

```
Installation Bulletins are available for:
  1  ICEM
  2  ICEM 2.0.0
  3  ICEM MIGRATION
  CARRIAGE RETURN for main menu

Enter your IB choice:
```

11. Enter: 1 (carriage return key)
or
2 (carriage return key)
or
3 (carriage return key)

Entering the number "1" will provide access to all Installation Bulletins for the ICEM 1 and associated products.

Entering the number "2" will provide access to all Installation Bulletins for ICEM 2.X.X products (2.0.0,2.0.1,2.0.2,etc) and associated products.

Entering the number "3" will provide access to all Installation Bulletins for the ICEM Data Migration Utility on all systems.

12. The system will respond with the menu below:

```
Release:ICEM xxx
1  Display all Installation Bulletins
2  Display all Installation Bulletins entered or changed
   since a specified date
3  Display all new or changed IBs since your last IB
   retrieve (YY/MM/DD)
4  Display topic index for this release
CARRIAGE RETURN for previous menu

Enter your IB choice:
```

13. Enter: 1 (carriage return key)

14. The system will respond by printing all Installation Bulletins for the ICEM products chosen.

15. Once the system has printed all Installation Bulletins, the menu in step 10 above will appear.

    Enter: (carriage return key)

16. The system will respond with the menu in step 8 above.

    Enter: BYE (carriage return key)

17. The system will then log you off. You may now disconnect the telephone call.

CONTROL DATA CORPORATION

ICEM

ENGINEERING DATA LIBRARY V1.2.8

Operating System Level: NOS 2 Level 708
Date: October 1988

INSTALLATION INSTRUCTIONS

DISCLAIMER

NOS and its product set are intended for use only as described in this document. Control Data cannot be responsible for the proper functioning of undescribed features or parameters.

Control Data Corporation gives the user permission to reproduce this document.

*** NOTE ***

Please contact the appropriate hotline if you encounter any problems or have any questions.

USA/Canada	1-800-345-9903
International	(612) 851-4131

CONTROL DATA CORPORATION

October 1988

ICEM ENGINEERING DATA LIBRARY V1.2.8
INSTALLATION INSTRUCTIONS
NOS 2 Level 708

1.0 ICEM EDL VERSION 1.2.8

1.0 ICEM EDL VERSION 1.2.8

1.1 RELEASE DESCRIPTION

ICEM Engineering Data Library (EDL) is an application designed to provide a user-friendly interface to Control Data's CAD/CAM products and to manage the engineering data produced by these products. The EDL system runs under the CDC Network Operating System (NOS) Version 2, and the CDC Network Access Method (NAM). and CDC Interactive Facility (IAF) communications packages. Information Management Facility (IMF) interfaces to the EDL database. A run-time subset of IMF is included with EDL.

1.2 HARDWARE REQUIREMENTS

EDL requires the minimum hardware configuration for NOS 2 and NAM/IAF. The user station can be a graphic or alphanumeric terminal. EDL requires a field length of 175000 octal words.

1.3 DEPENDENCIES

EDL interfaces to the following application packages.

ICEM DDN Version	1.65
ICEM Solid Modeler	1.13
Unistruc II	15AUG84
ICEM Schematics	1.15
PATRAN-G	2.0
IGES V2	2.23
UNIPLOT	
XEDIT	

CONTROL DATA CORPORATION

October 1988

ICEM ENGINEERING DATA LIBRARY V1.2.8
INSTALLATION INSTRUCTIONS
NOS 2 Level 708

1.0 ICEM EDL VERSION 1.2.8
1.3 DEPENDENCIES

Full Screen Editor
Reclaim

1.4 RELEASE MATERIALS

EDL consists of two 9-track, 1600 cpi (D=PE) tapes. The format of the tapes is internal (F=I). The EDL Version 1.2.8 product resides on the tape VSN=REL76A and has a label of EDL128 (L=EDL128). The EDL Documentation resides on the tape VSN=REL76B and has a a label of E125DOC (L=E125DOC), same documentation as for EDL 1.2.5.

The following files are found on the EDL product release tape.

File 1	INSTALL	EDL Installation Procedure
File 2	E128PRC	EDL Version 1.2.8 Procedure file
File 3	E128ABS	EDL Absolute Program
File 4	E128BIN	EDL Main Overlay Relocatable Program
File 5	E128LIB	EDL Relocatable Subroutine Library
File 6	E128IBL	EDL Relocatable Information Base Subroutine Library
File 7	E128NBL	EDL Networking Subroutine Library
File 8	E120CNV	Conversion Program EDL 1.1.3 to EDL 1.2.0
File 9	EDLCOM	EDL Information Base Common Block Text File
File 10	EDLFIX	Unload and reload database procedures
File 11	EDLTRAN	EDL Networking Data Type Text File
File 12	MOUT	Subroutine to generate EDLLIST
File 13	E125MMB	Message and Task Metabase
File 14	E125DMB	Engineering Data Metabase
File 15	E125MDB	Message and Task Database
File 16	E125DDB	Engineering Data Database
File 17	EDLLIST	Default Database Load List
File 18	SEND	Communication Program used with VT-CDCNET
File 19	RCV	Communication Program used with VT-CDCNET
File 20	RMUGET	Communication Program used with CONNECT
File 21	EDLMCNV	Conversion Program for EDLMLOG
File 22	EDLSCNV	Conversion Program for EDLSLOG
File 23	CONVLOG	Conversion Program of Log Files for UNIX*
File 24	MDBRECS	Menu and Tasks for EDL 1.2.8
File 25	DDBRECS	Data Records for EDL 1.2.8

*UNIX is a registered trademark of Bell Laboratories.

CONTROL DATA CORPORATION

October 1988

ICEM ENGINEERING DATA LIBRARY V1.2.8
INSTALLATION INSTRUCTIONS
NOS 2 Level 708

1.0 ICEM EDL VERSION 1.2.8
1.4 RELEASE MATERIALS

File 26	IMF2LIB	IMF Version 2.1 Enforcer Library
File 27	IMF2QU	Query Update with IMF 2.1 Interface
File 28	MCSIMF2	Start-up Procedure for IMF2SCP
File 29	IMF2STF	IMF 2.1 System Tuning File
File 30	IMF2SCP	IMF 2.1 System Control Point Absolute Program
File 31	CLGABS	Program to Associate Log File to Database
File 32	OFFLINE	Recovery Utility
File 33	IMF2REC	Offline Recovery Utility
File 34	WMTUN52	Program to Change Metabase Username for a Database
File 35	IMF2LDU	IMF 2.1 Load/Unload/Validate Utility
File 36	MOTHERN	Metabase for Metabases, needed by IMF2LDU

The following files are found on the EDL Documentation release tape.

File 1	INSTALL	EDL Documentation Installation Procedure
File 2	EDLDMAN	EDL Database Administrator's Manual
File 3	EDLRMAN	EDL Version 1.2.5 Reference Manual

NOTE: 1. The EDL 1.2.8 Database and Meta Database file names have not changed for EDL Version 1.2.8. They still maintain the E125 prefix. This provides an easier conversion process from EDL 1.2.5, EDL 1.2.6 or EDL 1.2.7 to EDL 1.2.8.

2. SORT/MERGE is needed in order to execute the Migration Utilities to migrate data to EDL 2.0. SORT/MERGE is also needed to execute Query Update(QU) on NOS.

3. The Migration Utilities are needed in order to execute several data transfers to UNIX or NOS/VE hosts and to execute the EDL migration tasks.

2.0 INSTALLATION OF EDL AND THE IMF SUBSET.

2.0 INSTALLATION OF EDL AND THE IMF SUBSET.

2.1 ESTABLISH NOS ACCOUNTS

Establish a NOS account for the EDL programs, procedures, and data base files. This account may have any username and password.

Establish a NOS account with username IMF on which the Information Management Facility will reside and run. This username must have the name IMF, and must have special validations. It must be able to run a system control point job, communicate with user control points, create unlimited dayfile messages, unlimited CP time, unlimited MS, create direct and indirect files, etc.

All usernames from which EDL will be run must have validation to communicate to system control point jobs. Otherwise, they will be automatically logged off when they try to execute EDL.

2.2 MINIMUM VALIDATIONS

2.2.1 UN=IMF

AP=MCS Message Control System.
AP=RBF Remote Batch Facility.

AW=CLPF Create direct access files.
AW=CSPF Create indirect access files.
AW=CCNR Enter system without charge number.
AW=CUCP Access system control point facility.

2.0 INSTALLATION OF EDL AND THE IMF SUBSET.

2.2.1 UN=IMF

CC=77B	Max number of batch commands.
CM=77B	Max central memory space used.
CS=7	Cumulative size of all indirect access files.
DB=7	Max number of executing jobs and queue files.
DF=77B	Max number of MESSAGE requests to system and job dayfile.
DS=7	File size allowed for an individual direct access permanent file.
FC=7	File count.
FS=7	File size allowed for an individual indirect access permanent file.
MS=77B	Max number of additional mass storage PRU's the user is allowed to allocate to a job.
PW=pw	Password for both batch and interactive

2.2.2 ALL OTHER USERS INCLUDING THE DATABASE ADMINISTRATOR

AP=IAF	Interactive Facility
AP=RBF	Remote Batch Facility
AW=CLPF	Create direct access files.
AW=CSPF	Create indirect access files.
AW=CCNR	Enter system without charge number. (Note 1)
AW=CAND	Request nonallocatable devices (magnetic tape units). (Note 2)
AW=CUCP	Access system control point facility.
CC=77B	Max number of batch commands. (Note 2)
CM=77B	Max central memory space used. (Note 2)
CS=7	Cumulative size of all indirect access files. (Note 2)
DB=7	Max number of executing jobs and queue files. (Note 2)
DF=77B	Max number of MESSAGE requests to system and job dayfile. (Note 2)
DS=7	File size allowed for an individual direct access permanent file. (Note 2)
FC=7	File count. (Note 2)
FS=7	File size allowed for an individual indirect access permanent file. (Note 2)
MS=77B	Max number of additional mass storage PRU's the user is allowed to allocate to a job. (Note 2)
PW=pw	Password for both batch and interactive

2.0 INSTALLATION OF EDL AND THE IMF SUBSET.
2.2.2 ALL OTHER USERS INCLUDING THE DATABASE ADMINISTRATOR

Note 1 - The EDL installation procedure does not enter a CHARGE statement after the secondary USER commands when the procedure moves to UN=IMF and back to the DBA's account.

Note 2 - Required for Database administrator, may vary for other users.

2.3 RUN THE INSTALLATION PROCEDURE

If you are installing EDL 1.2.8 on the same user number as EDL 1.2.5,EDL 1.2.7, or EDL 1.2.6 (not recommended), rename E125DDB and E125MDB with the following commands.

```
CHANGE,E12BDDB=E125DDB.
CHANGE,E12BMDB=E125MDB.
```

Run the product tape installation procedure using the following control cards. Before installing IMF, idle down IMF from the system control point.

```
LABEL,TAPE,VSN=REL76A,F=I,D=PE,R,L=EDL128.
COPYBF,TAPE,INSTALL.
BEGIN,INSTALL,INSTALL.
```

The installation procedure will prompt for the username and password of the EDL account, and the password of username IMF.

If you already have the IMF2.1 files on username IMF and you do not wish to re-install it, answer NONE when prompted for the password of username IMF.

For sites currently using EDL 1.2.3 or EDL 1.2.5, it is recommended that the IMF files be reinstalled, since the IMF released with EDL 1.2.8 has been updated. IMF has not been updated since the EDL 1.2.6 Release, therefore if you have installed IMF from the 1.2.6 release tape there is no need to reinstall it. If you are running versions 1.2.3 or 1.2.5 it is recommended that you reinstall IMF even if you don't plan to upgrade to EDL 1.2.8, because the new IMF version contains a number of important fixes. After reinstalling IMF, you must execute the LOADEDL procedure against EDL 1.2.3 or EDL 1.2.5 to run EDL 1.2.3 or EDL 1.2.5 with the new IMF. For sites currently using EDL 1.2.6 or EDL 1.2.7, no IMF update is necessary.

2.0 INSTALLATION OF EDL AND THE IMF SUBSET.
2.3 RUN THE INSTALLATION PROCEDURES

To install the IMF files without installing the EDL files, be sure that you are logged into the UN=IMF account and type the following commands. Remember to idle down IMF at the system control point.

```
LABEL,TAPE,VSN=REL76A,F=I,D=PE,R,L=EDL128.
COPYBF,TAPE,INSTALL.
BEGIN,INSTIMF,INSTALL.
```

More information about starting and tuning IMF can be found in the following sections.

After installing the EDL Version 1.2.8 product, you may wish to load the EDL Documentation set onto your mass storage devices to modify according to your site's particular needs. To install the EDL Documentation set, mount the Documentation tape onto a 9-track tape drive and enter the following control cards.

```
RETURN,TAPE,INSTALL.
LABEL,TAPE,VSN=REL76B,F=I,D=PE,R,L=E125DOC.
COPYBF,TAPE,INSTALL.
BEGIN,INSTALL,INSTALL.
```

The installation procedure will prompt for the user name and the password of the account on which you wish to install the EDL Documentation files. This will usually be the same account on which you've installed EDL Version 1.2.8.

2.4 EDIT THE EDL PROCEDURE FILES.

WARNING - DO NOT EDIT E128PRC IN ASCII MODE!
The installation procedure creates the startup file EDL. It is a single CCL proc which gets procedure file E128PRC from the NOS username where EDL is installed and passes that username as the value of the AUN parameter on the BEGIN statement for EDL. No changes to the file EDL should be necessary.

The proc header of procedure EDL in E128PRC should be edited to change the default value of the alternate username parameter (AUN) to the username on which the EDL programs and databases were installed. This will ensure that EDL will run correctly even when started directly from E128PRC instead of from file EDL.

The procedures in E128PRC should be checked to ensure that the correct versions of the application programs are obtained from the correct usernames. The standard procedure file assumes that all application programs and procedures are on UN=APPLLIB. If this is not the case at your site, E128PRC should be changed.

If an application such as ICEM DDN is sysedited into your system so that it can be used as a system command, simply remove the attach statements and the statement that checks to see if the application program has been assigned.

If you plan on using the Migration tasks with EDL or transfer data from NOS to NOS/VE or UNIX it is necessary to modify E128PRC to reflect the correct username where the migration utilities reside. The default user is set to UN=MGUN.

2.5 ACTIVATE THE IMF2.1 SYSTEM CONTROL POINT.

Edit file MCSIMF2/UN=IMF to change the commented out USER statement to a valid USER statement for the IMF account. Move this small procedure file to username SYSTEMX (UI=377777B). Note that the user statement in MCSIMF2 is mandatory and cannot be replaced by a SUI statement.

2.0 INSTALLATION OF EDL AND THE IMF SUBSET.
2.5 ACTIVATE THE IMF2.1 SYSTEM CONTROL POINT.

The IMF system control point program, IMFSCP, is started like all subsystems by a DSD entry, starting the execution of the procedure file saved under username SYSTEMX. That is, from the console,

MCSIMF2.

IMF2SCP can run at any control point. To force it to run at a specific control point, use the following CMR/DSD entry before the MCSIMF2 command.

ENABLE,MCS,cp#.

To avoid changes to the operating system, the EDL version of IMF2SCP uses the same system identification as the Message Control System, and cannot run when the Message Control System is active.

IMF2SCP is idled through the DSD entry

IDLE,MCS.

When idled-down, IMF2SCP will complete all processing needed to keep the databases in a consistent state. Idle-down can thus be done without damaging the databases, even if there are users active.

2.6 INSTALLING EDL IN NON-CONCURRENT MODE

If you do not need to allow more than one ICEM user at the same time using the same EDL database , you can install EDL so that it will run in mono-user mode without the system control point job being active. To do this, follow the following steps.

1. Define an empty direct access file named EDLLOCK on the username where the EDL Engineering Database is installed. This file should be Public in Write mode. EDL will use this file to ensure that only one person tries to use EDL at a time. Otherwise, EDL may abort when the database is busy. DEFINE,EDLLOCK/CT=PU,M=W.

2. Edit Procedure EDL in E128PRC to change the statement $IF,$MONO$=$TRUE$,L1. to $IF,$MONO$=$MONO$,L1. and put the AC=1 parameter on the E128ABS statement.

2.0 INSTALLATION OF EDL AND THE IMF SUBSET.
2.7 INSTALLATION VERIFICATION

2.7 INSTALLATION VERIFICATION

To verify the installation of EDL, do the following steps:

Log in to the NOS system using the username established for the database administrator.

Initiate EDL by entering:

```
-,EDL
```

The terminal session below shows how to update the DBA's user profile. User responses are indicated by lower case letters.

```
  88/09/15.      ICEM ENGINEERING DATA LIBRARY VERSION 1.2.8
                   COPYRIGHT CONTROL DATA CORP., 1984,1985,1986,1987,1988
                             ALL RIGHTS RESERVED


          ENTER EDL USER IDENTIFICATION
? edlid

          ENTER EDL PASSWORD
? dba

          CURRENT TERMINAL CONFIGURATION
          GRAPHICS TERMINAL      CDC VIKING 721
          DIALOG AREA            ON GRAPHICS TERMINAL
          COMMUNICATIONS RATE    9600 BAUD
          COMMUNICATIONS TYPE    ASYNCHRONOUS
          TABLET                 NO
          LOCAL ASSIST           DEFAULT
          LOCAL DISPLAY          DEFAULT
          EGM                    NO
          BIT PLANES             4
EDLU0037  YOU ARE NOT RUNNING UNDER YOUR OWN NOS USERNAME

           ADMINISTRATOR TASKS
       1.  EXIT                                    E,EXIT
       2.  USER MANAGEMENT                         USERMGMT
       3.  GROUP ADMINISTRATION                    GROUPADMIN
       4.  RELEASE ADMINISTRATION                  RELADMIN
```

2.0 INSTALLATION OF EDL AND THE IMF SUBSET.
2.7 INSTALLATION VERIFICATION

```
      5.  PART, FAMILY, AND VENDOR MANAGEMENT      PARTM
ENTER TASK
? usermgmt

          USER MANAGEMENT
      1.  EXIT                                     E,EXIT
      2.  LIST USERS                               L,LIST
      3.  ADD USERS                                A,ADD
      4.  DELETE USERS                             D,DELETE
      5.  CHANGE A USER'S PROFILE                  C,CHANGE
      6.  REACTIVATE A USER                        R,REACTIVATE
SELECT OPTION
? c
        ENTER THE EDL ID OF THE USER, LIST, OR CR TO EXIT
? edlid
          CHANGE USER DATA
      1.  EXIT                                     E,EXIT
      2.  PROMPT FOR ALL                           P,PROMPT
      3.  EDL PASSWORD                             PSW,PW
      4.  NOS USER NAME                            U,UN
      5.  LAST NAME                                L,LNM
      6.  FIRST NAME                               F,FNM
      7.  MIDDLE NAME                              MI,MNM
      8.  DEPARTMENT                               D,DEPT
      9.  TITLE                                    T,TITLE
     10.  STREET ADDRESS                           A,ADDR
     11.  CITY, STATE, ZIP                         C,CITY
     12.  PHONE                                    PH,PHONE
     13.  FIRST COMMAND                            CMD,COMMAND
     14.  DIALOG DELIMITER                         DIALOG
     15.  STRING DELIMITER                         STRING
     16.  EDITOR                                   EDITOR
     17.  HOST                                     HOST
SELECT OPTION
? p

        ENTER A NEW EDL PASSWORD OR CR FOR SAME
? dbapw

*** WARNING - THE USER MAY NOT BE ABLE TO ACCESS THEIR    ***
***           OWN FILES IF THEIR NOS USER NAME IS CHANGED ***

        THE USER'S NOS USER NAME IS
EDLDBA
        ENTER A NEW NOS USER NAME OR CR FOR SAME
? edldba
```

```
          THE USER'S LAST NAME IS

          ENTER A NEW LAST NAME OR CR FOR SAME
? smith
          THE USER'S FIRST NAME IS

          ENTER A NEW FIRST NAME OR CR FOR SAME
? john
          THE USER'S MIDDLE NAME IS

          ENTER A NEW MIDDLE NAME OR CR FOR SAME
? a
          THE USER'S DEPARTMENT IS

          ENTER A NEW DEPARTMENT OR CR FOR SAME
? 2210
          THE USER'S TITLE IS
DATABASE ADMINISTRATOR

          ENTER A NEW TITLE OR CR FOR SAME
? <cr>
          THE USER'S STREET ADDRESS IS

          ENTER A NEW STREET ADDRESS OR CR FOR SAME
? 123 main street
          THE USER'S CITY, STATE, AND ZIP ARE

          ENTER A NEW CITY, STATE, AND ZIP OR CR FOR SAME
? minneapolis, mn 55000
          THE USER'S PHONE NUMBER IS
```

2.0 INSTALLATION OF EDL AND THE IMF SUBSET.
2.7 INSTALLATION VERIFICATION

```
          ENTER A NEW PHONE NUMBER OR CR FOR SAME
? (612) 555-2345

          THE USER'S FIRST COMMAND IS
ADMIN

          ENTER A NEW FIRST COMMAND OR CR FOR SAME
? .<cr>

          THE USER'S DIALOG DELIMITER IS
,

          ENTER THE NEW DIALOG DELIMITER OR CR FOR SAME
? <cr>

          THE USER'S STRING DELIMITER IS
"

          ENTER THE NEW STRING DELIMITER OR CR FOR SAME
? <cr>

          THE USER'S DEFAULT EDITOR IS
FSE

          ENTER THE NEW EDITOR OR CR FOR SAME
? <cr>

           CHANGE USER DATA
      1.  EXIT                                E,EXIT
      2.  PROMPT FOR ALL                      P,PROMPT
      3.  EDL PASSWORD                        PSW,PW
      4.  NOS USER NAME                       U,UN
      5.  LAST NAME                           L,LNM
      6.  FIRST NAME                          F,FNM
      7.  MIDDLE NAME                         MI,MNM
      8.  DEPARTMENT                          D,DEPT
      9.  TITLE                               T,TITLE
     10.  STREET ADDRESS                      A,ADDR
     11.  CITY, STATE, ZIP                    C,CITY
     12.  PHONE                               PH,PHONE
     13.  FIRST COMMAND                       CMD,COMMAND
     14.  DIALOG DELIMITER                    DIALOG
     15.  STRING DELIMITER                    STRING
     16.  EDITOR                              EDITOR
     17.  HOST                                HOST
SELECT OPTION
```

2.0 INSTALLATION OF EDL AND THE IMF SUBSET.
2.7 INSTALLATION VERIFICATION

```
? e

        *** THE USER'S PROFILE HAS BEEN CHANGED ***

        ENTER THE EDL ID OF THE USER, LIST, OR CR TO EXIT
? <cr>

         USER MANAGEMENT
      1. EXIT                                   E,EXIT
      2. LIST USERS                             L,LIST
      3. ADD USERS                              A,ADD
      4. DELETE USERS                           D,DELETE
      5. CHANGE A USER'S PROFILE                C,CHANGE
      6. REACTIVATE A USER                      R,REACTIVATE
SELECT OPTION
? list

        ENTER THE EDL ID OF THE USER, LIST, OR CR TO EXIT
? list

        2 SELECTIONS
           EDL ID       NAME
           --- --       ----
        1. EDLCOM
        2. EDLID        SMITH, JOHN A.

        *** END OF LIST ***

        ENTER A NUMBER, E OR EXIT, OR CR FOR MORE
? 2
        EDL USER ID  EDLID
               NAME  SMITH, JOHN A.
       NOS USER NAME
         DEPARTMENT  2210
              TITLE  DATABASE ADMINISTRATOR
      STREET ADDRESS  123 MAIN STREET
    CITY, STATE, ZIP  MINNEAPOLIS, MN 55000
              PHONE  (612) 555-2345
       FIRST COMMAND  ADMIN
             STATUS  ACTIVE
    DIALOG DELIMITER  /
    STRING DELIMITER  "
              EDITOR  FSE

ENTER CR TO CONTINUE
? <cr>
```

2.0 INSTALLATION OF EDL AND THE IMF SUBSET.
2.7 INSTALLATION VERIFICATION

```
          2 SELECTIONS
             EDL ID       NAME
             --- --       ----
          1. EDLCOM
          2. EDLID        SMITH, JOHN A.

          *** END OF LIST ***

          ENTER A NUMBER, E OR EXIT, OR CR FOR MORE
? e

          ENTER THE EDL ID OF THE USER, LIST, OR CR TO EXIT
? <cr>

           USER MANAGEMENT
      1.   EXIT                                  E,EXIT
      2.   LIST USERS                            L,LIST
      3.   ADD USERS                             A,ADD
      4.   DELETE USERS                          D,DELETE
      5.   CHANGE A USER'S PROFILE               C,CHANGE
      6.   REACTIVATE A USER                     R,REACTIVATE
SELECT OPTION
? e

           ADMINISTRATOR TASKS
      1.   EXIT                                  E,EXIT
      2.   USER MANAGEMENT                       USERMGMT
      3.   GROUP ADMINISTRATION                  GROUPADMIN
      4.   RELEASE ADMINISTRATION                RELADMIN
      5.   PART, FAMILY, AND VENDOR MANAGEMENT   PARTM
ENTER TASK
? quit
```

2.8 UPGRADING EDL DATABASES

If your site is currently running a previous version of EDL, (pre-1.2.5) you must move the information to the new databases.

If you have customized EDL for your site, also read the section in the customization manual about upgrading site customizations.

2.8.1 CONVERSION FROM EDL 1.1.3

Conversion from EDL 1.1.3 to EDL 1.2.8 must be accomplished in three steps: EDL 1.1.3 to EDL 1.2.0, EDL 1.2.0 to EDL 1.2.3, and, finally, EDL 1.2.3 to EDL 1.2.8. This section of the document describes the conversion from EDL 1.1.3 to EDL 1.2.0.

Conversion from EDL 1.2.0 to EDL 1.2.3 is discussed in section 2.8.2 of this document and conversion from EDL 1.2.3 to EDL 1.2.8 in section 2.8.3.

To move from EDL 1.1.3 the data must first be moved to an EDL 1.2.0 database. All conversion programs and procedures are available on the EDL 1.2.8 release tape. However, you will need to install a default EDL 1.2.0 database from an EDL 1.2.0 release tape.

In order to convert the information on an EDL 1.1.3 database to your EDL 1.2.0 database, you need to run a procedure called CONV113. This procedure must be run from the NOS account where the EDL 1.2.0 database will reside. The EDL 1.1.3 database need not be on the same NOS account.

Begin the conversion procedure by typing:

```
BEGIN,CONV113,E128PRC,UN113=username.
```

Where username is replaced with the NOS account where the EDL 1.13 database resides.

This procedure will submit a job to convert the data from the EDL 1.13 database to the EDL 1.2.0 database. There should be no one else using the EDL 1.2.0 database during this time.

After CONV113 has run, the output from the job, and the dayfile, will be on file CONVOUT. CONVOUT will contain details of any records which the program was unable to translate.

2.0 INSTALLATION OF EDL AND THE IMF SUBSET.
2.8.1 CONVERSION FROM EDL 1.1.3

If the conversion program is unable to complete, the output and dayfile from the job will be on a file called CONVERR. Possible causes and solutions are:

Problem	Solution
Misspecified UN113 Time Limit	Re-run the CONV113 procedure Edit E128PRC, changing the time limit from 1200 on the CONVERT procedure. Reinstall an empty default 1.2.0 database before attempting to rerun the procedure.

2.8.2 CONVERSION FROM EDL 1.2.0 TO EDL 1.2.3

Before moving engineering data into the EDL 1.2.3 database, you must reapply any Query Update Transactions which you used to customize the EDL 1.2.0 database. Otherwise, site defined file types, data types, engineering categories, etc., will not be in the new database, and any engineering data information that uses them will be rejected with constraint violations.

You should also delete the user EDLID and the group DBA from the default EDL 1.2.3 database before attempting to convert the old database. This will avoid uniqueness constraint violations as that user and group are moved from the EDL 1.2.0 database. Use the user and group management functions of EDL 1.2.3 or Query Update to accomplish the deletion.

To move engineering data from an EDL 1.2.0 database to an EDL 1.2.3 database, type the following command.

```
BEGIN,CONV120,E128PRC,UN120=username.
```

where username is replaced with the NOS account where the EDL 1.2.0 database resides.

This procedure runs the IMF unload-reload utility and a special program to convert data that cannot be handled properly by the unload-reload utility. If you have a very large database, you may wish to begin the procedure in a batch job.

In some cases, the reload utility may find constraint violations which will cause the new database to be marked invalid. You should look at the error report and lists to determine which records caused the problem. Then use Query Update in repair mode to correct the errors and rerun the validate utility.

```
ATTACH,IMF2QU/UN=IMF.
IMF2QU.
-- INVOKE EDLDATAW OF EDLDATA KEY EDLORDBA +
-- USING E123DDB REPAIR EDLPW
-- (enter QU directives to DISPLAY and correct the database)
-- END

ATTACH,IMF2LDU/UN=IMF.
```

2.0 INSTALLATION OF EDL AND THE IMF SUBSET.
2.8.2 CONVERSION FROM EDL 1.2.0 TO EDL 1.2.3

```
IMF2LDU.
? VALIDATE THROUGH EDLDATAW OF EDLDATA
? KEY EDLORDBA
? USING E123DDB
? REPAIR EDLPW
? TERM
? <cr>
```

If you have customized EDL 1.2.0 please read the new customization guide before attempting to convert the database. It is necessary to adapt and reapply your QU and MDB directives before converting the engineering data.

2.0 INSTALLATION OF EDL AND THE IMF SUBSET.
2.8.3 CONVERSION FROM EDL 1.2.3 TO EDL 1.2.8

2.8.3 CONVERSION FROM EDL 1.2.3 TO EDL 1.2.8

Before moving engineering data into the EDL 1.2.8 database, you must reapply any Query Update Transactions which you used to customize the EDL 1.2.3 database. Otherwise, site defined file types, data types, engineering categories, etc., will not be in the new database, and any engineering data information that uses them will be rejected with constraint violations.

You should also delete the user EDLID and the group DBA from the default EDL 1.2.8 database before attempting to convert the old database. This will avoid uniqueness constraint violations as that user and group are moved from the EDL 1.2.3 database. Use the user and group management functions of EDL 1.2.3 or Query Update to accomplish the deletion.

To move engineering data from an EDL 1.2.3 database to an EDL 1.2.8 database, type the following command.

```
BEGIN,CONV123,E128PRC,UN123=username1,UN128=username2.
```

where username1 is replaced with the NOS account where the EDL 1.2.3 database resides and username2 is replaced with the NOS account where the EDL 1.2.8 database resides.

This procedure runs the IMF unload-reload utility. If you have a large database, you may wish to begin the procedure as a batch job.

In some cases, the reload utility may find constraint violations which will cause the new database to be marked invalid. You should look at the error report and lists to determine which records caused the problem. Then use Query Update in repair mode to correct the errors and rerun the validate utility.

```
ATTACH,IMF2QU/UN=IMF.
IMF2QU.
-- INVOKE EDLDATAW OF EDLDATA KEY EDLORDBA +
-- USING E125DDB REPAIR EDLPW ON username2
-- (enter QU directives to DISPLAY and correct the database)
-- END

ATTACH,IMF2LDU/UN=IMF.
```

2.0 INSTALLATION OF EDL AND THE IMF SUBSET.
2.8.4 CONVERSION FROM EDL 1.2.3 TO EDL 1.2.8

```
IMF2LDU.
? VALIDATE THROUGH EDLDATAW OF EDLDATA
? KEY EDLORDBA
? USING E125DDB
? REPAIR EDLPW
? TERM
? <cr>
```

If you have customized EDL 1.2.3 please read the new customization guide before attempting to convert the database. It is necessary to adapt and reapply your QU and MDB directives before converting the engineering data.

2.9.3. CONVERSION FROM EDL 1.2.5/6/7 TO EDL 1.2.8

If you installed EDL 1.2.8 on the same user number as EDL 1.2.5, 1.2.6 or 1.2.7 then you should have renamed your database files before installing EDL 1.2.8 per instructions. Execute the following commands to maintain your 1.2.5, 1.2.6, or 1.2.7 databases for EDL 1.2.8.

```
CHANGE,E12RDDB=E125DDB. (version 1.2.8, R=release five)
CHANGE,E12RMDB=E125MDB. (version 1.2.8, R=release five)

CHANGE,E125DDB=E12BDDB.
CHANGE,E125MDB=E12BMDB.
```

If you installed EDL 1.2.8 on a different user number from your previous version, execute the following commands to use your old database files for EDL 1.2.8.

Under the EDL 1.2.5, 1.2.6 or 1.2.7 user number (olduser):

```
PERMIT,E125DDB,user128=R.
```

2.0 INSTALLATION OF EDL AND THE IMF SUBSET.
2.9.3 CONVERSION FROM EDL 1.2.5, 1.2.6, 1.2.7 TO EDL 1.2.8

Under the EDL 1.2.8 user number (user128).

```
CHANGE,E12RDDB=E125DDB. (version 1.2.8, R=release)
CHANGE,E12RMDB=E125MDB. (version 1.2.8, R=release)
DEFINE,E125DDB.
DEFINE,E125MDB.
CHANGE,E125DDB/CT=S,M=RM.
CHANGE,E125MDB/CT=PU,M=W.
ATTACH,DDB=E125DDB/UN=olduser.
ATTACH,MDB=E125MDB/UN=olduser.
COPY,DDB,E125DDB.
COPY,MDB,E125MDB.
RETURN,MDB,DDB.
PERMIT,E125DDB,IMF=W.
```

Execute LOADEDL to add your customized ovcaps and routines. Run EDL, all your data, customized menus and messages, and routines should be present.

You need to add the EDL 1.2.8 menu and data records to the menu and data databases. Run EDL and execute the ADDINFO task twice to add the files MDBRECS and DDBRECS to EDL, the application data types are EDL MDB TRANSACTIONS and EDL DDB TRANSACTIONS, respectively. When adding these files you must specify a data name. Execute the task MENUMGMT and retrieve the file MDBRECS, check local file MDBLIST for errors. Execute the task QUBATCH and retrieve the file DDBRECS, check the local file QULIST for errors.

If you have not upgraded EDL to version 1.2.6 then implement the following commands to correct the MSTRING character code.

```
ATTACH,IMF2QU/UN=IMF.
IMF2QU.
-- INVOKE EDLDATAW OF EDLDATA KEY $EDLORDBA$ USING E125DDB
-- IF FTFTC=$DDN MENU STRING FILE$ MODIFY SETTING FTCHR
>> $A$
-- END
```

2.10 IMF DATABASE MAINTENANCE

2.10.1 BACKUP AND RECOVERY

IMF 2.1 provides utilities for database journal logging and offline database recovery. There are two procedures in EDL that make these utilities easy to use to backup and recover the EDL database.

These procedures must be run from the NOS account on which the EDL database resides. They should be run only when there are no EDL users on the system.

2.10.1.1 Backup Procedure

BEGIN,BACKUP,E125PRC

This procedure copies the EDL database file E125DDB to a backup file named E128BAK. It also creates a journal log file named E128LOG which will automatically capture a record of all changes to the EDL Engineering Data Database.

You should run this procedure periodically depending on the amount of EDL activity at your site. Be careful that the database is good before you run the BACKUP procedure since it will overwrite any previous backup and log files. Before running BACKUP, you may wish to copy E125DDB, E128BAK and E128LOG to magnetic tape.

2.10.1.2 Recovery Procedure

BEGIN,RECOVER,E128PRC,DBN=username.

This procedure is to be used only in the unlikely event that a system crash occurs when the database is open and the EDL database is destroyed.

RECOVER copies the backup file E128BAK over the current database file E125DDB and runs the offline recovery utility to update the database with the journal entries from file E128LOG. This restores the database to a consistent state as it appeared just before the database was destroyed. Then this procedure causes the BACKUP procedure described above to be run, ensuring that any subsequent changes are logged.

2.10.1.3 Unload and Reload Database Procedure

EDLFIX is a procedure file containing procedures to be used to unload and then reload an EDL database. EDLFIX consists of four procedures, UNLOAD, RELOAD, VALID, and CLEARDB.

UNLOAD is a procedure to unload the contents of the E125DDB to files.

RELOAD is a procedure to load the information obtained from the UNLOAD utility back into an empty database.(E125DDB)

VALID is a procedure to validate a database if the RELOAD utility has problems.

CLEARDB is a procedure that takes an "empty" database supplied on the EDL125 release tape and makes it totally empty. This should help the RELOAD procedure run smoothly(use to obtain an empty database for the RELOAD).

2.0 INSTALLATION OF EDL AND THE IMF SUBSET.
2.10.1.3 Unload and Reload Database Procedure

TO RELOAD YOUR DATABASE:

1. Run the UNLOAD procedure against your current database.

   BEGIN,UNLOAD,EDLFIX.

2. Swap databases so that the default database from the EDL125 release tape is called E125DDB. Do not delete the old database yet. Remember to CHANGE(E125DDB/CT=S,M=RM) and PERMIT(E125DDB,IMF=W). If you have run through the process before you can use the true empty database created by step 5 rather than the one on the EDL release tape.

3. Run the CHMUN procedure to ensure that the metaun is correct.

   BEGIN,CHMUN,E128PRC,FN=E125DDB,METAUN=username.

4. If your site does not run with journal logging, then you must turn it off again because logging is turned on in the default database on the EDL release tape. To turn journal logging off enter:

   BEGIN,CHLOG,E128PRC,FUNC=OFF,FN=E125DDB,AFN=E128LOG.

   You do not need to run this step if you have done it previously and saved the true empty database from the next step.

5. Run the CLEARDB procedure. The procedure may complain about the AI records which is ok, if the procedure complains about any other records you should call the Hotline. To run the procedure enter:

   BEGIN,CLEARDB,EDLFIX.

6. After executing the CLEARDB utility, make a copy of the resulting E125DDB. Then, the next time you need to RELOAD data, you can use that database instead of the default DB on the release tape. Then you can skip steps 4 and 5.

7. Run the RELOAD procedure. This will reload the data into the empty database.

   BEGIN,RELOAD,EDLFIX.

8. Run the CHMUN procedure to ensure that the metaun is correct.

   BEGIN,CHMUN,E128PRC,FN=E125DDB,METAUN=username.

9. Test everything.

NOTE: To run these procedures against EDL123 modify EDLFIX to reflect the E123DDB, i.e. change all occurrances of E125DDB to E123DDB.

2.10.2 RUNNING WITHOUT JOURNAL LOGGING

To turn journal logging off for the EDL database, execute the following procedure.

BEGIN,CHLOG,E128PRC,FUNC=OFF,FN=E125DDB,AFN=E128LOG.

Substantial improvements in resource utilization can be achieved by turning journal logging off. However, without journal logging, it is impossible to use the RECOVER procedure to reestablish the database to the point of failure in case the system crashes while a user has the EDL database open. Instead, the file E125DDB must be restored from the last system file backup.

It is unlikely that the database will be corrupted by anything other than a operating system or hardware failure, since IMF performs reprieve processing to close the database gracefully if a program fails or a user uses control T to abort the program. The risk of losing a day or half day of EDL information may be acceptable at your site. The application

data such as drawings and models are not affected by IMF journal logging.

2.11 IMF TUNING CONSIDERATIONS

The IMF System Tuning File, IMF2STF/UN=IMF, determines certain parameters that IMF 2.1 uses to control its operation at the system control point. These parameters can affect resource utilization of EDL, response time, and overall system throughput. The tuning parameters are read from the file every time the IMF (MCS) subsystem is started.

To some extent, the optimal settings depend on the type of load on your system. The parameters on the tuning file provided on the EDL release tape are set to reasonable values for an ICEM environment. They are set to minimize the impact of IMF and EDL on system throughput at the possible expense of EDL response time.

2.12 EDL AUTOSTART FOR USERS

If a user wishes to log in to EDL without typing his EDL user id and password, create an indirect file called EDLUSER on the user's NOS username. This file should have a single line with the user id in columns 1-10 and the EDL password in columns 11-20. EDL will attempt to read this file and will prompt the user only if the file does not exist or if the information on the file is invalid.

2.13 PASSWORD MASKING

If all terminals at your site are communicating in full duplex mode, you may cause EDL to temporarily disable echoplex mode while the users are entering passwords so that the password characters do not appear on the terminal screen.

This is accomplished by changing the title of the message

named "DUPLEX" to "FULL", using a MDB transaction file or query update. See the customization guide section "CUSTOMIZING THE MESSAGE AND TASK DATABASE" for an explanation of how to change EDL messages.

2.14 USING QUERY UPDATE

For the most part, IMF2QU functions as described in the Query Update Version 3 Reference Manual 60498300.

The Invoke clause used to open an IMF 2.1 database schema, is different from the one documented for IMF Version 1.

```
INVOKE external-schema-name OF conceptual-schema-name
   [ KEY use-literal ]
   USING database-file-name [ nos-username ]
   [ REPAIR repair-literal ]
   [ CONCURRENT ]
```

To query the EDL Engineering Database,
INVOKE EDL OF EDLDATA USING E125DDB nos-username CONCURRENT

To query the EDL Message and Task Database,
INVOKE EDLMENUR OF EDLMENU USING E125MDB nos-un

To query or update the Engineering Database,
INVOKE EDLDATAW OF EDLDATA KEY $EDLORDBA$ +
USING E125DDB nos-un CONCURRENT

To query or update the Message and Task Database,
INVOKE EDLMENUW OF EDLMENU KEY $EDLORDBA$ +
USING E125MDB nos-un

Sometimes Query Update will not display data for all records of a record type unless a FOLLOW directive is entered to specify the access path or coset to be used to retrieve the records. See the Query Update manual and the EDL record layout section of the customization guide.

3.0 CREATING A NETWORK IN EDL

This section explains how to set up a network of EDL databases, one on each mainframe. Hosts in an EDL network are configured in a "star", with many subordinates clustered around a single master host. Administrative functions (user validation, part definition) are carried out on the master host. The DBA in the network is responsible for running a job (started with the command INITNET) which polls other hosts in the network (a subordinate polls the master, while the master polls each subordinate), then rolls out for a site defined period before repeating the polling cycle. This information is repeated in section 16 of the EDL Customization Guide. It is recommended that the System Administrator become familiar with that document before attempting these changes.

For sites maintaining a network configuration including NOS/VE, NOS, and UNIX the following conditions hold true.

1. The NOS/VE host must be the Master host with NOS and UNIX as the Subordinate hosts.
2. The networking capability between NOS/VE and NOS is a scoped down version of networking. All data records will be maintained except part records and release records (i.e. PI,PR,PD,PS,PV,RA,RP,RS,RT,RU).

For sites maintaining a network configuration including NOS and UNIX hosts the following conditions hold true.

1. The NOS host must be the Master host with UNIX as a Subordinate host.
2. The only networking capability between NOS and UNIX are file transfers, no other records will be maintained. NOS will not know about files that reside on UNIX.

3.1 DEFINE HOSTS

The default EDL database host name is blank. In order to identify multiple hosts in a network, each host must be given a unique name within EDL. This name should be the three character LID (Logical IDentifier) by which the host is known to RHF. For the NOS/VE host the EDL database host name does not necessarily need to represent the LID. The database host operating system name for a NOS/VE host must be set to NOSVE. This is represented this way only on a NOS host; for the 2.0.2 database it is set to NOS/VE. For a UNIX host the database host identifier name can at most be 4 characters in length.

One host should be designated as the MASTER host for the network. This host must communicate directly to all subordinate hosts which run EDL. All administrative functions, such as validating users, and defining parts, and vendors, will be done on this host, and the information will be passed to the subordinates, except for the conditions stated in section 3.0.

All transactions dealing with data are done on the subordinate hosts, and then passed up to the master. Therefore, the master host will contain information about the data on all subordinate hosts, except for UNIX hosts.

3.2 DEFINE COMMUNICATION LINKS

CL records must be created for each host in the database, telling EDL which other hosts a specific host can communicate with. Note that each link must be defined twice, saying that HOST A can communicate with HOST B, and that HOST B can communicate with HOST A.

3.3 QU DIRECTIVES TO DEFINE A NETWORK

A sample network could consist of two Cyber mainframes, a Cyber 120 which does not run EDL, but whose data is managed by MA4 (whose data is passed up to MB1), and a Cyber 910 Workstation. Following are the QU directives to update the MASTER host (in this case MB1) for this network configuration.

```
INVOKE EDLDATAW OF EDLDATA KEY $EDLORDBA$ USING E125DDB
STORE SETTING HIHOS,HIOFF,HIOS,HIEDL,HIHOSS
$MB1$        1  $NOS$ $T$ $MB1$
$MA4$   100000  $NOS$ $T$ $MB1$
$SD2$   200000  $AOS/VS$ $F$ $MA4$
$CDC3$ 300000  $UNIX$ $T$ $MB1$
*END
STORE SETTING UVUSR UVHOS UVOUN
$EDLID$     $MA4$     $EDLDBA $
$EDLID$     $MB1$     $EDLDBA $
$EDLID$     $SD2$     $DJH $
$EDLID$     $CDC3$    $DBA $
$EDLCOM$    $MA4$     $EDLDBA $
$EDLCOM$    $SD2$     $DJH $
$EDLCOM$    $MB1$     $EDLDBA $
$EDLCOM$    $CDC3$    $DBA $
*END
```

3.0 CREATING A NETWORK IN EDL
3.3 QU DIRECTIVES TO DEFINE A NETWORK

```
STORE SETTING CLHOSS CLHOSR
$MA4$ $MB1$
$MB1$ $MA4$
$MA4$ $SD2$
$MB1$ $SD2$
$CDC3$ $MA4$
$MA4$ $CDC3$
*END
REMOVE USING UVHOS
$ $
*END
REMOVE USING HIHOS
$ $
*END
MODIFY USING HIHOS SETTING HIOFF
$MB1$ 0
*END
END
```

3.0 CREATING A NETWORK IN EDL
3.3 QU DIRECTIVES TO DEFINE A NETWORK

Once the network has been defined on what will be the master host, this configuration should be copied to subordinates. EDL should be installed, then this same QU file should be run on each subordinate host. EDL must run on the same NOS account on each host. For a UNIX subordinate create a transaction file containing records with similar settings. For more information see the User Release Bulletin for EDL 2.0.2.

Below are QU directives for a sample network consisting of a NOS/VE (CIMA) master with a NOS (MA4) and a UNIX (CDC3) subordinate hosts. These directives are performed on the NOS host only. Check the User Release Bulletin for EDL 2.0.2 to set up the network for NOS/VE and UNIX, making sure that all networks have the same host identifiers, offsets, and user numbers.

```
INVOKE EDLDATAW OF EDLDATA KEY $EDLORDBA$ USING E125DDB
STORE SETTING HIHOS HIOFF HIOS HIEDL HIHOSS
$CIMA$    .    1 $NOSVE$ $T$ $CIMA$
$MA4$   100000 $NOS$   $T$ $CIMA$
$CDC3$ 200000 $UNIX$  $T$ $CIMA$
*END
STORE SETTING UVUSR UVHOS UVOUN
$EDLID$  $CIMA$ $EDLDBA$
$EDLCOM$ $CIMA$ $EDLDBA$
$EDLID$  $MA4$  $EDLDBA$
$EDLCOM$ $MA4$  $EDLDBA$
$EDLID$  $CDC3$ $DBA$
$EDLCOM$ $CDC3$ $DBA$
*END
STORE SETTING CLHOSS CLHOSR
$CIMA$ $MA4$
$MA4$  $CIMA$
$CDC3$ $MA4$
$MA4$  $CDC3$
*END
REMOVE USING UVHOS
$ $
*END
REMOVE USING HIHOS
$ $
*END
END
```

NOTE: The HIOS setting for a NOS/VE system is NOSVE, this is different from the networking setups for EDL 2.0.1, that setting is NOS/VE. The HIHOS setting for a UNIX system can at most be 4 characters long.

3.4 E128PRC MODIFICATIONS

3.4.1 GENERAL MODIFICATIONS

WARNING - DO NOT EDIT E128PRC IN ASCII MODE!
If your site has a networked environment including a NOS/VE host, E128PRC must be modified to reflect the correct LID, Logical Identifier (RHF), because the HIHOS field does not necessarily represent the NOS/VE identifier. Modify all occurrances of ST=NVEID to the correct id. Due to this limitation NOS subordinates cannot transfer to NOS/VE subordinates. If the HIHOS field represents the RHF identifier for the NOS/VE system, then replace ST=NVEID to ST=HOS or HOS2 depending upon the procedure.

3.4.2 PROCEDURES GETMAS AND GETSUB

Procedure GETMAS and GETSUB contain .DATA files with MFLINK directives. These directives are used to poll alternate hosts in the network for information which should be sent from the master to the subordinates, or vice versa. The first line in the .DATA files are USER,EDLDBA,EDLDBA for a NOS system and LOGIN EDLDBA EDLDBA for a NOS/VE system. These statements should be replaced with the batch user statement for the username where EDL will be running in the network. Since the master host will be using these MFLINK directives to poll each subordinate, this means that the username and batch password where EDL runs on each subordinate must be the same.

If your site is running with a master NOS/VE host then GETMAS must be modified to reflect the full path name of where EDL is installed on the NOS/VE system. Modify the statement SETWC :CIM.EDL100A.APPLICATIONS.ICEMEDL.VER#_2#_00 to the correct path name.

A recommended modification to the GETMAS and GETSUB procedures is to remove the .DATA files from E128PRC (which is available to all users running EDL), put this information into a private file on the username on which EDL resides, and modify the procedures to read these files rather then the .DATA files.

3.4.3 PROCEDURE EDL

Procedure EDL on file E128PRC must be changed on each host, telling EDL the name of the host. The updated procedure header will look like:

.PROC,EDL,I=INPUT,IT=0/IT,OT=0/OT,HOST=hos,AUN=EDLDBA.
where hos is replaced by the name of the host on which this file resides.

3.4.4 EDL LOG FILES

Each subordinate should have, on the username on which EDL is installed, a file called EDLSLOG. The master should have a file called EDLMLOG, and one file for each subordinate which runs EDL. These files will be called EDLMhos, where hos is replaced with the host identifier for the subordinate, for a UNIX host these files are called EDLhos. These files should be made public, or permitted to all usernames which can run EDL, in WRITE mode.

These files contain log entries of each transaction which needs to be shipped either from the subordinates to the master, or vice versa. These log files are polled periodically by their destination hosts.

3.5 NETWORK INITIALIZATION

The DBA should log into each host on the account where EDL resides, and enter the command INITNET. This will start up a job which will:

1. Poll the subordinates (or master) for transactions which should be sent to this host.
2. Run EDL in batch mode to process these transactions.
3. Roll out for the interval defined in the procedure NETROLL in E128PRC.
4. Repeat.

This job will have the UJN of NETJOB. It should continue to cycle until the system is deadstarted, at which time the INITNET task should be run again. If the job is dropped, the transaction data is not lost. Network transactions will accumulate in the log files, and will be sent to other hosts whenever the INITNET job is run on the receiving host.

CONTROL DATA CORPORATION

ICEM

ENGINEERING DATA LIBRARY V1.2.8

Operating System Level: NOS 2 Level 708
Date: October 1988

USER RELEASE BULLETIN

DISCLAIMER

NOS and its product set are intended for use only as described in this document. Control Data cannot be responsible for the proper functioning of undescribed features and parameters.

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*** NOTE ***

Please contact the appropriate Hotline if you encounter any problems or have any questions.

USA/Canada	1-800-345-9903
International	(612) 851-4131

CONTROL DATA CORPORATION

October 1988

ICEM ENGINEERING DATA LIBRARY V1.2.8
SOFTWARE RELEASE BULLETIN
NOS 2 Level 708

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1.0 INTRODUCTION

Version 1.2.8 of the Engineering Data Library is a System Software Update Release (SSU) containing NOS support for the TCP/IP network protocol between NOS and UNIX* workstations as well as PSR corrective code.

*UNIX is a registered trademark of Bell Laboratories

2.0 USER'S SECTION

2.0 USER'S SECTION

2.1 NOTES AND CAUTIONS

1. On entering EDL, if the user's logged in NOS user name is different from the NOS username in the EDL database, a warning message is displayed. Files created under this condition will not be accessible when the user is logged into the correct username unless the files are specifically permitted to the user.

2. Updating EDL for new files requires you to be running on the NOS username where the file resides. EDL assumes that all new files are private files. If the file is actually a NOS public file, use the EDL PERMIT task to change the file category to PUBLIC.

3. An indirect access permanent file named USER must exist on the user's NOS username if the user wishes to use TRANSFER tasks on Solid Modeler data. The file USER contains the job card, user card, and accounting charge card image if needed.

4. In a multi-host network, it is not possible to transfer data to a remote host when using the ACCEPT or RELEASE tasks. Data may be submitted to a release procedure from any host on the network, but to ACCEPT or RELEASE the data, the releaser must run on the host where the pending or released destination data is desired to reside.

5. Using the EDIT command on non-permanent files or creation files will prompt the user for the character code to be used to edit the file, UPPER CASE DISPLAY CODE or UPPER LOWER CASE ASCII.

6. The correct file type for PATRAN DATA, local file PATDAT, is RANDOM ACCESS DATA.

7. In using the transfer tasks involving an IGES DATA FILE, the user must use the correct data name of the origination file or the destination file. The IGES data name specified must match the origination data name. The transfer data name specified must match the data name in the IGES file, or if the name in the IGES file is blank, the default data name IGES.

2.0 USER'S SECTION

---

8. In a network configuration consisting of two or more hosts where a host is not available, the IMPORT and EXPORT commands will require a control-t to exit the wait status. This will not exit the user from EDL.

9. The reference manual states that a part number cannot be deleted if any released data is associated to the part. In fact, the part cannot be deleted if any data is associated to the part, regardless of the status of the data.

10. Data transfers to a remote Virtual System will not complete correctly if the destination catalog does not exist on the remote system.

11. An EDL 1.2.8 NOS Master will not track files for a UNIX subordinate.

12. When transferring data to a remote NOS/VE or UNIX host you must enter the full path name of the catalog in which the file is to reside.

13. When transferring data from a NOS host to a UNIX host all path and file names will be interpreted by EDL to be lower case, therefore all your UNIX catalogs should be created in lower case.

14. The default dialog delimiter has changed from '/' to ',' once you reach the first TASK prompt in EDL.

15. Two file and application types were added to EDL V1.2.7.

	File Type	Application Data Type
1.	IND ASCII DRAWING	IND ASCII DRAWING

This type indicates down dated IPARTA files from NOS/VE or NOS IPARTDs that have been converted to IPARTAs.

2.	IND ASCII 2.0 DWG	IND ASCII 2.0 DWG

This type indicates a 2.0 IPARTA file that has been transferred from EDL 2.0 without being down dated.

2.0 USER'S SECTION

---

16. During some transfers from UNIX to NOS, you may see an INCORRECT COMMAND message on your screen. Please ignore this; this is a known problem on NOS which has been PSR'ed.

17. The default sleep intervals in the icemlog_server script on a subordinate UNIX workstation may not be long enough for your site. If you encounter problems because VT is not giving NOS sufficient time to process login and logout commands, you may set an environment variable for UNIX EDL users to change the sleep interval:

```
setenv nos_login_sleep #ofsecs
```

where #ofsecs is the number of seconds VT should wait before doing any further processing.

2.0 USER'S SECTION

2.2 MIGRATION TASKS

Tasks incorporated into EDL at version 1.2.7 allow the migration of engineering data to EDL 2.0 on NOS/VE. The MIGRATE task in the USER task menu is a task menu listing the migration tasks, SELECT, GETTF, POSTF, and TDATA.

The MIGRATE task menu can be executed by entering MIGRATE at any task prompt or entering the appropriate selection from the USER menu. When the MIGRATE task is executed the following menu is displayed.

```
   MIGRATE TASKS
1. EXIT                                          E,EXIT
2. SELECT DATA TO MIGRATE                        SELECT
3. GET TRANSACTION FILES                         GETTF
4. POST TRANSACTION FILES                        POSTF
5. TRANSFER DATA AND FILE INFORMATION            TDATA
ENTER TASK
```

The SELECT task allows you the select data to migrate. The GETTF task obtains the migration files created by the Data Migration Utility to inform EDL of the data that migrated successfully. The POSTF task updates the migration files, and the TDATA task extracts all the EDL information about the data that was migrated, places it on a transaction file, and sends it to NOS/VE. After data has successfully been migrated, the utility ADD_DATA_200 must be executed on NOS/VE.

For more information on migration refer to the ICEM DATA MIGRATION UTILITY USER'S MANUAL.

3.0 DATABASE ADMINISTRATOR'S SECTION

3.1 NOTES AND CAUTIONS

1. The EDL 1.2.8 databases have the same file names as EDL 1.2.5/6/7 databases. There are no schema changes between databases, but there are new data records added to the 1.2.8 databases. Maintaining the same database file names provides an easier conversion process.

2. To install data files on a system username such as APPLLIB or LIBRARY, when a SUI statement is used to access the account, use UPDATE EDL FOR ENGINEERING DATA to add the information to EDL, then use CORRECT FILE INFORMATION to change the NOS username of the file to the right username.

3. If two users attempt to update the same EDL record at nearly the same time, a concurrency conflict may occur for the second user. An error message will be displayed and EDL will return to the previous task menu. The user should reobtain the data to determine what change was made by the other user and try the update again if appropriate.

4. If the user uses a Control T to abort Query Update using IMF, occasionally the user job hangs and cannot be dropped. It may be necessary to do an override from the console to drop the job.

5. The default core memory field length to run EDL V1.2.8 is 175,000 octal. If EDL aborts due to maximum field length (MFL) exceeded, then edit the procedure file E128PRC, procedure EDL, to change the command MFL,175000 to increase the amount of memory allowed for EDL and IMF.

6. The EDL relocatable libraries are compiled at NOS 2 level 708. If your site is using an earlier version of NOS and the product sets, there may be incompatibilities between the EDL libraries and the system libraries. This may cause problems if the EDL absolute is reloaded using the LOADEDL procedure to include site-written Fortran code. If this situation occurs at your site, upgrade the product sets of your site to level 708.

3.0 DATABASE ADMINISTRATOR'S SECTION

---

7. When a permanent file (PF) utility is running, EDL may abort if IMF tries to create a file. User catalogs that have a user index ending in the same number as the user index of the IMF user name will be locked until the PF utility has completed and IMF will not be able to create or extend the files it uses for its operations. To prevent a possible loss of data, it is recommended that the system administrator be notified when PFLOAD or PFDUMPs are executing so that they can monitor and coordinate the use of EDL while these utilities are in use.

8. The procedure IGTCEI on E128PRC, which transfers IGES DATA to EXTERNAL IGES DATA, has been modified to write the EXTERNAL IGES DATA to tape. The procedure EITCIG on E125PRC has been modified to read from tape. The tape's VSN is SCRATC (VSN=SCRATC) and the user executing the transfer must be validated to use UNLABELED tapes. The format of the tape request is as follows:

   REQUEST,TAPE,NT,LB=KU,D=PE,CV=AS,F=S,VSN=SCRATC,(PO=W if writing to tape).

   You may wish to modify this tape request based on your site's needs. Please refer to the IGES Reference Manual for more detail.

9. To execute any of the data transfers from NOS to NOS/VE or UNIX or execute any of the EDL migration tasks you must have the Data Migration Utility installed. Also you must modify procedure file E128PRC to reflect the user number where the Data Migration Utility is installed. Modify all occurrences of MGUN to the correct user number.

3.2 NETWORK NOTES AND CAUTIONS

1. When defining a network that includes a NOS/VE and a NOS host, NOS/VE must be the master host with the NOS host as the subordinate host. NOS cannot be the master of NOS/VE. This also holds true for a UNIX host; NOS/VE is the master.

2. When defining a network that only includes NOS hosts and UNIX hosts, a NOS host must be the master.

3. The networking capabilities between a master EDL 2.0.2 NOS/VE host and a subordinate EDL 1.2.8 NOS host include all database records except those dealing with part structure and release.

4. The networking capabilities between a master EDL 1.2.8 NOS host and a subordinate EDL 2.0.2 UNIX host include only those database records involved with a data transfer. The EDL 1.2.8 master host will not track files for the UNIX subordinate. Because UNIX is a subordinate, you must change the USERMGMT task security status from MASTER to blank in the UNIX menu database if you wish to do user management on the UNIX workstation. Use TASKMOD to accomplish this.

5. When defining a network on EDL 1.2.8 to include a NOS/VE host, the HIOS field (operating system name) must be set to NOSVE. This is only represented this way on NOS hosts.

6. A NOS subordinate cannot transfer to a NOS/VE subordinate, a NOS subordinate can only transfer to a NOS/VE master, another NOS subordinate, or a UNIX subordinate.

7. If NOS is the master of a UNIX subordinate there may exist conditions which cause the icemlog_server job on UNIX to create several suspended jobs on the NOS EDLCOM operating system user number. This condition causes network logging problems. To clean up this problem, kill the icemlog_server process on UNIX, log into the NOS EDLCOM operating system user number and drop all suspended jobs, then execute the task INITNET on UNIX.

8. When defining a network that includes a UNIX host the HIHOS field in the HI record can be at most 4 characters in length.

4.0 PSR CORRECTIVE CODE

4.0 PSR/RSE CORRECTIVE CODE

The release of EDL V1.2.8 corrects the following PSR's.

PSR	DESCRIPTION
ED1A037	MULTI-HOST DATABASE UPDATING FAILS ON DD RECORDS
ED1A042	CANNOT DELETE FILES CONTAINING DATA WITH FAMILY
ED1A044	CAN'T DELETE DATA INFO WHEN PART-DATA RELATIONSHI
ED1A047	MIGRATED GLOBAL PATTERN FILES NOT COMPATIBLE WITH
ED1A048	MISSING MIGRATION MESSAGE
ED10287	MULTI-HOST DATABASE UPDATING FAILS ON DD RECORDS
ED10354	EDL 1.2.7 ERRONEOUSLY TRACKS TEMPORARY RETRIEVAL
ED10355	CANNOT DELETE DATA THAT HAS PART OR FAMILY
ED10357	EDL 1.2.7 HANGS AT 'ENTER CR TO CONTINUE'
ED10358	AFTER VIEWING A RELEASED DWG, INDEX INFO IS CREAT

CONTROL DATA CORPORATION

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SELLING OFFICE	INSTALLING OFFICE	SYSTEM TYPE	SYSTEM SERIAL	DIVISION CODE	FACILITY CODE	PROJECT NUMBER
FXX	FXX	CY830	00618	0150/		

PRODUCT NUMBER	RELEASE LEVEL	PRODUCT NAME	VER	PROD QTY
D830-207	708	ICEM ENGR DTA LIB	128	1

COMPONENT NUMBER	COMPONENT NAME	VER	COMP TYPE	TY MN	COMP QTY	UNIT PRICE	EXTND PRICE	EXTND QTY	CP AV	BACK-ORDER
REL76A	EDL128	128	1200		1	0.00	0.00	1	S	
SMD131461	INSTALL BULLETIN		MEMO		1	0.00	0.00	1	S	
SMD132189	INSTALL INSTR	128	MEMO		1	0.00	0.00	1	S	
SMD132190	EDL URB	128	MEMO		1	0.00	0.00	1	S	
77987785	INSTALL SURVEY		MEMO		1	0.00	0.00	1	S	

ORDER PROCESSING CHARGE	0.00		
PRODUCT CHARGE	0.00		
TOTAL ORDER PROCESSING CHARGE	0.00		
TOTAL PRODUCT CHARGE	0.00	1	
TOTAL ORDER CHARGE	0.00	U.S. DOLLARS	

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BUILD LEVEL A

INSTALLATION BULLETIN INFORMATION
(10/21/87)

**** IMPORTANT - PLEASE FOLLOW THE BELOW PROCEDURE ****
**** BEFORE INSTALLING THIS PRODUCT ****

Control Data Corporation provides its customers with an on-line method of obtaining current information about its products.

One of the on-line information sources is called an INSTALLATION BULLETIN. An Installation Bulletin can contain information helpful in installing and executing Control Data products.

Before installing this product, please contact your local Control Data office or follow the below procedure to determine if an Installation Bulletin exists.

1. The on-line system resides in the Control Data Sunnyvale California facility.

   You will need a terminal and 300 or 1200 baud modem.

   Please dial: (408) 734-6100

2. When the computer system answers your call (a high pitched sound),
   enter: (carriage return key)
   enter: (carriage return key)

3. The system will respond with:
   FAMILY:

SMD131461

4. Enter: ,SOLVER, SOLVER (carriage return key)

5. The system will respond with:
   OVER...

6. Enter: (carriage return key)

7. The system will respond with:
   Please enter your site code and password:
   Site Password

8. Enter: CDCCIM,9P2PK (carriage return key)

9. The system will respond with the following menu:
   Your choices are:
   1 Search PSR Data Base
   2 Retrieve Installation Bulletins
   3 Report a new problem or change an existing PSR
   BYE to end this session
   HELP if you want help

   Enter your main menu choice:

10. Enter: 2 (carriage return key)

11. The system will respond with the below menu:
    Installation Bulletins are available for:
    1 ICEM
    2 ICEM 2.0.0
    CARRIAGE RETURN for main menu

    Enter your IB choice:

12. Enter: 1 (carriage return key)
    or
    2 (carriage return key)

13. The system will respond with the below menu:

    Release:ICEM
    1 Display all Installation Bulletins
    2 Display all Installation Bulletins entered or changed since a specified date
    3 Display all new or changed IBs since your last IB retrieve (YY/MM/DD)
    4 Display topic index for this release
    CARRIAGE RETURN for previous menu

    Enter your IB choice:

14. Enter: 1 (carriage return key)

15. The system will respond by printing all Installation Bulletins for the ICEM products. The system will occasionally pause to allow the reading of a page of text. To continue, enter the carriage return key.

16. Once the system has printed all Installation Bulletins, the menu in step 11 above will appear.

    Enter: (carriage return key)

17. The system will respond with the menu in step 9 above.

18. Enter: BYE (carriage return key)

19. The system will then log you off. You may now disconnect the telephone call.

end

CONTROL DATA CORPORATION

ICEM IGES Translators

Version 2.22

Operating System Level: NOS 2.5.3 Level 688

December 9, 1987

INSTALLATION INSTRUCTIONS

NOTE

Please contact the appropriate hotline if you encounter any problems or have any questions concerning installation.

USA	800 345-9903
Canada	800 527-0564
International	612 851-4131

Additional information pertinent to this update may be found in Solver Installation Bulletins for the ICEM products.

SMD131744

1.0 DESCRIPTION

ICEM IGES Translators allows the user to receive and/or transfer geometry-based information between non-CDC CAD/CAM systems and the ICEM system. ICEM IGES runs under NOS 2.

2.0 HARDWARE REQUIREMENTS

ICEM IGES Translators requires the minimum hardware configuration for NOS.

3.0 RELEASE MATERIALS

The IGES Translators are released on 9-track tape (VSN=REL38A). The following files are included:

File 1:	INSTALL	the IGES installation procedure
File 2:	IGPROC	the IGES execution procedure file
File 3:	IGESICT	the IGES Postprocessor - IGES to IPARTD translator
File 4:	IGESCIT	the IGES Preprocessor - IPARTD to IGES translator
File 5:	IGESVER	an IGES file - used for verification testing
File 6:	IGESLST	a translator list file - used for verification testing

The installation procedure creates the following files and makes them permanent on the installation catalog:

Indirect-access file	Direct-access files
IGPROC	IGESICT
	IGESCIT

*** NOTES AND CAUTIONS ***

1. The installer must be sure that permanent files do not exist with the same names as the files generated in the installation procedure.

2. The Tape-to-Disk/Disk-to-Tape facilities now use the NOS FCOPY command. FCOPY is limited to a tape blocking factor of 48 or less. Sites may want to save the following files before upgrading to version 2.22:

   IGPROC
   IGESDTT
   IGESTDT

   IGES user may wish to use the above procedures and programs when reading or writing tapes have a blocking factor greater than 48.

4.0 INSTALLATION PROCEDURE

To the IGES product is installed by executing the install procedure which is the first file on the IGES tape; the installation must be run interactively. It is recommended that ICEM IGES be installed on user number APPLLIB with a user index of 377774.

- To install IGES on APPLLIB, enter the following commands from the System Console:

```
X.DIS.
SUI,377774.
LABEL,TAPE,R,L=IGESV222,VSN=REL38A,F=I,D=PE.
COPYBF,TAPE,INSTALL.
INSTALL.
DROP.
```

- To install IGES on a user number other than APPLLIB, log onto that user number using any terminal and enter the following commands:

```
LABEL,TAPE,R,L=IGESV222,VSN=REL38A,F=I,D=PE.
COPYBF,TAPE,INSTALL.
INSTALL,usernumber.
```

  Edit the file, IGPROC, to modify the default for the AUN parameter. Change the user number from APPLLIB to the NOS user number that the files actually reside in.

- A successful installation is indicated with the following message:
  "INSTALLATION COMPLETE; VERIFY GOOD".

- An unsuccessful installation is indicated with the following message:
  "INSTALLATION ABORTED."

5.0 VERIFICATION PROCEDURE

The installation procedure performs a verification test to assure a correct installation of the IGES product. The "INSTALLATION COMPLETE; VERIFY GOOD" message indicates that the verification test was successful. No further verification testing is necessary.

end

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EXX	EXX	CY830	00618	0150/	ROCOLA	

PRODUCT NUMBER	RELEASE LEVEL	PRODUCT NAME	VER	PROD QTY
D830-122	688	ICEM IGES TRNSLTR	222	1

COMPONENT NUMBER	COMPONENT NAME	VER	COMP TYPE	TY MN	COMP QTY	UNIT PRICE	EXTND PRICE	EXTND QTY	CP AV	BACK-ORDER
REL38A	IGESV222	222	600		1	0.00	0.00	1	S	
60463050A	IGES REF MAN		RF	M	1	0.00	0.00	1	L	
60463050B	IGES REF MAN		RF	P	1	0.00	0.00	1	L	
SMD131461	INSTALL BULLETIN		MEMO		1	0.00	0.00	1	S	
SMD131744	INSTALL INSTR	222	MEMO		1	0.00	0.00	1	S	
SMD131745	IGES SRB	222	MEMO		1	0.00	0.00	1	S	
ORDER PROCESSING CHARGE							0.00	6		
PRODUCT CHARGE							0.00			
TOTAL ORDER PROCESSING CHARGE							0.00	6		
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CUSTOMER P.O.	TRANSMIT NO	SALES REP	DEPT	ACCOUNT
	EM7001	MCSWEENEY		

SELLING OFFICE	INSTALLING OFFICE	SYSTEM TYPE	SYSTEM SERIAL	DIVISION CODE	FACILITY CODE	PROJECT NUMBER
EXX	EXX	CY830	00618	0150/	ROCOLA	

PRODUCT NUMBER	RELEASE LEVEL	PRODUCT NAME	VER	PROD QTY
D830-122	688	ICEM IGES TRNSLTR	222	1

COMPONENT NUMBER	COMPONENT NAME	VER	COMP TYPE	TY MN	COMP QTY	UNIT PRICE	EXTND PRICE	EXTND QTY	CP AV	BACK-ORDER
REL38A	IGESV222	222	600		1	0.00	0.00	1	S	
60463050A	IGES REF MAN		RF	M	1	0.00	0.00	1	L	
60463050B	IGES REF MAN		RF	P	1	0.00	0.00	1	L	
SMD131461	INSTALL BULLETIN		MEMO		1	0.00	0.00	1	S	
SMD131744	INSTALL INSTR	222	MEMO		1	0.00	0.00	1	S	
SMD131745	IGES SRB	222	MEMO		1	0.00	0.00	1	S	
ORDER PROCESSING CHARGE							0.00	6		
PRODUCT CHARGE							0.00			
TOTAL ORDER PROCESSING CHARGE							0.00	6		
TOTAL PRODUCT CHARGE							0.00	1		

FREIGHT

SMD 1227-7240

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C O N T R O L D A T A C O R P O R A T I O N

DATE	ASSEMBLY NO	CORPORATE FILE NUMBER	SCMA	PAGE 2 OF 2
02/11/88	2B029	2043520020	96415	

SOFTWARE/CONTROLWARE MOVEMENT AUTHORIZATION
(NOT AN INVOICE)

TOTAL ORDER CHARGE 0.00 U.S. DOLLARS

MISCELLANEOUS CONTENTS:

001 - 600

CONTROL DATA CORPORATION

ICEM IGES Translators

Version 2.22

Operating System level: NOS 2.5.3 Level 688

December 9, 1987

SOFTWARE RELEASE BULLETIN

NOTE

Please contact the appropriate hotline if you encounter any problems or have any questions concerning installation.

USA	800 345-9903
Canada	800 527-0564
International	612 851-4131

SMD131745

1.0 Introduction

ICEM IGES Version 2.22 incorporates PSR corrective code for the following problems:

IIC0062	IGES TYPE 106 DAMAGED
IIC0063	GEOMETRY TRANSFERRED WAS UNSELECTABLE AND MISPLACED
IIC0064	CROSSHATCH SEEMS TO CAUSE IGES TRANSLATION TO FAIL
IIC0068	ALLOW ZERO VIEW POINTERS IN DRAWING ENTITY
IIC0069	SUBFIGURE SUBORDINATE TO OTHER IGES ENTITIES
IICA037	SHOULDERED UNIGRAPHICS DIAMETER DIMENSION MAY NOT MAP PROPERLY

The IGES Postprocessor will now read IGES 3.0 files.
The IGES Preprocessor continues to write IGES 2.0 files.

2.0 NOTES AND CAUTIONS

1. IGES V2.22 should be used in conjunction with ICEM DDN V1.64. It may be used in conjunction with ICEM DDN V1.60 ,V1.62 or V1.63.

2. Not all drafting symbols supported by ICEM DDN are supported by the IGES V2.0 standard. Control Data's IGES V2.22 substitutes a blank in place of the symbols not translated. Drafting symbols unique to other vendors may not be translated to ICEM DDN.

3. IGES Drawings are translated into ICEM View Layouts. It may be necessary to adjust the view borders and view scales using DDN when restoring the resulting IPARTD files.

4. The IGES Preprocessor may fail if the IPARTD file does not have DDN type 16 entities as its first two entities. When encountering such a file, the IGES Preprocessor issues warning message 202:

   EXPECTING ENTITY TYPE 16, TRANSLATION MAY FAIL.

   If such an IPARTD file causes the IGES Preprocessor to fail, restore the IPARTD file into DDN and write it back out again. Use the new IPARTD file.

5. The Tape-to-Disk (TADI) and Disk-to-Tape (DITA) utilities now use the NOS FCOPY command. In the past, some special symbols and lower case characters were changed if blocking factors of 3, 6 or 9 were not used - this is no longer the case. Note: FCOPY is limited to a blocking factor of 48 (The Recommended Practices Manual for IGES suggests a blocking factor of 10 .)

6. When restoring IPARTD files generated by the IGES Postprocessor into DDN, it is important that the DDN part be in the same units as the IPARTD file.

end

CONTROL DATA CORPORATION
SYSTEMS DIVISION

INSTALLATION & USAGE NOTES
NOS 2
19.2/38.4 KB ASYNCHRONOUS SUPPORT
FOR
CDC 2550 NPU

IC220-A

June 4, 1985

Doc:0836i-0840i

SMD130882

1.0 GENERAL

The IC220-A Special Product package contains the changes needed to upgrade the standard NAM/NDL and CCP V3 under NOS Version 2 to provide support for 19.2 KB and 38.4 KB Asynchronous communications lines.

These changes may be installed in any NOS 2 with product level 580 and above. Since the changes effect both NDL and CCP V3, a full NAM/CCP Installation must be run. After installation is complete and a new deadstart tape has been produced, a new NDL file must be generated to define the 19.2 KB and 38.4 KB lines.

NOTE: The 19.2 KB and 38.4 lines are fixed speed - i.e. you may not use AUTOREC.

2.0 MATERIALS SUPPLIED

The materials are supplied on one magnetic tape, 9TRACK, 1600 BPI, labeled, containing 3 files as follows:

file 1	Changes to NDL in Update format.
file 2	Changes to CCP V3 in Update format.
file 3	A PRODUCT file containing the modified binaries for NAM/NDL and CCP, at NOS 2.2 level 605.

3.0 SPECIAL PRODUCT INSTALLATION

To install the 19.2/38.4 KB modifications you must run a full NAM/CCP Installation procedure, and you must have the two UPDATE modification files available under the installation user-number used at your site. (This is normally user-number INSTALL, pw=INSTALL).

Using the tape supplied with this special product proceed as follows:

1) Access the tape under your installation job.

```
LABEL,MODTAPE,NT,D=PE,VSN=IC220A
```

2) load the first file onto an indirect access file named NAMMOD under user name INSTALL;

```
COPYBF,MODTAPE,NAMMOD
SAVE,NAMMOD
```

3) load the second file onto an indirect access file named UCCP under user name INSTALL;

```
COPYBF,MODTAPE,UCCP
SAVE,UCCP
```

4) you may load the third file onto a direct access file named PRODUCT under user name INSTALL if your system is at level 605.

```
DEFINE,PRODUCT/M=W.
COPYEI,MODTAPE,PRODUCT
RETURN,*
```

3.1 REFERENCES

Documents needed for installation and use of this special product are as follows:

- NOS V2 INSTALLATION HANDBOOK, publication number 60459320
- SRB NOS 2 Level 605/587 or the appropriate SRB for your system
- NOS 2.2 L605/587 Installation Feature Notes publication number SMD130633B
- NETWORK DEFINITION LANGUAGE RM publication number 60480000

3.2 NAM INSTALLATION

Follow the procedures for NAM installation as defined in the NOS V2 Installation Handbook, Chapter 3. You may also have to use the SRB for NOS V2 at the level being used at your site.

The "USERF" parameter must be used as indicated on the NAM5 Build Procedure.

```
BEGIN,NAM5,INSTALL,USERF=NAMMOD.
```

3.3 CCP INSTALLATION

Follow the procedures for CCP installation as defined in the NOS V2 Installation Handbook, Chapter 3, the appropriate SRB and the Installation Feature Notes for NOS.

3.3.1 CCPPHI,CCPBLB

The "USERF" parameter must be used as indicated both CCPPH1 and CCPBLB build precedure calls.

```
BEGIN,CCPPH1,INSTALL,USERF=UCCP.
BEGIN,CCPBLB,INSTALL,USERF=UCCP.
```

3.3.2 CCPVAR

Run the Load Variant build procedure, CCPVAR as required for your site. Follow the procedures as described in the NOS V2 Installation Handbook.

3.3.3 CCPLOAD

Run the CCPLOAD build procedure as required for your site. Follow the procedures as defined in the NOS V2 Installation Handbook.

4.0 NDL

Reference: CDC publication number 60480000

NETWORK PRODUCTS
NETWORK ACCESS METHOD
VERSION 1
NETWORK DEFINITION LANGUAGE
REFERENCE MANUAL

(herein referred to as the NDL manual)

4.1 CHANGES

As a result of this specal product, the LSPEED parameter for Asynchronous communication lines now has a maximum value of 38400. Reference the NDL manual.

1) Table 4-1 page 4-1, for LTYPE=A2, Maximum Speed = 38400.

2) Figure 4-1 Asynchronous LINE statement, add the values 19200 and 38400 to the lspeed value list.

4.2 NDL FILES

Change your site NDL file for the appropriate NPU(S) to define the new high speed lines. These lines should be configured in the lower number CLAs as discussed in the NDL manual. Using the standard CDC NPU configuration, the maximum configuration that is recommended is six lines at 19.2 KB or four lines at 38.4 KB. (See the Feature Notes document for the 19.2/38.4 KB Asynchronous Support).

5.0 HARDWARE

The special product clock for the high speed capability must be installed on the 2550 as per instructions provided with the clock board.

end

CONTROL DATA CORPORATION
SYSTEMS DIVISION

Feature Notes
NOS 2
19.2/38.4KB Asynchronous Support
For
CDC 2550 NPU.

IC220-A

June 4, 1985

Doc:0909i-0911i

SMD130883

CONTENTS

1.0 DESCRIPTION

1.1 SOFTWARE
1.2 HARDWARE
1.3 RESTRICTIONS

2.0 TESTING
2.1 SYSTEM LEVEL
2.2 INITIAL TEST
2.3 GRAPHICS TEST
2.4 EXTENDED TESTING

3.0 CURRENT INSTALLATION

1.0 DESCRIPTION

In response to a special request for support of 19.2 KB and 38.4 KB Asynchronous lines, software changes and a special hardware clock for the CDC 2550 have been developed by the Systems Division. This support is now offered as Special Product IC220-A from CIM.

1.1 SOFTWARE

The software changes were supplied by personnel from Sunnyvale Central Software Support. The changes effect both NDL and CCP5 and have been installed in a NOS 2.2 level 605 system, and a NOS 2.3 level 617 system.

NAM and CCP must be rebuilt to include these software changes.

1.1.1 NDL CHANGES

Three programs are changed namely - NDLPSS1, NDLNFCM and NDLLIST.

The NDL changes consist of 59 lines including the IDENT, history, update control statements and code changes.

The changes are either table entry changes or constants which define table lengths. There are no actual code changes.

1.1.2 CCP CHANGES

Three programs are changed namely CONST, ASYNCTIP and ZEXBDL.

The CCP changes consist of 35 lines including IDENTs, history, update control statements and code changes.

The CCP changes are table changes only.

1.2 HARDWARE

A special hardware board, Special Product Number 65370-1, was developed to provide 19.2 KB and 38.4 KB clocking to the loop-mux in the 2550. One board is needed for each loop-mux that must support high speed asynchronous lines. This board must be mounted in the back of the 2550 on the left edge of the backplane. Three wires with special backplane connectors are used for power, ground and clock signal. The clock signal is provided on the fourth clocking port of the loop-mux referred to as "Reference Frequency D". Installation time is 10-15 minutes per board.

1.3 RESTRICTIONS

1.3.1 LINE CONFIGURATION

Using the Communications Subsystem Configurator the following assumptions are used:

Processor utilization at 19.2 KB is assumed to be double that of a 9600 BPS line or 12%.

NPU will be configured for a maximum of 80% utilization.

Line Utilization is classed as high volume interactive @ 80% or 1536 c/s.

Thus the development group recommends that the maximum number of 19.2 KB lines that should be configured on a 2550 is six, and the maximum number of 38.4 lines should be four.

1.3.2 TERMINALS

When using Viking 721 terminals at 19.2 KB, the data flow control XON/XOFF must be enabled on the terminal and at the host.

2.0 TESTING

2.1 SYSTEM LEVEL

The changes have been installed in two NOS systems, NOS 2.2 level 605 and NOS 2.3, level 617. Initial testing was done under level 605. Testing under level 617 has been completed and some extended testing is being done by the CIM Development Group in Arden Hills.

2.2 INITIAL TESTS

Initial tests were run using a CDC Viking 721 running at 19.2 KB and a CDC 751 terminal running at 9600 baud. Various line speeds were tested to insure that they had not been affected by the changes.

2.3 GRAPHICS TESTS

Graphics tests were performed using the CIM development CYBER system, two TEKTRONIX 4115B graphics terminals, one TEKTRONIX 4014 graphics terminal and one CDC 722 terminal all running at 19.2 KB.

Several text files and demonstration graphics drawings were used in the tests in various combinations.

Testing at 38.4 KB utilized one Tektronix 4128 plus the 19.2 KB configuration listed above. The Tektronix 4128 and 4115B terminals were run at 38.4 KB while the others were at 19.2 KB

2.4 EXTENDED TESTING BY CIM DEVELOPMENT GROUP

The CIM Development Group is currently running with 18 lines and 12 CLA's installed both of which exceed the recommended numbers. The 2550 line configuration includes one 56 KB trunk line. They have not experienced any problems up to this time.

3.0 CURRENT INSTALLATION

The 19.2 KB Asynchronous support is currently installed in one customer site on a NOS 2.2 Level 605 system, and one CDC development group system in Arden Hills using NOS 2.3 Level 617.

The customer is running four TEKTRONIX 4115B graphics terminals.

The CIM configuration was noted in paragraph 2.5 and as indicated, the CIM group is running both 38.4 an 19.2 KB lines.

end

SCMA 84466

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NORRISTOWN, PA 19403

REFERENCE:

ASSEMBLY NUMBER: A3021
SMD SHIPMENT NUMBER: 84466
CORPORATE FILE NUMBER: 2043520018

THE FOLLOWING IS A COMPLETE LISTING OF THE COMPONENTS FOR THE PRODUCTS ORDERED. BASED UPON THE INFORMATION IN YOUR ORDER WE ASSUME YOU ALREADY HAVE THOSE MATERIALS LISTED HERE THAT ARE NOT SHOWN ON THE ENCLOSED PACKING LIST. SMD WILL BE HAPPY TO SUPPLY ANY ADDITIONAL COMPONENTS YOU REQUIRE.

PRODUCT NUMBER	PRODUCT NAME AND VERSION	RELEASE LEVEL
IC220-A	NAM/CCP PRF ENHCE 001	605

COMPONENT NUMBER	COMPONENT NAME AND VERSION	TYPE MANUAL	TAPE NO.	COMPONENT LEVEL	COMPONENT TYPE
IC220AT1	NAM/CCP PRF ENHNC		0655B	605	MAGNETIC TAPE
SMD130882	INSTALL & USAGE			605	MEMO
SMD130883	FEATURE NOTES			605	MEMO

CONTROL DATA CORPORATION

DATE ASSEMBLY NO CORPORATE FILE NUMBER SCMA PAGE 1

10/03/86 A3021 2043520018 84466

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M2-948216-00	EC6185	S. B. LEVY		

SELLING OFFICE	INSTALLING OFFICE	SYSTEM TYPE	SYSTEM SERIAL	DIVISION CODE	FACILITY CODE	PROJECT NUMBER
FXX	FXX	CY830	00618	0595		

PRODUCT NUMBER	RELEASE LEVEL	PRODUCT NAME	VER	PROD QTY
IC220-A	605	NAM/CCP PRF ENHCE	001	1

COMPONENT NUMBER	COMPONENT NAME	VER	COMP TY	COMP QTY	UNIT PRICE	EXTND PRICE	EXTND QTY	CP AV	BACK-ORDER
IC220AT1	NAM/CCP PRF ENHNC		600	1	0.00	0.00	1	S	
SMD130882	INSTALL & USAGE		MEMO	1	0.00	0.00	1	S	
SMD130883	FEATURE NOTES		MEMO	1	0.00	0.00	1	S	
ORDER PROCESSING CHARGE						0.00	3		
PRODUCT CHARGE						0.00			

TOTAL ORDER PROCESSING CHARGE	0.00	3	
TOTAL PRODUCT CHARGE	0.00	1	
TOTAL ORDER CHARGE	0.00	U.S. DOLLARS	

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DATE ASSEMBLY NO CORPORATE FILE NUMBER SCMA PAGE 1

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CUSTOMER P.O.	TRANSMIT NO	SALES REP	DEPT	ACCOUNT
987558A	BS8117	MCSWEENEY		

SELLING OFFICE	INSTALLING OFFICE	SYSTEM TYPE	SYSTEM SERIAL	DIVISION CODE	FACILITY CODE	PROJECT NUMBER
FXX	FXX	CY830	00618	0090/		

PRODUCT NUMBER	RELEASE LEVEL	PRODUCT NAME	VER	PROD QTY
D830P-010	678	TIELINE/NP NOS 2	252	1

COMPONENT NUMBER	COMPONENT NAME	VER	COMP TYPE	TY MN	COMP QTY	UNIT PRICE	EXTND PRICE	EXTND QTY	CP AV	BACK-ORDER
P16004	TIELINE/NP*N2-678	252	600		1	0.00	0.00	1	S	
15190762AE	TIELINE/NP IHB		IH	M	1	0.00	0.00	1	L	
15190132AD	TIELINE OP GUIDE		OP	M	1	0.00	0.00	1	L	
15190018AB	TIELINE GIM		IN	M	1	0.00	0.00	1	L	
20266700	TIELINE/NP D S		IN	M	1	0.00	0.00	1	L	
ORDER PROCESSING CHARGE							0.00	5		
PRODUCT CHARGE							0.00			

TOTAL ORDER PROCESSING CHARGE	0.00	5
TOTAL PRODUCT CHARGE	0.00	1
TOTAL ORDER CHARGE	0.00	U.S. DOLLARS

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C O N T R O L D A T A C O R P O R A T I O N

DATE	ASSEMBLY NO	CORPORATE FILE NUMBER	SCMA	PAGE 1 OF 2
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987558A	BS8117	MCSWEENEY		

SELLING OFFICE	INSTALLING OFFICE	SYSTEM TYPE	SYSTEM SERIAL	DIVISION CODE	FACILITY CODE	PROJECT NUMBER
FXX	FXX	CY830	00618	0090/		

PRODUCT NUMBER	RELEASE LEVEL	PRODUCT NAME	VER	PROD QTY
D830P-010	678	TIELINE/NP NOS 2	252	1

COMPONENT NUMBER	COMPONENT NAME	VER	COMP TYPE	TY MN	COMP QTY	UNIT PRICE	EXTND PRICE	EXTND QTY	CP AV	BACK-ORDER
P16004	TIELINE/NP*N2-678	252	600		1	0.00	0.00	1		S
15190762AE	TIELINE/NP IHB		IH	M	1	0.00	0.00	1		L
15190132AD	TIELINE OP GUIDE		OP	M	1	0.00	0.00	1		L
15190018AB	TIELINE GIM		IN	M	1	0.00	0.00	1		L
20266700	TIELINE/NP D S		IN	M	1	0.00	0.00	1		L
ORDER PROCESSING CHARGE							0.00	5		
PRODUCT CHARGE							0.00			

TOTAL ORDER PROCESSING CHARGE	0.00	5
TOTAL PRODUCT CHARGE	0.00	1
TOTAL ORDER CHARGE	0.00	U.S. DOLLARS

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09/22/88	9M079	2043520024	105781	

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CONTROL DATA CORPORATION

SOFTWARE AVAILABILITY BULLETIN

Distribution List For
CDC CYBER 180/170/70L/6000
SAB No. 692
November 17, 1988

ICEM ENGINEERING DATA LIBRARY UNDER NOS 2 (Level 708 Release)

A. ABSTRACT

ICEM Engineering Data Library Version 1.2.8 under NOS 2 is updated to release level 708. This release includes support for the 6000, CDC CYBER 70, 170, 180, A and E series systems. Depending upon the hardware mainframe, different product numbers will apply. (Refer to tables 2 and 3 of the Request for Software Product Update Materials form for appropriate product number.)

B. DESCRIPTION OF RELEASE

The ICEM Engineering Data Library V1.2.8 provides the user with:

- Simplified operating features
- Data Management features
- Customization features
- A user interface to several other ICEM applications

Version 1.2.8 provides data management and operational interface functions for the following ICEM applications:

ICEM DDN	1.65
ICEM Solid Modeler	1.13
ICEM Solid Analysis	1.13
PATRAN II	2.0
IGES	2.23
UNISTRUC	15AUG84

The following new feature is available with V1.2.8:

- TCP/IP Support

  TCP/IP, available with NOS 2.6.1 level 708, is required to use ICEM EDL 1.2.8. TCP/IP must be separately licensed.

C. PUBLICATIONS

There are no new or updated publications pertaining to this release.

D. ORDERING INFORMATION

These update materials are now available. These update materials will be sent automatically to existing licensed domestic customers with Support Service. International customers should reference the separately enclosed ordering instructions for details on how to order these updates. Licensed software products and update materials are available only to customers who have entered into a contractual agreement with Control Data for the use of these products.

Customers not currently licensed for these update products, who place new orders through their sales representative at this time, and who wish to receive level 708 as their initial delivery, should specify the desired level in their order. New software orders must be covered by a license agreement which lists each product explicitly.

TABLE 1. SUMMARY LEVEL 708

Product Name†	Nominal Release Level Identifier††	Level of Latest Available Media	PSRs at Level	New Features
ICEM Engineering Data Library	708	708	708	Yes

†Refer to tables 2 and 3 of the Request for Software Product Update Materials form for applicable product numbers. Contact your Control Data sales representative to ensure correct product number for appropriate mainframe.

The product listed in this table is BINARY only.

††This column indicates the latest release at which code and/or documentation changes have been made for each product shown.

FIELD AVAILABILITY SUMMARY

FOR APPLICATIONS UNDER NOS 2

19-CONFIGURATION MANAGEMENT-88

PRODUCT DESCRIPTION	COMPATIBLE RELEASE LEVELS (by columns) AND ASSOCIATED VERSIONS						
SYSTEM SOFTWARE - Release Dates (Note 1)	04/87	09/87	04/88	07/88			
NOS 2 - Operating System	678 V2.5.2	688 V2.5.3	700 V2.6.1	708 V2.6.1			
NOS 2 - Product Set	670	688	688	688			
NOS 2 - Networks Products	670	688	688	688			
APPLICATIONS UNDER NOS 2 (Note 2)							
5870 LASER PRINTER APPLICATION: HOST FORMS DESCRIPTION LANGUAGE (HFDL)	647 V2.1C	647 V2.1C	647 V2.1C	647 V2.1C			
ELECTRONIC PRINTER IMAGE CONSTRUCTION (EPIC)	647 V3.0	647 V3.0	647 V3.0	647 V3.0			
XEROX INTEGRATED COMPOSITION SOFTWARE (XICS)	647 V5.0	647 V5.0	647 V5.0	647 V5.0			
ADAMS	630A V1.0	630A V1.0	630A V1.0	630A V1.0			
ANSYS	664 V4.2B	664 V4.2B	664 V4.2B	664 V4.2B			
APEX IV	580 V1.0	580 V1.0	580 V1.0	580 V1.0			
APT-IV	617A V2.2	617A V2.2	617A V2.2	617A V2.2			
ASPEC	642 V8M7	642 V8M7	642 V8M7	642 V8M7			
CADMOULD 2D	647A V1.0	647A V1.0	647A V1.0	647A V1.0			
CADMOULD 3D	647A V1.0	647A V1.0	647A V1.0	647A V1.0			
CALCOMP HCBS DEVICE DRIVER (PS)	664 V5.04	688 V5.04	688 V5.04	688 V5.04			
CDC 721 POST PROCESSOR (TIGS)	617 V1.4.2	617 V1.4.2	617 V1.4.2	617 V1.4.2			
CDC-CVIF	596A V1.1	596A V1.1	596A V1.1	596A V1.1			
CDCNET PACER	--- ---	688 V4.4	700 V4.423	700 V4.423			
CDCNET SUPPORT TOOLS	670 V2.1	670 V2.1	670 V2.1	--- ---			
CHROMATICS 1599 PP (TIGS)	617 V1.4.2	617 V1.4.2	617 V1.4.2	617 V1.4.2			
CONCURRENT VERSION RECORD MANAGER (PS)	647 V2.4.3	--- ---	--- ---	--- ---			
CONTROL DATA CONNECT TOOLKIT	688 V1.2	688 V1.2	688 V1.2	--- ---			
CONTOURING SYSTEM (PS)	664 V4.07	664 V4.07	664 V4.07	664 V4.07			
CONTROL DATA CONNECT FOR IBM PC	688 V1.3	688 V1.3	700 V1.4	--- ---			
CONTROL DATA CONNECT FOR MACINTOSH	664 V1.1	664 V1.1	700 V2.0	--- ---			
CUTDATA	647A V3.0	647A V3.0	647A V3.0	647A V3.0			
CYBIL (170 CODE GENERATOR)	617B V2.1	617B V2.1	617B V2.1	--- ---			

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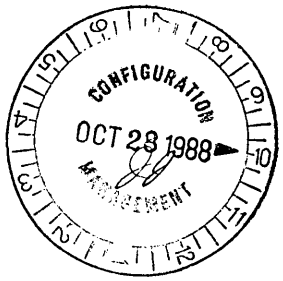

FIELD AVAILABILITY SUMMARY

FOR APPLICATIONS UNDER NOS 2

19-CONFIGURATION MANAGEMENT-88

PRODUCT DESCRIPTION	COMPATIBLE RELEASE LEVELS (by columns) AND ASSOCIATED VERSIONS						
SYSTEM SOFTWARE - Release Dates (Note 1)	04/87	09/87	04/88	07/88			
NOS 2 - Operating System	678 V2.5.2	688 V2.5.3	700 V2.6.1	708 V2.6.1			
NOS 2 - Product Set	670	688	688	688			
NOS 2 - Networks Products	670	688	688	688			
APPLICATIONS UNDER NOS 2 (Note 2)							
CYBIL (P-CODE GENERATOR)	617B V2.1	617B V2.1	617B V2.1	--- ---			
DI-3000 EXTENDED (PS)	664 V5.04	688 V5.05	688 V5.05	688 V5.05			
DI-TEXTPRO (PS)	--- ---	688 V1.01	688 V1.01	688 V1.01			
DRAM	664 V1.1	664 V1.1	664 V1.1	664 V1.1			
DUCT	647A V4.2	647A V4.2	647A V4.2	647A V4.2			
EDEN COMMON ACCESS SUPPORT SUBSYSTEM	678 V1.1	--- ---	--- ---	--- ---			
EDEN GATEWAY SUBSYSTEM	678 V1.1	--- ---	--- ---	--- ---			
EDEN STUDENT REGISTRATION SUBSYSTEM	678 V1.1	--- ---	--- ---	--- ---			
EDEN BURSAR SUBSYSTEM	678 V1.1	--- ---	--- ---	--- ---			
EDEN STUDENT AID MANAGEMENT SUBSYSTEM	678 V1.1	--- ---	--- ---	--- ---			
EDEN ALUMNI SUBSYSTEM	678 V1.1	--- ---	--- ---	--- ---			
GPSS V	642 V1.4	642 V1.4	642 V1.4	642 V1.4			
GRAFMAKER (PS)	664 V4.03	664 V4.03	664 V4.03	664 V4.03			
GTICES/STRUDL	617 V85.05	617 V85.05	617 V85.05	617 V85.05			
GTTABLE	562 V81.02	562 V81.02	562 V81.02	562 V81.02			
HASCO	664 V1.1	664 V1.1	664 V1.1	664 V1.1			
HEWLETT-PACKARD 7221 PLOTTER (PS)	664 V5.04	688 V5.04	688 V5.04	688 V5.04			
HEWLETT-PACKARD 7470A PLOTTER (PS)	664 V5.04	688 V5.04	688 V5.04	688 V5.04			
HEWLETT-PACKARD 7550A PLOTTER (PS)	664 V5.04	688 V5.04	688 V5.04	688 V5.04			
HOTSPOT (PS)	596 ---	596 ---	--- ---	--- ---			
IBM PERSONAL COMPUTER DEVICE DRIVER (PS)	664 V5.04	688 V5.04	688 V5.04	688 V5.04			
ICEM ADVANCED DESIGN UPGRADE	678B V1.64	688A V1.65	688A V1.65	688A V1.65			
ICEM BEND	664 V1.2	664 V1.2	664 V1.2	664 V1.2			
ICEM CAM-POST	678 V9.30	678 V9.30	678 V9.30	678 V9.30			

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TABLE 2. CDC CYBER 170, 180, A, AND E SERIES MAINFRAMES

	MAINFRAME																			
	720	730	740	750	760	176 -4XX	810	815	825	830	835	840	845	850	855	860	865	875	990	
							810A			830A		840A		850A		860A			990E	
														960-11		870A			995E	
																960-31			994-31	
																960-32			994-32	
	PRODUCT NUMBER																			
	D720	D730	D740	D750	D760	D770	D810	D815	D825	D830	D835	D840	D845	D850	D855	D860	D865	D875	D990	
	H720	H730	H740	H750	H760	H770	H810	H815	H825	H830	H835	H840	H845	H850	H855	H860	H865	H875	H990	
	D720E	D730E	D740E	D750E	D760E	D770E	D810E	D815E	D825E	D830E	D835E	D840E	D845E	D850E	D855E	D860E	D865E	D875E	D990E	
PRODUCT NAME	H720E	H730E	H740E	H750E	H760E	H770E	H810E	H815E	H825E	H830E	H835E	H840E	H845E	H850E	H855E	H860E	H865E	H875E	H990E	
ICEM Engineering Data Library	-207	-207	-207	-207	-207	-207	-207	-207	-207	-207	-207	-207	-207	-207	-207	-207	-207	-207	-207	

The product in this table is BINARY only.

TABLE 3. CDC 6000, CYBER 70 AND 17X SERIES MAINFRAMES

	MAINFRAME							
	6000							
	CY70				175	175	175	176
	171	172	173	174	-100	-200	-300	-XX
	PRODUCT NUMBER							
	D521	D521	D521	D521	D521	D521	D521	D521
	H521	H521	H521	H521	H521	H521	H521	H521
PRODUCT NAME	D521E	D521E	D521E	D521E	D521E	D521E	D521E	D521E
	H521E	H521E	H521E	H521E	H521E	H521E	H521E	H521E
ICEM Engineering Data Library	-221	-222	-223	-224	-225	-226	-227	-228

The product in this table is BINARY only.

FIELD AVAILABILITY SUMMARY

FOR APPLICATIONS UNDER NOS 2

19-CONFIGURATION MANAGEMENT-88

PRODUCT DESCRIPTION	COMPATIBLE RELEASE LEVELS (by columns) AND ASSOCIATED VERSIONS						
SYSTEM SOFTWARE - Release Dates (Note 1)	04/87	09/87	04/88	07/88			
NOS 2 - Operating System	678 V2.5.2	688 V2.5.3	700 V2.6.1	708 V2.6.1			
NOS 2 - Product Set	670	688	688	688			
NOS 2 - Networks Products	670	688	688	688			
APPLICATIONS UNDER NOS 2 (Note 2)							
ICEM CAM-PUNCH	647A V2.0	647A V2.0	647A V2.0	647A V2.0			
ICEM DATA MIGRATION UTILITY	--- ---	688 V2.0.0	700 2.0.2.01	700 2.0.2.01			
ICEM DESIGN/DRAFTING	678B V1.64	688A V1.65	688A V1.65	688A V1.65			
ICEM DESIGN/DRAFTING/ADVANCED DESIGN/ NUMERICAL CONTROL PACKAGE	678B V1.64	688A V1.65	688A V1.65	688A V1.65			
ICEM DESIGN/DRAFTING/ADVANCED DESIGN PACKAGE	678B V1.64	688A V1.65	688A V1.65	688A V1.65			
ICEM ENGINEERING DATA LIBRARY	678 V1.2.6	688 V1.2.7	688 V1.2.7	708 V1.2.8			
ICEM FACILITIES	678 V1.41	678 V1.41	678 V1.41	678 V1.41			
ICEM HYDRAULICS	664 V1.3	664 V1.3	664 V1.3	664 V1.3			
ICEM IGES TRANSLATOR	678 V2.21	688B V2.23	688B V2.23	688B V2.23			
ICEM KINEMATICS	664 V1.0	664 V1.0	664 V1.0	664 V1.0			
ICEM NUMERICAL CONTROL UPGRADE	678B V1.64	688A V1.65	688A V1.65	688A V1.65			
ICEM PLASTIMOULD	664 V1.1	664 V1.1	664 V1.1	664 V1.1			
ICEM SCHEMATICS	642A V1.15	642A V1.15	642A V1.15	642A V1.15			
ICEM SOLID ANALYSIS	664 V1.13	664 V1.13	664 V1.13	664 V1.13			
ICEM SOLID MODELER	664 V1.13	664 V1.13	664 V1.13	664 V1.13			
ICEM TEKROUTE	--- ---	--- ---	--- ---	--- ---			
IMSL V10	678 V10.0	678 V10.0	678 V10.0	678 V10.0			
INFORMATION ANALYSIS SUPPORT TOOL (PS)	670 V1.2	670 V1.2	670 V1.2	670 V1.2			
INFORMATION MANAGEMENT FAC 2	--- ---	--- ---	--- ---	--- ---			
INFORMATION PROCESSING FAMILY	647 V2.6	647 V2.6	647 V2.6	647 V2.6			
IPF/CDCS LINK	642 V1.0	642 V1.0	--- ---	--- ---			
LINCAGES	664 V1.2	664 V1.2	664 V1.2	664 V1.2			
METAFILE (Stand-alone) TRANSLATOR (PS)	664 V5.02	688B V5.03	688B V5.03	688B V5.03			

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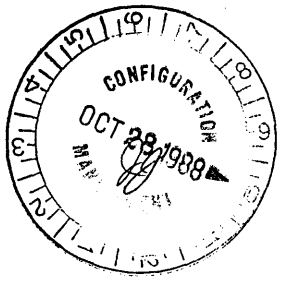

FIELD AVAILABILITY SUMMARY

FOR APPLICATIONS UNDER NOS 2

19-CONFIGURATION MANAGEMENT-88

PRODUCT DESCRIPTION	COMPATIBLE RELEASE LEVELS (by columns) AND ASSOCIATED VERSIONS						
SYSTEM SOFTWARE - Release Dates (Note 1)	04/87	09/87	04/88	07/88			
NOS 2 - Operating System	678 V2.5.2	688 V2.5.3	700 V2.6.1	708 V2.6.1			
NOS 2 - Product Set	670	688	688	688			
NOS 2 - Networks Products	670	688	688	688			
APPLICATIONS UNDER NOS 2 (Note 2)							
METAFILE SYSTEM (PS)	664 V5.02	688 V5.03	688 V5.03	688 V5.03			
MIDAS-BASE PACK	--- ---	--- ---	--- ---	--- ---			
MIDAS-DESIGN VERIFICATION	--- ---	--- ---	--- ---	--- ---			
MIDAS DESIGNER WORKSTATION-BASE	--- ---	--- ---	--- ---	--- ---			
MIDAS DESIGNER WORKSTATION-VLSI6260	--- ---	--- ---	--- ---	--- ---			
MIDAS DESIGNER WORKSTATION-VLSI6261	--- ---	--- ---	--- ---	--- ---			
MIDAS-GATE ARRAY LAYOUT	--- ---	--- ---	--- ---	--- ---			
MIDAS LAYOUT WORKSTATION-APOLLO	--- ---	--- ---	--- ---	--- ---			
MIDAS LAYOUT WORKSTATION-ORCATECH	--- ---	--- ---	--- ---	--- ---			
MIDAS-TEST GENERATION	--- ---	--- ---	--- ---	--- ---			
MIDAS-VLSI6260 TECHNOLOGY LIBRARY	--- ---	--- ---	--- ---	--- ---			
MIDAS-VLSI6261 TECHNOLOGY LIBRARY	--- ---	--- ---	--- ---	--- ---			
MOLDCOOL II	647A V2.0	647A V2.0	647A V2.0	647A V2.0			
MOLDFLOW 1 WORKSTATION	664 V4.0	664 V4.0	664 V4.0	664 V4.0			
MOLDFLOW 2-9 LOCAL WORKSTATIONS	664 V4.0	664 V4.0	664 V4.0	664 V4.0			
MOLDFLOW 10 OR MORE LOCAL WORKSTATIONS OR MIX OF LOCAL AND REMOTE WORKSTATIONS	664 V4.0	664 V4.0	664 V4.0	664 V4.0			
MOLDSTAR	664 V3.0	664 V3.0	664 V3.0	664 V3.0			
NETWORK JOB ENTRY FACILITY (PS)	678 V2.5.2	678 V2.5.2	700 V2.6.1	700 V2.6.1			
NOS CHART	617B V2.1	617B V2.1	617B V2.1	--- ---			
NOS CONTEXT	596 V2.2	--- ---	--- ---	--- ---			
NOS DEFINE	617B V2.1	617B V2.1	617B V2.1	--- ---			
NOS GRAPH	617B V2.1	617B V2.1	617B V2.1	--- ---			
NOS TOOLS	670 V2.1	670 V2.1	670 V2.1	--- ---			
PDS/MAGEN	596 V14B	596 V14B	596 V14B	596 V14B			

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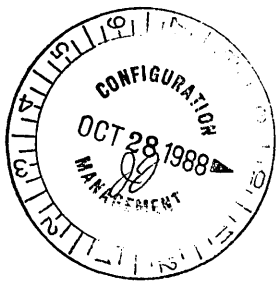

FIELD AVAILABILITY SUMMARY

FOR APPLICATIONS UNDER NOS 2

19-CONFIGURATION MANAGEMENT-88

PRODUCT DESCRIPTION	COMPATIBLE RELEASE LEVELS (by columns) AND ASSOCIATED VERSIONS						
SYSTEM SOFTWARE - Release Dates (Note 1)	04/87	09/87	04/88	07/88			
NOS 2 - Operating System	678 V2.5.2	688 V2.5.3	700 V2.6.1	708 V2.6.1			
NOS 2 - Product Set	670	688	688	688			
NOS 2 - Networks Products	670	688	688	688			
APPLICATIONS UNDER NOS 2 (Note 2)							
PERT TIME	642 V2.2	642 V2.2	642 V2.2	642 V2.2			
PICSURE (PS)	664 V1.00	664 V1.00	664 V1.00	664 V1.00			
PLATO COURSEWARE DEVELOPMENT AND DELIVERY SYSTEM (PCD2)	678C R41.1	688B R41.1	700A R41.1	--- ---			
PLATO LESSON DELIVERY AND AUTHORING 1	678C R41.1	688B R41.1	700A R41.1	--- ---			
PLATO PUBLISHED COURSEWARE CATEGORY I, II & III	700A R41.1	700A R41.1	700A R41.1	700A R41.1			
PLATO PUBLISHED COURSEWARE CATEGORY I,	700A R41.1	700A R41.1	700A R41.1	700A R41.1			
PLATO PUBLISHED COURSEWARE CATEGORY II	700A R41.1	700A R41.1	700A R41.1	700A R41.1			
PLATO PUBLISHED COURSEWARE CATEGORY III	700A R41.1	700A R41.1	700A R41.1	700A R41.1			
PLATO PUBLISHED COURSEWARE CATEGORY IV	700A R41.1	700A R41.1	700A R41.1	700A R41.1			
PRECISE*I/E IM/DM PIPE (PS)	670 V1.0	670 V1.0	670 V1.0	670 V1.0			
PRECISE*I/E IMF2 PIPE (PS)	670 V1.0	670 V1.0	670 V1.0	670 V1.0			
PRECISE*I/E NDMU (PS)	670 V1.0	670 V1.0	670 V1.0	670 V1.0			
PRECISE*I/E SQL PIPE (PS)	670 V1.0	670 V1.0	670 V1.0	670 V1.0			
RAMTEK 6212 DEVICE DRIVER (PS)	664 V5.04	688 V5.04	688 V5.04	688 V5.04			
SIMSCRIPT II.5	647 V5.1	647 V5.1	647 V5.1	647 V5.1			
SKELETON DEVICE DRIVER (PS)	664 V4.11	688 V4.11	688 V4.11	688 V4.11			
TAPE MANAGEMENT SYSTEM (PS)	678 V2.5.2	688 V2.5.3	700 V2.6.1	700 V2.6.1			
TEKTRONIX 4010 DEVICE DRIVER (PS)	664 V5.04	688 V5.04	688 V5.04	688 V5.04			
TEKTRONIX 4014 DEVICE DRIVER (PS)	664 V5.04	688 V5.04	688 V5.04	688 V5.04			
TEKTRONIX 4105 DEVICE DRIVER (PS)	664 V5.04	688 V5.04	688 V5.04	688 V5.04			
TEKTRONIX 401X PP (TIGS)	617 V1.4.2	617 V1.4.2	617 V1.4.2	617 V1.4.2			
TEKTRONIX 411X PP (TIGS)	617 V1.4.2	617 V1.4.2	617 V1.4.2	617 V1.4.2			
TEKTRONIX 4107/4109 DEVICE DRIVER (PS)	664 V5.04	688 V5.04	688 V5.04	688 V5.04			
TEKTRONIX 4113 DEVICE DRIVER (PS)	664 V5.04	688 V5.04	688 V5.04	688 V5.04			

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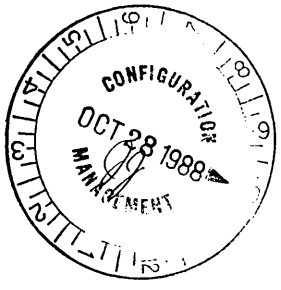

FIELD AVAILABILITY SUMMARY

FOR APPLICATIONS UNDER NOS 2

19-CONFIGURATION MANAGEMENT-88

PRODUCT DESCRIPTION	COMPATIBLE RELEASE LEVELS (by columns) AND ASSOCIATED VERSIONS						
SYSTEM SOFTWARE - Release Dates (Note 1)	04/87	09/87	04/88	07/88			
NOS 2 - Operating System	678 V2.5.2	688 V2.5.3	700 V2.6.1	708 V2.6.1			
NOS 2 - Product Set	670	688	688	688			
NOS 2 - Networks Products	670	688	688	688			
APPLICATIONS UNDER NOS 2 (Note 2)							
TEKTRONIX 4114 DEVICE DRIVER (PS)	664 V5.04	688 V5.04	688 V5.04	688 V5.04			
TEKTRONIX 4115/4125 DEVICE DRIVER (PS)	664 V5.04	688 V5.04	688 V5.04	688 V5.04			
TEKTRONIX 4662 DEVICE DRIVER (PS)	664 V5.04	688 V5.04	688 V5.04	688 V5.04			
TERMINAL CLUSTER FACILITY (PS)	647B V2.6	688 V2.6A	688 V2.6A	688 V2.6A			
TIELINE/NP (PS)	678 V2.5.2	678 V2.5.2	--- ---	--- ---			
TIGS 1	617 V1.4.2	617 V1.4.2	617 V1.4.2	617 V1.4.2			
TIMESHARING INSTRUMENTATION (PS)	678 V2.5.2	678 V2.5.2	--- ---	--- ---			
TOTAL EXTENDED 2	630 V2.1C	630 V2.1C	630 V2.1C	630 V2.1C			
TOTAL UNIVERSAL 2	617 V2.1C	617 V2.1C	617 V2.1C	617 V2.1C			
UNIPLOT V3 LIBRARY + EXECUTIVE	647 V3.2	688 V3.2	688 V3.2	688 V3.2			
UNIPLOT BENSON 92XX/93XX DEVICE DRIVER	647 V3.2	688 V3.2	688 V3.2	688 V3.2			
UNIPLOT CALCOMP 907 DEVICE DRIVER	647 V3.2	688 V3.2	688 V3.2	688 V3.2			
UNIPLOT DEVICE DRIVER (PS)	664 V5.04	688 V5.04	688 V5.04	688 V5.04			
UNIPLOT HEWLETT-PACKARD (HPGL) DEVICE DRIVER	664 V3.2	688 V3.2	688 V3.2	688 V3.2			
UNIPLOT KMW DEVICE DRIVER	--- ---	688 V3.2	688 V3.2	688 V3.2			
UNIPLOT TEKTRONIX 40XX/41XX/4510 DEVICE DRIVER	647 V3.2	688 V3.2	688 V3.2	688 V3.2			
UNISTRUC	596A Version 15Aug84	596A Version 15Aug84	596A Version 15Aug84	596A Version 15Aug84			

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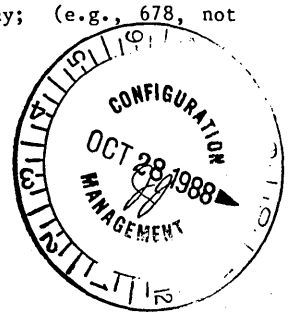
NOTE 1: For details on the compilers, data management, network, and other products included in System Software, see the NOS 2 SAB for any release level.

NOTE 2: Applications are generally released asynchronously from the System Software and from each other. An entry for an application in a column means that the level shown is available and has been announced for use with the level of System Software indicated at the top of the column.

NOTE 3: Applicable release level must be specified on the order. Ordering by version number is not compatible with the order processing system and will result in order delay; (e.g., 678, not V1.0).

--- Availability not announced.



CONTROL DATA CORPORATION

ICEM DDN VERSION 1.62
INSTALLATION INSTRUCTIONS
NOS Operating System Level: NOS 2 Level 664

Date: 1/26/87

DISCLAIMER

NOS and its product set are intended for use only as described in this document. Control Data cannot be responsible for the proper functioning of undescribed features or parameters.

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APPENDICIES

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I. Release Description

ICEM DDN is a computer-aided design and computer-aided manufacturing (CAD/CAM) system that runs under the NOS and NAM/IAF communications package.

ICEM Design/Drafting Package

The ICEM Design/Drafting file contains overlays for Basic Geometry, ANSI Mechanical Drafting, and Geometric Analysis. For International Drafting Standards, see Appendix A.

ICEM Advanced Design Package

The ICEM Advanced Design consists of all the overlays in the ICEM Design/Drafting plus additional overlays for Advanced Design.

ICEM Numerical Control Package

The ICEM Numerical Control consists of all overlays in ICEM Design/Drafting and ICEM Advanced Design, plus additional overlays for Numerical Control.

ICEM GPL

ICEM GPL is a high level computer language designed to provide a user with features of the ICEM DDN product. The features are provided parametrically from within algorithms.

The ICEM GPL system consists of two parts: an interpreter located within the standard ICEM DDN and a stand-alone compiler. Source GPL programs must first be compiled before those programs can be interpreted by ICEM DDN.

The ICEM GPL compiler is provided with the purchase of any portion of ICEM DDN (Design/Drafting, Advanced Design, or Numerical Control).

Hardware Requirements

ICEM DDN requires the minimum hardware configuration for NOS and NAM/IAF. A maximum field length of 170,300 octal is required for execution. The user station is a Tektronix 4014 or 4016 with Extended Graphics, Tektronix 4105, 4107, 4109, 4113, 4114, 4115, or 4125, IEW 790 with TEKEM and Control Data Corporation 721.

II. Tape Formats and Files

All tapes are nine-track made with a density of 1600 cpi (D=PE) . All tapes are ANSI-labeled and in INTERNAL format (LB=KL,F=I) .

VSN=REL68 L=ICEMDD	VSN=REL68A L=ICEMAD	VSN=REL68B L=ICEMNC	VSN=REL68C L=ICEMGPL
#1 INSTALL	#1 INSTALL	#1 INSTALL	#1 INSTALL
#2 ICEMDDN	#2 ICEMAD	#2 ICEMNC	#2 GPL
#3 DDNSRB	#3 COPYLDR	#3 COPYLDR	#3 GTGT
#4 DDNVER		#4 PPFULL	#4 GOLIB
#5 DDNVIT			#5 PFX1660
#6 DDNUTIL			#6 PFX6016
#7 OPTIM			#7 XREC170
#8 VERUTIL			#8 XTRX170
#9 TAPE9			

Description of Files

(I) Indirect Access File (D) Direct Access File

COPYLDR (I) is a copy utility used in the integration of the Advanced Design or Numerical Control overlays into ICEM DDN Design/Drafting.

DDNSRB (D) is a text file containing the Software Release Bulletin. This document explains the new features and provides general information regarding this release.

DDNUTIL (I) is the relocatable binary for the interface between ICEM DDN draw files and UNIPLOT/UNIPOST.

DDNVER (I) is a CCL verification procedure file for the installation test of ICEM DDN.

DDNVIT (I) is a verification script input file for ICEM DDN.

GOLIB (D) is the absolute binary for the ICEM GPL interface.

GPL (D) is the absolute binary of the ICEM GPL Compiler.

GTGT	(D)	is the GRAPL-to-GPL Translator. See Appendix C for information on how to use this translator.
ICEMAD	*	is the module of Advanced Design overlays only. It is integrated into ICEMDDN upon the execution of the INSTALL Procedure on tape REL68A.
ICEMDDN	(D)	is the absolute binary for ICEM DDN zero overlay and the primary overlays.
ICEMNC	*	is the module of Numerical Control overlays. It is integrated into ICEMDDN upon the execution of the INSTALL procedure on tape REL68B.
INSTALL	*	is a CCL procedure to transfer the files on tape to disk under the user number under which the procedure is executed. The files are stored as either Direct (D) access files or as INDIRECT (I) access files depending on file size. All files are unloaded as PUBLIC, READ-ONLY files.
OPTIM	(D)	is the relocatable binary
PFX1660	(D)	is the absolute binary for translating CY120 to CY170 IPARTD part files.
PFX6016	(D)	is the absolute binary for translating CY170 to CY120 IPARTD part files.
PPFULL	(D)	is a text file containing expounded PP word library.
TAPE9	(I)	is a verification data file for DDNUTIL and OPTIM.
VERUTIL	(I)	is a CCL verification procedure file for the installation test of ICEM DDN plotter interface.
XREC170	(I)	is an absolute binary needed for IPARTD file to file transferring when using HAMLET.
XTRX170	(I)	is an absolute binary needed for IPARTD file to file transferring when using HAMLET.

* These files are temporary files used during the execution of the INSTALL procedure.

III. Installation Instructions

Installation of ICEM DDN Design/Drafting only

Two tapes are needed to install the complete ICEM DDN Design/Drafting package. They are REL68 and REL68C. The tapes can be installed on any user number, however, it is recommended they be installed on user number APPLLIB from the console. The instructions assume the tapes are being installed from the console. If not, begin at the LABEL command and disregard the DROP at the end.

```
X.DIS
SUI,377774.

LABEL,TAPE,VSN=REL68,L=ICEMDD,D=PE,F=I,NT.
BEGIN,,TAPE.

DROP.
```

Informational notes are displayed on the screen during the installation. The INSTALL procedure for REL68 will prompt the user when REL68C needs to be mounted on the tape drive.

See Section IV for ICEM DDN Verification instructions.
See Section V for ICEM DDN Plotter Interface Verification.
See Appendix D, Section 3.2 for comments concerning having ICEM DDN as system resident.

Installation of ICEM DDN Advanced Design and Design/Drafting

Three tapes are needed to install the ICEM DDN Advanced Design package. They are REL68, REL68A and REL68C. The tapes can be installed on any user number, however, it is recommended they be installed on user number APPLLIB from the console. If not, begin at the LABEL command and disregard the DROP at the end.

```
X.DIS
SUI,377774.

LABEL,TAPE,VSN=REL68A,L=ICEMAD,D=PE,F=I,NT.
BEGIN,,TAPE.

DROP.
```

Informational messages are displayed on the screen as necessary. The INSTALL procedure for REL68A will prompt the user when REL68 and REL68C need to be mounted on the tape drive.

See Section IV for ICEM DDN Verification instructions.
See Section V for ICEM DDN Plotter Interface Verification.
See Appendix D, Section 3.2 for comments concerning having ICEM DDN as system resident.

Installation of ICEM DDN Numerical Control, Advanced Design and Design/Drafting

Four tapes are needed to install the ICEM DDN Numerical Control package. They are REL68, REL68A, REL68B and REL68C. The tapes can be installed on any user number, however, it is recommended they be installed on user number APPLLIB from the console. The instructions assume the tapes are being installed from the console. If not, begin at the LABEL command and disregard the DROP at the end.

```
X.DIS
SUI,377774.

LABEL,TAPE,VSN=REL68B,L=ICEMNC,D=PE,F=I,NT.
BEGIN,,TAPE.

DROP.
```

Informational messages are displayed on the screen as necessary. The INSTALL procedure for REL68B will prompt the user when REL68A, REL68C, and REL68 need to be mounted on the tape drive.

See Section IV for ICEM DDN Verification instructions.
See Section V for ICEM DDN Plotter Interface Verification.
See Appendix D, Section 3.2 for comments concerning having ICEM DDN as system resident.

IV. Verification of the ICEM DDN (all packages)

Log into NOS using one of the valid terminal types. Valid terminal types and set-up information can be found in APPENDIX B. In the instructions below, the use of 'username' should be replaced with the user number where the files were installed. The use of 'baudrate' should be replaced by the first digit of the baud rate of the communications line. For example, 3 is the baud rate of 300, 1 is the baud rate of 1200, etc. The use of 'terminal type' should be replaced by the user's type of terminal. The default is T4014. The terminal type specified must be one of the valid terminal types listed on page 3.

```
GET,DDNVER/UN='username'.
DDNVER,'baudrate','username', 'terminal type'.
```

Ignore the request for input. It is being supplied by the verification input file. The output is emulating a Tektronix 4014 terminal. The result should match the display in figure ICEM DDN-1.

V. Verification of the ICEM DDN Plotter Interface

Log into NOS using one of the valid terminal types. Valid terminal types and set-up information can be found in APPENDIX B. In the instructions below, the use of 'username' should be replaced with the user number where the files were installed and where UNIPLOT/UNIPOST files reside. It is assumed ICEM DDN plotter interfacer files are installed on the same user number as UNIPLOT/UNIPOST.

```
GET,VERUTIL/UN='username'.
VERUTIL,'username'.
```

The procedure VERUTIL executes UNIPOST. UNIPOST will prompt you in the following manner.

AUTOMATIC HARDCOPY (Y/N) ?	Specify Y if a hardcopy is desired and is available; specify N if not.
2. 4010 ASYNCHRONOUS 4. 4014 ASYNCHRONOUS 6. 4014 EGM ASYNCHRONOUS	Specify 6 as Tektronix terminal type.
ENTER BAUD RATE ?	Enter the baud rate of the communication line (example 1200, 9600, etc).

The screen will display the CDC logo (ICEM DDN-1). When the logo is drawn, crosshairs will appear. Press any key (A through Z) and the screen will clear and return you to NOS.

NOTE: Refer to the UNIPLOT Reference Manual for additional information.

FIGURE ICEM DDN - 1

APPENDIX A
INSTALLATION INSTRUCTIONS

International Drafting Standards

- German Drafting Standard (DIN) library and installation instructions are available by contacting the Control Data CAE software development manager in Frankfurt, Germany.

  - Control Data GMBH
  - Stresemannallee 30
    6000 Frankfurt Main 70
    West Germany

- French Drafting Standard library is unavailable. Questions may be answered by the Control Data CAE software development manager, Paris.

  - Control Data France
    27 Cours Des Petites Ecuries
    B.P. 139
    77315 Marne LaVallee, Cedex 2
    France

- British Drafting Standard library is unavailable. Questions may be answered by the Control Data design/drafting analyst in London.

  - Control Data Limited
    Control Data House
    179-199 Shaftesbury Avenue
    London WC2H 8AX

- Swedish Drafting Standard library and installation instructions are available by contacting the design/drafting analyst in Goteborg, Sweden.

  - Control Data AB
    CAD/CAM Applications
    Box 10, Baldersgatan 4
    S-40120 Gothenburg
    Sweden

- Japanese Drafting Standard library and installation instructions are available by contacting the design/drafting analyst in Tokyo, Japan.

  - Control Data Japan, LTD.
    Sunshine Bldg., 27th F.
    1-1 Higashi-Ikebukuro 3-Chome
    Toshima-Ku
    Tokyo 170, Japan

- Chinese Drafting Standard Library and installation instructions are available by contacting the design/drafting analyst in Tokyo, Japan.

  - Control Data Japan, LTD.
    Sunshine Bldg., 27th F.
    1-1 Higashi-Ikebukuro 3-Chome
    Toshima-Ku
    Tokyo 170, Japan

APPENDIX B

TERMINAL SET UP PROCEDURES

The terminal used for the installation of ICEM DDN must be initialized. Instructions for initializing the 4014, 4016, 4105, 4107, 4109, 4113, 4114, 4115, and 4125 Tektronix terminals follow. Please refer to IEW790 with TEKEM manuals for 790 terminal initialization.

TEKTRONIX 4014 and 4016 TERMINALS.

1. The following terminal strapping options are for initial terminal installation.

   a. ECHO - ON
   b. GIN terminators - CR only
   c. CR effect - CR
   d. LF effect - LF

2. Turn the terminal power on. The 4014 POWER switch is on the front lower right corner of the pedestal stand. The 4016 POWER switch is located on the right side of the terminal head. The green POWER indicator, located on the keyboard, will light when power is switched on.

3. Allow the terminal to warm up. Warm up is complete when pressing the RESET PAGE key completely clears the screen.

4. Set the ASCII/ALT switch to the ASCII position.

5. Initialize the OPTION 1 or OPTION 20 according to the procedure below, as applicable.

6. To obtain the small character size, set the terminal to LOCAL mode. Press the ESC key and the ; (semicolon) key together and return to LINE mode.

7. Dial the appropriate telephone number, if applicable.

8. Press the RETURN key to obtain the login FAMILY message.

OPTION 1 INITIALIZATION

1. Select the appropriate baud rate switch setting using the BAUD RATE switch located at the rear of the pedestal stand.

2. Set the HALF/FULL DUPLEX switch to FULL.

3. Set the INTF/OFF/AUX switch to INTF.

4. Set the TTY LOCK key.

OPTION 20 INSTALLATION

- - NOTE - -
If the terminal is equipped with both the OPTION 1 and the OPTION 20, set the INTF/OFF/AUX switch of the OPTION 1 to OFF.

(Asynchronous lines only). Place the terminal in LOCAL mode. Press the SHIFT key and the CNTL key together. While both the SHIFT and CNTL keys are depressed, press and release the RESET key; then press the P key and release all keys. Place the terminal in LINE mode. Set the CODE EXPANDER switch to OFF.

TEKTRONIX 4105, 4107, 4113, 4114, 4115 and 4125 TERMINALS

Complete the following to set up the Tektronix 4113, 4114, 4115 or 4125 terminal.

1. Turn the terminal power on by pushing the POWER button.

2. Allow the terminal to initialize (some keys on the keyboard remain lit until the terminal has completed its initialization).

3. Press the SET UP key so the terminal operating modes can be changed at the keyboard. An asterisk (*) should appear to the left of the cursor.

4. Enter:

   STA

   to display the released terminal status settings.

5. Ensure the terminal has the following settings. The remaining Tektronix 4105, 4107, 4109, 4113, 4114, 4115, and 4125 terminal status settings will either be set by ICEM DDN or will not affect the operation of ICEM DDN. To change a setting, reenter the new setting.

Status	4105, 4107, 4109	4113, 4114, 4115, 4125
TBSTATUS emulation only	Not Applicable	Out for 4014
TBHEADER CHARS emulation only	Not Applicable	Out for 4014
RLINE LENGTH	140	140
ECHO	Yes	Yes
LOCK KEYBOARD	No	No
SNOOPY	No	No
BAUDRATE	Applicable Baud Rate	Applicable Baud Rate
FLAGGING	INPUT	INPUT
EOLSTRING	Not Applicable	Not Applicable
BLOCKMODE	No	No (4113 only)
BREAKTIME	100	100

Status	4105, 4107, 4109	4113, 4114, 4115, 4125
QUEUESIZE	8100	8100
DUPLEX	Not Applicable	Full (4113 only)
XMTDELAY	0	0
XMTLIMIT	Applicable Baud Rate	Applicable Baud Rate
BYPASS CANCEL		
Without Echoplex	NL	NL
With Echoplex	LF	LF

APPENDIX C

Using the GPL Compiler

Log into NOS using one of the valid terminal types. Valid terminal types and set-up information can be found in APPENDIX B. In the instructions below, the use of 'username' should be replaced with the user number where the files were installed. In addition, 'source program' should be replaced by the file name of your GPL program; 'grapl program' should be replaced by your translated GRAPL program file name; 'output file name' should be replaced by our output file name (default is OUTPUT); 'list file name' should be replaced by the file name you wish the translated program to be put on.

To create a new GPL object library:

```
ATTACH,GPL/UN='username'.
GET,'source program'.
GPL,I='source program',L=GPLLIST.
DEFINE,GPLLIB.
LIBEDIT,B=GPLOBJ,P=GPLLIB,C,Z./*BUILD GPLD.
REWIND,*.
```

To add additional compiled programs to an existing GPL object library:

```
ATTACH,GPL/UN='username'.
GET,'source program'.
GPL,I='source program',L=GPLLIST.
ATTACH,GPLLIB/M=W.
LIBEDIT,B=GPLOBJ,P=GPLLIB,C,Z./*BUILD GPLD.
REWIND,*.
```

Using the GRAPL to GPL Translator GTGT

Example:

```
ATTACH,GTGT/UN='username'
GET,'grapl program'
GTGT,I='grapl program',O='output file',L='list file'
```

--NOTE--

THE TRANSLATION IS NOT ALWAYS 100%.
CHECK FOR REMARKS IN THE GPL SOURCE OUTPUT.
(For more information, see Appendix F of the ICEM GPL Reference Manual.)

APPENDIX D

CYBER 800 TUNING GUIDE

FOR ICEM DDN

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1.0 INTRODUCTION:

1.0 INTRODUCTION:

1.1 BACKGROUND - PROBLEMS

This guide will explore possible solutions to some of the common tuning situations.

The main problem is that users are expecting to set-up and play the hardware/software with no adjustments. This practice causes the site to run with the default setup parameters which were built for a small job environment. DDN is usually overlay bound and has a rather large field length. Depending on the disk configuration, the site is usually disk bound due to overlay loading and swapping DDN to disk. In the cases where the site has a lot of memory, the memory is not being utilized because no one has designated it as a "DE" equipment for DDN overlays and/or a swap device.

Because system analysts don't have a quantitative method of ascertaining what tuning functions cause improvements, tuning is not attempted. By using CPD, CTIME, RTIME, and ICEMDDN trace files, an objective index of performance can be obtained and improvements made.

2.0 OVERVIEW OF 800'S

2.0 OVERVIEW OF 800'S

2.1 800 FEATURES

The 800 has the following features:

* The 800 has a high speed central processing unit that runs with a memory that can be very large - 2 to 128 megabytes (262 thousand to 16 Million central memory words).

* The cache memory speeds up effective memory cycle.

* Peripheral processors operate at 4 times the original PPU speed.

* The 800 microcoded instruction set allows both NOS and NOS/VE operating systems to exist and run in the same machine (dual state).

* The range of ability for each machine has more than one dimension. As you go up the line in CPU power, the memory size can also be upgraded.

The following chart shows the different models and the allowed memory size options and multiple CPU option:

MODEL	MEMORY SIZE OPTION (Megabytes)									
	2	4	8	12	16	32	64	96	128	Dual CPU
810	X	X	X	X	X	X				NO
810A			X	X	X	X	X			NO
815	X	X	X	X	X	X				NO
825	X	X	X	X	X	X				NO
830	X	X	X	X	X	X				YES
830A					X	X	X			YES
835		X	X	X	X					NO
840					X	X	X	X	X	NO
845		X	X	X	X	X	X	X	X	NO
850					X	X	X	X	X	NO
855		X	X	X	X	X	X	X	X	YES
860					X	X	X	X	X	YES
870					X	X	X	X	X	YES
990					X	X				YES
990E					X	X	X	X	X	NO
995E					X	X	X	X	X	YES

2.0 OVERVIEW OF 800'S
2.1 800 FEATURES

. The 840A, 850A, 860A and 870A have an I/O subsystem of 20 PPUs and 24 channels.

. In dual state only one processor can be executing in the CYBER 170 mode.

. Currently 16 megabytes is the maximum memory that NOS can use.

It is the memory expansion characteristic that is most interesting for large applications like DDN. It has been observed that customers are overlooking the ability of the 800 to use this memory in many different ways.

2.2 800 MEMORY USE

The 800 memory can be used in the following ways:

(1) Job area - the job execution area is normally about 262K but can be bigger or smaller. Don't allocate more job area than it is possible to use (i.e. job area <= number of control points x max job length).

(2) Swap area - Rather than roll the job to disk, it can be swapped from memory to memory to avoid the disk accesses.

(3) System resident - specific overlays and/or PPU programs can be stored and retrieved from memory to avoid disk accesses.

(4) Buffer area for buffered disks.

(5) NOS/VE execution area.

All the above memory allocations are controlled by deadstart parameters in the CMR, EQPD, and IPRD decks. The EQPDxx entry for UEM is - "EQ005=DE,ST=ON,ET=EM,SZ=4000." (1 million words of UEM). The IPRDxx entry for the secondary rollout threshold is - "SRST=2000" (The maximum of 200,000 job field length will be rolled to the secondary rollout).

3.0 TUNING METHODS

3.0 TUNING METHODS

3.1 STEPS FOR TUNING

The following is a summary of the steps one can go through to tune 800s for ICEMDDN:

1) Run CPD - Find what the bottlenecks are. Tune by making NOS configuration changes such as system resident and channel/disk configuration (see section 3.5).

Check disk use percentages from the CPD run. 50-60% is pretty high. Moving overlays to CM or UEM and/or allowing ICEMDDN to run as system resident will help speed up the product and decrease disk access. Also, try to arrange your configuration so that equal access is occurring across all disk channels. Avoid channel 0 because it cannot be alternated in each mass storage device Equipment Status Table (EST) entry.

2) Run ICEMDDN with the T option on and collect overlay load numbers (CT file) for a given script. The IT file, resulting from the T option run is used for input (I=lfn) so that the run can be repeated for comparison after each tuning attempt (base timing). A program included in the appendix counts and sorts the counts by overlay for each overlay that was loaded during the script execution.

3) Based on CPD and the CT counts, move selected overlays into CM (Central Memory) and/or UEM (Unified Extended Memory). In level 630 of NOS a limited number of overlays can be put in CM, and near 400K the system hangs. The work around is to put additional overlays in UEM. At this level of the system, there does not seem to be any performance difference between overlay loading from CM or UEM.

4) Recheck response time by running a script in a quiet system with CTIME and RTIME control cards on each side of the ICEMDDN call. These numbers will tell you the amount of CPU time and real time used to make the run. Also, rerun CPD to check what is happening to the system resources. There is a Timesharing Instrumentation Package which measures response time, think time and transaction rates of IAF (LDS Publication number 15190016). This package will show how tuning has affected response time.

3.2 DDN SYSTEM RESIDENT

The advantage of having DDN system resident is that when it is in the system, more than one copy of the code is available from multiple disk channels. Also, selected overlays can be resident in CM.

Don't bother moving ICEMDDN to the system if you have only one channel to disk and you don't want to move overlays to CM or UEM. Also, remember that ICEMDDN will increase your system file by about 100K PRUs on each device that is designated as a system device.

On small capacity disk systems put ICEMDDN on the deadstart tape rather than on a permanent file which is SYSEDITed after deadstart. This will save 100K PRUs of permanent file space.

GPL overlays must be on a local file at execution time for GPL users. It currently does not run any other way.

Make an entry in the LIBDxx deck of "*FL ABS/ICMEDDN-6560" so that it will execute from the system file.

3.3 DDN OVERLAYS IN CENTRAL MEMORY

The problem with NOS 800 performance is caused by DDN having to load overlays from the disk. Generally, if the most frequently called overlays can reside in memory, the disk accesses will be much lower. If all the overlays that are called are put in memory, a script will run as well as it would on NOS/VE (virtual environment). Of course, the data caching won't be as good as VE but the performance should be considerably better than before the overlays were put in CM.

3.0 TUNING METHODS
3.3 DDN OVERLAYS IN CENTRAL MEMORY

Following is an example of the performance improvement on an 855 with the overlays in CM and other numbers showing relative performance:

SYSTEM	Running time	CPU time	Comment
760 NOS	374	13	DDN153 on 844s (System file)
855 NOS/VE	18	12	DDN153 on FMD's
830 NOS/VE	78	48	" " "
810 NOS/VE	138	78	" " "
760 NOS	371	7	DDN157 on 844s (System file)
760 NOS	291	7	DDN157 on FMDs (Local file)
855 NOS	267	9	DDN157 on Disk (System file)
855 NOS	160	9	3 overlays in CM+System file

The 100 second improvement for the 855 NOS is caused by reducing disk accesses. In theory, if all the overlays that are called are put in memory, the script would run as well as the 855 NOS/VE (18 seconds).

Also, notice the CPU time for each of the above machines. The CPU time requirement for DDN157 is less than DDN153. The 830 and 810 is 4 and 6 times less capable than the 760 or 855. If the site is CPU bound, the moving of the overlays into memory may not help response time during periods of CPU saturation.

The following table summarizes the overlay situation with a typical script:

Overlay	Load Count	Field Length of Overlay*	Accumulated Sum*
CL04	276	53040	54K
CL52	247	52551	126K
CL02	136	43215	171K
CL72	135	23066	215K
CL270	97	44031	261K
CL75	88	60042	340K
CL51	62	54513	415K
CL14	56	41300	457K
CL54	48	30441	507K

* Field length and sum are in octal.

These 9 overlays were loaded 1145 times. There were 1442 overlay loads in all with a total of 32 overlays used.

After the 4th or 5th most frequently loaded overlay, the payoff from having the overlay in Central Memory (CM) goes down. The rest of the CM can be used for swap area. Both of these uses take away some CPU usage that would be normally available to user programs. But because most sites are disk bound, the swapping and overlay loading from memory to memory saves on disk access and speeds up the user response time.

If CPD runs and RTIME and CTIME control cards are used around a script run before and after these tuning suggestions, the effect can be measured. With less disk access the product (ICEMDDN) will speed up and will make more use of the CPU so that swapping and overlay loading will occur faster. This can have a secondary effect of causing more CPU utilization due to more jobs (through CPU swapping) having access to the CPU and less disk access due to overlay loading from memory to memory loading. This secondary effect may necessitate a reduction in the the job switch delay so that the CPU is shared better between competing jobs. In any case, the above tuning should have a positive effect on response time for the average ICEMDDN user.

3.4 CPU BOUND 800

If your site is CPU bound (95-99%) , the moving of the overlays to Central Memory may cause the individual ICEM user to run a lot faster but when a large terminal load is present the total throughput may decrease. You may take steps to decrease the CPU usage to optimize. Because the CPU is used to move overlays around in memory, the moving of overlays to disk may decrease CPU usage. This will slow down the terminal response for the user at light loaded times but should make the user at CPU bound times run better. This situation seems to be rather rare and is found only on the 825s and lower machines. In determining if your site is CPU bound don't be mislead by maintenance jobs or batch jobs which soak up the CPU when the time-sharing jobs are not running.

3.5 CPD READING

CPD or TRACER (NOS System Maintenance Reference Manual - 60459300) and PROBE are used for statistical analysis of your

system performance. The data is used to determine areas where problems occur, where improvements in design and system tuning can be made. These products work by periodically gathering data about the system and writing the data to a file.

TRACER is made up of 4 programs:

1) ICPD - Starts up CPD PPU program
2) CPD - CPD is a dedicated PPU program which monitors system activity. Data is written to a direct access permanent file for future analysis.
3) ACPD - A post-processor program which generates an output report from the direct access permanent file written by CPD.

See the NOS Maintenance manual (60459300) for details of calling parameters for TRACER. The following sequence will start and complete TRACER operation:

1) ICPD,p1,p2,...pn. (starts CPD up)
2) ENDCPD. (ends CPD data gathering)
3) ACPD,p1,p2,...pn. (processes the CPD data and generates a report)

The ACPD report is in three sections -

1. System parameters and EST configuration.
2. System Control Information.
3. Interval Samples.

3.5.1 SYSTEM PARAMETERS AND EST CONFIGURATION

The System Parameters relate such things as the start date and time, report interval, memory size, UEM, number of PPUs and various lengths of software tables. The EST table is dumped showing the channel and disk connections.

3.5.2 SYSTEM CONTROL INFORMATION

The System Control Information relates what the priority is for each job class. The BC, TS, and DI classes are especially important to good system response. The BC and DI should have a lower PR (CPU priority) than the TS class. This will allow time-sharing to always get the CPU before BC or DI can get it.

3.0 TUNING METHODS
3.5.2 SYSTEM CONTROL INFORMATION

The other important parameters are the UP (upper priority limit) and LP (lower priority limit). These parameters are set based on how often batch jobs are rolled in and out without ever getting executed. If there is usually a lot of CM available, the UP and LP can be lower for batch and detached jobs than for time-sharing jobs. These parameters control the rolling out of batch or detached jobs when a time-sharing job requests more memory than what is currently available. If the execution memory is small in comparison to the field length requests, the batch and detached jobs should have the same UP and LP so that jobs are not rolled in and out without doing any work. The NJ parameter can help this situation. By controlling the number of batch jobs that can execute at the same time, the batch field length can be controlled. The NJ parameter for time-sharing controls the number of users allowed.

The FL and AM parameters for each job class can be designated to limit by job and/or job class how much Field Length (FL) may be used and when to schedule the job to CM. These parameters can be used to partition the memory by job class and run specific jobs at a selected time of the day.

The CM parameter controls how long the UP priorities are in effect. With faster CPUs a sort duration 4-5 seconds is desired so that users that are running batch jobs in time-sharing mode are dropped down to the batch priority (assuming that batch priority is the same as the time-sharing lower bound priority). Thus, short duration time-sharing tasks will get the most attention.

3.5.3 INTERVAL SAMPLE

The following table shows some of the parameters and what action might be taken to improve performance when a high percentage of use is shown:

Parameter (high percentage)	Cause/Information
PPUS ACTIVE	Not enough Disk Channels or PPUs.
NO PPU AVAILABLE	Same as PPUS ACTIVE.
CHANNEL ACTIVE	50-60+ up means that more disk channels will improve response time.
CPU USAGE -	
IDLE	High idle percent means the CPU is not being used - could be caused by the system being disk bound.
SYSTEM	System Software using excessive CPU.

SUB-SYS	Same as SYSTEM.
SYS ORG	Same as SYSTEM.
USER	You are getting as much as you can out of the system. Application CPU usage may be excessive.
FL AVAILABLE	Large percent is good - lots of room to run jobs. If coupled with secondary rollout filling up, FL needs to be moved to the secondary rollout area.
IAF USERS	Number of users.
TRACKS AVAILABLE	When a device has only 10% of its tracks available the system automatically does not use this device for TEMP files.

TOTAL ROLLOUTS	The statistics on total and secondary rollouts
SECONDARY ROLLOUTS	will tell you if your secondary rollout threshold
TOTAL SECTORS ROLLED	is large enough and how much your secondary rollout
SECONDARY SECTORS ROLLED	device is being used.

INSUFFICIENT CM	Number of times no CM was available to bring in a job.
NO CONTROL POINT	This number will tell you if you have enough control points defined.

3.6 PROBE

The PROBE utility measures the following:

1) The number of times a PP routine was loaded.
2) The number of CIO RA+1 requests by function number.
3) The number of PP requests to CPUMTR by function number.
4) The number of MTR requests to CPUMTR by function number.
5) The statistical data accumulated in low central memory - includes such items as number of sectors rolled and number of rollouts.

PROBE data gathering is enabled at deadstart time by an IPRDECK entry. SYSEDIT resets the PROBE data tables to zero.

PROBE is useful in moving PP routines to CM when they are called frequently enough, thus improving system performance.

3.7 CONSOLE WATCHING

Many times all the various tools are not as useful as just watching the system console for signs of thrashing and/or particular user abuse. The following items are worth watching for:

1) Users running batch jobs in time-sharing mode.
2) Batch jobs that are being rolled in but not getting the CPU before they are rolled out again.

3) Jobs that have excessive resource requests over extended peri s.
4) Maintenance jobs running at too high a priority and/or too many running. One job (CT7) is probably enough. Too many maintenance jobs cause a forced rollout every time a time-sharing job is brought in.
5) Permanent file dumping and loading during the prime shift will slow down or stop any PF requests by your users.
6) NOS/VE running in a dual 800 can have a default priority that allows NOS/VE to take the CPU away from NOS.

4.0 PERMANENT/TEMP FILE ALLOCATION

It has been found that allowing temporary and permanent files to be allocated on every device seems to be the best strategy to spread the load onto as many units as possible.

5.0 EDL TUNING

5.0 EDL TUNING

In many sites the Engineering Data Library (EDL) runs with ICEMDDN and can contribute to excessive resource use. The following EDL file (IMF2STF/UN=IMF) should have the following values for best performance:

```
3 NUMBER OF USER PROCESSES TO CHECK FOR EACH MTR LOOP
2 SEMI-IDLE RECALL TIME (MILLISECONDS)
15 ACTIVE RECALL TIME (MILLISECONDS)
1 K-DISPLAY REFRESH CYCLE
50 MAX NUMBER OF TIMES IDLE BEFORE SCP SWAP-OUT
30 MAX NUMBER OF CONNECTED USERS
10 MAX NUMBER OF OPEN DATA-BASES
170 MAX NUMBER OF ATTACHED FILES
3 NUMBER OF ALLOCATED USER STACKS
5 NUMBER OF INPUT BUFFERS
1 NUMBER OF INPUT QUEUE ENTRIES
3 NUMBER OF I/O BUFFERS
0 NUMBER OF TRANSACTION FILES ON ECS
1 NUMBER OF LONG WAKE-UP WAITS ALLOWED AT STACK
2 NUMBER OF SHORT WAKE-UP WAITS ALLOWED AT STACK
6000 LONG WAKE-UP WAIT SWAP-OUT DELAY
4000 SHORT WAKE-UP WAIT SWAP-OUT DELAY
30 PARCEL STACK PREEMPTION DELAY
30 SINGLE READ STACK PREEMPTION DELAY
1 TRACE
```

The file DEFSTF/UN=IMF (installation file for IMF) should be used as a model. The default values which have been changed above are:

```
ACTIVE RECALL TIME = 30
TRACE = 1
```

Also, journal logging may be turned off for the EDL database. This will save considerable overhead. However, if the system crashes with the database open, the database file may have to be reloaded from the last permanent file backup, instead of being recovered to the point of failure.

To turn off journal logging, log into the account where the EDL database file E120DDB resides, and type the following commands:

```
GET,CHLOG21/UN=IMF
CHLOG21,OFF,E120DDB,E120LOG.
```

6.0 CONCLUSION

6.0 CONCLUSION

Due to the many ways DDN is used, and considering the many other applications that are run on 800s, the tuning recommendations may or may not be applicable.

If after you have tried to tune your system it still has bad response time, please send CIM Field Support the following information and they will try to assist you:

1. Your name and phone number.
2. Describe response time with the general areas of DDN that are used.
3. Computer model (810, 830, 860, etc.), memory size, and length of time your system has been running DDN.
4. NOS level of the operating system and indicate if running dual state.
5. Disk configuration - Channels, disk models, and hookup configuration.
6. DE entry - memory allocation - Job area, overlay, and swap area.
7. List the names of DDN overlays that are resident in memory.
8. If possible, include a Tracer listing which contains much of the above information. The Tracer listing should be from an average day.

7.0 APPENDIX

7.0 APPENDIX

The following procedure and program will count the times each overlay is called and the total number of overlays called by processing the CT file which is output from a ICEMDDN run with the T option on:

```
.PROC,SORTCT.
PACK,CT,TAPE2.
FILE,TAPE2,BT=C,RT=U.
FTN5,I=SORTC,B=LGO,L=L,OPT=2.
LGO.
NOTE./ RESULTS ON FILE LIST.
.DATA,SORTC.
      PROGRAM SORTCT(INPUT,OUTPUT,TAPE2,LIST,TAPE1=LIST)
      INTEGER IBUF,INUM(512)
      REWIND 1
      REWIND 2
      ITOTAL = 0
 5    READ(2,END=15)IBUF
      IF(IBUF .GT. 512)GO TO 5
      IF(IBUF .LT. 0)GO TO 5
      INUM(IBUF) = INUM(IBUF)+1
      ITOTAL = ITOTAL+1
      GO TO 5

C     DONE READING CT.

 15   WRITE(1,3000)
      DO 30 J=1,512
      K = 0
      LASTBG = 0
      DO 20 I=1,512
      IF(INUM(I) .GT. LASTBG) THEN
         LASTBG = INUM(I)
         K = I
      ENDIF
 20   CONTINUE
      IF(LASTBG .EQ. 0)GO TO 9000
      WRITE(1,1000) K,INUM(K)
      INUM(K) = 0
 30   CONTINUE
 9000 WRITE(1,2000) ITOTAL
 1000 FORMAT (' CL - ',03,3X,I10)
 2000 FORMAT (' SUM = ',I10)
 3000 FORMAT ('1','OVERLAY NUMBER','   COUNT')
      END
```

CPI V1.2.5

1987/01/30

CONTROL DATA CORPORATION

ICEM

ENGINEERING DATA LIBRARY

Operating System Level: NOS 2 Level 664
Date: 01/30/87

INSTALLATION INSTRUCTIONS

DISCLAIMER

NOS and its product set are intended for use only as described in this document. Control Data cannot be responsible for the proper functioning of undescribed features or parameters.

SMD131366

CONTROL DATA CORPORATION

1987/01/30

ICEM ENGINEERING DATA LIBRARY
INSTALLATION INSTRUCTIONS
NOS 2 Level 664

1.0 ICEM EDL VERSION 1.2.5

1.0 ICEM EDL VERSION 1.2.5

1.1 RELEASE DESCRIPTION

ICEM Engineering Data Library (EDL) is an application designed to provide a user-friendly interface to Control Data's CAD/CAM products and to manage the engineering data produced by these products. The EDL system runs under the CDC Network Operating System (NOS) Version 2, and the CDC Network Access Method (NAM) and CDC Interactive Facility (IAF) communications packages. Information Management Facility (IMF) interfaces to the EDL database. A run-time subset of IMF is included with EDL.

1.2 HARDWARE REQUIREMENTS

EDL requires the minimum hardware configuration for NOS 2 and NAM/IAF. The user station can be a graphic or alphanumeric terminal. EDL requires a field length of 175000 octal words.

1.3 DEPENDENCIES

EDL interfaces to the following application packages.

ICEM DDN Version	1.62
ICEM Solid Modeler	1.13
Unistruc II	15AUG84
ICEM Schematics	1.15
PATRAN-G	1.5
IGES V2	2.2
UNIPLOT	
XEDIT	

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ICEM ENGINEERING DATA LIBRARY
INSTALLATION INSTRUCTIONS
NOS 2 Level 664

1.0 ICEM EDL VERSION 1.2.5
1.3 DEPENDENCIES

Full Screen Editor
Reclaim

1.4 RELEASE MATERIALS

EDL consists of two 9-track, 1600 cpi (D=PE) tapes. The format of the tapes is internal (F=I). The EDL Version 1.2.5 product resides on the tape VSN=REL76A and has a label of EDL125 (L=EDL125). The EDL Documentation resides on the tape VSN=REL76B and has a a label of E125DOC (L=E125DOC).

The following files are found on the EDL product release tape.

File 1	INSTALL	EDL Installation Procedure
File 2	E125PRC	EDL Version 1.2.5 Procedure file
File 3	E125ABS	EDL Absolute Program
File 4	E125BIN	EDL Main Overlay Relocatable Program
File 5	E125LIB	EDL Relocatable Subroutine Library
File 6	E125IBL	EDL Relocatable Information Base Subroutine Library
File 7	E125NBL	EDL Networking Subroutine Library
File 8	E120CNV	Conversion Program EDL 1.1.3 to EDL 1.2.0
File 9	EDLCOM	EDL Information Base Common Block Text File
File 10	EDLTRAN	EDL Networking Data Type Text File
File 11	MOUT	Subroutine to generate EDLLIST
File 12	E125MMB	Message and Task Metabase
File 13	E125DMB	Engineering Data Metabase
File 14	E125MDB	Message and Task Database
File 15	E125DDB	Engineering Data Database
File 16	EDLLIST	Default Database Load List
File 17	IMF2LIB	IMF Version 2.1 Enforcer Library
File 18	IMF2QU	Query Update with IMF 2.1 Interface
File 19	MCSIMF2	Start-up Procedure for IMF2SCP
File 20	IMF2STF	IMF 2.1 System Tuning File
File 21	IMF2SCP	IMF 2.1 System Control Point Absolute Program
File 22	CLGABS	Program to Associate Log File to Database
File 23	IMF2REC	Offline Recovery Utility

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ICEM ENGINEERING DATA LIBRARY
INSTALLATION INSTRUCTIONS
NOS 2 Level 664

1.0 ICEM EDL VERSION 1.2.5
1.4 RELEASE MATERIALS

File 24	WMTUN52	Program to Change Metabase Username for a Database
File 25	IMF2LDU	IMF 2.1 Load/Unload/Validate Utility
File 26	MOTHERN	Metabase for Metabases, needed by IMF2LDU

The following files are found on the EDL Documentation release tape.

File 1	INSTALL	EDL Documentation Installation Procedure
File 2	EDLDMAN	EDL Database Administrator's Manual
File 3	EDLRMAN	EDL Version 1.2.5 Reference Manual

2.0 INSTALLATION OF EDL AND THE IMF SUBSET.

2.0 INSTALLATION OF EDL AND THE IMF SUBSET.

2.1 ESTABLISH NOS ACCOUNTS

Establish a NOS account for the EDL programs, procedures, and data base files. This account may have any username and password.

Establish a NOS account with username IMF on which the Information Management Facility will reside and run. This username must have the name IMF, and must have special validations. It must be able to run a system control point job, communicate with user control points, create unlimited dayfile messages, unlimited CP time, unlimited MS, create direct and indirect files, etc.

All usernames from which EDL will be run must have validation to communicate to system control point jobs. Otherwise, they will be automatically logged off when they try to execute EDL.

2.2 MINIMUM VALIDATIONS

2.2.1 UN=IMF

AP=MCS Message Control System.
AP=RBF Remote Batch Facility.

AW=CLPF Create direct access files.
AW=CSPF Create indirect access files.
AW=CCNR Enter system without charge number.
AW=CUCP Access system control point facility.

2.0 INSTALLATION OF EDL AND THE IMF SUBSET.

2.2.1 UN=IMF

CC=77B	Max number of batch commands.
CM=77B	Max central memory space used.
CS=7	Cumulative size of all indirect access files.
DB=7	Max number of executing jobs and queue files.
DF=77B	Max number of MESSAGE requests to system and job dayfile.
DS=7	File size allowed for an individual direct access permanent file.
FC=7	File count.
FS=7	File size allowed for an individual indirect access permanent file.
MS=77B	Max number of additional mass storage PRU's the user is allowed to allocate to a job.
PW=pw	Password for both batch and interactive

2.2.2 ALL OTHER USERS INCLUDING THE DATABASE ADMINISTRATOR

AP=IAF	Interactive Facility
AP=RBF	Remote Batch Facility
AW=CLPF	Create direct access files.
AW=CSPF	Create indirect access files.
AW=CCNR	Enter system without charge number. (note 1)
AW=CAND	Request nonallocatable devices (magnetic tape units). (note 2)
AW=CUCP	Access system control point facility.
CC=77B	Max number of batch commands. (note 2)
CM=77B	Max central memory space used. (note 2)
CS=7	Cumulative size of all indirect access files. (note 2)
DB=7	Max number of executing jobs and queue files. (note 2)
DF=77B	Max number of MESSAGE requests to system and job dayfile. (note 2)
DS=7	File size allowed for an individual direct access permanent file. (note 2)
FC=7	File count. (note 2)
FS=7	File size allowed for an individual indirect access permanent file. (note 2)
MS=77B	Max number of additional mass storage PRU's the user is allowed to allocate to a job. (note 2)
PW=pw	Password for both batch and interactive

2.0 INSTALLATION OF EDL AND THE IMF SUBSET.
2.2.2 ALL OTHER USERS INCLUDING THE DATABASE ADMINISTRATOR

---

note 1 - The EDL installation procedure does not enter a CHARGE statement after the secondary USER commands when the procedure moves to UN=IMF and back to the DBA's account.

note 2 - Required for Database administrator, may vary for other users.

2.3 RUN THE INSTALLATION PROCEDURE

Run the product tape installation procedure using the following control cards.

```
LABEL,TAPE,VSN=REL76A,F=I,D=PE,R,L=EDL125.
COPYBF,TAPE,INSTALL.
```

```
**************************************************************************
*  AT THIS POINT, EDIT THE FILE 'INSTALL'  TO MODIFY THE FOLLOWING *
*  COMMAND:                                                        *
*   CHANGE - SKIPF,TAPE,15.                                        *
*     TO   - SKIPF,TAPE,16.                                        *
* THIS WILL ENSURE THAT THE CORRECT NUMBER OF FILES ARE SKIPPED    *
* WHEN INSTALLING IMF.                                            *
**************************************************************************
```

```
BEGIN,INSTALL,INSTALL.
```

The installation procedure will prompt for the username and password of the EDL account, and the password of username IMF.

If you already have the IMF2.1 files on username IMF and you do not wish to re-install it, answer NONE when prompted for the password of username IMF.

For sites currently using EDL 1.2.3, it is recommended that the IMF files be reinstalled, since the IMF released with EDL 1.2.5 has been updated. After reinstalling IMF, procedure LOADEDL must be run. It is suggested that you reinstall IMF even if you don't plan to upgrade to EDL 1.2.5, because the new IMF version contains a number of important fixes.

2.0 INSTALLATION OF EDL AND THE IMF SUBSET.
2.3 RUN THE INSTALLATION PROCEDURES

To install the IMF files without installing the EDL files, be sure that you are logged into the UN=IMF account and type the following commands.

```
LABEL,TAPE,VSN=REL76A,F=I,D=PE,R,L=EDL125.
COPYBF,TAPE,INSTALL.
```

```
**************************************************************************
*  AT THIS POINT, EDIT THE FILE 'INSTALL'  TO MODIFY THE FOLLOWING       *
*  COMMAND:                                                              *
*   CHANGE - SKIPF,TAPE,15.                                              *
*    TO    - SKIPF,TAPE,16.                                              *
* THIS WILL ENSURE THAT THE CORRECT NUMBER OF FILES ARE SKIPPED           *
* WHEN INSTALLING IMF.                                                   *
**************************************************************************
```

```
BEGIN,INSTIMF,INSTALL.
```

More information about starting and tuning IMF can be found in following sections.

After installing the EDL Version 1.2.5 product, you may wish to load the EDL Documentation set onto your mass storage devices to modify according to your site's particular needs. To install the EDL Documentation set, mount the Documentation tape onto a 9-track tape drive and enter the following control cards.

```
RETURN,TAPE,INSTALL.
LABEL,TAPE,VSN=REL76B,F=I,D=PE,R,L=E125DOC.
COPYBF,TAPE,INSTALL.
BEGIN,INSTALL,INSTALL.
```

The installation procedure will prompt for the user name and the password of the account on which you wish to install the EDL Documentation files. This will usually be the same account on which you've installed EDL Version 1.2.5.

2.4 EDIT THE EDL PROCEDURE FILES.

The installation procedure creates the startup file EDL. It is a single CCL proc which gets procedure file E125PRC from the NOS username where EDL is installed and passes that username as the value of the AUN parameter on the BEGIN statement for EDL. No changes to the file EDL should be necessary.

The proc header of procedure EDL in E125PRC should be edited to change the default value of the alternate username parameter (AUN) to the username on which the EDL programs and databases were installed. This will ensure that EDL will run correctly even when started directly from E125PRC instead of from file EDL.

The procedures in E125PRC should be checked to ensure that the correct versions of the application programs are obtained from the correct usernames. The standard procedure file assumes that all application programs and procedures are on UN=APPLLIB. If this is not the case at your site, E125PRC should be changed.

If an application such as ICEM DDN is sysedited into your system so that it can be used as a system command, simply remove the attach statements and the statement that checks to see if the application program has been assigned.

2.5 ACTIVATE THE IMF2.1 SYSTEM CONTROL POINT.

Edit file MCSIMF2/UN=IMF to change the commented out USER statement to a valid USER statement for the IMF account. Move this small procedure file to username SYSTEMX (UI=377777B). Note that the user statement in MCSIMF2 is mandatory and cannot be replaced by a SUI statement.

The IMF system control point program, IMFSCP, is started like all subsystems by a DSD entry, starting the execution of the procedure file saved under username SYSTEMX. That is, from the console,

```
MCSIMF2.
```

2.0 INSTALLATION OF EDL AND THE IMF SUBSET.
2.5 ACTIVATE THE IMF2.1 SYSTEM CONTROL POINT.

IMF2SCP can run at any control point. To force it to run at a specific control point, use the following CMR/DSD entry before the MCSIMF2 command.

ENABLE,MCS,cp#.

To avoid changes to the operating system, the EDL version of IMF2SCP uses the same system identification as the Message Control System, and cannot run when the Message Control System is active.

IMF2SCP is idled through the DSD entry

IDLE,MCS.

When idled-down, IMF2SCP will complete all processing needed to keep the databases in a consistent state. Idle-down can thus be done without damaging the databases, even if there are users active.

2.6 INSTALLING EDL IN NON-CONCURRENT MODE

If you do not need to allow more than one ICEM user at the same time using the same EDL database , you can install EDL so that it will run in mono-user mode without the system control point job being active. To do this, follow the following steps.

1. Define an empty direct access file named EDLLOCK on the username where the EDL Engineering Database is installed. This file should be Public in Write mode. EDL will use this file to ensure that only one person tries to use EDL at a time. Otherwise, EDL may abort when the database is busy. DEFINE,EDLLOCK/CT=PU,M=W.

2. Edit Procedure EDL in E125PRC to change the statement $IF,$MONO$=$TRUE$,L1. to $IF,$MONO$=$MONO$,L1. and put the AC=1 parameter on the E125ABS statement.

2.7 INSTALLATION VERIFICATION

To verify the installation of EDL, do the following steps:

Log in to the NOS system using the username established for the database administrator.

Initiate EDL by entering:

```
-,EDL
```

The terminal session below shows how to update the DBA's user profile. User responses are indicated by lower case letters.

```
  87/01/30.      ICEM ENGINEERING DATA LIBRARY VERSION 1.2.5
                   COPYRIGHT CONTROL DATA CORP., 1984,1985,1986,1987
                             ALL RIGHTS RESERVED


          ENTER EDL USER IDENTIFICATION
? edlid

          ENTER EDL PASSWORD
? dba

          CURRENT TERMINAL CONFIGURATION
          GRAPHICS TERMINAL      CDC VIKING 721
          DIALOG AREA            ON GRAPHICS TERMINAL
          COMMUNICATIONS RATE    9600 BAUD
          COMMUNICATIONS TYPE    ASYNCHRONOUS
          TABLET                 NO
          LOCAL ASSIST           DEFAULT
          LOCAL DISPLAY          DEFAULT
          EGM                    NO
          BIT PLANES             4
EDLU0037  YOU ARE NOT RUNNING UNDER YOUR OWN NOS USERNAME

           ADMINISTRATOR TASKS
       1.  EXIT                                  E,EXIT
       2.  USER MANAGEMENT                       USERMGMT
       3.  GROUP ADMINISTRATION                  GROUPADMIN
       4.  RELEASE ADMINISTRATION                RELADMIN
```

2.0 INSTALLATION OF EDL AND THE IMF SUBSET.
2.7 INSTALLATION VERIFICATION

```
      5.  PART, FAMILY, AND VENDOR MANAGEMENT      PARTM
ENTER TASK
? usermgmt

          USER MANAGEMENT
      1.  EXIT                                     E,EXIT
      2.  LIST USERS                               L,LIST
      3.  ADD USERS                                A,ADD
      4.  DELETE USERS                             D,DELETE
      5.  CHANGE A USER'S PROFILE                  C,CHANGE
      6.  REACTIVATE A USER                        R,REACTIVATE
SELECT OPTION
? c

          ENTER THE EDL ID OF THE USER, LIST, OR CR TO EXIT
? edlid

          CHANGE USER DATA
      1.  EXIT                                     E,EXIT
      2.  PROMPT FOR ALL                           P,PROMPT
      3.  EDL PASSWORD                             PSW,PW
      4.  NOS USER NAME                            U,UN
      5.  LAST NAME                                L,LNM
      6.  FIRST NAME                               F,FNM
      7.  MIDDLE NAME                              MI,MNM
      8.  DEPARTMENT                               D,DEPT
      9.  TITLE                                    T,TITLE
     10.  STREET ADDRESS                           A,ADDR
     11.  CITY, STATE, ZIP                         C,CITY
     12.  PHONE                                    PH,PHONE
     13.  FIRST COMMAND                            CMD,COMMAND
     14.  DIALOG DELIMITER                         DIALOG
     15.  STRING DELIMITER                         STRING
     16.  EDITOR                                   EDITOR
     17.  HOST                                     HOST
SELECT OPTION
? p

          ENTER A NEW EDL PASSWORD OR CR FOR SAME
? dbapw

          THE USER'S NOS USER NAME IS
EDLDBA

          ENTER A NEW NOS USER NAME OR CR FOR SAME
? edldba
```

```
          THE USER'S LAST NAME IS

          ENTER A NEW LAST NAME OR CR FOR SAME
? smith
          THE USER'S FIRST NAME IS

          ENTER A NEW FIRST NAME OR CR FOR SAME
? john
          THE USER'S MIDDLE NAME IS

          ENTER A NEW MIDDLE NAME OR CR FOR SAME
? a
          THE USER'S DEPARTMENT IS

          ENTER A NEW DEPARTMENT OR CR FOR SAME
? 2210
          THE USER'S TITLE IS
DATABASE ADMINISTRATOR
          ENTER A NEW TITLE OR CR FOR SAME
? <cr>
          THE USER'S STREET ADDRESS IS

          ENTER A NEW STREET ADDRESS OR CR FOR SAME
? 123 main street
          THE USER'S CITY, STATE, AND ZIP ARE

          ENTER A NEW CITY, STATE, AND ZIP OR CR FOR SAME
? minneapolis, mn 55000
          THE USER'S PHONE NUMBER IS
```

2.0 INSTALLATION OF EDL AND THE IMF SUBSET.
2.7 INSTALLATION VERIFICATION

```
          ENTER A NEW PHONE NUMBER OR CR FOR SAME
? (612) 555-2345

          THE USER'S FIRST COMMAND IS
ADMIN

          ENTER A NEW FIRST COMMAND OR CR FOR SAME
? <cr>

          THE USER'S DIALOG DELIMITER IS
/

          ENTER THE NEW DIALOG DELIMITER OR CR FOR SAME
? <cr>

          THE USER'S STRING DELIMITER IS
"

          ENTER THE NEW STRING DELIMITER OR CR FOR SAME
? <cr>

          THE USER'S DEFAULT EDITOR IS
FSE

          ENTER THE NEW EDITOR OR CR FOR SAME
? <cr>

           CHANGE USER DATA
      1.   EXIT                          E,EXIT
      2.   PROMPT FOR ALL                P,PROMPT
      3.   EDL PASSWORD                  PSW,PW
      4.   NOS USER NAME                 U,UN
      5.   LAST NAME                     L,LNM
      6.   FIRST NAME                    F,FNM
      7.   MIDDLE NAME                   MI,MNM
      8.   DEPARTMENT                    D,DEPT
      9.   TITLE                         T,TITLE
     10.   STREET ADDRESS                A,ADDR
     11.   CITY, STATE, ZIP              C,CITY
     12.   PHONE                         PH,PHONE
     13.   FIRST COMMAND                 CMD,COMMAND
     14.   DIALOG DELIMITER              DIALOG
     15.   STRING DELIMITER              STRING
     16.   EDITOR                        EDITOR
     17.   HOST                          HOST
SELECT OPTION
```

2.0 INSTALLATION OF EDL AND THE IMF SUBSET.
2.7 INSTALLATION VERIFICATION

```
.? e

         *** THE USER'S PROFILE HAS BEEN CHANGED ***

         ENTER THE EDL ID OF THE USER, LIST, OR CR TO EXIT
? <cr>

          USER MANAGEMENT
      1.  EXIT                                  E,EXIT
      2.  LIST USERS                            L,LIST
      3.  ADD USERS                             A,ADD
      4.  DELETE USERS                          D,DELETE
      5.  CHANGE A USER'S PROFILE               C,CHANGE
      6.  REACTIVATE A USER                     R,REACTIVATE
SELECT OPTION
? list

         ENTER THE EDL ID OF THE USER, LIST, OR CR TO EXIT
? list

         2 SELECTIONS
            EDL ID       NAME
            --- --       ----
         1. EDLCOM
         2. EDLID         SMITH, JOHN A.

         *** END OF LIST ***

         ENTER A NUMBER, E OR EXIT, OR CR FOR MORE
? 2
         EDL USER ID  EDLID
                NAME  SMITH, JOHN A.
       NOS USER NAME
          DEPARTMENT  2210
               TITLE  DATABASE ADMINISTRATOR
      STREET ADDRESS  123 MAIN STREET
   CITY, STATE, ZIP   MINNEAPOLIS, MN 55000
               PHONE  (612) 555-2345
       FIRST COMMAND  ADMIN
              STATUS  ACTIVE
   DIALOG DELIMITER   /
   STRING DELIMITER   "
              EDITOR  FSE

ENTER CR TO CONTINUE
? <cr>
```

2.0 INSTALLATION OF EDL AND THE IMF SUBSET.
2.7 INSTALLATION VERIFICATION

```
          2 SELECTIONS
             EDL ID       NAME
             --- --       ----
          1. EDLCOM
          2. EDLID        SMITH, JOHN A.

          *** END OF LIST ***

          ENTER A NUMBER, E OR EXIT, OR CR FOR MORE
? e

          ENTER THE EDL ID OF THE USER, LIST, OR CR TO EXIT
? <cr>

           USER MANAGEMENT
      1.   EXIT                                  E,EXIT
      2.   LIST USERS                            L,LIST
      3.   ADD USERS                             A,ADD
      4.   DELETE USERS                          D,DELETE
      5.   CHANGE A USER'S PROFILE               C,CHANGE
      6.   REACTIVATE A USER                     R,REACTIVATE
SELECT OPTION
? e

           ADMINISTRATOR TASKS
      1.   EXIT                                  E,EXIT
      2.   USER MANAGEMENT                       USERMGMT
      3.   GROUP ADMINISTRATION                  GROUPADMIN
      4.   RELEASE ADMINISTRATION                RELADMIN
      5.   PART, FAMILY, AND VENDOR MANAGEMENT   PARTM
ENTER TASK
? quit
```

2.8 UPGRADING EDL DATABASES

If your site is currently running a previous version of EDL, you must move the information to the new databases.

If you have customized EDL for your site, also read the section in the customization manual about upgrading site customizations.

2.0 INSTALLATION OF EDL AND THE IMF SUBSET.
2.8.1 CONVERSION FROM EDL 1.1.3

2.8.1 CONVERSION FROM EDL 1.1.3

Conversion from EDL 1.1.3 to EDL 1.2.5 must be accomplished in three steps: EDL 1.1.3 to EDL 1.2.0, EDL 1.2.0 to EDL 1.2.3, and, finally, EDL 1.2.3 to EDL 1.2.5. This section of the document describes the conversion from EDL 1.1.3 to EDL 1.2.0.

Conversion from EDL 1.2.3 to EDL 1.2.5 is discussed in section 2.8.2 of this document and conversion from EDL 1.2.3 to EDL 1.2.5 in section 2.8.3.

To move from EDL 1.1.3 the data must first be moved to an EDL 1.2.0 database. All conversion programs and procedures are available on the EDL 1.2.5 release tape. However, you will need to install a default EDL 1.2.0 database from an EDL 1.2.0 release tape.

In order to convert the information on an EDL 1.13 database to your EDL 1.2.0 database, you need to run a procedure called CONV113. This procedure must be run from the NOS account where the EDL 1.2.0 database will reside. The EDL 1.13 database need not be on the same NOS account.

Begin the conversion procedure by typing:

```
BEGIN,CONV113,E125PRC,UN113=username.
```

Where username is replaced with the NOS account where the EDL 1.13 database resides.

This procedure will submit a job to convert the data from the EDL 1.13 database to the EDL 1.2.0 database. There should be no one else using the EDL 1.2.0 database during this time.

After CONV113 has run, the output from the job, and the dayfile, will be on file CONVOUT. CONVOUT will contain details of any records which the program was unable to translate.

2.0 INSTALLATION OF EDL AND THE IMF SUBSET.
2.8.1 CONVERSION FROM EDL 1.1.3

If the conversion program is unable to complete, the output and dayfile from the job will be on a file called CONVERR. Possible causes and solutions are:

Problem	Solution
Misspecified UN113 Time Limit	Re-run the CONV113 procedure Edit E125PRC, changing the time limit from 1200 on the CONVERT procedure. Reinstall an empty default 1.2.0 database before attempting to rerun the procedure.

2.8.2 CONVERSION FROM EDL 1.2.0 TO EDL 1.2.3

Before moving engineering data into the EDL 1.2.3 database, you must reapply any Query Update Transactions which you used to customize the EDL 1.2.0 database. Otherwise, site defined file types, data types, engineering categories, etc., will not be in the new database, and any engineering data information that uses them will be rejected with constraint violations.

You should also delete the user EDLID and the group DBA from the default EDL 1.2.3 database before attempting to convert the old database. This will avoid uniqueness constraint violations as that user and group are moved from the EDL 1.2.0 database. Use the user and group management functions of EDL 1.2.3 or Query Update to accomplish the deletion.

To move engineering data from an EDL 1.2.0 database to an EDL 1.2.3 database, type the following command.

```
BEGIN,CONV120,E125PRC,UN120=username.
```

where username is replaced with the NOS account where the EDL 1.2.0 database resides.

This procedure runs the IMF unload-reload utility and a special program to convert data that cannot be handled properly by the unload-reload utility. If you have a very large database, you may wish to begin the procedure in a batch job.

In some cases, the reload utility may find constraint violations which will cause the new database to be marked invalid. You should look at the error report and lists to determine which records caused the problem. Then use Query Update in repair mode to correct the errors and rerun the validate utility.

```
ATTACH,IMF2QU/UN=IMF.
IMF2QU.
-- INVOKE EDLDATAW OF EDLDATA KEY EDLORDBA +
-- USING E123DDB REPAIR EDLPW
-- (enter QU directives to DISPLAY and correct the database)
-- END

ATTACH,IMF2LDU/UN=IMF.
```

2.0 INSTALLATION OF EDL AND THE IMF SUBSET.
2.8.2 CONVERSION FROM EDL 1.2.0 TO EDL 1.2.3

```
IMF2LDU.
? VALIDATE THROUGH EDLDATAW OF EDLDATA
? KEY EDLORDBA
? USING E123DDB
? REPAIR EDLPW
? TERM
? <cr>
```

If you have customized EDL 1.2.0 please read the new customization guide before attempting to convert the database. It is necessary to adapt and reapply your QU and MDB directives before converting the engineering data.

2.9.2 CONVERSION FROM EDL 1.2.3 TO EDL 1.2.5

Before moving engineering data into the EDL 1.2.5 database, you must reapply any Query Update Transactions which you used to customize the EDL 1.2.3 database. Otherwise, site defined file types, data types, engineering categories, etc., will not be in the new database, and any engineering data information that uses them will be rejected with constraint violations.

You should also delete the user EDLID and the group DBA from the default EDL 1.2.5 database before attempting to convert the old database. This will avoid uniqueness constraint violations as that user and group are moved from the EDL 1.2.3 database. Use the user and group management functions of EDL 1.2.3 or Query Update to accomplish the deletion.

To move engineering data from an EDL 1.2.3 database to an EDL 1.2.5 database, type the following command.

```
BEGIN,CONV123,E125PRC,UN123=username1,UN125=username2.
```

where username1 is replaced with the NOS account where the EDL 1.2.3 database resides and username2 is replaced with the NOS account where the EDL 1.2.5 database resides.

This procedure runs the IMF unload-reload utility. If you have a large database, you may wish to begin the procedure as a batch job.

In some cases, the reload utility may find constraint violations which will cause the new database to be marked invalid. You should look at the error report and lists to determine which records caused the problem. Then use Query Update in repair mode to correct the errors and rerun the validate utility.

```
ATTACH,IMF2QU/UN=IMF.
IMF2QU.
-- INVOKE EDLDATAW OF EDLDATA KEY EDLORDBA +
-- USING E125DDB REPAIR EDLPW ON username2
-- (enter QU directives to DISPLAY and correct the database)
-- END

ATTACH,IMF2LDU/UN=IMF.
```

)) * END

```
IMF2LDU.
? VALIDATE THROUGH EDLDATAW OF EDLDATA .
? KEY EDLORDBA
? USING E125DDB
? REPAIR EDLPW
? TERM
? <cr>
```

If you have customized EDL 1.2.3 please read the new customization guide before attempting to convert the database. It is necessary to adapt and reapply your QU and MDB directives before converting the engineering data.

2.10 IMF DATABASE MAINTENANCE

2.10.1 BACKUP AND RECOVERY

IMF 2.1 provides utilities for database journal logging and offline database recovery. There are two procedures in EDL that make these utilities easy to use to backup and recover the EDL database.

These procedures must be run from the NOS account on which the EDL database resides. They should be run only when there are no EDL users on the system.

2.10.1.1 Backup Procedure

```
BEGIN,BACKUP,E125PRC
```

This procedure copies the EDL database file E123DDB to a backup file named E123BAK. It also creates a journal log file named E123LOG which will automatically capture a record of all changes to the EDL Engineering Data Database.

You should run this procedure periodically depending on the amount of EDL activity at your site. Be careful that the database is good before you run the BACKUP procedure since it

will overwrite any previous backup and log files. Before running BACKUP, you may wish to copy E125DDB, E125BAK and E125LOG to magnetic tape.

2.10.1.2 Recovery Procedure

BEGIN,RECOVER,E125PRC,DBN=username.

This procedure is to be used only in the unlikely event that a system crash occurs when the database is open and the EDL database is destroyed.

RECOVER copies the backup file E125BAK over the current database file E125DDB and runs the offline recovery utility to update the database with the journal entries from file E125LOG. This restores tha database to a consistent state as it appeared just before the database was destroyed. Then this procedure causes the BACKUP procedure described above to be run, ensuring that any subsequent changes are logged.

2.10.2 RUNNING WITHOUT JOURNAL LOGGING

To turn journal logging off for the EDL database, execute the following procedure.

BEGIN,CHLOG,E125PRC,FUNC=OFF,FN=E125DDB,AFN=E125LOG.

Substantial improvements in resource utilization can be achieved by turning journal logging off. However, without journal logging, it is impossible to use the RECOVER procedure to reestablish the database to the point of failure in case the system crashes while a user has the EDL database open. Instead, the file E125DDB must be restored from the last system file backup.

It is unlikely that the database will be corrupted by anything other than a operating system or hardware failure, since IMF performs reprieve processing to close the database gracefully if an program fails or a user uses control T to abort the program. The risk of losing a day or half day of EDL information may be acceptable at your site. The application

data such as drawings and models are not affected by IMF journal logging.

2.11 IMF TUNING CONSIDERATIONS

The IMF System Tuning File, IMF2STF/UN=IMF, determines certain parameters that IMF 2.1 uses to control it's operation at the system control point. These parameters can affect resource utilization of EDL, response time, and overall system throughput. The tuning parameters are read from the file every time the IMF (MCS) subsystem is started.

To some extent, the optimal settings depend on the type of load on your system. The parameters on the tuning file provided on the EDL release tape are set to reasonable values for an ICEM environment. They are set to minimize the impact of IMF and EDL on system throughput at the possible expense of EDL response time.

2.12 EDL AUTOSTART FOR USERS

If a user wishes to log in to EDL without typing his EDL user id and password, create an indirect file called EDLUSER on the user's NOS username. This file should have a single line with the user id in columns 1-10 and the EDL password in columns 11-20. EDL will attempt to read this file and will prompt the user only if the file does not exist or if the information on the file is invalid.

2.13 PASSWORD MASKING

If all terminals at your site are communicating in full duplex mode, you may cause EDL to temporarily disable echoplex mode while the users are entering passwords so that the password characters do not appear on the terminal screen.

This is accomplished by changing the title of the message

named "DUPLEX" to "FULL", using a MDB transaction file or query . update. See the customization guide section "CUSTOMIZING THE MESSAGE AND TASK DATABASE" for an explanation of how to change EDL messages.

2.14 USING QUERY UPDATE

For the most part, IMF2QU functions as described in the Query Update Version 3 Reference Manual 60498300.

The Invoke clause used to open an IMF 2.1 database schema, is different than the one documented for IMF Version 1.

```
INVOKE external-schema-name OF conceptual-schema-name
   [ KEY use-literal ]
   USING database-file-name [ nos-username ]
   [ REPAIR repair-literal ]
   [ CONCURRENT ]
```

To query the EDL Engineering Database,
INVOKE EDL OF EDLDATA USING E125DDB nos-username CONCURRENT

To query the EDL Message and Task Database,
INVOKE EDLMENUR OR EDLMENU USING E125MDB nos-un

To query or update the Engineering Database,
INVOKE EDLDATAW OF EDLDATA KEY $EDLORDBA$ +
USING E125DDB nos-un CONCURRENT

To query or update the Message and Task Database,
INVOKE EDLMENUW OF EDLMENU KEY $EDLORDBA$ +
USING E125MDB nos-un

Sometimes Query Update will not display data for all records of a record type unless a FOLLOW directive is entered to specify the access path or coset to be used to retrieve the records. See the Query Update manual and the EDL record layout section of the customization guide.

3.0 CREATING A NETWORK IN EDL

This section explains how to set up a network of EDL databases, one on each mainframe. Hosts in an EDL network are configured in a "star", with many subordinates clustered around a single master host. Administrative functions (user validation, part definition) are carried out on the master host. The DBA in the network is responsible for running a job (started with the command INITNET) which polls other hosts in the network (a subordinate polls the master, while the master polls each subordinate), then rolls out for a site defined period before repeating the polling cycle. This information is repeated in section 16 of the EDL Customization Guide. It is recommended that the System Administrator become familiar with that document before attempting these changes.

3.1 DEFINE HOSTS

The default EDL database host name is blank. In order to identify multiple hosts in a network, each host must be given a unique name within EDL. This name should be the three character LID (Logical IDentifier) by which the host is known to RHF.

One host should be designated as the MASTER host for the network. This host must communicate directly to all subordinate hosts which run EDL. All administrative functions, such as validating users, and defining parts, and vendors, will be done on this host, and the information will be passed to the subordinates.

All transactions dealing with data are done on the subordinate hosts, and then passed up to the master. Therefore, the master host will contain information about the data on all subordinate hosts.

3.2 DEFINE COMMUNICATION LINKS

CL records must be created for each host in the database, telling EDL which other hosts a specific host can communicate with. Note that each link must be defined twice, saying that HOST A can communicate with HOST B, and that HOST B can communicate with HOST A.

3.3 QU DIRECTIVES TO DEFINE A NETWORK

A sample network could consist of two Cyber mainframes, and a Cyber 120 which does not run EDL, but whose data is managed by MA4 (whose data is passed up to MB1). Following are the QU directives to update the MASTER host (in this case MB1) for this network configuration.

```
INVOKE EDLDATAW OF EDLDATA KEY $EDLORDBA$ USING E125DDB
STORE SETTING HIHOS,HIOFF,HIOS,HIEDL,HIHOSS
$MB1$       1  $NOS$ $T$ $MB1$
$MA4$  100000  $NOS$ $T$ $MB1$
$SD2$  200000  $AOS/VS$ $F$ $MA4$
*END
STORE SETTING UVUSR UVHOS UVOUN
$EDLID$    $MA4$    $EDLDBA $
$EDLID$    $MB1$    $EDLDBA $
$EDLID$    $SD2$    $DJH $
$EDLCOM$   $MA4$    $EDLDBA $
$EDLCOM$   $SD2$    $DJH $
$EDLCOM$   $MB1$    $EDLDBA $
*END
STORE SETTING CLHOSS CLHOSR
$MA4$ $MB1$
$MB1$ $MA4$
$MA4$ $SD2$
$MB1$ $SD2$
*END
REMOVE USING UVHOS
$ $
*END
REMOVE USING HIHOS
$ $
*END
```

```
MODIFY USING HIHOS SETTING HIOFF
$MB1$ 0
*END
END
```

Once the network has been defined on what will be the master host, this configuration should be copied to subordinates. EDL should be installed, then this same QU file should be run on each subordinate host. EDL must run on the same NOS account on each host.

3.4 E125PRC MODIFICATIONS

3.4.1 PROCEDURES GETMAS AND GETSUB

Procedure GETMAS and GETSUB contain .DATA files with MFLINK directives. These directives are used to poll alternate hosts in the network for information which should be sent from the master to the subordinates, or vice versa. The first line in the .DATA files are USER,EDLDBA,EDLDBA. This user statement should be replaced with the batch user statement for the username where EDL will be running in the network. Since the master host will be using these MFLINK directives to poll each subordinate, this means that the username and batch password where EDL runs on each subordinate must be the same.

A recommended modification to the GETMAS and GETSUB procedures is to remove the .DATA files from E125PRC (which is available to all users running EDL), put this information into a private file on the username on which EDL resides, and modify the procedures to read these files rather then the .DATA files.

3.4.2 PROCEDURE EDL

Procedure EDL on file E125PRC must be changed on each host, telling EDL the name of the host. The updated procedure header will look like:

.PROC,EDL,I=INPUT,IT=0/IT,OT=0/OT,HOST=hos,AUN=EDLDBA.
where hos is replaced by the name of the host on which this file resides.

This is the only change to E125PRC which is specific to a given host.

3.4.3 EDL LOG FILES

Each subordinate should have, on the username on which EDL is installed, a file called EDLSLOG. The master should have a file called EDLMLOG, and one file for each subordinate which runs EDL. These files will be called EDLMhos, where hos is replaced with the host identifier for the subordinate. These files should be public, or permitted to all usernames which can run EDL, in WRITE mode.

These files contain log entries of each transaction which needs to be shipped either from the subordinates to the master, or vice versa. These log files are polled periodically by their destination hosts.

3.5 NETWORK INITIALIZATION

The DBA should log into each host on the account where EDL resides, and enter the command INITNET. This will start up a job which will:

1. Poll the subordinates (or master) for transactions which should be sent to this host.
2. Run EDL in batch mode to process these transactions.
3. Roll out for the interval defined in the procedure NETROLL in E125PRC.
4. Repeat.

This job will have the UJN of NETJOB. It should continue to cycle until the system is deadstarted, at which time the INITNET task should be run again. If the job is dropped, the transaction data is not lost. Network transactions will

accumulate in the log files, and will be sent to other hosts whenever the INITNET job is run on the receiving host.

CONTROL DATA CORPORATION

ICEM DDN

Version 1.62

Operating System Level: NOS 2.5.1 Level 664

Date: 1/21/87

SOFTWARE RELEASE BULLETIN

DISCLAIMER

NOS and its product set are intended for use only as described in this document. Control Data cannot be responsible for the proper functioning of undescribed features or parameters.

*** NOTE ***

Please call the following HOTLINE numbers if you have any problems or questions:

1-800-328-3980	U.S.
1-800-527-0564	Canada
1-612-851-4131	Minnesota and other international countries

*** URGENT ***

Please make this document available to all ICEM DDN users.

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1.0 INTRODUCTION

1.0 INTRODUCTION

This SOFTWARE RELEASE BULLETIN (SRB) is designed to inform site analysts and ICEM DDN users of:

* New features in ICEM DDN
* ICEM products which must use V1.62
* System notes and cautions
* PSRs/RSEs resolved/included with this release

In addition, this SRB contains a set of replacement pages to correct and supplement the ICEM DDN V1.62 Reference Manuals. It is important that the V1.62 manuals be updated with these pages so that they are current and accurate.

1.1 ICEM DDN V1.6 PUBLICATIONS STATUS

The ICEM DDN Reference Manuals have been updated for the V1.62 release and can be ordered through Control Data's Literature Distribution Service (LDS). The following table summarizes the V1.62 manual update plans:

MANUAL	NUMBER	NEW MANUAL or OVERLAY	MANUAL CHANGE PACKET	NO MANUAL CHANGE
ICEM Design Drafting: Introduction and System Controls	60457130		rev L	
ICEM Design Drafting: Data Management	60461410		rev E	
ICEM Design Drafting: Basic Construction	60461420		rev D	
ICEM Advanced Design	60461430		rev D	
ICEM Design Drafting: Drafting Functions	60461440		rev D	
ICEM Numerical Control	60461450	rev D		
ICEM Design Drafting GRAPL Programming Language Reference Manual	60461460			X
ICEM GPL	60462520		rev C	
ICEM DDN Instant	60457140			X
ICEM Tablet Overlays	60458080			X
ICEM DDN User's Guide	60456940			X

2.0 VERSION 1.62 FEATURE REVIEW

2.0 VERSION 1.62 FEATURE REVIEW

2.1 DESIGN/DRAFTING FEATURES

2.1.1 HIGHLIGHTING

In pre-V1.62 ICEM DDN, a selected entity is highlighted by placing an attention indicator ('O') somewhere on the entity. If that entity's attention point is zoomed or panned off screen, it is not possible to tell that it was selected.

A new modal has been added to correct this problem. F.1.11.11 HIGHLIGHTING METHOD offers two choices for highlighting methods: ATTENTION INDICATORS and BLINKING. Attention indicators will continue to put the ('O') on the attention point of a selected entity. Blinking will cause a selected entity to blink on and off slowly. This feature only works for terminals with local display files which are turned on.

2.1.2 PLOTTING ENHANCEMENTS

These changes allow using a different paper type than that associated with the part and displaying a more descriptive main menu. The default paper type is based on the units of measure and drafting standard of the part. The alternate paper type will be requested with the Other Options key (CTRL-V or V). This causes a menu listing the various paper types to be displayed so that the desired type may be selected.

2.1.3 ALTERNATE SCREEN POSITION INPUT

Alternate Screen Position Input is an advanced feature for ICEM DDN designed to remove some of the differences between running ICEM DDN interactively via a keyboard and running ICEM DDN by other methods, i.e., interactive MSTRINGs and MSTRINGs in GPL.

Alternate Screen Position Input adds a new function key to

2.0 VERSION 1.62 FEATURE REVIEW
2.1.3 ALTERNATE SCREEN POSITION INPUT

ICEM DDN. With this key, screen locations may be specified without the use of the graphics cursor. Specifying screen locations using Alternate Screen Position Input is done by prompting the user for the location in transform or model coordinates.

The function key for Alternate Screen Position Input is the 'I' key and may be included in MSTRING's just as other function key letters may be. The "I" key may also be selected when the graphics cursor is displayed in conjunction with prompts such as 'INDICATE ENTITY' and 'INDICATE POSITION'.

2.1.4 LOCAL ZOOM

As in Diagonal Screen Positions, Local Zoom permits the user to select the region to be zoomed by indicating the diagonal corners. Unlike Diagonal Screen Positions, Local Zoom displays the zoomed view with the terminal zooming capabilities, i.e., without a host repaint. Local Zoom is turned on and off through the Zoom menu (F.8.6.18). This feature only works on terminals which have the local display file enabled (Tektronix 4107, 4109, 4115, 4125 and the CDC 790 Workstation). A local zoom done through the ICEM DDN menus provides for correct mapping of the tablet to the screen. Zooming done only with the terminal function keys and not through ICEM DDN will not allow for this during selection. Local Zoom will automatically turn highlighting to blinking so that selected entities can be clearly distinguished whether or not the attention indicator location is within the zoomed region.

2.1.5 PATTERN MANAGEMENT

Pattern libraries will now contain no more than one drafting standard per pattern library. With 1.62, Pattern Update splits pre-1.62 patterns into separate libraries based on their drafting standards. Changes in pattern modals, pattern create, retrieve, list, and copy reflect and enforce this enhancement.

2.1.6 IPARTD ENHANCEMENTS

The enhancements in 1.62 preserve the user's environment when the part is saved on an IPARTD file. When the part is restored from IPARTD, the user environment is the same as it was when the part was saved in IPARTD.

2.0 VERSION 1.62 FEATURE REVIEW
2.1.6 IPARTD ENHANCEMENTS

The user environment includes:

* Viewing information
* General modals and fonts
* Advanced design modals
* Drafting modals
* Entity selection modals
* Viewing modals
* N/C modals

With this enhancement, the IPARTD save/restore is as complete as the Global Parts save/restore.

2.2 N/C FEATURES

2.2.1 LATHE ROUGHING REWRITE

Lathe Roughing is the machining operation for removing large amounts of material from a material blank or a rough casting. The cuts in the operation are straight parallel lace cuts (they do not follow the finish part contour). The user must specify the original material boundary as well as the final contour shape. The two new features in Lathe Roughing are variable offset and Generation Parameter Groups (GPG). Variable offset allows the contour geometry to be offset by different amounts in the X and Y directions. GPG allows the user to preset prompts in the user interface.

2.2.2 N/C TOOLPATH MACRO: PTVAL STATEMENT

This feature adds to the macro writer the ability to associate the x,y,z,i,j,k values of the current point or of a named point to local variables.

2.3 GPL FEATURES

2.3.1 MSTRNG/MSFILE

The MSTRNG statement enables the user to string through ICEM DDN menus beginning at the special functions menu, enter data if necessary and optionally return to the next statement following it in the executing GPL program. All mstrings

should begin with an 'F' to begin at the main menu, with the exception of mstrings intended for the special functions menu. Two definition forms give the user the options of specifying the menu string explicitly with the GPL program, or of specifying the name of an existing menu string which resides on a local file.

The MSFILE statement permits the user to change the name of the local, external file to be searched by all subsequent MSTRNG statements for the specified menu strings. An option for loading the original mstring filename into a GPL text variable is provided. This option allows the GPL program to reset the mstring file name before termination.

2.3.2 LATHE ROUGHING

GPL provides the capability to create Lathe Roughing toolpaths. This feature has been implemented by adding additional forms of the SETGPG and TLPATH statements. Inclusion of this feature within GPL, in combination with existing lathe commands, gives GPL a complete lathe machining functionality.

2.4 PART SHARING UTILITIES

The IPARTD translators and related utilities are required to exchange parts between NOS- and IWOS-based ICEM systems. The translators reformat the independent part file IPARTD from 16 to 60 bit representation and from 60 to 16 bit representation. These utilities enable ICEM DDN users to transfer part files to and from NOS via a communication link to the host mainframe.

2.4.1 IWOS UTILITIES

2.4.1.1 ICEM Design/Drafting Part File Formatter (FORMIPARTD)

This utility on the IWOS is accessible through the ICEM Host Part Sharing menu. It merges several single-part IPARTD part files into a multi-part file and formats that file for the ICEM DDN part file translator on NOS. The resulting output file may be sent to NOS via the file-to-file transfer or via magnetic tape medium.

Reversing the process, the part file formatter takes from NOS

a transmitted file containing multiple parts and separates it into individual IPARTD part files. Each separated part file is formatted and placed in IPARTD directory for ICEM DDN processing under IWOS.

2.4.1.2 File Transfer Utility

This utility is accessible through the ICEM Host Part Sharing menu. It allows the user to transfer a part file to and from NOS and allows the completion status of the file transfer process to be checked.

2.4.2 NOS UTILITIES

2.4.2.1 ICEM Design/Drafting Part File Translators

These utilities on NOS translate a part file from 16-bit IWOS machine representation to 60-bit NOS machine representation using the PFX1660 utility, and vice versa using the PFX6016 utility. These utilities may be controlled using ICEM Menus under IWOS.

The current version accepts V1.60 or V1.62 parts from NOS and translates them to V1.62 on the IWOS. Going the opposite direction it accepts V1.62 from IWOS and produces V1.62 parts on NOS.

2.4.2.2 File-to-File Transfer (XTRX170, XREC170)

This utility is used only if the NOS-IWOS connection is through the HASP protocol. It is supplied with IWOS 2.X, and is controlled through ICEM Menus. Both IPARTD files and text files may be transferred through these utilities.

3.0 COMPATIBILITIES

3.1 VERSION NUMBERS OF RELATED ICEM APPLICATIONS

In addition to ICEM DDN, the following Application Products under NOS 2 have been updated to release level 664. All products are compatible with ICEM DDN V1.62. Refer to the Software Availiblilty Bulletin for a brief description of new features/modifications included in each of the these products.

DRAM V1.1
HASCO V1.1
ICEM BEND V1.2
ICEM Engineering Data Library (EDL) V1.2.5
ICEM Facilities V1.4
ICEM Hydraulics V1.3
ICEM Kinematics V1.0
ICEM Plastimould V1.1
ICEM Solid Modeler V1.13
IGES Translators V2.2
LINCAGES V1.2
MOLDFLOW V4.0
MOLDSTAR V1.0

3.2 ICEM DDN UNDER IWOS

ICEM DDN under IWOS executes as an application software package on the Application Processor (AP) under the control of the ICEM Workstation Operating System (IWOS).

IWOS 2.X is a menu-driven operating system that includes the latest AOS/VS and associated software as well as ICEM menus and communications software.

The IWOS version of ICEM DDN is based on the NOS version. The IWOS and NOS implementations of ICEM DDN, while they are not identical, are compatible to the extent that they perform identical functions. In some cases, the user controls these functions in slightly different ways.

3.0 COMPATIBILITIES
3.2 ICEM DDN UNDER IWOS

For details on the differences between ICEM DDN on IWOS and ICEM DDN on NOS, refer to the ICEM DDN under IWOS 2.X SRB for Version 1.62.

4.0 INCOMPATIBILITIES, NOTES, AND CAUTIONS

There are no known incompatibilities between the latest version of any ICEM product and ICEM DDN under NOS.

4.1 GENERAL ICEM DDN SYSTEM NOTES AND CAUTIONS

4.1.1 DDN PART NAMES ON IWOS AND NOS

4.1.1.1 Using IWOS Host Part Sharing (ICEM MENUS)

(a) From NOS to IWOS

The IWOS part name is formed by the NOS part name characters 1-13 followed by a period, followed by the sheet number.

The IWOS description field is formed by 13 blanks followed by NOS part name characters 14-60. NOS part name characters 61-70 are not retained.

If in the NOS IPARTD file there are any parts where part name characters 1-13 and sheet numbers match, the last such part in the IPARTD file will be the ONLY part of among these duplicates that will be in the IPARTD directory on the IWOS. Duplicates are not translated. The user must look in the part sharing job log to check for possible problems.

(b) From IWOS to NOS

The NOS part name is formed by the IWOS part name characters 1-13 (not the IWOS IPARTD directory name), followed by the entire description field. The NOS sheet number is same as the IWOS sheet number.

DDN on the IWOS allows the user to specify a 31-character IPARTD file name for the part. These file names can be used on the IWOS to differentiate IPARTD parts, but these file names are ignored when the IPARTD parts are translated. The part will be translated using the IWOS

TAPE3 part name. This can lead to duplicate part names in the resulting NOS IPARTD file.

Duplicate part names are not overwritten. Once over to NOS, DDN will list all the IPARTD parts, but will restore only ONE of the duplicates for the user.

4.1.1.2 Manual use of utilities

These utilities are available on NOS and may be executed directly:

PFX6016
PFX1660

(a) From NOS to IWOS

The default IWOS part name construction is the same as when these utilitites are executed on the IWOS.

The user may supply an alternative to the default IWOS part name for each NOS part. The user-supplied IWOS part name may be up to 31 characters long. This allows users to avoid the IWOS problem of losing duplicate parts.

(b) From the IWOS to NOS

The default is the same as when these utilitites are executed on the IWOS.

Duplicate part names are not overwritten. Once over to NOS, DDN will list all the IPARTD parts, but will only restore one of the duplicates for the user.

The user may supply an alternative to the default IWOS part name for each IWOS part that is recognized by the translator. The user-supplied NOS part name may be up to 70 characters long. This allows users to avoid the IWOS problem of creating duplicate parts in the resulting NOS IPARTD file.

4.1.2 UNDOCUMENTED PATTERN UPDATE FEATURES

When updating 1.60 pattern libraries, DDN separates patterns by drafting standard and creates a new pattern library for each available drafting standard. DDN will allow you to replace the old library with the new library.

If you choose to update the patterns, the system displays the following prompt:

ENTER NAME FOR NEW type LIBRARY

where 'type' is the desired drafting standard (omitted if
no drafting standard)

If you enter the same name as the original library, the system displays:

REPLACE OLD LIBRARY WITH NEW LIBRARY?

Enter:

Y To replace the old library with the updated library.

N To avoid replacing the old library with the new library
The system again prompts with:

ENTER NAME FOR NEW type LIBRARY

(Note: Y can be entered for only one drafting standard. If it is entered a second time the following will be displayed:

YOU CAN NOT HAVE TWO LIBRARIES
WITH THE SAME NAME

If some patterns cannot be updated, the system will display a message:

UPDATE FINISHED
nn PATTERNS UNABLE TO UPDATE

If an error occurs and update replaces the old library with the new library the system will display the following:

ERRORS OCCURED DURING UPDATE

SAVE THE OLD LIBRARY?

Enter :

Y To copy the old library to a new file

N To avoid saving any old patterns

If you enterd Y to save the old library the system displays:

ENTER NEW NAME FOR OLD LIBRARY

If a file with this name already exists, the system displays:

A FILE WITH THIS NAME ALREADY EXISTS

The system then prompts you for an alternative pattern library name:

ENTER NEW NAME FOR OLD LIBRARY

The old library will be saved under the new name.

4.1.3 MSTRNG COMMAND IN GPL

1. Upon entering DDN under the NOS operating system, the menu string file (default name MSTRING) will not be local unless the tablet is turned on. Therefore, an MSFILE command should proceed the first occurrence of MSTRNG/NAME,'msname' in your GPL program. This will insure that the menu string file is made local before any attempt to read a menu string.

2. A GPL program should not be entered thru an MSTRNG menu string. If a menu string does execute a GPL program, control cannot be returned to the original GPL program.

3. Each lower case character in the MSTRNG menu string counts as 2 characters toward the 127 character limit for menu strings defined explicitly within GPL.

4.1.4 MSTRING WITH ALTERNATE SCREEN POSITION INPUT

1. When using Alternate Screen Position Input with an MSTRING, you must not begin any line of a multiple-line MSTRING with the 'I' character.

   Sample MSTRING:

   ```
   F.16.10.I.1.t5t.t5]t.tTHIS IS A NOTE]t
   ```

   Incorrect multi-line representation:

   ```
   F.16.10
   I.1.t5t.t5]t.tTHIS IS A NOTE]t
   ```

   Correct multi-line representation:

   ```
   F.16.10.I.1
   t5t.t5]t.tTHIS IS A NOTE]t
   ```

2. ICEM DDN ignores the default entity selection method (see F.1.11.10) when executing MSTRINGs. The desired selection method must be specified each time selection is invoked. For example, the drafting note created above can be deleted by screen select through Alternate Screen Position Input with the following MSTRING:

   ```
   F.3.1.1.I.1.t5.0t.t5.0]t
   ```

3. The Definition Space modal (1.15.2) does not affect Alternate Screen Position Input. You must ALWAYS choose model or transform space for each MSTRING.

5.0 MANUAL CORRECTIONS

5.1 DESIGN DRAFTING DATA MANAGEMENT MANUAL

1. PATTERN UPDATE: Refer to the General ICEM DDN Notes and Cautions section for details on this manual change.

2. The attached sheets at the end of this section should be added to the ICEM DDN Data Management Manual as Appendix D.

5.2 N/C MANUAL

1. Page 6-16, Final Depth Calculation, PT to PT

   Explanation of error messages is missing. Refer to lathe drilling for explanation.

2. Page 6-18, GPG Statement

   Append the following text to the end of this page.

   If the desired countersink diameter is larger than the diameter of the tool being used, you receive the following message:

   TOOL DIAMETER IS TOO SMALL

   The system then returns to the Tool Motion Control menu.

   If the pilot hole is too large to allow the defined countersink operation to occur, the following prompt is displayed:

   PILOT HOLE TOO LARGE

   The system then returns to the Tool Motion Control menu.

3. Page 9-3, Editor Modals

   Change '2.COOLANT' to '2.COOLANT MODE.'

4. Page 9-15, Editor Modals

   Menu items 2 and 3 should read:

```
        .
   2.TEXT LOCATION AREA        GRAPHICS
   3.TOOL DISPLAY INCREMENT    N POINTS
        .
        .
```

5. Page 14-2, Surface Milling

   Menu heading should read 'TOOL AXIS CONTROL.'

6. Page 15-2, 5-Axis Swarf Cutting

   Change '2.KEY-IN' to '2.ENTER COORDINATES' under Entry/Retract. Add '3.EXISTING POINT'.

7. Page 15-4, 5-Axis Swarf Cutting

   After text for option 4, add 'You will then proceed to the INDICATE TOOL TIP prompt.'

8. Page 17-1, Lathe

   Paragraph 4, last sentence should read: 'The available operations are roughing, contouring, drilling ,and threading.'

9. Page 17-9, Modify Generation Parameters

   First sentence: Change 'lathe drilling' to 'lathe roughing.'

10. Page 17-14, Modify Generation Parameters

    Menu item 7 should read 'FROM AND RAPTO.'

11. Page 17-21, Modify Generation Parameters

    Change 'RAPTO...' to 'RAPTO SETPOINT.'

12. Page 17-24, Threading

Change 'TOOL APPROACH, FINISH, AND RETRACT MODES' to 'THREAD ANGLES AND CENTERLINE.'

In the second column, replace the first sentence with 'Specify the approach, finish, retract, and clearance angles.

13. Page 17-24, Threading

Change 'TOOL ANG' to 'ANGLES.'

'PRE-GEN INSERTS' prompt missing at the end.

APPENDIX D [NOS DATA MGMT MANUAL]

PART SHARING VIA MAGNETIC TAPE BETWEEN CYBER 120 AND 170

Parts created on the CYBER 120 may be used on the CYBER 170, and parts created on the CYBER 170 may be used on the CYBER 120. Because of differences in (1) naming conventions, (2) file structure and (3) data format between the CYBER 120 and the CYBER 170, a part file from one type of system must be processed to translate each of these differing characteristics before it can be used by the other.

When a CYBER 120 and a CYBER 170 are connected by data communication, you can use RHF/X.25 or HAMLET to move parts between systems. By selecting Part Sharing under ICEM menus on the CYBER 120, you can specify the source and destination file names, and all of the translation and file transfer operations are performed automatically.

When there is no wire connection between systems, the most convenient way to share parts is by magnetic tape. This appendix describes the operations a CYBER 170 user must perform to (1) prepare a parts tape on the 170 for use on a CYBER 120; and (2) process parts data from a 120 parts tape and move it to the 170 parts data base. A summary of the operations performed by the 120 user is included as an aid to understanding the process.

PREPARING A PARTS TAPE ON THE CYBER 170 FOR USE ON THE CYBER 120

To prepare a series of parts for use on a different model CYBER system, you first save each of them from within ICEM DDN, using 6.1.9.IPARTD MANAGEMENT, to create a system-independent version of the part file. Next, you convert the CYBER 170 data format of the file to CYBER 120 format using a program called PFX6016.

PFX6016's output is a disk file. The final step is to create a magnetic tape that contains the data from the PFX6016 output file.

Making an IPARTD File

Start DDN in the normal manner. Specify the name of the first part you want to put on the tape. When it has loaded, select 6.1.9.IPARTD MANAGEMENT, and save the part. Repeat the process for each of the parts you want to put on the tape.

Converting to CYBER 120 Data Format

To run PFX6016, use the following commands at the NOS prompt (/ or READY):

```
ATTACH,PFX6016
PFX6016,fn1,fn2,fn3,T,0,maxerr
```

fn1 is the name of the CYBER 170 IPARTD file to be translated. If you do not specify a name, the program looks for IPARTD.

fn2 is the name of the translator CYBER 120 format output file. If you don't specify a name, it will be named IPD120.

fn3 is the name of the file where diagnostic messages will be written. If you do not specify a name, it will be named OUTPUT.

maxerr is the maximum number of diagnostic messages to be written in fn3. If you do not specify a number, the maximum is 100.

The program displays the following messages:

ICEM DDN PART FILE TRANSLATOR (CYBER-170 TO CYBER-120)

PROCESSING: part name
SHEET NO: sheet number

NON-FATAL ERRORS = number
FATAL ERRORS = number

Table E-1 shows the error messages for PFX6016 and PFX1660.

Writing a Tape

To write the information in the PFX6016 output file to tape, use the following commands at the NOS prompt (/ or READY):

```
RESOURC,PE=1.
LABEL,MTAPE,D=1600,F=S,LB=KU,VSN=vsnlist,PO=W.
COPY,I=fn,O=MTAPE,TC=EOF,BS=256,PO=R.
```

vsnlist is the volume serial number or numbers you assign to identify the tape. If you are preparing a multi-volume tape, separate the volume serial numbers with '/'.

fn is the name of the output disk file from PFX6016, IPD120 or the name you specified above.

You have created a tape that can be used on the CYBER 120. the following information on how the data is further

processed at the CYBER 120 site is intended to help you understand the whole process.

FURTHER PROCESSING AT THE CYBER 120 SITE

Two characteristics of the parts file must be changed at the CYBER 120 site before the parts on the tape can be used by ICEM DDN. (1) The IPARTD file format must be changed from one part per record (multiple parts per file) to one part per file as required by the CYBER 120 version of ICEM DDN.

(2) The file names and/or part names must be changed to accommodate the differences in name lengths allowed on the two systems. One program called FORMIPARTD, running on the CYBER 120, does both jobs.

Converting the IPARTD File

To convert an IPARTD file from CYBER 170 to CYBER 120 format, you use FORMIPARTD to split the IPARTD file into multiple, single-part files. At the same time, FORMIPARTD converts CYBER 170 70-character part names to CYBER 120 31-character part names, which become the individual IPARTD file names.

You will find detailed instructions for converting CYBER 170 IPARTD files to CYBER 120 format in the ICEM DDN DATA MANAGEMENT FOR AOS/VS Reference Manual.

PROCESSING AN INCOMING CYBER 120 IPARTD TAPE

An IPARTD tape received from a 120 site has already been converted so that there are multiple parts per file, one part per record. There are three steps remaining. First, you read the tape into the system. Next, you convert the CYBER 120 data format of the file to CYBER 170 data format using a program called PFX1660. Finally, you restore the part from a CYBER 170 IPARTD file into your workspace using 6.1.9.IPARTD MANAGEMENT. From there, you can save the part on TAPE3, or perform any other ICEM DDN operation on it.

Reading an Incoming IPARTD Tape

To read a CYBER 120 IPARTD tape, use the following commands at the NOS prompt (/ or READY):

```
RESOURC,PE=1.
LABEL,MTAPE,D=1600,F=S,LB=KU,PO=R.
COPY,I=MTAPE,O=fn,TC=EOF,BS=256.
REWIND,fn.
PACK,fn.
```

fn is the disk filename into which you want the data from the tape to be copied. You can save some keystrokes later by naming it "IPD120".

Converting to CYBER 170 Data Format

To run PFX1660, use the following commands at the NOS prompt (/ or READY):

```
ATTACH,PFX1660
PFX1660,fn1,fn2,fn3,T,0,maxerr
```

fn1 is the disk filename you specified above. If you do not specify a name, the program looks for "IPD120".

fn2 is the name of the output file to be produced by PFX1660. If you don't specify a name, it will be named "IPARTD".

fn3 is the name of the file where diagnostic messages will be written. If you do not specify a name, it will be named OUTPUT.

maxerr is the maximum number of diagnostic messages to be written in fn3. If you do not specify a number, the maximum is 100.

The program displays the following messages:

```
ICEM DDN PART FILE TRANSLATOR (CYBER-120 TO CYBER-170)

PROCESSING:   part name
SHEET NO:  sheet number

NON-FATAL ERRORS = number
FATAL ERRORS = number
```

Table E-1 shows the error messages for PFX6016 and PFX1660.

You now have a file called "IPARTD" or the name you specified above. The file is in the proper form to be read by ICEM DDN using 6.1.9.IPARTD MANAGEMENT.

Table D-1. PFX1660, PFX6016 ERROR MESSAGES

Entity Description Information (Pertains only to messages which reference a particular entity)	Error Message	Meaning	Non-fatal	Fatal to Part Translation	Fatal to Entity Translation	Fatal to File Translation
	INPUT V... NOT SUPPORTED	Part creation version not supported by PFX6016 or PFX1660.		X		
	DIRECTORY OVERFLOW	This message can only appear when executing PFX1660. It indicates that more than 91 parts are in the IPARTD file.				X
	UNRECOGNIZED IPARTD FILE	This message can only appear when executing PFX6016. It indicates the IPARTD file does not have a directory (the file to be translated is not of an IPARTD format).				X
PART SPECIFICATIONS, TAB1,TAB2,TAB3 or TAB4	UNRECOGNIZED RECORD	Incorrect record length.		X		
PART SPECIFICATIONS, TAB1, or TAB2	INT= integer value (decimal)	This message can only appear for PFX6016. Integer too large to translate to 16-bits. (Value set to 32,767 or -32,768.)	X			
PART SPECIFICATIONS, or TAB2	CHAR= 2-digit hexadecimal code	This message can only appear for PFX1660. Character code does not exist in CYBER 170 6-bit character code representation. Question mark (?) is substituted for character.	X			
TAB3 or TAB4	REAL= real value (decimal)	Either absolute value is greater than $(1-16^{-6})x16^{63}$ or absolute value is less than 16^{-65}. Causes absolute value to be set to $(1-16^{-6})16^{65}$ or 16^{-63}.	X			
TAB2 SEQ=entity seq. no. TYPE=entity type code FORM=entity form (Method used to create entity. For example, polar coordinates is an entity form for the entity type, point)	UNDEFINED ENTITY TYPE	Entity type is not one of those listed in figure 2-1.			X	
TAB2 SEQ=entity seq. no. TYPE=entity type FORM=entity form	UNDEFINED ENTITY FORM	Unacceptable form for this entity.			X	
TAB2 SEQ=entity seq. no. TYPE=entity type FORM=entity form	NOT SUPPORTED IN TARGET SYSTEM	Not currently supported.				X
TAB2 SEQ=entity seq. no. TYPE=entity type FORM=entity form	RECORD TOO LONG	The translated TAB2 record is greater than 512 words.				X

6.0 PSR/RSE

6.1 PSRS CORRECTED IN THIS RELEASE

THIS SECTION CONTAINS A LIST OF PROBLEMS RESOLVED IN V1.62.

PRIORITY CODE: C = CRITICAL
U = URGENT
S = SERIOUS
M = MINOR

PSR NUMBER	PRI	PROBLEM EXTRACT
AD2A275	M	(7.1) TOOL PATHS SWITCHED FOR TWO VIEW DISPLAY
AD2A451	U	*SMALL CIRCLES CAUSE CIRCLE RECORD PROBLEMS IN CLFILE.
AD2A476	U	(06.06) CY120-CY270 CAN'T SHARE PARTS CONTAINING FORMAT VIEW.
AD2A482	M	(TERMINAL) 4114/ADM3 THE < AND > MARKS GET INCREMENTED TO THE RIGHT
AD2A483	M	(6.1) PARTS WITH THREE AND FOUR DIGIT SHEET NUMBERS OVERPRINT.
AD2A526	M	(12.3.6) AT INDICATE PT. FOR RHO -- OP REJECT WONT BACK YOU OUT.
AD2A529	M	(6.5.4) OP.REJECT BOUNCES TOO FAR
AD2A586	M	NO RESCALE WHEN DISPLAYING ENTITIES WITH ATTENTION ON
AD2A602	S	RHO AND LOFT CONICS CANNOT BE CONSTRUCTED UNDER PRESENT CODE
AD2A629	S	SURFACES NOT BEING BLANKED WHEN CREATING COMPOSITE SURF
AD2A635	C	GET ERROR MESSAGE IN ROUGHING IN LATHE
AD2A637	U	TRIM TWO ENDS WITH SPLINE AS BOUNDARY FAILS
AD2A659	S	6.1.10 IPARTD RETRIEVE LOSES SELECTIVE VIEW BLANK INFO
AD2A694	M	LABEL USING SLOPE METHOD POINTS TO THIN AIR
AD2A720	S	A CHECK CURVE LOCATED AT THE END OF AN ENTITY IS
AD2A721	S	IN LATHE ROUGHING, THE FACING OPTION IGNORES THE VALUE
AD2A733	M	PLOT COMPLETE MESSAGE DISPLAY WHEN EXIT WITH NO PLOT
AD2A735	S	COORDINATES OF A TEMPLATE IN A MERGED PART ARE NOT ALWAYS CORRECT
AD2A742	S	SURFACE PIERCE POINT FAILS ON A HALF SPHERE
AD2A743	M	IN OFFSET CURVE, OFFSET DISTANCE DATA REQ SHOULD BE SPELLED OUT
AD2A758	M	DUAL DIMENSION TEXT BRACKETS ARE MISPLACED ON THE RIGHT
AD2A759	M	SMALL FRACTIONAL TOLERANCES ARE BLANK, SHOULD READ ZERO
AD2A762	C	UAE IN INCREMENTAL POINTS
AD2A772	S	[AND] AREN'T HANDLED PROPERLY IN ATTRIBUTE REPORTS
AD2A777	C	3D ANALYSIS RESULTS INCORRECT
AD2A781	M	ATTENTION INDICATOR FROM THE BEGINNING OF STRING REMAINS

6.0 PSR/RSE
6.1 PSRS CORRECTED IN THIS RELEASE

AD2A793	C	9-DRILL. INCORRECT PULLOUT FEEDRATE WHEN MODIFIED IN GPG
AD2A794	C	9-CONT. INCORRECT TOOLPATH WHEN ALL GPG VALUES ARE MODIFIED
AD2A795	C	CONTOURING MODIFY GPG- TOOLSIDE COORDS LOST
AD2A799	C	TEXT DISPLAY IN DIALOG AREA AND DYNAMIC TOOL DISPLAY GIVE ERROR
AD2A800	S	IN COMMAND MODE, MATRIX COPY FROM FILE AND TOOLPATH FAILS
AD2A801	S	MACROS USING A LITERAL STRING INSIDE OF AN IF STATEMENT
AD2A803	S	SYS-AID CALLED IN 3-D ANALYSIS (18.4.1.1)
AD2A804	U	GPL BULK STATEMENT WILL NOT EXECUTE
AD2A816	C	SURFACE MILLING OF SOME CURVE MESH SURFACES - UNDEFINED ADR.
AD2A819	C	'DEPTH','DRIVE','TO' & 'LACE' W/ISLAND CAUSES 'GOTOER='.
AD2A820	C	'VIEW NORMAL', 'STOP', 'ON' W/WAVY SURF. - UND. ADD. EN C.
AD2A821	C	SEVERAL INSTANCES OF SURFACE MILLING FAILING.
AD2A822	C	MODIFY SCALLOP HT GIVE SYSTEM ERROR MESSAGE.
AD2A831	U	SURFACE MILLING OF A CURVE MESH WITH CONTAINMENT FAILS.
AD2A832	S	REPLACE DOES NOT WORK WITH CIRCLE STATEMENTS
AD2A843	C	TEXT DISPLAY IN DIALOG AREA AND DYNAMIC TL DISP GIVE ERROR
AD2A846	U	5- AXIS SWARF CUTTING HAS REGRESSED--BAD TOOLPATH S.
AD2A847	U	'CSINK TO DEPTH' ISN'T CALCULATED CORRECTLY.
AD2A852	U	F.9.17 FAN POINTS RESULT IN U.A.E.
AD2A853	S	CL FILE INTERPRETATION OF INTOL AND OUTTOL ARE INCORRECT FOR LATHE CON
AD2A856	U	GPG ERROR IN LATHE DRILLING
AD2A858	U	GPG ERROR IN LATHE DRILLING
AD2A859	S	INTERPRETTING CLFILES OTHER THAN APTIV MESSES UP 'PRINT' STATEMENTS.
AD2A863	S	BAD 'GPL' TOOLPATH IF TOOLS ARE DEFINED AT DIFFERENT TIMES.
AD2A864	U	GPL HANGS WHEN TRYING TO BLANK TOOLPATH AFTER 'PAUSE'
AD2A865	S	GPL DOESN'T DELETE A TOOLPATH
AD2A866	S	GPL DOESN'T NAME TOOLPATH IF 'ASSIGN' FOLLOWS A 'QUERY' STATEMENT
AD2A871	C	RESULTS FOR 2-D ANALYSIS (SELECTION 6,7,8) DEPENDENT ON SELECTION
AD2A872	S	CONTROL D ON A PROJECTED SURFACE CAUSES U.A.E.
AD2A875	S	THE MACRO 'IF' (EQ.) STATEMENT DOESN'T EVALUATE CORRECTLY
AD2A949	M	CAN'T DELETE COMMON PATTERN FILES, ACL WRONG.
AD22258	M	SCREEN BLANKS ON 4114 TERMINAL WHEN CREATING A PRINTR FILE IN CLFILE
AD22365	U	1.53 PROBLEM WITH DETAIL MAGNIFICATION
AD22394	C	7.10 BULKIN INPUT DOESN'T ACCEPT TEXT ANGLES ANY MORE, WRITES.
AD22535	S	F.10.9 LINE THROUGH POINT-PERPTO LINE CREATES A LINE OF 0 LENGTH.
AD22579	U	ENTITY DRAGGING
AD22671	U	SPLINE ANALYSIS PRINTOUT IS INCONSISTENT
AD22718	S	OFFSET CURVE (12.2.1) INCORRECT WITH TRANSLATED "OFFSET 2D SPLINE"
AD22772	M	DIMENSION TEXT ANSI 73 AUTO DIMENSION
AD22787	U	MODIFY TEXT-METRIC UNITS
AD22795	M	EDLLOG IS INCORRECTLY UPDATED WHEN GLOBAL PARTS RESTORE IS USED
AD22801	U	DDN: DETAIL MAGNIFICATION
AD22802	M	CONSTRAINT SETS
AD22809	C	MODE, SYS=1ST CALLED, AND GOTOER ERRORS.
AD22811	S	PROBLEM WITH 4125 AND 4957 TABLET
AD22816	C	2D OFFSET SPLINE IS SOMETIMES WRONG
AD22824	C	SLOW PATTERN RETRIEVAL OF 1.6 PATTERNS
AD22826	C	TAPE 3I PART HAS 420 VIEWS, ARC CAN'T MERGE TO RENEW.
AD22828	S	DIMENSIONS WITH LAST CHARACTER X ARE FOLLOWED BY A COLON X:

6.0 PSR/RSE
6.1 PSRS CORRECTED IN THIS RELEASE

AD22830	U	GEOMETRY TOL FRAME DOES NOT POINT TO ENTITY IN VIEWS OTHER THEN #1
AD22855	S	POINT TO POINT
AD22905	C	CAN'T RETRIEVE ALL PARTS FROM IPARTD FILE.
AD22911	S	F.7.2.1 AFTER PLOT ENTIRE PART, ENTITIES DISAPPEAR FROM PART.
AD22912	C	RESTORE MORE THAN 8 PARTS FROM A GPARTS FILE CREATES A TRASHED EDL LOG
AD22913	C	RESTORING PARTS FROM A GPART FILE WRITES OUT AN INCORRECT EDL LOG
AD22960	C	UNABLE TO CREATE POINTS ON AN INTERSECTING CURVE.
AD22976	C	(19.2) RESIZE DOES NOT CONVERT DIMENSION TEXT ON DWGS FROM DDN 1.5X
AD22978	C	IPARTD FILE IS NOT CREATED CORRECTLY.
AD22993	S	F.7.2.1 MODE ERROR ON "PLOT ENTIRE PART"
AD23025	C	N/C VERIFY (F.17.11.4.9.3) ABORTS ICEM-DDN
AD23027	U	DRILLING (F.17.9.3)
AD23069	C	DDN WRITES TO EDLLOG EACH TIME AN MSTRING IS CALLED FROM A USER PAGE
AD23076	C	IPARTD RESTORE FAILS
AD23079	S	ZOOM NEW CENTER (F.8.6.2) / PLOTTING PROBLEM
AD20826	S	(17.6/7.1) WRONG DIRECTION FOR CLFILE TOOL AXIS VECTOR
AD20912	S	NC LATHE ROUGHING FACE CUT ORIGIN IS AMBIGUOUS
AD21174	U	PROGRAM STOPS ACCEPTING SCREEN POSITIONS
AD21198	U	LATHE ROUGH BORE PLACES ROUGH STOCK OFFSET ON WRONG SIDE (1.49X)
AD21203	U	BAD CLFILE OUTPUT OF AN ABSOLUTE TOOLPATH DATA BLOCK(1.49X)
AD21275	C	FSE
AD21479	M	INABILITY TO USE TEMPLATES IN DATABASE SAVES AND RESTORES
AD21482	S	LATHE ROUGH FACING OFTEN FAIL
AD21488	U	TEKTRONIX 4115 DISPLAY CHARACTER SIZE IS CHANGED WHEN CD2000 IS EXITED
AD21597	U	(16.16)NEED MORE THAN 8 CHARACTER CAPACITY FOR DATUM
AD21780	U	(KEY IN NAME)ENHANCE 70 CHARACTER PART NAME
AD22016	M	"DELETE LAST ENTITY" SQUARE SHOULD BE MOVED
AD22017	S	SQUARE FOR TURNING Z-CLIP OFF
AD22052	U	(F.17.9) ICEM N/C LATHE FINISH STOCK
AD22085	S	NO CIRCLE RECORD OUTPUTTED FOR LATHE ROUGHING
AD22266	U	CANNOT GENERATE ROUGH LATHE TOOLPATH WITH .03 RAD AND DEPTH OF CUT .02
AD22300	U	BLANKED ENTITIES TRANSLATED/CHANGED LEVEL BY DUPL/TRANS OTHER ENTITIES
AD22303	C	SCREEN SELECT IS PICKING BLANKED ENTITIES NOT ELIGIBLE IN CURRENT TASK
AD22314	C	2-D OFFSET OF A 2-D SPLINE
AD22321	U	ON 63-CHARACTER SET SYSTEM, A PERCENT SIGN IS CONVERTED TO A COLON
AD22402	S	THE USE OF CONTROL CHARACTERS
AD22467	S	F.10.9 THROUGH POINT PERPENDICULAR TO LINE
AD22471	C	6.1.7 CHANGING SCALE AND ORIGIN ON PART MERGE DOES NOT WORK
AD22491	U	UNDEFINED ADDRESS ENCOUNTERED PROBLEM
AD22600	U	ICEMDDN CROSSHATCHING IMPOSSIBLE OPEN BOUNDARY BUG.
AD22630	C	SUSPEND FEATURE CUASES BAD IPARTD, HANGS PROBLEM
AD22635	S	F.6.1.11 PART INTEGRITY CHECK/RENEW CAUSES MORE ERRORS 2/17/86
AD22663	U	INTERPRET CLFILE WILL NOT WORK IF THE FILE CONTAINS MULTAX/ON
AD22664	U	CLFILE TRUNCATES POSTPROCESSOR STATEMENTS

6.0 PSR/RSE
6.1 PSRS CORRECTED IN THIS RELEASE

AD22667	U	REPLACE STRING IN NC EDITOR DOES NOT REPLACE A NEGATIVE VALUE
AD22668	S	CAN NOT RAISE A NEGATIVE NUMBER TO A POWER IN TOOLPATH MACRO
AD22669	S	SAVE VARIABLES IN TOOLPATH MACRO VARIABLES HAVE COLONS IN RTL
AD22690	S	FILING OUT OF DDN V1.60 INITIATES A NEW SESSION
AD22702	U	EXTENSION LINES BECOME UNMODIFIABLE 16.13.11
AD22722	U	INTERPRET CLFILE DOES NOT WORK ON MANY APT CLFILES
AD22726	S	NC TOOL IMAGE WILL NOT DISPLAY IF (.) IS PART OF EDITED TOOL NAME
AD22728	S	WRONG ANSWER FOR FIRST MOMENTS OF INERTIA CALCULATIONS
AD22729	S	WRONG ANSWER FOR MOMENT OF CENTRIFUGAL
AD22730	S	WRONG ANSWER FOR MAIN AXES OF INERTIA
AD22746	C	MIXING OF TOOLPATH TYPES
AD22771	M	METRIC AUTO DIMENSION TOLERANCE AND LIMITS
AD22779	C	REFER TO PSR AD22775
AD22781	C	SEE THE JUSTIFICATION
AD22788	U	NCPLIB FILE CAN NOT HAVE /JOB /USER /CHARGE COMMANDS IN THE JOB
AD22819	C	GPL NC LATHE PATH FAILS IF PRECEDED BY TEXT ENTITY
AD22820	C	GPL NC LATHE PATH MAY FAIL TO USE ALL SPECIFIED GEOMETRY
AD22823	C	HORIZ/VERT DIM ENDING EITH 'X' DOES NOT DISPLAY CORRECTLY
AD22831	S	NC GPG WARNING: INTOL/OUTTOL RESULTS IN 0.0 AND BAD TOOL PATH OCCUR.
AD22861	C	INTERSECTION CURVES

6.2 RSES INCLUDED IN THIS RELEASE

THIS SECTION CONTAINS A LIST OF FEATURE ENHANCEMENTS FOR V1.62.

PRIORITY CODE:

U = URGENT
S = SERIOUS
M = MINOR

PSR NUMBER	PRI	PROBLEM EXTRACT
AD21419	S	TEKTRONIX 4115 LOCAL ZOOM SUPPORT
AD22776	U	UNABLE TO RESTORE IPARTD FILES
AD22833	U	ENTITY SELECT ATTENTION MARKS ARE VERY POOR FOR SURFACE TOOL PATHS

6.0 PSR/RSE
6.3 NEW PSRS OPENED WITH THIS RELEASE

6.3 NEW PSRS OPENED WITH THIS RELEASE

THIS SECTION CONTAINS A LIST OF NEW PROBLEMS IN V1.62.

PRIORITY CODE: C = CRITICAL
U = URGENT
S = SERIOUS
M = MINOR

PSR NUMBER	PRI	PROBLEM EXTRACT
AD2A950	S	POCKET DOES NOT COLLAPSE IF CHAIN SELECT NOT RIGHT
AD2A951	U	CAN'T READ COMMON ARRAY USING GPL SYSTEM COMMAND
AD2A952	S	INSERT WITH DOLLAR SIGN FOR CONTINUE FAILS
AD2A953	U	MACRO COPY IS NOT SAVED FOR CLFILE GENERATION
AD2A954	S	LABEL LEADER LINE POSITION
AD2A955	S	BAD THICKNESS DIM. BETWEEN FILLETS
AD2A956	U	SYSTEM COMMAND IN GPL WON'T READ TAB1 INFO.
AD2A957	S	COMPILER DOESN'T CHECK FOR CORRECT FORMAT
AD2A958	S	GPL TAB3 INFORMATION IS DIFFERENT THAN INTERACTIVE
AD2A959	M	GROUP UNBLANK DOESN'T APPEAR UNTIL AFTER A REPAINT
AD2A960	S	PRINTOUT FOR 5.6.7 IS INCONSISTENT WITH REF MANUAL
AD2A961	M	SUB-ATTR NAME # INCREMENTS INCORRECTLY IN
AD2A962	S	SSI-FAILS TO FIND COMPLETE INTERSECTION
AD2A963	S	STATEMENT...INSERT/' [###]' DOESN'T WORK USING ED.
AD2A964	S	LIST OF CONSTRAINT SET GIVES WRONG INFORMATION
AD2A965	M	CONSTRAINT LISTING SAYS INCLUDE INSTEAD OF EXCLUDE
AD2A966	U	STRETCH WINDOW-RESIZE DOESN'T GIVE CORRECT
AD2A967	S	STRETCH WINDOW-MOVE MOVES THE PART TOO FAR
AD2A968	U	ELLIPSE EVAULATION HANGS IN A LOOP
AD2A969	U	.AND., .OR., .NOT., ILLEGAL CODING PRACTICES
AD2A971	M	FILLET TO 4 LINES ONLY CREATES 3 ARCS
AD2A972	M	HOST REPAINT REQD TO RESTORE ENTITY COLORS
AD2A973	S	TRIM TWO CURVES AT INTERS. DOES NOT ALWAYS WORK
AD2A974	M	INDICATORS FOR 'WORK VIEW' DO NOT DISAPPEAR
AD2A975	M	HOST REPAINT REQD AFTER REDEFINING TEMPLATE MASTER
AD2A976	S	HOST REPAINT REQD AFTER SELECTIVE VIEW BLANKING
AD2A977	U	PATTERNS NOT RETRIEVABLE ON FORMAT VIEW
AD2A978	M	REGION OUT SELECT OF GROUPED ENT. DOES NOT WORK
AD2A980	S	BLANK-SELECT DOES NOT BLANK ALL ENTITIES ON IEW
AD2A981	S	GENERAL CONIC HAS INCORRECT TAB DATA
AD2A982	U	DELETE LAST ENTITY LEAVES ISO DRAFTING ENT ON SCRN
AD2A987	U	MSTRING-MULTIPLE LINED MSTRING FAILS
AD2A988	S	USING A CIRCLE FOR CLOSED BOUNDARY FAILS IN SURF M

6.0 PSR/RSE
6.3 NEW PSRS OPENED WITH THIS RELEASE

AD2A991	S	ROUGHING - FOLLOW CONTOUR OPTION REPEATS CUTS
AD2A992	C	EDGE INTERSECTION NOT FOUND.
AD2A993	C	INTERSECTION CURVE NOT USABLE
AD2A994	U	DIFFICULTY FINDING INTERSECTION CURVE.
AD2A995	S	NO START SI FOUND WHEN SURFACES CLEARLY INTERSECT
AD2A996	M	EDLLOG DOES NOT KNOW ABOUT MOLDCOOL FILES
AD2A997	U	NO RETRACT ON 5 AXIS 2 SURF. PROFILE
AD2A998	U	WRONG START AND INCOMPLETE PATH 2 SURF. PROF.
AD2A999	U	INITIAL CLEARANCE MOVE GOUGES PART
AD2B001	U	UAE DISPLAYED WHEN SELECTING CONTAINMENT.
AD2B002	U	CONTAINMEN T OFF SURFACE ABORTS TO MAIN MENU.
AD2B003	U	MODIFIED SIDE STOCK VALUES CORRUPTEED TOLOLPATH.
AD2B004	C	NEW ATTRIBUTES DEFINED CLOBBERS OLD ONES ON FILE.
AD2B005	U	ASPI ALLOWS LOWER CASE NOTES WITHOUT TILDAS
AD2B006	S	GRAPL ATTRIBUTE MANAGEMENT
AD2B007	S	CAN'T FIND INTERSECTION PT. BETWEEN SPLINE &
AD2B008	S	FAN POINTS NEED REPAINT TO BE DISPLAYED
AD2B010	U	MACHINE CURVES DO NOT ALWAYS TRIM PROPERLY.
AD2B011	U	IPARTD DOESN'T SAVE CHAR. SET AND LEVEL TABLES.
AD2B012	M	GPG ACCEPTS NUMBER WHEN DEFINING
AD2B013	M	FILLET ON WRONG SIDE OF LINES
AD2B014	U	PROFILE FAILS WITH INTOL/OUTTOL .00002
AD2B015	M	ARC ROUTINE PICKS UP RADIUS VALUE FROM OTHER MENU
AD2B016	M	POCKET NONE ON PRE-GEN INSERTS-GET THEM ANYWAY
AD2B017	U	CLFILE - COMMENTS IN EDITOR CAUSE ERROR IN CLFILE
AD2B019	S	CERTAIN PREGEN INSERTS CAUSE ERROR SEE DAYFILE
AD2B020	C	SWARF CUT DOESN'T MACH.SURF.COMPLETELY ON NOS/AOS.
AD2B029	U	WRITE ON READ ONLY GPG FILE CAUSES ERROR
AD2B030	U	CONTAINMENT - GOTO POINTS NOT TANGENT TO LINE
AD2B031	U	MANAGE FILES TURNS OFF TABLET WHEN RESTARTED
AD2B036	U	FAN POINTS ON ELLIPSE INCORRECT
AD2B038	U	SELECTED PROFILE CAUSES ERROR AND MENU LOCK UP
AD2B055	M	ATTENTION INDICS GOTO STORAGE ON T4114
AD2B056	U	EA PERIMETER CALCULATION ERRORS
AD2B059	C	SURF.MILL 'GOTOER' ON NOS, 'UAE' ON AOS.
AD2B060	S	REPETITIVE FEATURES MODAL GIVES INCORRECT LIMIT TOL.
AD2B061	S	PART BOUNDARY IS BEING VIOLATED.
AD2B063	U	SNIGLE SELECT FROM GROUP DOES NOT WORK
AD2B064	U	SPACE MISSING BETWEEN TOLERANCE AND R
AD2B065	S	COUNTERSINK AND COUNTER BORE SYMBOL REQUIRE SPACE
AD2B066	S	THE SPHERICAL DIAMETER SYMBOL S IS TOO CLOSE
AD2B067	S	ZOOM AUTO MAX MIN HAS TO BE ENTERED THREE TIMES TO GEN
AD2B068	M	DEFAULT VALUE FOR DEPTH IN SURFACE MILL SHOULD BE
AD2B069	S	RESIZE OF FT/INCH DIMENSIONS GIVES EXTRA INCH MARKS
AD2B070	M	NO HELP AVAILABLE FOR EXECUTE A MACRO
AD2B071	M	NO HELP AVAILABLE FOR ENTERING OUTPUT MACRO FILE NAME
AD2B072	M	N/C EDITOR DOES NOT ALLOW INSERT OF CONTINUED STATEMENTS
AD2B073	M	ERRONEOUS MACRO CONTINUATION STATEMENTS ARE WRONG
AD2B074	M	CONSTANTS DISAPPEAR ON PARTNO/, INSERT/, AND PPRINT/ LINES

6.0 PSR/RSE
6.3 NEW PSRS OPENED WITH THIS RELEASE

AD2B075	M	MACRO EXECUTABLE LINE LIMIT REACHED NOT PROMPTED
AD2B077	S	CRE INC PTS ALONG CURVE GETS WRNG PARAM FM INDIC POS
AD2B079	S	RETRACT=NONE (POCKET) CAUSES LOOP UNDER 'LIST
AD2B081	M	CONTROL-V ON MAIN EDITOR MENU WORKS INCONSISTENTLY
AD2B082	M	HELP MESSAGE FOR MAIN EDITOR MENU IS NOT ALWAYS CORRECT
AD2B083	M	TOOLPATH MUST BE NAMED OTHERWISE 'BLINKING' DOESN'T
AD2B087	M	CHAIN SELECT FOR FILLET CURVES IS AWKWARD
AD2B088	S	ROTATE ENTIRE PART DOESN'T
AD2B089	S	PART BOUNDARY IS VIOLATED AT DIFF. SCREEN POSITIONS.
AD2B090	U	GPL ZOOM SCALE ONLY SCALES WORK VIEW ON MULT. VIEW DISPLAY
AD2B092	C	SURFACE HAS AN UNDESIRABLE LUMP IN IT
AD2B093	C	YOU GET LINEAR BLENDING WHEN YOU REQUEST TWIST
AD2B094	S	TAB3 MEMORY CAN BE EXCEDED WITHOUT EXPLANATION TO THE
AD2B096	M	OFFSET SURFACE DOESN'T WORK WELL WITH SSI
AD2B097	S	CLEARANCE DISTANCE AND FINAL DEPTH ERRORS IN LATHE
AD2B099	U	UNABLE TO RESTORE IPARTD PARTS WITH 4 DIGIT SHEET NUMBERS
AD2B100	S	GPL PROBLEM WITH CHOICE VARIABLE IN MENU COMMAND
AD2B101	S	GPL PROBLEM WITH PATTERN COMMAND
AD2B102	S	PROBLEM WITH GPL PATTERN RETRIEVAL AND BALLOON COMMAND
AD2B103	S	SUGGESTIONS ON GPL SECTION OF MANUALS
AD2B105	S	ADD TOLERANCE NOT WORKING FOR ZERO METRIC CONDITION
AD2B108	S	DRILL LIP REFERENCE POSITION DOESN'T WORK FROM GPL
AD2B110	S	GPL NC GIVES GOTOERR WHEN NEEDED NAMED POINT IS NOT DEFINED
AD2B112	M	'FINAL DEPTH CALC.' IS MISSING ERROR MESS. (P.6-18
AD2B113	M	'5-AXIS SWARF CUTTING' HAS SOME ERRORS IN THE MANUAL
AD2B114	M	'SURFACE MILLING' HAS SOME ERRORS IN THE MANUAL.
AD2B115	S	UAE WHEN VERY LARGE NUMBER OF SURFACE PATHS (U,V) DEFINED.
AD2B116	S	GPG LIST IN DIALOGUE AREA FAILS UNDER CERTAIN CONDITIONS.
AD2B117	M	WORD MISSING IN MANUAL UNDER 'N/C MODALS'.
AD2B118	M	EXTRA WORDS IN MANUAL UNDER N/C MODALS-EDITOR
AD2B119	M	WRONG STATEMENT UNDER 'LATHE' IN MANUAL.
AD2B120	M	EXAMPLE LISTING DOES NOT MATCH STATEMENT.
AD2B121	M	EXTRA WORD IN MANUAL UNDER 'MODIFY GENERATION
AD2B122	M	MANUAL IS MISSING A WORD IN 'LIST CURRENT SETTINGS'
AD2B123	M	MANUAL HAS CERTAIN THREADING SEQUENCE TURNED AROUND.
AD2B124	M	'LIST CURRENT SETTINGS' EXAMPLE NOT THE SAME AS
AD2B125	S	USERS MAY ATTEMPT TO EXCEED MAX NUM OF IPARTD PARTS ALLOWED
AD2B126	M	MAX NUM OF ALLOWED IPARTD PARTS IS BURIED IN ERROR
AD2B127	S	IPARTD FILE DATA IS CORRUPTED WHEN USER EXCEEDS MAX PARTS
AD2B129	U	'SWARF CUTTING' PRODUCED BAD TOOL AXIS VECTOR ON FINAL
AD2B130	M	NOS DATA MGMT MANUAL APPENDIX D HAS MINOR TYPING ERRORS
AD2B133	M	NOS DATA MGMT APPENDIX D MISSING IPARTD TAPE PROCESS
AD2B136	M	NOS DATA MGMT APPENDIX D DIRECTS USER TO ENTER A CCL
AD2B137	M	WRONG HELP MESSAGE FOR F.10.14
AD2B138	S	SUSPEND ON A 721 TERMINAL DOES NOT RETURN IN GRAPHICS
AD2B139	M	DELETED PART DOES NOT DISAPPEAR UNTIL REPAINT

CONTROL DATA CORPORATION

ICEM

ENGINEERING DATA LIBRARY V1.2.5

Operating System Level: NOS 2 Level 664
Date: 01/15/87

SOFTWARE RELEASE BULLETIN

DISCLAIMER

NOS and its product set are intended for use only as described in this document. Control Data cannot be responsible for the proper functioning of undescribed features and parameters.

** NOTE **

Please contact the appropriate Hotline if you encounter any problems or have any questions.

US outside of Minnesota	800-328-3980
Minnesota and International	612-851-4131
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CONTROL DATA CORPORATION

1987/01/15

ICEM ENGINEERING DATA LIBRARY
SOFTWARE RELEASE BULLETIN
NOS 2 Level 664

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CONTROL DATA CORPORATION

1987/01/15

ICEM ENGINEERING DATA LIBRARY
SOFTWARE RELEASE BULLETIN
NOS 2 Level 664

1.0 INTRODUCTION

1.0 INTRODUCTION

Version 1.2.5 of the Engineering Data Library incorporates the following new features and enhancements:

1. Compatible versions of EDL V1.2.5 on both NOS and IWOS (AOS/VS) ICEM delivery vehicles.

2. An improved and expanded documentation that includes a new User's Guide and EDL Command Instant.

3. The interactive task MENUMOD has been added to facilitate the customization of EDL's tasks, menu and option messages. These features are the first of an evolving 'Customization Toolkit' for EDL.

4. Improved Customization Guide with more examples and explanations about all aspects of EDL customization.

5. An updated version of IMF 2.1 that addresses all known runtime problems with the IMF data manager.

2.0 NOTES AND CAUTIONS

1. On entering EDL, if the user's logged in NOS user name is different than the NOS username in the EDL database, a warning message is displayed. Files created under this condition will not be accessible when the user is logged into the correct username unless the files are specifically permitted to the user.

2. Updating EDL for new files requires you to be running on the NOS username where the file resides. EDL assumes that all new files are private files. If the file is actually a NOS public file, use the EDL PERMIT task to change the file category to PUBLIC.

3. To install data files on a system username such as APPLLIB or LIBRARY, when a SUI statement is used to access the account, use UPDATE EDL FOR ENGINEERING DATA to add the information to EDL, then use CORRECT FILE INFORMATION to change the NOS username of the file to the right username.

4. An indirect access permanent file named USER must exist on the user's NOS username if the user wishes to use TRANSFER tasks on Solid Modeler data. The file USER contains the job card, user card, and accounting charge card image if needed.

5. If two users attempt to update the same EDL record at nearly the same time, a concurrency conflict may occur for the second user. An error message will be displyed and EDL will return to the previous task menu. The user should reobtain the data to determine what change was made by the other user and try the update again if appropriate.

6. If the user uses a Control T to abort Query Update using IMF, occasionally the user job hangs and cannot be dropped. It may be necessary to do an override from the console to drop the job.

7. In a multi-host network, it is not possible to transfer data to a remote host when using the ACCEPT or RELEASE tasks. Data may be submitted to a release procedure

2.0 NOTES AND CAUTIONS

from any host on the network, but to ACCEPT or RELEASE the data, the releaser must run on the host where the pending or released destination data is desired to reside.

8. Using the EDIT command on non-permanent files or creation files will prompt the user for the character code to be used to edit the file, UPPER CASE DISPLAY CODE or UPPER LOWER CASE ASCII.

9. The correct file type for PATRAN DATA, local file PATDAT, is RANDOM ACCESS DATA.

10. In using the transfer tasks involving an IGES DATA FILE, the user must use the correct data name of the origination file or the destination file. The IGES data name specified must match the origination data name. The transfer data name specified must match the data name in the IGES file, or if the name in the IGES file is blank, the default data name IGES.

11. In a network configuration consisting of two or more hosts where a host is not available, the IMPORT and EXPORT commands will require a control-t to exit the wait status. This will not exit the user from EDL.

12. The reference manual states that a part number cannot be deleted if any released data is associated to the part. In fact, the part cannot be deleted if any data is associated to the part, regardless of the status of the data.

13. The default core memory field length to run EDL V1.2.5 is 175,000 octal. If EDL aborts due to maximum field length (MFL) exceeded, then edit the procedure file E123PRC, procedure EDL, to change the command MFL,175000 to increase the amount of memory allowed for EDL and IMF.

14. The EDL relocatable libraries are compiled at NOS 2.5.1 level 664. If your site is using an earlier version of NOS and the product sets, there may be incompatibilities

2.0 NOTES AND CAUTIONS

between the EDL libraries and the system libraries. This may cause problems if the EDL absolute is reloaded using the LOADEDL procedure to include site-written Fortran code. If this situation occurs at your site, upgrade the product sets of your site to level 642.

15. When a permanent file (PF) utility is running, EDL may abort if IMF tries to create a file. User catalogs that have a user index ending in the same number as the user index of the IMF user name will be locked until the PF utility has completed and IMF will not be able to create or extend the files it uses for it's operations. To prevent a possible loss of data, it is recommended that the system administrator be notified when PFLOAD or PFDUMPs are to take place so that they can monitor and coordinate the use of EDL while these utilities are in use.

16. The procedure IGTCEI on E125PRC, which transfers IGES DATA to EXTERNAL IGES DATA, has been modified to write the EXTERNAL IGES DATA to tape. The procedure EITCIG on E125PRC has been modified to read from tape. The tape's VSN is SCRATC (VSN=SCRATC) and the user executing the transfer must be validated to use UNLABELED tapes. The format of the tape request is as follows:

    REQUEST,TAPE,NT,LB=KU,D=PE,CV=AS,F=S,VSN=SCRATC,(PO=W if writing to the tape).

    You may wish to modify this tape request based on your site's needs. Please refer to the IGES Reference Manual for more detail.

3.0 PSR/RSE CORRECTIVE CODE

3.0 PSR/RSE CORRECTIVE CODE

The release of EDL V1.2.5 corrects the following PSR/RSE's.

PSR/RSE	DESCRIPTION
ED10205	Standard retrieval aborts if user exited from the previous retrieve.
ED10193	File (Data) transfers in DDN force UM and STANDARD to ENGLISH.
ED1A019	Cannot route files to printer.
ED1A009	Control T may hang EDL.
ED10228	EDL periodically locks up - all users are affected.
ED10203	EDL hangs all users.
ED10219	Log file records tablet information.
ED10230	DEFINE task allows user to specify local filename, not used when attached.
ED10231	RELEASE fails for 1.57 drawings.
ED1A020	EDL sends a terminal configuration of C790 to UNISTRUC.
ED1A021	EDL passes UNISTRUC C790 terminal type incorrectly.
ED10237	MENU/TASK Data Base is difficult to customize.

C O N T R O L D A T A C O R P O R A T I O N

DATE	ASSEMBLY NO	CORPORATE FILE NUMBER	SCMA	PAGE 1 OF 2
02/16/87	2G007	2043520008	90110	

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NORRISTOWN, PA 19446

CUSTOMER P.O.	TRANSMIT NO	SALES REP	DEPT	ACCOUNT
		SUBMITTER		

SELLING OFFICE	INSTALLING OFFICE	SYSTEM TYPE	SYSTEM SERIAL	DIVISION CODE	FACILITY CODE	PROJECT NUMBER
FXX	FXX	CY830	00618	0150/	VFDZON	

PRODUCT NUMBER	RELEASE LEVEL	PRODUCT NAME	VER	PROD QTY
H830-110	664	ICEM DESIGN/DRAFT	162	1

COMPONENT NUMBER	COMPONENT NAME	VER	COMP TYPE	TY MN	COMP QTY	UNIT PRICE	EXTND PRICE	EXTND QTY	CP AV	BACK-ORDER
REL68	ICEMDD	162	2400		1	0.00	0.00	1	S	
REL68C	ICEMGPL	162	600		1	0.00	0.00	1	S	
60457130L	ICEM INTRO CONTR		RF	P	1	0.00	0.00	1	L	
60461410E	ICEM DATA MGMT RM		RF	P	1	0.00	0.00	1	L	
60461420D	ICEM BAS CONST RM		RF	P	1	0.00	0.00	1	L	
60461440D	ICEM DRFT FUNT RM		RF	P	1	0.00	0.00	1	L	
60462520C	ICEM GPL REF MAN		RF	P	1	0.00	0.00	1	L	
SMD131371	ICEM DDN SRB		MEMO		1	0.00	0.00	1	S	
SMD131372	ICEM INSTALL INST		MEMO		1	0.00	0.00	1	S	
60456940AF	ICEM DDN UG		UG	M	1	0.00	0.00	1	L	
ORDER PROCESSING CHARGE							0.00	10		
PRODUCT CHARGE							0.00			

FREIGHT

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DATE ASSEMBLY NO CORPORATE FILE NUMBER SCMA PAGE 2 OF 2

02/16/87 2G007 2043520008 90110

SOFTWARE/CONTROLWARE MOVEMENT AUTHORIZATION
(NOT AN INVOICE)

PRODUCT NUMBER	RELEASE LEVEL	PRODUCT NAME	VER	PROD QTY
H830-119	664	ICEM FACILITIES	1.4	1

COMPONENT NUMBER	COMPONENT NAME	VER	COMP TYPE	TY MN	COMP QTY	UNIT PRICE	EXTND PRICE	EXTND QTY	CP AV	BACK-ORDER
REL37A	FACILITIESV14	1.4	600		1	0.00	0.00	1	S	
6046169004	ICEM FAC REF MAN		RF	P	1	0.00	0.00	1	L	
SMD131367	FACILT INSTL INST		MEMO		1	0.00	0.00	1	S	
SMD131368	FACILITIES SRB		MEMO		1	0.00	0.00	1	S	
ORDER PROCESSING CHARGE							0.00	4		
PRODUCT CHARGE							0.00			
H830-207	664	ICEM ENGR DTA LIB	125		1					
REL76A	EDL125	125	1200		1	0.00	0.00	1	S	
REL76B	E125DOC	125	600		1	0.00	0.00	1	S	
60458880AG	ENG DTA LB ADM RM		RF	M	1	0.00	0.00	1	L	
60459740AH	ENG DTA LB USR RM		RF	M	1	0.00	0.00	1	L	
60498300AJ	QUERY UPDATE 3 RM		RF	M	1	0.00	0.00	1	L	
SMD131365	EDL SRB		MEMO		1	0.00	0.00	1	S	
SMD131366	EDL INSTALL INSTR		MEMO		1	0.00	0.00	1	S	
60000167A	EDL USER GUIDE		UG	M	1	0.00	0.00	1	L	
60000168A	EDL CUSTOM GUIDE		UG	M	1	0.00	0.00	1	L	
ORDER PROCESSING CHARGE							0.00	9		
PRODUCT CHARGE							0.00			

TOTAL ORDER PROCESSING CHARGE	0.00	23	
TOTAL PRODUCT CHARGE	0.00	3	
TOTAL ORDER CHARGE	0.00	U.S. DOLLARS	

MISCELLANEOUS CONTENTS:

003 - 600
001 - 1200
001 - 2400

CONTROL DATA CORPORATION

ICEM Facilities

version 1.4

Operating System Level: NOS 2.5.1 level 664

Date: 12/23/86

SOFTWARE RELEASE BULLETIN

DISCLAIMER

NOS and its product set are intended for use only as described in this document. Control Data cannot be responsible for the proper functioning of undescribed features or parameters.

*** NOTE ***

Please contact the CIM Hotline at one of the following numbers if you encounter any problems or have any questions:

1-800-328-3980 U.S. outside of Minnesota
1-800-527-0564 Canada
1-612-851-4131 Minnesota and other international

*** URGENT ***

Please make this document available to all ICEM Facilities users.

CONTROL DATA CORPORATION
ICEM Facilities Version 1.4
Software Release Bulletin
NOS 2.5.1 Level 664

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1.0 INTRODUCTION

ICEM Facilities is designed to increase the drawing productivity and enable the automatic generation of reports for facilities building managers and plant engineers.

2.0 COMPATABILITIES

ICEM Facilities version 1.4 requires ICEM Design/Drafting version 1.62.

3.0 CUSTOMIZING INSTRUCTIONS

3.1 Facilities Customization

The procedure files FACVER and ICEMFAC were written assuming that ICEM Facilities is installed on username APPLLIB, ICEM Design/Drafting is stored as a direct access file named ICEMDDN on username APPLLIB, and the GPL overlay library is stored as a direct access file named GOLIB on username APPLLIB. If this is not correct for your system, change all references to APPLLIB in procedures FACVER and ICEMFAC to the correct user name for your system. You should also cahnge the references to ICEMDDN and GOLIB if these files are stored under different filenames for your system.

3.2 Engineering Data Library

Customers wishing to use ICEM Facilities under ICEM Engineering Data Library should contact Control Data concerning modifications to the standard EDL.

3.3 Entity dragging fix

Two changes should be made in file FACMSTR:

1. The MSTRING labeled F104 (the line directly under F104 in file FACMSTR) should be changed to f.13.5.1.t1t.4.1.Y.Y

2. The MSTRING labeled F114 should be changed to f.13.8.1.t1t.4.1.Y.Y

4.0 MANUAL CORRECTIONS

Before executing ICEM Facilities, the user should enter the following commands :

```
GET,ICEMFAC/UN=APPLLIB
SAVE,ICEMFAC

GET,REPORTS/UN=APPLLIB
SAVE,REPORTS
```

FACSRB2.GLN

CONTROL DATA CORPORATION

ICEM Facilities

version 1.4

Operating System Level: NOS 2.5.1 level 664

Date: 12/23/86

INSTALLATION INSTRUCTIONS

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1-800-527-0564 Canada
1-612-851-4131 Minnesota and other international

SMD131367

1.0 RELEASE DOCUMENTATION

ICEM Facilities Version 1.4 runs under the CDC Network Operating System (NOS) Version 2 and the CDC Interactive Facility (IAF) communications subsystem.

ICEM Facilities is designed to increase the drawing productivity and enable the automatic generation of reports for facilities building managers and plant engineers.

The operation of ICEM Facilities under NOS 2 requires the installation of the CDC Network Access Method (NAM), IAF and the associated products.

2.0 HARDWARE REQUIREMENTS

The minimum hardware configuration required for ICEM Design/Drafting 1.62, NOS 2 and IAF is required to support ICEM Facilities 1.4.

3.0 RELEASE MATERIALS

The ICEM Facilities release files reside on the tape with a VSN of REL37A. This tape has the following characteristics: 9-track with 1600 CPI binary recording mode, FACILITIESV14 as the file ID in the HDR1 label and the following files:

File 1: FACINST, Installation Procedure file
File 2: FACTFIL, Tablet overlay file
File 3: FACMSTR, Menu String tablet file
File 4: FACPAT1, Office furniture patterns
File 5: FACPAT2, Haworth component patterns
File 6: FACGPLS, GPL source code
File 7: FACLIB, Compiled GPL code
File 8: FACGPRT, Facilities demo parts
File 9: EXAMPLE, Data for example layout
File 10: ICEMFAC, Execution procedure file
File 11: REPORTS, Report generation procedure file
File 12: HWDATA, Data for Haworth component bill of materials
File 13: OFDATA, Data for office furniture bill of materials
File 14: CEDATA, New construction cost estimate data
File 15: REPSRC, Report generation source code
File 16: REPABS, Report generation absolute code
File 17: FACVER, Facilities verification procedure
File 18: VERIT, Data for verification procedure

*** NOTES AND CAUTIONS ***

All limitations applicable to NOS 2 and IAF also apply to ICEM Facilities.

Existing files with the same names as those listed above will be replaced by the files from this tape.

4.0 INSTALLATION INSTRUCTIONS

The files which are part of the ICEM Facilities product are installed by executing the installation procedure, which is file 1 of the ICEM Facilities tape, VSN=REL37A. ICEM Facilities should be installed on username APPLLIB with a user index of 377774. The installation procedure must be run interactively.

Enter the following commands from the System Console:

```
X.DIS.
SUI,377774.
LABEL,FACTAPE,R,L=FACILITIESV14,VSN=REL37A,F=I,D=PE.
COPYBF,FACTAPE,INSTALL.
INSTALL.
DROP.
```

Successful installation will be indicated by the following message displayed on the terminal:

```
THE FOLLOWING ICEM FACILITIES FILES HAVE BEEN LOADED FROM REL37A:

   FACINST          INDIRECT ACCESS
   FACTFIL          DIRECT ACCESS
   FACMSTR          DIRECT ACCESS
   FACPAT1          DIRECT ACCESS
   FACPAT2          DIRECT ACCESS
   FACGPLS          DIRECT ACCESS
   FACLIB           DIRECT ACCESS
   FACGPRT          DIRECT ACCESS
   EXAMPLE          INDIRECT ACCESS
   ICEMFAC          INDIRECT ACCESS
   REPORTS          INDIRECT ACCESS
   HWDATA           INDIRECT ACCESS
   OFDATA           INDIRECT ACCESS
   CEDATA           INDIRECT ACCESS
   REPSRC           INDIRECT ACCESS
   REPABS           INDIRECT ACCESS
   FACVER           INDIRECT ACCESS
   VERIT            INDIRECT ACCESS
INSTALLATION COMPLETE
```

*** NOTE ***

To install ICEM Facilities on a user name other than APPLLIB, log on to any terminal and enter all commands between and including the LABEL command and the INSTALL procedure call.

5.0 VERIFICATION PROCEDURE

To verify the proper installation of ICEM Facilities, complete the following steps. The verification procedure must be run interactively.

*** NOTE ***

This procedure was written assuming that ICEM Facilities was installed on username APPLLIB, ICEM Design/Drafting Version 1.62 is stored as a direct access file named ICEMDDN on user name APPLLIB, and the GPL overlay library is stored as a direct access file named GOLIB on username APPLLIB. If this assumption is incorrect, the references to UN=APPLLIB and/or the filenames for ICEM Design/Drafting and the GPL overlay library must be modified to specify the username and/or filenames in use.

If the above changes are required, similar changes will be required in file ICEMFAC. See the Customization instructions in the Software Release Bulletin for ICEM Facilities for further information .

1: Log into a graphics terminal supported by ICEM Design/Drafting.

2: Enter:

```
CLEAR.
GET,FACVER/UN=APPLLIB.
FACVER.
```

ICEM Facilities will retrieve certain files from APPLLIB and prompt the user as shown in figure 1 to allow the user to enter ICEM Design/Drafting.

3: Answer the prompts for baud rate and terminal configuration for the terminal you are using. Figure 1 shows the responses for a Tektronix 4114 terminal.

4: Enter the part name and sheet number as follows:

```
ENTER PART NAME    VERIFY
SHEET NUMBER = 1
```

ICEM Design/Drafting will prompt you for the units of measure and drafting standard. Answer the prompts as shown below :

```
--UNITS OF MEASURE  2
--DRAFTING STANDARD 1
```

5: After the menu is displayed, enter the following ICEM Design/Drafting command string:

```
F.1.17.4.VERIT
```

ICEM Facilities will create a facilities layout as shown in figure 2.

6: When the layout is complete, enter a blank carriage return. ICEM Facilities will leave ICEM Design/Drafting and generate an office bill of materials. Compare the report displayed to figure 3 to verify that it is correct.

If the layout and bill of materials agree with the figures, verification of ICEM facilities is complete.

```
FACVER

 ENTER BAUD RATE.
0
 ICEMDDN  VERSION  R1.61A0

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SERVICES, INC. 1978

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1978, 1979, 1980, 1981, 1982
1983, 1984, 1985, 1986

WELCOME TO ICEMDDN

GRAPHICS TERMINAL TYPE
1.   TEKTRONIX 4014
2.   TEKTRONIX 4105
3.   TEKTRONIX 4107
4.   TEKTRONIX 4109
5.   TEKTRONIX 4113
6.   TEKTRONIX 4114
7.   TEKTRONIX 4115
8.   TEKTRONIX 4125
9.   CDC VIKING 721
10.  CDC IEW 700 WITH TEKEM
6
MENU AREA
1.   GRAPHICS TERMINAL
2.   CDC 722
1
TABLET
1.   OFF
2.   TEKTRONIX OPTION 13
3.
4.   TEKTRONIX 4957
1
LOCAL DISPLAY FILE
1.   ON
2.   OFF
1
LOCAL CHARACTER SET
1.   ON
2.   OFF
1
```

Figure 1.

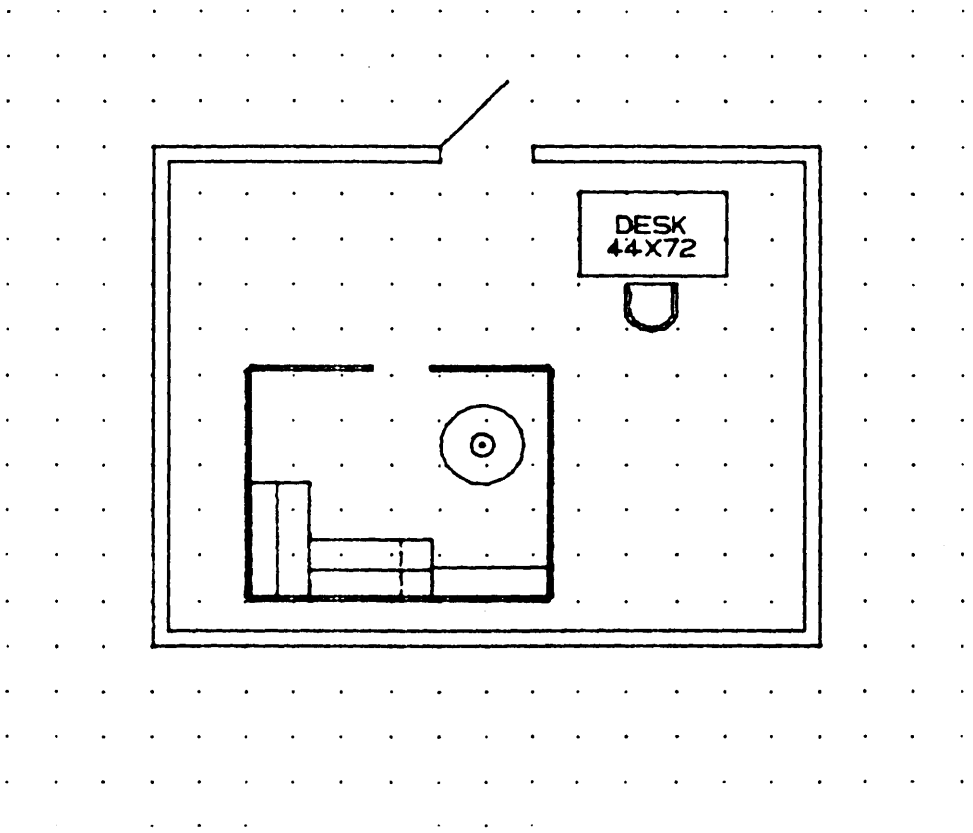

Figure 2.

```
REPORT
  1 OFFICE BILL OF MATERIALS
  2 HAWORTH BILL OF MATERIALS
  3 NEW CONSTRUCTION COST ESTIMATES
  4 TERMINATE

          --------THIS REPORT RESIDES ON LOCAL FILE OFBILL--------
                          REMEMBER TO SAVE IT

                    OFFICE
                BILL OF MATERIALS

     PART NAME : VERIFY

ATTRIBUTE
NAME                                                  QTY   UNIT      EXTENDED
*********               DESCRIPTION                         COST      COST
                        ***********                   ***   ****      ********
CHAIR.SYMBOL        CHAIR  STD. COUNTOUR
DESK.4472.NC        DESK   44X72                        1   175.75    175.75
                                                        1   377.55    377.55
 TOTAL
                                                                      553.30

          --------THIS REPORT RESIDES ON LOCAL FILE OFBILL--------
                          REMEMBER TO SAVE IT

REPORT
  1 OFFICE BILL OF MATERIALS
  2 HAWORTH BILL OF MATERIALS
  3 NEW CONSTRUCTION COST ESTIMATES
  4 TERMINATE


  CORRECT INSTALLATION HAS BEEN VERIFIED
REVERT.
/
```

Figure 3.

1987/05/15

CONTROL DATA CORPORATION

ICEM

ENGINEERING DATA LIBRARY

Operating System Level: NOS 2 Level 678
Date: 05/15/87

INSTALLATION INSTRUCTIONS

DISCLAIMER

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CONTROL DATA CORPORATION

1987/05/15

ICEM ENGINEERING DATA LIBRARY
INSTALLATION INSTRUCTIONS
NOS 2 Level 678

1.0 ICEM EDL VERSION 1.2.6

1.0 ICEM EDL VERSION 1.2.6

1.1 RELEASE DESCRIPTION

ICEM Engineering Data Library (EDL) is an application designed to provide a user-friendly interface to Control Data's CAD/CAM products and to manage the engineering data produced by these products. The EDL system runs under the CDC Network Operating System (NOS) Version 2, and the CDC Network Access Method (NAM) and CDC Interactive Facility (IAF) communications packages. Information Management Facility (IMF) interfaces to the EDL database. A run-time subset of IMF is included with EDL.

1.2 HARDWARE REQUIREMENTS

EDL requires the minimum hardware configuration for NOS 2 and NAM/IAF. The user station can be a graphic or alphanumeric terminal. EDL requires a field length of 175000 octal words.

1.3 DEPENDENCIES

EDL interfaces to the following application packages.

ICEM DDN Version	1.63
ICEM Solid Modeler	1.13
Unistruc II	15AUG84
ICEM Schematics	1.15
PATRAN-G	2.0
IGES V2	2.21
UNIPLOT	
XEDIT	

Full Screen Editor
Reclaim

1.4 RELEASE MATERIALS

EDL consists of two 9-track, 1600 cpi (D=PE) tapes. The format of the tapes is internal (F=I). The EDL Version 1.2.6 product resides on the tape VSN=REL76A and has a label of EDL126 (L=EDL126). The EDL Documentation resides on the tape VSN=REL76B and has a a label of E125DOC (L=E125DOC), same documentation as for EDL 1.2.5.

The following files are found on the EDL product release tape.

File 1	INSTALL	EDL Installation Procedure
File 2	E125PRC	EDL Version 1.2.6 Procedure file
File 3	E125ABS	EDL Absolute Program
File 4	E125BIN	EDL Main Overlay Relocatable Program
File 5	E125LIB	EDL Relocatable Subroutine Library
File 6	E125IBL	EDL Relocatable Information Base Subroutine Library
File 7	E125NBL	EDL Networking Subroutine Library
File 8	E120CNV	Conversion Program EDL 1.1.3 to EDL 1.2.0
File 9	EDLCOM	EDL Information Base Common Block Text File
File 10	EDLFIX	Unload and reload database procedures
File 11	EDLTRAN	EDL Networking Data Type Text File
File 12	MOUT	Subroutine to generate EDLLIST
File 13	E125MMB	Message and Task Metabase
File 14	E125DMB	Engineering Data Metabase
File 15	E125MDB	Message and Task Database
File 16	E125DDB	Engineering Data Database
File 17	EDLLIST	Default Database Load List
File 18	IMF2LIB	IMF Version 2.1 Enforcer Library
File 19	IMF2QU	Query Update with IMF 2.1 Interface
File 20	MCSIMF2	Start-up Procedure for IMF2SCP
File 21	IMF2STF	IMF 2.1 System Tuning File
File 22	IMF2SCP	IMF 2.1 System Control Point Absolute Program
File 23	CLGABS	Program to Associate Log File to Database
File 24	IMF2REC	Offline Recovery Utility

File 25	WMTUN52	Program to Change Metabase Username for a Database
File 26	IMF2LDU	IMF 2.1 Load/Unload/Validate Utility
File 27	MOTHERN	Metabase for Metabases, needed by IMF2LDU

The following files are found on the EDL Documentation release tape.

File 1	INSTALL	EDL Documentation Installation Procedure
File 2	EDLDMAN	EDL Database Administrator's Manual
File 3	EDLRMAN	EDL Version 1.2.5 Reference Manual

the capability to use their database with out doing a major conversion.

NOTE: The EDL 1.2.6 file names are the same as the file names for EDL 1.2.5. There are no major differences between the two databases, so maintaining the same file names provides an easier conversion process.

2.0 INSTALLATION OF EDL AND THE IMF SUBSET.

2.1 ESTABLISH NOS ACCOUNTS

Establish a NOS account for the EDL programs, procedures, and data base files. This account may have any username and password.

Establish a NOS account with username IMF on which the Information Management Facility will reside and run. This username must have the name IMF, and must have special validations. It must be able to run a system control point job, communicate with user control points, create unlimited dayfile messages, unlimited CP time, unlimited MS, create direct and indirect files, etc.

All usernames from which EDL will be run must have validation to communicate to system control point jobs. Otherwise, they will be automatically logged off when they try to execute EDL.

2.2 MINIMUM VALIDATIONS

2.2.1 UN=IMF

AP=MCS Message Control System.
AP=RBF Remote Batch Facility.

AW=CLPF Create direct access files.
AW=CSPF Create indirect access files.
AW=CCNR Enter system without charge number.
AW=CUCP Access system control point facility.

2.0 INSTALLATION OF EDL AND THE IMF SUBSET.
2.2.2 ALL OTHER USERS INCLUDING THE DATABASE ADMINISTRATOR

Note 1 - The EDL installation procedure does not enter a CHARGE statement after the secondary USER commands when the procedure moves to UN=IMF and back to the DBA's account.

Note 2 - Required for Database administrator, may vary for other users.

2.3 RUN THE INSTALLATION PROCEDURE

If you are installing EDL 1.2.6 on the same user number as EDL 1.2.5 (not recommended) rename E125DDB and E125MDB with the following commands.

```
CHANGE,E12BDDB=E125DDB.
CHANGE,E12BMDB=E125MDB.
```

Run the product tape installation procedure using the following control cards. Before installing IMF, idle down IMF from the system control point.

```
LABEL,TAPE,VSN=REL76A,F=I,D=PE,R,L=EDL126.
COPYBF,TAPE,INSTALL.

BEGIN,INSTALL,INSTALL.
```

The installation procedure will prompt for the username and password of the EDL account, and the password of username IMF.

If you already have the IMF2.1 files on username IMF and you do not wish to re-install it, answer NONE when prompted for the password of username IMF.

For sites currently using EDL 1.2.3 or EDL 1.2.5, it is recommended that the IMF files be reinstalled, since the IMF released with EDL 1.2.6 has been updated. It is suggested that you reinstall IMF even if you don't plan to upgrade to EDL 1.2.6, because the new IMF version contains a number of important fixes. After reinstalling IMF, you must execute the LOADEDL procedure against EDL 1.2.3 to run EDL 1.2.3 or EDL 1.2.5 to run EDL 1.2.5 with the new IMF.

2.0 INSTALLATION OF EDL AND THE IMF SUBSET.
2.2.1 UN=IMF

CC=77B	Max number of batch commands.
CM=77B	Max central memory space used.
CS=7	Cumulative size of all indirect access files.
DB=7	Max number of executing jobs and queue files.
DF=77B	Max number of MESSAGE requests to system and job dayfile.
DS=7	File size allowed for an individual direct access permanent file.
FC=7	File count.
FS=7	File size allowed for an individual indirect access permanent file.
MS=77B	Max number of additional mass storage PRU's the user is allowed to allocate to a job.
PW=pw	Password for both batch and interactive

2.2.2 ALL OTHER USERS INCLUDING THE DATABASE ADMINISTRATOR

AP=IAF	Interactive Facility
AP=RBF	Remote Batch Facility
AW=CLPF	Create direct access files.
AW=CSPF	Create indirect access files.
AW=CCNR	Enter system without charge number. (Note 1)
AW=CAND	Request nonallocatable devices (magnetic tape units). (Note 2)
AW=CUCP	Access system control point facility.
CC=77B	Max number of batch commands. (Note 2)
CM=77B	Max central memory space used. (Note 2)
CS=7	Cumulative size of all indirect access files. (Note 2)
DB=7	Max number of executing jobs and queue files. (Note 2)
DF=77B	Max number of MESSAGE requests to system and job dayfile. (Note 2)
DS=7	File size allowed for an individual direct access permanent file. (Note 2)
FC=7	File count. (Note 2)
FS=7	File size allowed for an individual indirect access permanent file. (Note 2)
MS=77B	Max number of additional mass storage PRU's the user is allowed to allocate to a job. (Note 2)
PW=pw	Password for both batch and interactive

2.0 INSTALLATION OF EDL AND THE IMF SUBSET.
2.3 RUN THE INSTALLATION PROCEDURES

To install the IMF files without installing the EDL files, be sure that you are logged into the UN=IMF account and type the following commands. Remember to idle down IMF at the system control point.

```
LABEL,TAPE,VSN=REL76A,F=I,D=PE,R,L=EDL126.
COPYBF,TAPE,INSTALL.
BEGIN,INSTIMF,INSTALL.
```

More information about starting and tuning IMF can be found in following sections.

After installing the EDL Version 1.2.6 product, you may wish to load the EDL Documentation set onto your mass storage devices to modify according to your site's particular needs. To install the EDL Documentation set, mount the Documentation tape onto a 9-track tape drive and enter the following control cards.

```
RETURN,TAPE,INSTALL.
LABEL,TAPE,VSN=REL76B,F=I,D=PE,R,L=E125DOC.
COPYBF,TAPE,INSTALL.
BEGIN,INSTALL,INSTALL.
```

The installation procedure will prompt for the user name and the password of the account on which you wish to install the EDL Documentation files. This will usually be the same account on which you've installed EDL Version 1.2.6.

2.4 EDIT THE EDL PROCEDURE FILES.

The installation procedure creates the startup file EDL. It is a single CCL proc which gets procedure file E125PRC from the NOS username where EDL is installed and passes that username as the value of the AUN parameter on the BEGIN statement for EDL. No changes to the file EDL should be necessary.

The proc header of procedure EDL in E125PRC should be edited to change the default value of the alternate username parameter (AUN) to the username on which the EDL programs and databases were installed. This will ensure that EDL will run correctly even when started directly from E125PRC instead of from file EDL.

The procedures in E125PRC should be checked to ensure that the correct versions of the application programs are obtained from the correct usernames. The standard procedure file assumes that all application programs and procedures are on UN=APPLLIB. If this is not the case at your site, E125PRC should be changed.

If an application such as ICEM DDN is sysedited into your system so that it can be used as a system command, simply remove the attach statements and the statement that checks to see if the application program has been assigned.

2.5 ACTIVATE THE IMF2.1 SYSTEM CONTROL POINT.

Edit file MCSIMF2/UN=IMF to change the commented out USER statement to a valid USER statement for the IMF account. Move this small procedure file to username SYSTEMX (UI=377777B). Note that the user statement in MCSIMF2 is mandatory and cannot be replaced by a SUI statement.

The IMF system control point program, IMFSCP, is started like all subsystems by a DSD entry, starting the execution of the procedure file saved under username SYSTEMX. That is, from the console,

```
MCSIMF2.
```

IMF2SCP can run at any control point. To force it to run at a specific control point, use the following CMR/DSD entry before the MCSIMF2 command.

ENABLE,MCS,cp#.

To avoid changes to the operating system, the EDL version of IMF2SCP uses the same system identification as the Message Control System, and cannot run when the Message Control System is active.

IMF2SCP is idled through the DSD entry

IDLE,MCS.

When idled-down, IMF2SCP will complete all processing needed to keep the databases in a consistent state. Idle-down can thus be done without damaging the databases, even if there are users active.

2.6 INSTALLING EDL IN NON-CONCURRENT MODE

If you do not need to allow more than one ICEM user at the same time using the same EDL database , you can install EDL so that it will run in mono-user mode without the system control point job being active. To do this, follow the following steps.

1. Define an empty direct access file named EDLLOCK on the username where the EDL Engineering Database is installed. This file should be Public in Write mode. EDL will use this file to ensure that only one person tries to use EDL at a time. Otherwise, EDL may abort when the database is busy. DEFINE,EDLLOCK/CT=PU,M=W.

2. Edit Procedure EDL in E125PRC to change the statement $IF,$MONO$=$TRUE$,L1. to $IF,$MONO$=$MONO$,L1. and put the AC=1 parameter on the E125ABS statement.

2.7 INSTALLATION VERIFICATION

To verify the installation of EDL, do the following steps:

Log in to the NOS system using the username established for the database administrator.

Initiate EDL by entering:

```
-,EDL
```

The terminal session below shows how to update the DBA's user profile. User responses are indicated by lower case letters.

```
 87/05/15.      ICEM ENGINEERING DATA LIBRARY VERSION 1.2.6
                  COPYRIGHT CONTROL DATA CORP., 1984,1985,1986,1987
                            ALL RIGHTS RESERVED


          ENTER EDL USER IDENTIFICATION
? edlid

          ENTER EDL PASSWORD
? dba

          CURRENT TERMINAL CONFIGURATION
          GRAPHICS TERMINAL      CDC VIKING 721
          DIALOG AREA            ON GRAPHICS TERMINAL
          COMMUNICATIONS RATE    9600 BAUD
          COMMUNICATIONS TYPE    ASYNCHRONOUS
          TABLET                 NO
          LOCAL ASSIST           DEFAULT
          LOCAL DISPLAY          DEFAULT
          EGM                    NO
          BIT PLANES             4
EDLU0037  YOU ARE NOT RUNNING UNDER YOUR OWN NOS USERNAME

          ADMINISTRATOR TASKS
       1. EXIT                                   E,EXIT
       2. USER MANAGEMENT                        USERMGMT
       3. GROUP ADMINISTRATION                   GROUPADMIN
       4. RELEASE ADMINISTRATION                 RELADMIN
```

2.0 INSTALLATION OF EDL AND THE IMF SUBSET.
2.7 INSTALLATION VERIFICATION

```
      5.  PART, FAMILY, AND VENDOR MANAGEMENT      PARTM
ENTER TASK
? usermgmt

          USER MANAGEMENT
      1.  EXIT                                     E,EXIT
      2.  LIST USERS                               L,LIST
      3.  ADD USERS                                A,ADD
      4.  DELETE USERS                             D,DELETE
      5.  CHANGE A USER'S PROFILE                  C,CHANGE
      6.  REACTIVATE A USER                        R,REACTIVATE
SELECT OPTION
? c

         ENTER THE EDL ID OF THE USER, LIST, OR CR TO EXIT
? edlid

          CHANGE USER DATA
      1.  EXIT                                     E,EXIT
      2.  PROMPT FOR ALL                           P,PROMPT
      3.  EDL PASSWORD                             PSW,PW
      4.  NOS USER NAME                            U,UN
      5.  LAST NAME                                L,LNM
      6.  FIRST NAME                               F,FNM
      7.  MIDDLE NAME                              MI,MNM
      8.  DEPARTMENT                               D,DEPT
      9.  TITLE                                    T,TITLE
     10.  STREET ADDRESS                           A,ADDR
     11.  CITY, STATE, ZIP                         C,CITY
     12.  PHONE                                    PH,PHONE
     13.  FIRST COMMAND                            CMD,COMMAND
     14.  DIALOG DELIMITER                         DIALOG
     15.  STRING DELIMITER                         STRING
     16.  EDITOR                                   EDITOR
     17.  HOST                                     HOST
SELECT OPTION
? p

         ENTER A NEW EDL PASSWORD OR CR FOR SAME
? dbapw

         THE USER'S NOS USER NAME IS
EDLDBA

         ENTER A NEW NOS USER NAME OR CR FOR SAME
? edldba
```

```
          THE USER'S LAST NAME IS


          ENTER A NEW LAST NAME OR CR FOR SAME
? smith

          THE USER'S FIRST NAME IS


          ENTER A NEW FIRST NAME OR CR FOR SAME
? john

          THE USER'S MIDDLE NAME IS


          ENTER A NEW MIDDLE NAME OR CR FOR SAME
? a

          THE USER'S DEPARTMENT IS


          ENTER A NEW DEPARTMENT OR CR FOR SAME
? 2210

          THE USER'S TITLE IS
DATABASE ADMINISTRATOR

          ENTER A NEW TITLE OR CR FOR SAME
? <cr>

          THE USER'S STREET ADDRESS IS


          ENTER A NEW STREET ADDRESS OR CR FOR SAME
? 123 main street

          THE USER'S CITY, STATE, AND ZIP ARE


          ENTER A NEW CITY, STATE, AND ZIP OR CR FOR SAME
? minneapolis, mn 55000

          THE USER'S PHONE NUMBER IS
```

2.0 INSTALLATION OF EDL AND THE IMF SUBSET.
2.7 INSTALLATION VERIFICATION

```
          ENTER A NEW PHONE NUMBER OR CR FOR SAME
? (612) 555-2345

          THE USER'S FIRST COMMAND IS
ADMIN

          ENTER A NEW FIRST COMMAND OR CR FOR SAME
? <cr>

          THE USER'S DIALOG DELIMITER IS
/

          ENTER THE NEW DIALOG DELIMITER OR CR FOR SAME
? <cr>

          THE USER'S STRING DELIMITER IS
"

          ENTER THE NEW STRING DELIMITER OR CR FOR SAME
? <cr>

          THE USER'S DEFAULT EDITOR IS
FSE

          ENTER THE NEW EDITOR OR CR FOR SAME
? <cr>

           CHANGE USER DATA
      1.   EXIT                                  E,EXIT
      2.   PROMPT FOR ALL                        P,PROMPT
      3.   EDL PASSWORD                          PSW,PW
      4.   NOS USER NAME                        U,UN
      5.   LAST NAME                            L,LNM
      6.   FIRST NAME                           F,FNM
      7.   MIDDLE NAME                          MI,MNM
      8.   DEPARTMENT                           D,DEPT
      9.   TITLE                                T,TITLE
     10.   STREET ADDRESS                       A,ADDR
     11.   CITY, STATE, ZIP                     C,CITY
     12.   PHONE                                PH,PHONE
     13.   FIRST COMMAND                        CMD,COMMAND
     14.   DIALOG DELIMITER                     DIALOG
     15.   STRING DELIMITER                     STRING
     16.   EDITOR                               EDITOR
     17.   HOST                                 HOST
SELECT OPTION
```

```
? e

        *** THE USER'S PROFILE HAS BEEN CHANGED ***

        ENTER THE EDL ID OF THE USER, LIST, OR CR TO EXIT
? <cr>

         USER MANAGEMENT
      1. EXIT                                    E,EXIT
      2. LIST USERS                              L,LIST
      3. ADD USERS                               A,ADD
      4. DELETE USERS                            D,DELETE
      5. CHANGE A USER'S PROFILE                 C,CHANGE
      6. REACTIVATE A USER                       R,REACTIVATE
SELECT OPTION
? list

        ENTER THE EDL ID OF THE USER, LIST, OR CR TO EXIT
? list

        2 SELECTIONS
           EDL ID       NAME
           --- --       ----
        1. EDLCOM
        2. EDLID        SMITH, JOHN A.

        *** END OF LIST ***

        ENTER A NUMBER, E OR EXIT, OR CR FOR MORE
? 2
         EDL USER ID  EDLID
                NAME  SMITH, JOHN A.
       NOS USER NAME
          DEPARTMENT  2210
               TITLE  DATABASE ADMINISTRATOR
      STREET ADDRESS  123 MAIN STREET
    CITY, STATE, ZIP  MINNEAPOLIS, MN 55000
               PHONE  (612) 555-2345
       FIRST COMMAND  ADMIN
              STATUS  ACTIVE
    DIALOG DELIMITER  /
    STRING DELIMITER  "
              EDITOR  FSE

ENTER CR TO CONTINUE
? <cr>
```

2.0 INSTALLATION OF EDL AND THE IMF SUBSET.
2.7 INSTALLATION VERIFICATION

```
          2 SELECTIONS
             EDL ID       NAME
             --- --       ----
          1. EDLCOM
          2. EDLID        SMITH, JOHN A.

          *** END OF LIST ***

          ENTER A NUMBER, E OR EXIT, OR CR FOR MORE
? e

          ENTER THE EDL ID OF THE USER, LIST, OR CR TO EXIT
? <cr>

           USER MANAGEMENT
      1.   EXIT                                    E,EXIT
      2.   LIST USERS                              L,LIST
      3.   ADD USERS                               A,ADD
      4.   DELETE USERS                            D,DELETE
      5.   CHANGE A USER'S PROFILE                 C,CHANGE
      6.   REACTIVATE A USER                       R,REACTIVATE
SELECT OPTION
? e

           ADMINISTRATOR TASKS
      1.   EXIT                                    E,EXIT
      2.   USER MANAGEMENT                         USERMGMT
      3.   GROUP ADMINISTRATION                    GROUPADMIN
      4.   RELEASE ADMINISTRATION                  RELADMIN
      5.   PART, FAMILY, AND VENDOR MANAGEMENT     PARTM
ENTER TASK
? quit
```

2.8 UPGRADING EDL DATABASES

If your site is currently running a previous version of EDL, you must move the information to the new databases.

If you have customized EDL for your site, also read the section in the customization manual about upgrading site customizations.

2.8.1 CONVERSION FROM EDL 1.1.3

Conversion from EDL 1.1.3 to EDL 1.2.6 must be accomplished in three steps: EDL 1.1.3 to EDL 1.2.0, EDL 1.2.0 to EDL 1.2.3, and, finally, EDL 1.2.3 to EDL 1.2.6. This section of the document describes the conversion from EDL 1.1.3 to EDL 1.2.0.

Conversion from EDL 1.2.3 to EDL 1.2.6 is discussed in section 2.8.2 of this document and conversion from EDL 1.2.3 to EDL 1.2.6 in section 2.8.3.

To move from EDL 1.1.3 the data must first be moved to an EDL 1.2.0 database. All conversion programs and procedures are available on the EDL 1.2.6 release tape. However, you will need to install a default EDL 1.2.0 database from an EDL 1.2.0 release tape.

In order to convert the information on an EDL 1.13 database to your EDL 1.2.0 database, you need to run a procedure called CONV113. This procedure must be run from the NOS account where the EDL 1.2.0 database will reside. The EDL 1.13 database need not be on the same NOS account.

Begin the conversion procedure by typing:

```
BEGIN,CONV113,E125PRC,UN113=username.
```

Where username is replaced with the NOS account where the EDL 1.13 database resides.

This procedure will submit a job to convert the data from the EDL 1.13 database to the EDL 1.2.0 database. There should be no one else using the EDL 1.2.0 database during this time.

After CONV113 has run, the output from the job, and the dayfile, will be on file CONVOUT. CONVOUT will contain details of any records which the program was unable to translate.

2.0 INSTALLATION OF EDL AND THE IMF SUBSET.
2.8.1 CONVERSION FROM EDL 1.1.3

If the conversion program is unable to complete, the output and dayfile from the job will be on a file called CONVERR. Possible causes and solutions are:

Problem	Solution
Misspecified UN113 Time Limit	Re-run the CONV113 procedure Edit E125PRC, changing the time limit from 1200 on the CONVERT procedure. Reinstall an empty default 1.2.0 database before attempting to rerun the procedure.

2.8.2 CONVERSION FROM EDL 1.2.0 TO EDL 1.2.3

Before moving engineering data into the EDL 1.2.3 database, you must reapply any Query Update Transactions which you used to customize the EDL 1.2.0 database. Otherwise, site defined file types, data types, engineering categories, etc., will not be in the new database, and any engineering data information that uses them will be rejected with constraint violations.

You should also delete the user EDLID and the group DBA from the default EDL 1.2.3 database before attempting to convert the old database. This will avoid uniqueness constraint violations as that user and group are moved from the EDL 1.2.0 database. Use the user and group management functions of EDL 1.2.3 or Query Update to accomplish the deletion.

To move engineering data from an EDL 1.2.0 database to an EDL 1.2.3 database, type the following command.

```
BEGIN,CONV120,E125PRC,UN120=username.
```

where username is replaced with the NOS account where the EDL 1.2.0 database resides.

This procedure runs the IMF unload-reload utility and a special program to convert data that cannot be handled properly by the unload-reload utility. If you have a very large database, you may wish to begin the procedure in a batch job.

In some cases, the reload utility may find constraint violations which will cause the new database to be marked invalid. You should look at the error report and lists to determine which records caused the problem. Then use Query Update in repair mode to correct the errors and rerun the validate utility.

```
ATTACH,IMF2QU/UN=IMF.
IMF2QU.
-- INVOKE EDLDATAW OF EDLDATA KEY EDLORDBA +
-- USING E123DDB REPAIR EDLPW
-- (enter QU directives to DISPLAY and correct the database)
-- END

ATTACH,IMF2LDU/UN=IMF.
```

2.0 INSTALLATION OF EDL AND THE IMF SUBSET.
2.8.2 CONVERSION FROM EDL 1.2.0 TO EDL 1.2.3

```
IMF2LDU.
? VALIDATE THROUGH EDLDATAW OF EDLDATA
? KEY EDLORDBA
? USING E123DDB
? REPAIR EDLPW
? TERM
? <cr>
```

If you have customized EDL 1.2.0 please read the new customization guide before attempting to convert the database. It is necessary to adapt and reapply your QU and MDB directives before converting the engineering data.

2.9.2 CONVERSION FROM EDL 1.2.3 TO EDL 1.2.6

Before moving engineering data into the EDL 1.2.6 database, you must reapply any Query Update Transactions which you used to customize the EDL 1.2.3 database. Otherwise, site defined file types, data types, engineering categories, etc., will not be in the new database, and any engineering data information that uses them will be rejected with constraint violations.

You should also delete the user EDLID and the group DBA from the default EDL 1.2.6 database before attempting to convert the old database. This will avoid uniqueness constraint violations as that user and group are moved from the EDL 1.2.3 database. Use the user and group management functions of EDL 1.2.3 or Query Update to accomplish the deletion.

To move engineering data from an EDL 1.2.3 database to an EDL 1.2.6 database, type the following command.

```
BEGIN,CONV123,E125PRC,UN123=username1,UN125=username2.
```

where username1 is replaced with the NOS account where the EDL 1.2.3 database resides and username2 is replaced with the NOS account where the EDL 1.2.6 database resides.

This procedure runs the IMF unload-reload utility. If you have a large database, you may wish to begin the procedure as a batch job.

In some cases, the reload utility may find constraint violations which will cause the new database to be marked invalid. You should look at the error report and lists to determine which records caused the problem. Then use Query Update in repair mode to correct the errors and rerun the validate utility.

```
ATTACH,IMF2QU/UN=IMF.
IMF2QU.
-- INVOKE EDLDATAW OF EDLDATA KEY EDLORDBA +
-- USING E125DDB REPAIR EDLPW ON username2
-- (enter QU directives to DISPLAY and correct the database)
-- END

ATTACH,IMF2LDU/UN=IMF.
```

2.0 INSTALLATION OF EDL AND THE IMF SUBSET.
2.9.2 CONVERSION FROM EDL 1.2.3 TO EDL 1.2.6

```
IMF2LDU.
? VALIDATE THROUGH EDLDATAW OF EDLDATA
? KEY EDLORDBA
? USING E125DDB
? REPAIR EDLPW
? TERM
? <cr>
```

If you have customized EDL 1.2.3 please read the new customization guide before attempting to convert the database. It is necessary to adapt and reapply your QU and MDB directives before converting the engineering data.

2.9.3 CONVERSION FROM EDL 1.2.5 TO EDL 1.2.6

If you installed EDL 1.2.6 on the same user number as EDL 1.2.5 then you should have renamed your database files before installing EDL 1.2.6 per instructions. Execute the following commands to maintain your 1.2.5 databases for EDL 1.2.6.

```
CHANGE,E12RDDB=E125DDB. (version 1.2.6, R=release)
CHANGE,E12RMDB=E125MDB. (version 1.2.6, R=release)

CHANGE,E125DDB=E12BDDB.
CHANGE,E125MDB=E12BMDB.
```

If you installed EDL 1.2.6 on a different user number than EDL 1.2.5, execute the following commands to use your EDL 1.2.5 database files for EDL 1.2.6.

Under the EDL 1.2.5 user number (user125).

```
PERMIT,E125DDB,user126=R.
```

2.0 INSTALLATION OF EDL AND THE IMF SUBSET.
2.9.3 CONVERSION FROM EDL 1.2.5 TO EDL 1.2.6

Under the EDL 1.2.6 user number (user126).

```
CHANGE,E12RDDB=E125DDB. (version 1.2.6, R=release)
CHANGE,E12RMDB=E125MDB. (version 1.2.6, R=release)
DEFINE,E125DDB.
DEFINE,E125MDB.
CHANGE,E125DDB/CT=S,M=RM.
CHANGE,E125MDB/CT=PU,M=W.
ATTACH,E12XDDB=E125DDB/UN=user125.
ATTACH,E12XMDB=E125MDB/UN=user125.
COPY,E125XDDB,E125DDB.
COPY,E12XMDB,E125MDB.
PERMIT,E125DDB,IMF=W.
```

Execute LOADEDL to add your ovcaps and routines.
Run EDL, all data and customized menus and messages should be present.

In order to avoid confusion between the EDL versions you are running you can modify the EDL Version Header displayed when EDL is initiated. Execute the MESSAGEMOD task within EDL's MENUMOD task. When prompted for the message name enter EINIT2. Modify the message EINIT2 from 'ICEM ENGINEERING DATA LIBRARY 1.2.5' to 'ICEM ENGINEERING DATA LIBRARY 1.2.6'.

Also to correct the MSTRING character code execute the following commands.

```
ATTACH,IMF2QU/UN=IMF.
IMF2QU.
-- INVOKE EDLDATAW OF EDLDATA KEY $EDLORDBA$ USING E125DDB
-- IF FTFTC=$DDN MENU STRING FILE$ MODIFY SETTING FTCHR
>> $A$
-- END
```

2.10 IMF DATABASE MAINTENANCE

2.10.1 BACKUP AND RECOVERY

IMF 2.1 provides utilities for database journal logging and offline database recovery. There are two procedures in EDL that make these utilities easy to use to backup and recover the EDL database.

These procedures must be run from the NOS account on which the EDL database resides. They should be run only when there are no EDL users on the system.

2.10.1.1 Backup Procedure

BEGIN,BACKUP,E125PRC

This procedure copies the EDL database file E123DDB to a backup file named E123BAK. It also creates a journal log file named E123LOG which will automatically capture a record of all changes to the EDL Engineering Data Database.

You should run this procedure periodically depending on the amount of EDL activity at your site. Be careful that the database is good before you run the BACKUP procedure since it

will overwrite any previous backup and log files. Before running BACKUP, you may wish to copy E125DDB, E125BAK and E125LOG to magnetic tape.

2.10.1.2 Recovery Procedure

BEGIN,RECOVER,E125PRC,DBN=username.

This procedure is to be used only in the unlikely event that a system crash occurs when the database is open and the EDL database is destroyed.

RECOVER copies the backup file E125BAK over the current database file E125DDB and runs the offline recovery utility to update the database with the journal entries from file E125LOG. This restores tha database to a consistent state as it appeared just before the database was destroyed. Then this procedure causes the BACKUP procedure described above to be run, ensuring that any subsequent changes are logged.

2.10.1.3 Unload and Reload Database Procedure

EDLFIX is a procedure file containing procedures to be used to unload and then reload an EDL database. EDLFIX consists of four procedures, UNLOAD, RELOAD, VALID, and CLEARDB.

UNLOAD is a procedure to unload the contents of the E125DDB to files.

RELOAD is a procedure to load the information obtained from the UNLOAD utility back into an empty database.(E125DDB)

VALID is a procedure to validate a database if the RELOAD utility utility has problems.

CLEARDB is a procedure that takes an "empty" database supplied on the EDL125 release tape and makes it totally empty. This should help the RELOAD procedure run smoothly(use to obtain an empty database for the RELOAD).

2.0 INSTALLATION OF EDL AND THE IMF SUBSET.
2.10.1.3 Unload and Reload Database Procedure

TO RELOAD YOUR DATABASE:

1. Run the UNLOAD procedure against your current database.

   BEGIN,UNLOAD,EDLFIX.

2. Swap databases so that the default database from the EDL125 release tape is called E125DDB. Do not delete the old database yet. Remember to CHANGE(E125DDB/CT=S,M=RM) and PERMIT(E125DDB,IMF=W). If you have run through the process before you can use the true empty database created by step 5 rather than the one on the EDL release tape.

3. Run the CHMUN procedure to ensure that the metaun is correct.

   BEGIN,CHMUN,E125PRC,FN=E125DDB,METAUN=username.

4. If your site does not run with journal logging, then you must turn it off again because logging is turned on in the default database on the EDL release tape. To turn journal logging off enter:

   BEGIN,CHLOG,E125PRC,FUNC=OFF,FN=E125DDB,AFN=E125LOG.

   You do not need to run this step if you have done it previously and saved the true empty database from the next step.

5. Run the CLEARDB procedure. The procedure may complain about the AI records which is ok, if the procedure complains about any other records you should call the Hotline. To run the procedure enter:

   BEGIN,CLEARDB,EDLFIX.

6. After executing the CLEARDB utility, make a copy of the resulting E125DDB. Then, the next time you need to RELOAD data, you can use that database instead of the default DB on the release tape. Then you can skip steps 4 and 5.

7. Run the RELOAD procedure. This will reload the data into the empty database.

   BEGIN,RELOAD,EDLFIX.

8. Run the CHMUN procedure to ensure that the metaun is correct.

   BEGIN,CHMUN,E125PRC,FN=E125DDB,METAUN=username.

9. Test everything.

NOTE: To run these procedures against EDL123 modify EDLFIX to reflect the E123DDB, i.e. change all occurrances of E125DDB to E123DDB.

2.10.2 RUNNING WITHOUT JOURNAL LOGGING

To turn journal logging off for the EDL database, execute the following procedure.

BEGIN,CHLOG,E125PRC,FUNC=OFF,FN=E125DDB,AFN=E125LOG.

Substantial improvements in resource utilization can be achieved by turning journal logging off. However, without journal logging, it is impossible to use the RECOVER procedure to reestablish the database to the point of failure in case the system crashes while a user has the EDL database open. Instead, the file E125DDB must be restored from the last system file backup.

It is unlikely that the database will be corrupted by anything other than a operating system or hardware failure, since IMF performs reprieve processing to close the database gracefully if an program fails or a user uses control T to abort the program. The risk of losing a day or half day of EDL information may be acceptable at your site. The application

data such as drawings and models are not affected by IMF journal logging.

2.11 IMF TUNING CONSIDERATIONS

The IMF System Tuning File, IMF2STF/UN=IMF, determines certain parameters that IMF 2.1 uses to control it's operation at the system control point. These parameters can affect resource utilization of EDL, response time, and overall system throughput. The tuning parameters are read from the file every time the IMF (MCS) subsystem is started.

To some extent, the optimal settings depend on the type of load on your system. The parameters on the tuning file provided on the EDL release tape are set to reasonable values for an ICEM environment. They are set to minimize the impact of IMF and EDL on system throughput at the possible expense of EDL response time.

2.12 EDL AUTOSTART FOR USERS

If a user wishes to log in to EDL without typing his EDL user id and password, create an indirect file called EDLUSER on the user's NOS username. This file should have a single line with the user id in columns 1-10 and the EDL password in columns 11-20. EDL will attempt to read this file and will prompt the user only if the file does not exist or if the information on the file is invalid.

2.13 PASSWORD MASKING

If all terminals at your site are communicating in full duplex mode, you may cause EDL to temporarily disable echoplex mode while the users are entering passwords so that the password characters do not appear on the terminal screen.

This is accomplished by changing the title of the message

named "DUPLEX" to "FULL", using a MDB transaction file or query update. See the customization guide section "CUSTOMIZING THE MESSAGE AND TASK DATABASE" for an explanation of how to change EDL messages.

2.14 USING QUERY UPDATE

For the most part, IMF2QU functions as described in the Query Update Version 3 Reference Manual 60498300.

The Invoke clause used to open an IMF 2.1 database schema, is different than the one documented for IMF Version 1.

```
INVOKE external-schema-name OF conceptual-schema-name
   [ KEY use-literal ]
   USING database-file-name [ nos-username ]
   [ REPAIR repair-literal ]
   [ CONCURRENT ]
```

To query the EDL Engineering Database,
INVOKE EDL OF EDLDATA USING E125DDB nos-username CONCURRENT

To query the EDL Message and Task Database,
INVOKE EDLMENUR OR EDLMENU USING E125MDB nos-un

To query or update the Engineering Database,
INVOKE EDLDATAW OF EDLDATA KEY $EDLORDBA$ +
USING E125DDB nos-un CONCURRENT

To query or update the Message and Task Database,
INVOKE EDLMENUW OF EDLMENU KEY $EDLORDBA$ +
USING E125MDB nos-un

Sometimes Query Update will not display data for all records of a record type unless a FOLLOW directive is entered to specify the access path or coset to be used to retrieve the records. See the Query Update manual and the EDL record layout section of the customization guide.

3.0 CREATING A NETWORK IN EDL

This section explains how to set up a network of EDL databases, one on each mainframe. Hosts in an EDL network are configured in a "star", with many subordinates clustered around a single master host. Administrative functions (user validation, part definition) are carried out on the master host. The DBA in the network is responsible for running a job (started with the command INITNET) which polls other hosts in the network (a subordinate polls the master, while the master polls each subordinate), then rolls out for a site defined period before repeating the polling cycle. This information is repeated in section 16 of the EDL Customization Guide. It is recommended that the System Administrator become familiar with that document before attempting these changes.

3.1 DEFINE HOSTS

The default EDL database host name is blank. In order to identify multiple hosts in a network, each host must be given a unique name within EDL. This name should be the three character LID (Logical IDentifier) by which the host is known to RHF.

One host should be designated as the MASTER host for the network. This host must communicate directly to all subordinate hosts which run EDL. All administrative functions, such as validating users, and defining parts, and vendors, will be done on this host, and the information will be passed to the subordinates.

All transactions dealing with data are done on the subordinate hosts, and then passed up to the master. Therefore, the master host will contain information about the data on all subordinate hosts.

3.2 DEFINE COMMUNICATION LINKS

CL records must be created for each host in the database, telling EDL which other hosts a specific host can communicate with. Note that each link must be defined twice, saying that HOST A can communicate with HOST B, and that HOST B can communicate with HOST A.

3.3 QU DIRECTIVES TO DEFINE A NETWORK

A sample network could consist of two Cyber mainframes, and a Cyber 120 which does not run EDL, but whose data is managed by MA4 (whose data is passed up to MB1). Following are the QU directives to update the MASTER host (in this case MB1) for this network configuration.

```
INVOKE EDLDATAW OF EDLDATA KEY $EDLORDBA$ USING E125DDB
STORE SETTING HIHOS,HIOFF,HIOS,HIEDL,HIHOSS
$MB1$        1  $NOS$ $T$ $MB1$
$MA4$   100000  $NOS$ $T$ $MB1$
$SD2$   200000  $AOS/VS$ $F$ $MA4$
*END
STORE SETTING UVUSR UVHOS UVOUN
$EDLID$     $MA4$     $EDLDBA $
$EDLID$     $MB1$     $EDLDBA $
$EDLID$     $SD2$     $DJH $
$EDLCOM$    $MA4$     $EDLDBA $
$EDLCOM$    $SD2$     $DJH $
$EDLCOM$    $MB1$     $EDLDBA $
*END
STORE SETTING CLHOSS CLHOSR
$MA4$ $MB1$
$MB1$ $MA4$
$MA4$ $SD2$
$MB1$ $SD2$
*END
REMOVE USING UVHOS
$ $
*END
REMOVE USING HIHOS
$ $
*END
```

```
MODIFY USING HIHOS SETTING HIOFF
$MB1$ 0
*END
END
```

Once the network has been defined on what will be the master host, this configuration should be copied to subordinates. EDL should be installed, then this same QU file should be run on each subordinate host. EDL must run on the same NOS account on each host.

3.4 E125PRC MODIFICATIONS

3.4.1 PROCEDURES GETMAS AND GETSUB

Procedure GETMAS and GETSUB contain .DATA files with MFLINK directives. These directives are used to poll alternate hosts in the network for information which should be sent from the master to the subordinates, or vice versa. The first line in the .DATA files are USER,EDLDBA,EDLDBA. This user statement should be replaced with the batch user statement for the username where EDL will be running in the network. Since the master host will be using these MFLINK directives to poll each subordinate, this means that the username and batch password where EDL runs on each subordinate must be the same.

A recommended modification to the GETMAS and GETSUB procedures is to remove the .DATA files from E125PRC (which is available to all users running EDL), put this information into a private file on the username on which EDL resides, and modify the procedures to read these files rather then the .DATA files.

3.4.2 PROCEDURE EDL

Procedure EDL on file E125PRC must be changed on each host, telling EDL the name of the host. The updated procedure header will look like:

.PROC,EDL,I=INPUT,IT=0/IT,OT=0/OT,HOST=hos,AUN=EDLDBA.
where hos is replaced by the name of the host on which this file resides.

This is the only change to E125PRC which is specific to a given host.

3.4.3 EDL LOG FILES

Each subordinate should have, on the username on which EDL is installed, a file called EDLSLOG. The master should have a file called EDLMLOG, and one file for each subordinate which runs EDL. These files will be called EDLMhos, where hos is replaced with the host identifier for the subordinate. These files should be public, or permitted to all usernames which can run EDL, in WRITE mode.

These files contain log entries of each transaction which needs to be shipped either from the subordinates to the master, or vice versa. These log files are polled periodically by their destination hosts.

3.5 NETWORK INITIALIZATION

The DBA should log into each host on the account where EDL resides, and enter the command INITNET. This will start up a job which will:

1. Poll the subordinates (or master) for transactions which should be sent to this host.
2. Run EDL in batch mode to process these transactions.
3. Roll out for the interval defined in the procedure NETROLL in E125PRC.
4. Repeat.

This job will have the UJN of NETJOB. It should continue to cycle until the system is deadstarted, at which time the INITNET task should be run again. If the job is dropped, the transaction data is not lost. Network transactions will

accumulate in the log files, and will be sent to other hosts whenever the INITNET job is run on the receiving host.

end

***** Installation Bulletin *****
ICEM

Affected Products: EDL 1.2.5/1.26 for NOS

Subject: ICEM EDL 1.2.5/1.26 Common Block Correction
Date: 06/10/87

The EDLCOM file supplied with ICEM EDL 1.2.5, and also the file supplied with version 1.26, contains an incorrect image of the EDL_COMMON block. Three of the character size specifications are in error. This is a problem if the site adds customized code to EDL and uses this common block. Below is a corrected copy of the EDL_COMMON common block. It is recommended that the site administrator edit the EDLCOM file (using FSE or XEDIT) to make the following corrections:

1. Line 14: The size of the CYES and CNO variables is now 5, rather than 3.

2. Lines 17 and 19: The size for these fields is 100, rather than 7.

Below is an image of the corrected common block. The asterisks in column 1 are intended to show which columns need to be changed. Do not include the asterisks in the modified common block.

```
C     EDL_COMMON
C     EDL PRIMARY COMMON BLOCK
      COMMON /ECOM1/ HOST, USR, PWD, MDISP, SCLOCK,
     +CHELP, CLIST, CEXIT, CMENU, CCLEAR,
     +CWORK, CREL, CSUBM, CPEND, COBS,
     +CPAUSE1, CPAUSE2, CINOPT1, CEXTM1,
     +CYES, CNO,
     +NOSUN, STRDEL, INPDEL,
     +AUN, DUN, DDB, MUN, MDB, AC, IT, OT, ALTINP, ALTOUT
      CHARACTER*10 HOST, USR, PWD, MDISP, SCLOCK
      CHARACTER*10 CHELP, CLIST, CEXIT, CMENU, CCLEAR
      CHARACTER*10 CWORK, CREL, CSUBM, CPEND, COBS
      CHARACTER*70 CPAUSE1, CPAUSE2, CINOPT1, CEXTM1
*     CHARACTER*5 CYES,CNO
      CHARACTER*7 NOSUN
      CHARACTER*1 STRDEL, INPDEL
*     CHARACTER*100 AUN, DUN, DDB, MUN, MDB
      CHARACTER*2 AC
*     CHARACTER*100 IT,OT,ALTINP,ALTOUT
      COMMON /ECOM2/ NSYNC, PW, PL, NL, SCROLL, ECHO
      INTEGER NSYNC, PW, PL, NL
      LOGICAL SCROLL, ECHO
```

If you have any questions about the information contained in this notice, please call:

Central Software Support at 800-345-9903 or
612-851-4131

SMD131545

1987/05/15

CONTROL DATA CORPORATION

ICEM

ENGINEERING DATA LIBRARY V1.2.6

Operating System Level: NOS 2 Level 678
Date: 05/15/87

SOFTWARE RELEASE BULLETIN

NOS and its product set are intended for use only as described in this document. Control Data cannot be responsible fo the proper functioning of undescribed features and parameters.

*** NOTE ***

Please contact the appropriate Hotline if you encounter any problems or have any questions.

US outside of Minnesota	800-328-3980
Minnesota and International	612-851-4131
Canada	800-527-0564

ICEM ENGINEERING DATA LIBRARY
SOFTWARE RELEASE BULLETIN
NOS 2 Level 678

1987/05/15

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CONTROL DATA CORPORATION

1987/05/15

ICEM ENGINEERING DATA LIBRARY
SOFTWARE RELEASE BULLETIN
NOS 2 Level 678

1.0 INTRODUCTION

1.0 INTRODUCTION

Version 1.2.6 of the Engineering Data Library is a System Software Update Release (SSU) containing PSR corrective code, new IMF 2.1 release, and a new unload/reload database procedure, EDLFIX.

2.0 NOTES AND CAUTIONS

1. The EDL 1.2.6 file names have the same file names as EDL 1.2.5. There are no major differences between databases, so maintaining the same file names provides an easier conversion process. To distinguish EDL 1.2.6 the dayfile states the version level.

2. On entering EDL, if the user's logged in NOS user name is different than the NOS username in the EDL database, a warning message is displayed. Files created under this condition will not be accessible when the user is logged into the correct username unless the files are specifically permitted to the user.

3. Updating EDL for new files requires you to be running on the NOS username where the file resides. EDL assumes that all new files are private files. If the file is actually a NOS public file, use the EDL PERMIT task to change the file category to PUBLIC.

4. To install data files on a system username such as APPLLIB or LIBRARY, when a SUI statement is used to access the account, use UPDATE EDL FOR ENGINEERING DATA to add the information to EDL, then use CORRECT FILE INFORMATION to change the NOS username of the file to the right username.

5. An indirect access permanent file named USER must exist on the user's NOS username if the user wishes to use TRANSFER tasks on Solid Modeler data. The file USER contains the job card, user card, and accounting charge card image if needed.

6. If two users attempt to update the same EDL record at nearly the same time, a concurrency conflict may occur for the second user. An error message will be displyed and EDL will return to the previous task menu. The user should reobtain the data to determine what change was made by the other user and try the update again if appropriate.

7. If the user uses a Control T to abort Query Update using IMF, occasionally the user job hangs and cannot be dropped. It may be necessary to do an override from the console to drop the job.

8. In a multi-host network, it is not possible to transfer data to a remote host when using the ACCEPT or RELEASE

2.0 NOTES AND CAUTIONS

tasks. Data may be submitted to a release procedure from any host on the network, but to ACCEPT or RELEASE the data, the releaser must run on the host where the pending or released destination data is desired to reside.

9. Using the EDIT command on non-permanent files or creation files will prompt the user for the character code to be used to edit the file, UPPER CASE DISPLAY CODE or UPPER LOWER CASE ASCII.

10. The correct file type for PATRAN DATA, local file PATDAT, is RANDOM ACCESS DATA.

11. In using the transfer tasks involving an IGES DATA FILE, the user must use the correct data name of the origination file or the destination file. The IGES data name specified must match the origination data name. The transfer data name specified must match the data name in the IGES file, or if the name in the IGES file is blank, the default data name IGES.

12. In a network configuration consisting of two or more hosts where a host is not available, the IMPORT and EXPORT commands will require a control-t to exit the wait status. This will not exit the user from EDL.

13. The reference manual states that a part number cannot be deleted if any released data is associated to the part. In fact, the part cannot be deleted if any data is associated to the part, regardless of the status of the data.

14. The default core memory field length to run EDL V1.2.6 is 175,000 octal. If EDL aborts due to maximum field length (MFL) exceeded, then edit the procedure file E125PRC, procedure EDL, to change the command MFL,175000 to increase the amount of memory allowed for EDL and IMF.

15. The EDL relocatable libraries are compiled at NOS 2 level 678. If your site is using an earlier version of NOS and the product sets, there may be incompatibilities

2.0 NOTES AND CAUTIONS

between the EDL libraries and the system libraries. This may cause problems if the EDL absolute is reloaded using the LOADEDL procedure to include site-written Fortran code. If this situation occurs at your site, upgrade the product sets of your site to level 678.

17. When a permanent file (PF) utility is running, EDL may abort if IMF tries to create a file. User catalogs that have a user index ending in the same number as the user index of the IMF user name will be locked until the PF utility has completed and IMF will not be able to create or extend the files it uses for its operations. To prevent a possible loss of data, it is recommended that the system administrator be notified when PFLOAD or PFDUMPs are executing so that they can monitor and coordinate the use of EDL while these utilities are in use.

18. The procedure IGTCEI on E125PRC, which transfers IGES DATA to EXTERNAL IGES DATA, has been modified to write the EXTERNAL IGES DATA to tape. The procedure EITCIG on E125PRC has been modified to read from tape. The tape's VSN is SCRATC (VSN=SCRATC) and the user executing the transfer must be validated to use UNLABELED tapes. The format of the tape request is as follows:

    REQUEST,TAPE,NT,LB=KU,D=PE,CV=AS,F=S,VSN=SCRATC,(PO=W if writing to tape).

    You may wish to modify this tape request based on your site's needs. Please refer to the IGES Reference Manual for more detail.

3.0 PSR/RSE CORRECTIVE CODE

The release of EDL V1.2.6 corrects the following PSR/RSE's.

PSR/RSE	DESCRIPTION
ED10254	Character code for MSTRING file type defined incorrectly in database.
ED10255	Inadequate documentation regarding IMF subset installation.
ED10256	Error processing for IMF subset installation in EDL 1.2.5 inadequate.
ED10259	Application information in E125PRC in non-standard form.
ED10260	EDL in network configuration cannot delete files.
ED10261	Some E125PRC file names and user numbers incorrect.
ED10263	Deleting a file from the local host machine causes EDL error C8905.
ED10264	IMF for 1.2.5 installed on EDL 1.2.3 required ovcaps load to run EDL.

end

CONTROL DATA CORPORATION

ICEM DDN VERSION 1.63
INSTALLATION INSTRUCTIONS
NOS Operating System Level: NOS 2 Level 678

Date: 5/15/87

DISCLAIMER

NOS and its product set are intended for use only as described in this document. Control Data cannot be responsible for the proper functioning of undescribed features or parameters.

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I. Release Description

ICEM DDN is a computer-aided design and computer-aided manufacturing (CAD/CAM) system that runs under the NOS and NAM/IAF communications package.

ICEM Design/Drafting Package

The ICEM Design/Drafting file contains overlays for Basic Geometry, ANSI Mechanical Drafting, and Geometric Analysis. For International Drafting Standards, see Appendix A.

ICEM Advanced Design Package

The ICEM Advanced Design consists of all the overlays in the ICEM Design/Drafting plus additional overlays for Advanced Design.

ICEM Numerical Control Package

The ICEM Numerical Control consists of all overlays in ICEM Design/Drafting and ICEM Advanced Design, plus additional overlays for Numerical Control.

ICEM GPL

ICEM GPL is a high level computer language designed to provide a user with features of the ICEM DDN product. The features are provided parametrically from within algorithms.

The ICEM GPL system consists of two parts: an interpreter located within the standard ICEM DDN and a stand-alone compiler. Source GPL programs must first be compiled before those programs can be interpreted by ICEM DDN.

The ICEM GPL compiler is provided with the purchase of any portion of ICEM DDN (Design/Drafting, Advanced Design, or Numerical Control).

Hardware Requirements

ICEM DDN requires the minimum hardware configuration for NOS and NAM/IAF. A maximum field length of 170,300 octal is required for execution. The user station is a Tektronix 4014 or 4016 with Extended Graphics, Tektronix 4105, 4107, 4109, 4113, 4114, 4115, or 4125, IEW 790 with TEKEM and Control Data Corporation 721.

II. Tape Formats and Files

All tapes are nine-track made with a density of 1600 cpi (D=PE) . All tapes are ANSI-labeled and in INTERNAL format (LB=KL,F=I) .

VSN=REL68 L=ICEMDD	VSN=REL68A L=ICEMAD	VSN=REL68B L=ICEMNC	VSN=REL68C L=ICEMGPL
#1 INSTALL	#1 INSTALL	#1 INSTALL	#1 INSTALL
#2 ICEMDDN	#2 ICEMAD	#2 ICEMNC	#2 GPL
#3 DDNSRB	#3 COPYLDR	#3 COPYLDR	#3 GTGT
#4 DDNVER		#4 PPFULL	#4 GOLIB
#5 DDNVIT			#5 PFX1660
#6 DDNUTIL			#6 PFX6016
#7 OPTIM			#7 XREC170
#8 VERUTIL			#8 XTRX170
#9 TAPE9			

Description of Files

(I) Indirect Access File (D) Direct Access File

COPYLDR (I) is a copy utility used in the integration of the Advanced Design or Numerical Control overlays into ICEM DDN Design/Drafting.

DDNSRB (D) is a text file containing the Software Release Bulletin. This document explains the new features and provides general information regarding this release.

DDNUTIL (I) is the relocatable binary for the interface between ICEM DDN draw files and UNIPLOT/UNIPOST.

DDNVER (I) is a CCL verification procedure file for the installation test of ICEM DDN.

DDNVIT (I) is a verification script input file for ICEM DDN.

GOLIB (D) is the absolute binary for the ICEM GPL interface.

GPL (D) is the absolute binary of the ICEM GPL Compiler.

GTGT	(D)	is the GRAPL-to-GPL Translator. See Appendix C for information on how to use this translator.
ICEMAD	*	is the module of Advanced Design overlays only. It is integrated into ICEMDDN upon the execution of the INSTALL Procedure on tape REL68A.
ICEMDDN	(D)	is the absolute binary for ICEM DDN zero overlay and the primary overlays.
ICEMNC	*	is the module of Numerical Control overlays. It is integrated into ICEMDDN upon the execution of the INSTALL procedure on tape REL68B.
INSTALL	*	is a CCL procedure to transfer the files on tape to disk under the user number under which the procedure is executed. The files are stored as either Direct (D) access files or as INDIRECT (I) access files depending on file size. All files are unloaded as PUBLIC, READ-ONLY files.
OPTIM	(D)	is the relocatable binary
PFX1660	(D)	is the absolute binary for translating CY120 to CY170 IPARTD part files.
PFX6016	(D)	is the absolute binary for translating CY170 to CY120 IPARTD part files.
PPFULL	(D)	is a text file containing expounded PP word library.
TAPE9	(I)	is a verification data file for DDNUTIL and OPTIM.
VERUTIL	(I)	is a CCL verification procedure file for the installation test of ICEM DDN plotter interface.
XREC170	(I)	is an absolute binary needed for IPARTD file to file transferring when using HAMLET.
XTRX170	(I)	is an absolute binary needed for IPARTD file to file transferring when using HAMLET.
PPFULL	(I)	Is a text file containing expanded PP word library.

* These files are temporary files used during the execution of the INSTALL procedure.

III. Installation Instructions

Installation of ICEM DDN Design/Drafting only

Two tapes are needed to install the complete ICEM DDN Design/Drafting package. They are REL68 and REL68C. The tapes can be installed on any user number, however, it is recommended they be installed on user number APPLLIB from the console. The instructions assume the tapes are being installed from the console. If not, begin at the LABEL command and disregard the DROP at the end.

```
X.DIS
SUI,377774.

LABEL,TAPE,VSN=REL68,L=ICEMDD,D=PE,F=I,NT.
BEGIN,,TAPE.

DROP.
```

Informational notes are displayed on the screen during the installation. The INSTALL procedure for REL68 will prompt the user when REL68C needs to be mounted on the tape drive.

See Section IV for ICEM DDN Verification instructions.
See Section V for ICEM DDN Plotter Interface Verification.
See Appendix D, Section 3.2 for comments concerning having ICEM DDN as system resident.

Installation of ICEM DDN Advanced Design and Design/Drafting

Three tapes are needed to install the ICEM DDN Advanced Design package. They are REL68, REL68A and REL68C. The tapes can be installed on any user number, however, it is recommended they be installed on user number APPLLIB from the console. If not, begin at the LABEL command and disregard the DROP at the end.

```
X.DIS
SUI,377774.

LABEL,TAPE,VSN=REL68A,L=ICEMAD,D=PE,F=I,NT.
BEGIN,,TAPE.

DROP.
```

Informational messages are displayed on the screen as necessary. The INSTALL procedure for REL68A will prompt the user when REL68 and REL68C need to be mounted on the tape drive.

See Section IV for ICEM DDN Verification instructions.
See Section V for ICEM DDN Plotter Interface Verification.
See Appendix D, Section 3.2 for comments concerning having ICEM DDN as system resident.

Installation of ICEM DDN Numerical Control, Advanced Design and Design/Drafting

Four tapes are needed to install the ICEM DDN Numerical Control package. They are REL68, REL68A, REL68B and REL68C. The tapes can be installed on any user number, however, it is recommended they be installed on user number APPLLIB from the console. The instructions assume the tapes are being installed from the console. If not, begin at the LABEL command and disregard the DROP at the end.

```
X.DIS
SUI,377774.

LABEL,TAPE,VSN=REL68B,L=ICEMNC,D=PE,F=I,NT.
BEGIN,,TAPE.

DROP.
```

Informational messages are displayed on the screen as necessary. The INSTALL procedure for REL68B will prompt the user when REL68A, REL68C, and REL68 need to be mounted on the tape drive.

See Section IV for ICEM DDN Verification instructions.
See Section V for ICEM DDN Plotter Interface Verification.
See Appendix D, Section 3.2 for comments concerning having ICEM DDN as system resident.

IV. Verification of the ICEM DDN (all packages)

Log into NOS using one of the valid terminal types. Valid terminal types and set-up information can be found in APPENDIX B. In the instructions below, the use of 'username' should be replaced with the user number where the files were installed. The use of 'baudrate' should be replaced by the first digit of the baud rate of the communications line. For example, 3 is the baud rate of 300, 1 is the baud rate of 1200, etc. The use of 'terminal type' should be replaced by the user's type of terminal. The default is T4014. The terminal type specified must be one of the valid terminal types listed on page 3.

```
GET,DDNVER/UN='username'.
DDNVER,'baudrate','username', 'terminal type'.
```

Ignore the request for input. It is being supplied by the verification input file. The output is emulating a Tektronix 4014 terminal. The result should match the display in figure ICEM DDN-1.

V. Verification of the ICEM DDN Plotter Interface

Log into NOS using one of the valid terminal types. Valid terminal types and set-up information can be found in APPENDIX B. In the instructions below, the use of 'username' should be replaced with the user number where the files were installed and where UNIPLOT/UNIPOST files reside. It is assumed ICEM DDN plotter interfacer files are installed on the same user number as UNIPLOT/UNIPOST.

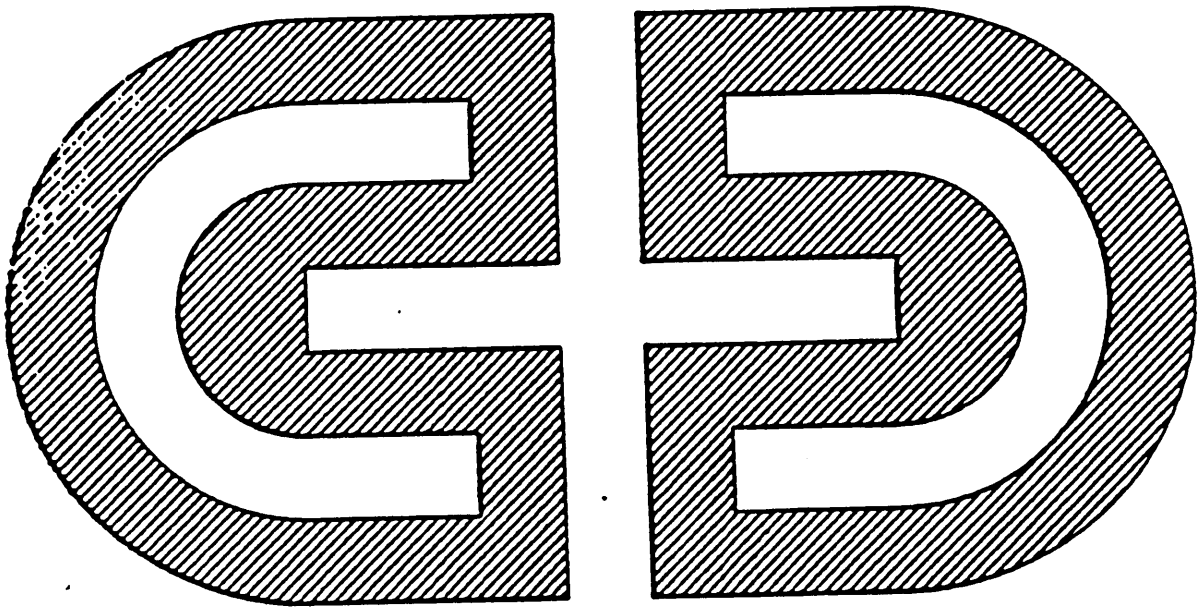
```
GET,VERUTIL/UN='username'.
VERUTIL,'username'.
```

The procedure VERUTIL executes UNIPOST. UNIPOST will prompt you in the following manner.

AUTOMATIC HARDCOPY (Y/N) ?	Specify Y if a hardcopy is desired and is available; specify N if not.
2. 4010 ASYNCHRONOUS 4. 4014 ASYNCHRONOUS 6. 4014 EGM ASYNCHRONOUS	Specify 6 as Tektronix terminal type.
ENTER BAUD RATE ?	Enter the baud rate of the communication line (example 1200, 9600, etc).

The screen will display the CDC logo (ICEM DDN-1). When the logo is drawn, crosshairs will appear. Press any key (A through Z) and the screen will clear and return you to NOS.

NOTE: Refer to the UNIPLOT Reference Manual for additional information.



CONTROL DATA
ICEM DDN

FIGURE ICEM DDN - 1

APPENDIX A
INSTALLATION INSTRUCTIONS

International Drafting Standards

- German Drafting Standard (DIN) library and installation instructions are available by contacting the Control Data CAE software development manager in Frankfurt, Germany.

  - Control Data GMBH
  - Stresemannallee 30
    6000 Frankfurt Main 70
    West Germany

- French Drafting Standard library is unavailable. Questions may be answered by the Control Data CAE software development manager, Paris.

  - Control Data France
    27 Cours Des Petites Ecuries
    B.P. 139
    77315 Marne LaVallee, Cedex 2
    France

- British Drafting Standard library is unavailable. Questions may be answered by the Control Data design/drafting analyst in London.

  - Control Data Limited
    Control Data House
    179-199 Shaftesbury Avenue
    London WC2H 8AX

- Swedish Drafting Standard library and installation instructions are available by contacting the design/drafting analyst in Goteborg, Sweden.

  - Control Data AB
    CAD/CAM Applications
    Box 10, Baldersgatan 4
    S-40120 Gothenburg
    Sweden

- Japanese Drafting Standard library and installation instructions are available by contacting the design/drafting analyst in Tokyo, Japan.

  - Control Data Japan, LTD.
    Sunshine Bldg., 27th F.
    1-1 Higashi-Ikebukuro 3-Chome
    Toshima-Ku
    Tokyo 170, Japan

- Chinese Drafting Standard Library and installation instructions are available by contacting the design/drafting analyst in Tokyo, Japan.

  - Control Data Japan, LTD.
    Sunshine Bldg., 27th F.
    1-1 Higashi-Ikebukuro 3-Chome
    Toshima-Ku
    Tokyo 170, Japan

APPENDIX B

TERMINAL SET UP PROCEDURES

The terminal used for the installation of ICEM DDN must be initialized. Instructions for initializing the 4014, 4016, 4105, 4107, 4109, 4113, 4114, 4115, and 4125 Tektronix terminals follow. Please refer to IEW790 with TEKEM manuals for 790 terminal initialization.

TEKTRONIX 4014 and 4016 TERMINALS.

1. The following terminal strapping options are for initial terminal installation.

   a. ECHO - ON
   b. GIN terminators - CR only
   c. CR effect - CR
   d. LF effect - LF

2. Turn the terminal power on. The 4014 POWER switch is on the front lower right corner of the pedestal stand. The 4016 POWER switch is located on the right side of the terminal head. The green POWER indicator, located on the keyboard, will light when power is switched on.

3. Allow the terminal to warm up. Warm up is complete when pressing the RESET PAGE key completely clears the screen.

4. Set the ASCII/ALT switch to the ASCII position.

5. Initialize the OPTION 1 or OPTION 20 according to the procedure below, as applicable.

6. To obtain the small character size, set the terminal to LOCAL mode. Press the ESC key and the ; (semicolon) key together and return to LINE mode.

7. Dial the appropriate telephone number, if applicable.

8. Press the RETURN key to obtain the login FAMILY message.

OPTION 1 INITIALIZATION

1. Select the appropriate baud rate switch setting using the BAUD RATE switch located at the rear of the pedestal stand.

2. Set the HALF/FULL DUPLEX switch to FULL.

3. Set the INTF/OFF/AUX switch to INTF.

4. Set the TTY LOCK key.

OPTION 20 INSTALLATION

- - NOTE - -
If the terminal is equipped with both the OPTION 1 and the OPTION 20, set the INTF/OFF/AUX switch of the OPTION 1 to OFF.

(Asynchronous lines only). Place the terminal in LOCAL mode. Press the SHIFT key and the CNTL key together. While both the SHIFT and CNTL keys are depressed, press and release the RESET key; then press the P key and release all keys. Place the terminal in LINE mode. Set the CODE EXPANDER switch to OFF.

TEKTRONIX 4105, 4107, 4113, 4114, 4115 and 4125 TERMINALS

Complete the following to set up the Tektronix 4113, 4114, 4115 or 4125 terminal.

1. Turn the terminal power on by pushing the POWER button.

2. Allow the terminal to initialize (some keys on the keyboard remain lit until the terminal has completed its initialization).

3. Press the SET UP key so the terminal operating modes can be changed at the keyboard. An asterisk (*) should appear to the left of the cursor.

4. Enter:

   STA

   to display the released terminal status settings.

5. Ensure the terminal has the following settings. The remaining Tektronix 4105, 4107, 4109, 4113, 4114, 4115, and 4125 terminal status settings will either be set by ICEM DDN or will not affect the operation of ICEM DDN. To change a setting, reenter the new setting.

Status	4105, 4107, 4109	4113, 4114, 4115, 4125
TBSTATUS emulation only	Not Applicable	Out for 4014
TBHEADER CHARS emulation only	Not Applicable	Out for 4014
RLINE LENGTH	140	140
ECHO	Yes	Yes
LOCK KEYBOARD	No	No
SNOOPY	No	No
BAUDRATE	Applicable Baud Rate	Applicable Baud Rate
FLAGGING	INPUT	INPUT
EOLSTRING	Not Applicable	Not Applicable
BLOCKMODE	No	No (4113 only)
BREAKTIME	100	100

Status	4105, 4107, 4109	4113, 4114, 4115, 4125
QUEUESIZE	8100	8100
DUPLEX	Not Applicable	Full (4113 only)
XMTDELAY	0	0
XMTLIMIT	Applicable Baud Rate	Applicable Baud Rate
BYPASS CANCEL		
Without Echoplex	NL	NL
With Echoplex	LF	LF

APPENDIX C

Using the GPL Compiler

Log into NOS using one of the valid terminal types. Valid terminal types and set-up information can be found in APPENDIX B. In the instructions below, the use of 'username' should be replaced with the user number where the files were installed. In addition, 'source program' should be replaced by the file name of your GPL program; 'grapl program' should be replaced by your translated GRAPL program file name; 'output file name' should be replaced by our output file name (default is OUTPUT); 'list file name' should be replaced by the file name you wish the translated program to be put on.

To create a new GPL object library:

```
ATTACH,GPL/UN='username'.
GET,'source program'.
GPL,I='source program',L=GPLLIST.
DEFINE,GPLLIB.
LIBEDIT,B=GPLOBJ,P=GPLLIB,C,Z./*BUILD GPLD.
REWIND,*.
```

To add additional compiled programs to an existing GPL object library:

```
ATTACH,GPL/UN='username'.
GET,'source program'.
GPL,I='source program',L=GPLLIST.
ATTACH,GPLLIB/M=W.
LIBEDIT,B=GPLOBJ,P=GPLLIB,C,Z./*BUILD GPLD.
REWIND,*.
```

Using the GRAPL to GPL Translator GTGT

Example:

```
ATTACH,GTGT/UN='username'
GET,'grapl program'
GTGT,I='grapl program',O='output file',L='list file'
```

--NOTE--

THE TRANSLATION IS NOT ALWAYS 100%.
CHECK FOR REMARKS IN THE GPL SOURCE OUTPUT.
(For more information, see Appendix F of the ICEM GPL Reference Manual.)

APPENDIX D

CYBER 800 TUNING GUIDE

FOR ICEM DDN

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1.0 INTRODUCTION:

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1.1 BACKGROUND - PROBLEMS

This guide will explore possible solutions to some of the common tuning situations.

The main problem is that users are expecting to set-up and play the hardware/software with no adjustments. This practice causes the site to run with the default setup parameters which were built for a small job environment. DDN is usually overlay bound and has a rather large field length. Depending on the disk configuration, the site is usually disk bound due to overlay loading and swapping DDN to disk. In the cases where the site has a lot of memory, the memory is not being utilized because no one has designated it as a "DE" equipment for DDN overlays and/or a swap device.

Because system analysts don't have a quantitative method of ascertaining what tuning functions cause improvements, tuning is not attempted. By using CPD, CTIME, RTIME, and ICEM DDN trace files, an objective index of performance can be obtained and improvements made.

2.0 OVERVIEW OF 800'S

2.0 OVERVIEW OF 800'S

2.1 800 FEATURES

The 800 has the following features:

* The 800 has a high speed central processing unit that runs with a memory that can be very large - 2 to 128 megabytes (262 thousand to 16 Million central memory words).

* The cache memory speeds up effective memory cycle.

* Peripheral processors operate at 4 times the original PPU speed.

* The 800 microcoded instruction set allows both NOS and NOS/VE operating systems to exist and run in the same machine (dual state).

* The range of ability for each machine has more than one dimension. As you go up the line in CPU power, the memory size can also be upgraded.

The following chart shows the different models and the allowed memory size options and multiple CPU option:

MODEL	MEMORY SIZE OPTION (Megabytes)									
	2	4	8	12	16	32	64	96	128	Dual CPU
810	X	X	X	X	X	X				NO
810A			X	X	X	X	X			NO
815	X	X	X	X	X	X				NO
825	X	X	X	X	X	X				NO
830	X	X	X	X	X	X				YES
830A					X	X	X			YES
835		X	X	X	X					NO
840					X	X	X	X	X	NO
845		X	X	X	X	X	X	X	X	NO
850					X	X	X	X	X	NO
855		X	X	X	X	X	X	X	X	YES
860					X	X	X	X	X	YES
870					X	X	X	X	X	YES
990					X	X				YES
990E					X	X	X	X	X	NO
995E					X	X	X	X	X	YES

2.0 OVERVIEW OF 800'S
2.1 800 FEATURES

. The 840A, 850A, 860A and 870A have an I/O subsystem of 20 PPUs and 24 channels.

. In dual state only one processor can be executing in the CYBER 170 mode.

. Currently 16 megabytes is the maximum memory that NOS can use.

It is the memory expansion characteristic that is most interesting for large applications like DDN. It has been observed that customers are overlooking the ability of the 800 to use this memory in many different ways.

2.2 800 MEMORY USE

The 800 memory can be used in the following ways:

(1) Job area - the job execution area is normally about 262K but can be bigger or smaller. Don't allocate more job area than it is possible to use (i.e. job area <= number of control points x max job length).

(2) Swap area - Rather than roll the job to disk, it can be swapped from memory to memory to avoid the disk accesses.

(3) System resident - specific overlays and/or PPU programs can be stored and retrieved from memory to avoid disk accesses.

(4) Buffer area for buffered disks.

(5) NOS/VE execution area.

All the above memory allocations are controlled by deadstart parameters in the CMR, EQPD, and IPRD decks. The EQPDxx entry for UEM is - "EQ005=DE,ST=ON,ET=EM,SZ=4000." (1 million words of UEM). The IPRDxx entry for the secondary rollout threshold is - "SRST=2000" (The maximum of 200,000 job field length will be rolled to the secondary rollout).

3.0 TUNING METHODS

3.0 TUNING METHODS

3.1 STEPS FOR TUNING

The following is a summary of the steps one can go through to tune 800s for ICEM DDN:

1) Run CPD - Find what the bottlenecks are. Tune by making NOS configuration changes such as system resident and channel/disk configuration (see section 3.5).

Check disk use percentages from the CPD run. 50-60% is pretty high. Moving overlays to CM or UEM and/or allowing ICEM DDN to run as system resident will help speed up the product and decrease disk access. Also, try to arrange your configuration so that equal access is occurring across all disk channels. Avoid channel 0 because it cannot be alternated in each mass storage device Equipment Status Table (EST) entry.

2) Run ICEM DDN with the T option on and collect overlay load numbers (CT file) for a given script. The IT file, resulting from the T option run is used for input (I=lfn) so that the run can be repeated for comparison after each tuning attempt (base timing). A program included in the appendix counts and sorts the counts by overlay for each overlay that was loaded during the script execution.

3) Based on CPD and the CT counts, move selected overlays into CM (Central Memory) and/or UEM (Unified Extended Memory). In level 630 of NOS a limited number of overlays can be put in CM, and near 400K the system hangs. The work around is to put additional overlays in UEM. At this level of the system, there does not seem to be any performance difference between overlay loading from CM or UEM.

4) Recheck response time by running a script in a quiet system with CTIME and RTIME control cards on each side of the ICEM DDN call. These numbers will tell you the amount of CPU time and real time used to make the run. Also, rerun CPD to check what is happening to the system resources. There is a Timesharing Instrumentation Package which measures response time, think time and transaction rates of IAF (LDS Publication number 15190016). This package will show how tuning has affected response time.

3.2 DDN SYSTEM RESIDENT

The advantage of having DDN system resident is that when it is in the system, more than one copy of the code is available from multiple disk channels. Also, selected overlays can be resident in CM.

Don't bother moving ICEM DDN to the system if you have only one channel to disk and you don't want to move overlays to CM or UEM. Also, remember that ICEM DDN will increase your system file by about 100K PRUs on each device that is designated as a system device.

On small capacity disk systems put ICEM DDN on the deadstart tape rather than on a permanent file which is SYSEDITed after deadstart. This will save 100K PRUs of permanent file space.

GPL overlays must be on a local file at execution time for GPL users. It currently does not run any other way.

Make an entry in the LIBDxx deck of "*FL ABS/ICMEDDN-6560" so that it will execute from the system file.

3.3 DDN OVERLAYS IN CENTRAL MEMORY

The problem with NOS 800 performance is caused by DDN having to load overlays from the disk. Generally, if the most frequently called overlays can reside in memory, the disk accesses will be much lower. If all the overlays that are called are put in memory, a script will run as well as it would on NOS/VE (virtual environment). Of course, the data caching won't be as good as VE but the performance should be considerably better than before the overlays were put in CM.

3.0 TUNING METHODS
3.3 DDN OVERLAYS IN CENTRAL MEMORY

Following is an example of the performance improvement on an 855 with the overlays in CM and other numbers showing relative performance:

SYSTEM	Running time	CPU time	Comment
760 NOS	374	13	DDN153 on 844s (System file)
855 NOS/VE	18	12	DDN153 on FMD's
830 NOS/VE	78	48	" " "
810 NOS/VE	138	78	" " "
760 NOS	371	7	DDN157 on 844s (System file)
760 NOS	291	7	DDN157 on FMDs (Local file)
855 NOS	267	9	DDN157 on Disk (System file)
855 NOS	160	9	3 overlays in CM+System file

The 100 second improvement for the 855 NOS is caused by reducing disk accesses. In theory, if all the overlays that are called are put in memory, the script would run as well as the 855 NOS/VE (18 seconds).

Also, notice the CPU time for each of the above machines. The CPU time requirement for DDN157 is less than DDN153. The 830 and 810 is 4 and 6 times less capable than the 760 or 855. If the site is CPU bound, the moving of the overlays into memory may not help response time during periods of CPU saturation.

The following table summarizes the overlay situation with a typical script:

Overlay	Load Count	Field Length of Overlay*	Accumulated Sum*
CL04	276	53040	54K
CL52	247	52551	126K
CL02	136	43215	171K
CL72	135	23066	215K
CL270	97	44031	261K
CL75	88	60042	340K
CL51	62	54513	415K
CL14	56	41300	457K
CL54	48	30441	507K

* Field length and sum are in octal.

These 9 overlays were loaded 1145 times. There were 1442 overlay loads in all with a total of 32 overlays used.

After the 4th or 5th most frequently loaded overlay, the payoff from having the overlay in Central Memory (CM) goes down. The rest of the CM can be used for swap area. Both of these uses take away some CPU usage that would be normally available to user programs. But because most sites are disk bound, the swapping and overlay loading from memory to memory saves on disk access and speeds up the user response time.

If CPD runs and RTIME and CTIME control cards are used around a script run before and after these tuning suggestions, the effect can be measured. With less disk access the product (ICEM DDN) will speed up and will make more use of the CPU so that swapping and overlay loading will occur faster. This can have a secondary effect of causing more CPU utilization due to more jobs (through CPU swapping) having access to the CPU and less disk access due to overlay loading from memory to memory loading. This secondary effect may necessitate a reduction in the the job switch delay so that the CPU is shared better between competing jobs. In any case, the above tuning should have a positive effect on response time for the average ICEM DDN user.

3.4 CPU BOUND 800

If your site is CPU bound (95-99%) , the moving of the overlays to Central Memory may cause the individual ICEM user to run a lot faster but when a large terminal load is present the total throughput may decrease. You may take steps to decrease the CPU usage to optimize. Because the CPU is used to move overlays around in memory, the moving of overlays to disk may decrease CPU usage. This will slow down the terminal response for the user at light loaded times but should make the user at CPU bound times run better. This situation seems to be rather rare and is found only on the 825s and lower machines. In determining if your site is CPU bound don't be mislead by maintenance jobs or batch jobs which soak up the CPU when the time-sharing jobs are not running.

3.5 CPD READING

CPD or TRACER (NOS System Maintenance Reference Manual - 60459300) and PROBE are used for statistical analysis of your

system performance. The data is used to determine areas where problems occur, where improvements in design and system tuning can be made. These products work by periodically gathering data about the system and writing the data to a file.

TRACER is made up of 4 programs:

1) ICPD - Starts up CPD PPU program
2) CPD - CPD is a dedicated PPU program which monitors system activity. Data is written to a direct access permanent file for future analysis.
3) ACPD - A post-processor program which generates an output report from the direct access permanent file written by CPD.

See the NOS Maintenance manual (60459300) for details of calling parameters for TRACER. The following sequence will start and complete TRACER operation:

1) ICPD,p1,p2,...pn. (starts CPD up)
2) ENDCPD. (ends CPD data gathering)
3) ACPD,p1,p2,...pn. (processes the CPD data and generates a report)

The ACPD report is in three sections -

1. System parameters and EST configuration.
2. System Control Information.
3. Interval Samples.

3.5.1 SYSTEM PARAMETERS AND EST CONFIGURATION

The System Parameters relate such things as the start date and time, report interval, memory size, UEM, number of PPUs and various lengths of software tables. The EST table is dumped showing the channel and disk connections.

3.5.2 SYSTEM CONTROL INFORMATION

The System Control Information relates what the priority is for each job class. The BC, TS, and DI classes are especially important to good system response. The BC and DI should have a lower PR (CPU priority) than the TS class. This will allow time-sharing to always get the CPU before BC or DI can get it.

The other important parameters are the UP (upper priority limit) and LP (lower priority limit). These parameters are set based on how often batch jobs are rolled in and out without ever getting executed. If there is usually a lot of CM available, the UP and LP can be lower for batch and detached jobs than for time-sharing jobs. These parameters control the rolling out of batch or detached jobs when a time-sharing job requests more memory than what is currently available. If the execution memory is small in comparison to the field length requests, the batch and detached jobs should have the same UP and LP so that jobs are not rolled in and out without doing any work. The NJ parameter can help this situation. By controlling the number of batch jobs that can execute at the same time, the batch field length can be controlled. The NJ parameter for time-sharing controls the number of users allowed.

The FL and AM parameters for each job class can be designated to limit by job and/or job class how much Field Length (FL) may be used and when to schedule the job to CM. These parameters can be used to partition the memory by job class and run specific jobs at a selected time of the day.

The CM parameter controls how long the UP priorities are in effect. With faster CPUs a sort duration 4-5 seconds is desired so that users that are running batch jobs in time-sharing mode are dropped down to the batch priority (assuming that batch priority is the same as the time-sharing lower bound priority). Thus, short duration time-sharing tasks will get the most attention.

3.5.3 INTERVAL SAMPLE

The following table shows some of the parameters and what action might be taken to improve performance when a high percentage of use is shown:

Parameter (high percentage)	Cause/Information
PPUS ACTIVE	Not enough Disk Channels or PPUs.
NO PPU AVAILABLE	Same as PPUS ACTIVE.
CHANNEL ACTIVE	50-60+ up means that more disk channels will improve response time.
CPU USAGE -	
IDLE	High idle percent means the CPU is not being used - could be caused by the system being disk bound.
SYSTEM	System Software using excessive CPU.

SUB-SYS	Same as SYSTEM.
SYS ORG	Same as SYSTEM.
USER	You are getting as much as you can out of the system. Application CPU usage may be excessive.
FL AVAILABLE	Large percent is good - lots of room to run jobs. If coupled with secondary rollout filling up, FL needs to be moved to the secondary rollout area.
IAF USERS	Number of users.
TRACKS AVAILABLE	When a device has only 10% of its tracks available the system automatically does not use this device for TEMP files.

TOTAL ROLLOUTS	The statistics on total and secondary rollouts
SECONDARY ROLLOUTS	will tell you if your secondary rollout threshold
TOTAL SECTORS ROLLED	is large enough and how much your secondary rollout
SECONDARY SECTORS ROLLED	device is being used.

INSUFFICIENT CM	Number of times no CM was available to bring in a job.
NO CONTROL POINT	This number will tell you if you have enough control points defined.

3.6 PROBE

The PROBE utility measures the following:

1) The number of times a PP routine was loaded.
2) The number of CIO RA+1 requests by function number.
3) The number of PP requests to CPUMTR by function number.
4) The number of MTR requests to CPUMTR by function number.
5) The statistical data accumulated in low central memory - includes such items as number of sectors rolled and number of rollouts.

PROBE data gathering is enabled at deadstart time by an IPRDECK entry. SYSEDIT resets the PROBE data tables to zero.

PROBE is useful in moving PP routines to CM when they are called frequently enough, thus improving system performance.

3.7 CONSOLE WATCHING

Many times all the various tools are not as useful as just watching the system console for signs of thrashing and/or particular user abuse. The following items are worth watching for:

1) Users running batch jobs in time-sharing mode.
2) Batch jobs that are being rolled in but not getting the CPU before they are rolled out again.

3) Jobs that have excessive resource requests over extended peri s.
4) Maintenance jobs running at too high a priority and/or too many running. One job (CT7) is probably enough. Too many maintenance jobs cause a forced rollout every time a time-sharing job is brought in.
5) Permanent file dumping and loading during the prime shift will slow down or stop any PF requests by your users.
6) NOS/VE running in a dual 800 can have a default priority that allows NOS/VE to take the CPU away from NOS.

4.0 PERMANENT/TEMP FILE ALLOCATION

It has been found that allowing temporary and permanent files to be allocated on every device seems to be the best strategy to spread the load onto as many units as possible.

5.0 EDL TUNING

5.0 EDL TUNING

In many sites the Engineering Data Library (EDL) runs with ICEM DDN and can contribute to excessive resource use. The following EDL file (IMF2STF/UN=IMF) should have the following values for best performance:

```
3 NUMBER OF USER PROCESSES TO CHECK FOR EACH MTR LOOP
2 SEMI-IDLE RECALL TIME (MILLISECONDS)
15 ACTIVE RECALL TIME (MILLISECONDS)
1 K-DISPLAY REFRESH CYCLE
50 MAX NUMBER OF TIMES IDLE BEFORE SCP SWAP-OUT
30 MAX NUMBER OF CONNECTED USERS
10 MAX NUMBER OF OPEN DATA-BASES
170 MAX NUMBER OF ATTACHED FILES
3 NUMBER OF ALLOCATED USER STACKS
5 NUMBER OF INPUT BUFFERS
1 NUMBER OF INPUT QUEUE ENTRIES
3 NUMBER OF I/O BUFFERS
0 NUMBER OF TRANSACTION FILES ON ECS
1 NUMBER OF LONG WAKE-UP WAITS ALLOWED AT STACK
2 NUMBER OF SHORT WAKE-UP WAITS ALLOWED AT STACK
6000 LONG WAKE-UP WAIT SWAP-OUT DELAY
4000 SHORT WAKE-UP WAIT SWAP-OUT DELAY
30 PARCEL STACK PREEMPTION DELAY
30 SINGLE READ STACK PREEMPTION DELAY
1 TRACE
```

The file DEFSTF/UN=IMF (installation file for IMF) should be used as a model. The default values which have been changed above are:

```
ACTIVE RECALL TIME = 30
TRACE = 1
```

Also, journal logging may be turned off for the EDL database. This will save considerable overhead. However, if the system crashes with the database open, the database file may have to be reloaded from the last permanent file backup, instead of being recovered to the point of failure.

To turn off journal logging, log into the account where the EDL database file E120DDB resides, and type the following commands:

```
GET,CHLOG21/UN=IMF
CHLOG21,OFF,E120DDB,E120LOG.
```

6.0 CONCLUSION

Due to the many ways DDN is used, and considering the many other applications that are run on 800s, the tuning recommendations may or may not be applicable.

If after you have tried to tune your system it still has bad response time, please send CIM Field Support the following information and they will try to assist you:

1. Your name and phone number.
2. Describe response time with the general areas of DDN that are used.
3. Computer model (810, 830, 860, etc.), memory size, and length of time your system has been running DDN.
4. NOS level of the operating system and indicate if running dual state.
5. Disk configuration - Channels, disk models, and hookup configuration.
6. DE entry - memory allocation - Job area, overlay, and swap area.
7. List the names of DDN overlays that are resident in memory.
8. If possible, include a Tracer listing which contains much of the above information. The Tracer listing should be from an average day.

7.0 APPENDIX

7.0 APPENDIX

The following procedure and program will count the times each overlay is called and the total number of overlays called by processing the CT file which is output from a ICEM DDN run with the T option on:

```
.PROC,SORTCT.
PACK,CT,TAPE2.
FILE,TAPE2,BT=C,RT=U.
FTN5,I=SORTC,B=LGO,L=L,OPT=2.
LGO.
NOTE./ RESULTS ON FILE LIST.
.DATA,SORTC.
      PROGRAM SORTCT(INPUT,OUTPUT,TAPE2,LIST,TAPE1=LIST)
      INTEGER IBUF,INUM(512)
      REWIND 1
      REWIND 2
      ITOTAL = 0
 5    READ(2,END=15)IBUF
      IF(IBUF .GT. 512)GO TO 5
      IF(IBUF .LT. 0)GO TO 5
      INUM(IBUF) = INUM(IBUF)+1
      ITOTAL = ITOTAL+1
      GO TO 5

C     DONE READING CT.

 15   WRITE(1,3000)
      DO 30 J=1,512
      K = 0
      LASTBG = 0
      DO 20 I=1,512
      IF(INUM(I) .GT. LASTBG) THEN
         LASTBG = INUM(I)
         K = I
      ENDIF
 20   CONTINUE
      IF(LASTBG .EQ. 0)GO TO 9000
      WRITE(1,1000) K,INUM(K)
      INUM(K) = 0
 30   CONTINUE
 9000 WRITE(1,2000) ITOTAL
 1000 FORMAT (' CL - ',03,3X,I10)
 2000 FORMAT (' SUM = ',I10)
 3000 FORMAT ('1','OVERLAY NUMBER','   COUNT')
      END
```

end

Electrostatic Plot Subsystem

External Reference Specification

I. OVERVIEW

The Electrostatic Plot Subsystem (EPS) is a NOS Version 2 subsystem that removes raster formatted files from the NOS plot queue and plots them on an electrostatic plotter. The plot files are INTERSYS one bit per pixel images and can be generated by INTERSYS, XPLOR, MCIDAS, XAMIN, or by UNIPLOT/UNIPOST. EPS used Benson electrostatic plotters. Three Benson models are supported; 9324, 9336, 9344 with resolutions of 200 dots per inch. Benson plotters are connected via the Channel Interface Unit (CIU). EPS will support multiple CIUs with each CIU having multiple plotters. EPS provides the NOS operator status and control through the NOS K-display facility. EPS is comprised of three major software modules:

1) PLOTSS -- Cyber CPU resident subsystem code
2) XOO -- CIU/Plotter PP driver
3) ICSYS -- CIU resident plotter driver

See Fig. 1 for the relationship of the major compomnents of EPS.

II. USER INSTRUCTIONS

The user can cause EPS to plot a file by placing the file in the NOS plot queue. The file can be placed into the plot queue by using the ROUTE control statement. To plot a file the user would execute the following control statement:

```
ROUTE,lfn,DC=PL.
```

where "lfn" is the local file name of the file to be plotted. Executing this statement would place the file into the NOS plot queue and EPS would plot the file on the first available plotter. If the resolution of the plot file exceeds that of the plotter, EPS will truncate the plot file to fit on the plotter. If the user wants the file to be plotted on a plotter with a known resolution, the following statement should be executed:

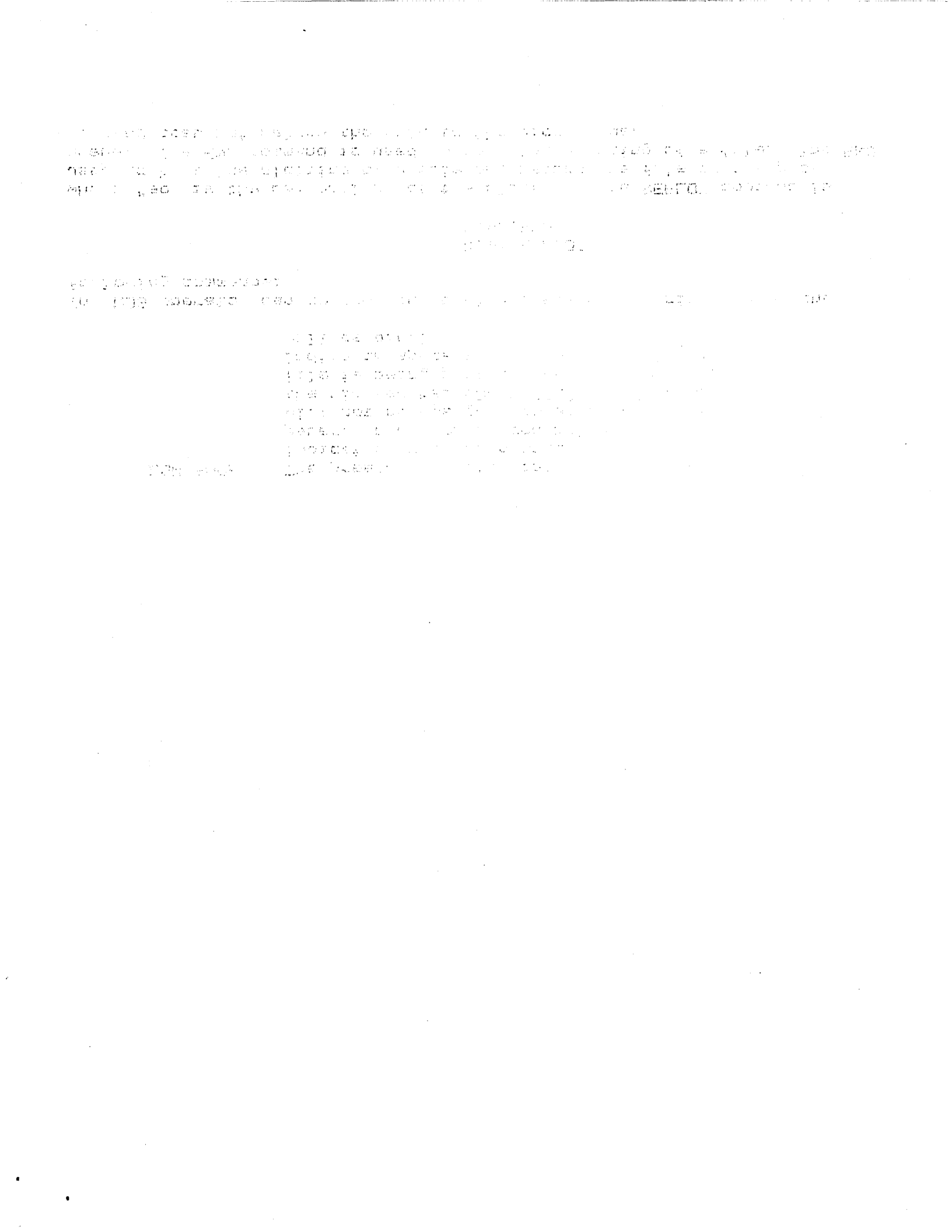
```
ROUTE,lfn,DC=PL,ID=id.
```

where "id" is the plotter type identification. The legal values for "id" are:

24 Specifies a 24 inch plotter with a resolution of 4224 pixels per line.

36 Specifies a 36 inch plotter with a resolution of 7040 pixels per line.

44 Specifies a 44 inch plotter with a resolution of 8690 pixels per line.



III. NOS OPERATOR INTERFACE

The NOS operator communicates with EPS through the K-display. The K-display provides a one line status display for each plotter connected to EPS. The format of the status line is:

EST	JSN	STATUS		
eq	lfn	NOT READY	HARD ERR.	LOW SUPP.

eq Indicates the EST ordinal of the plotter.

lfn This field contains either the JSN of the file currently being plotted on this plotter or either IDL or IDL*. The character string IDL indicates that this plotter does not have a plot file assigned to it. The character string IDL* indicates that this plotter has just finished plotting a file and EPS is waiting for the plot buffers to clear. If IDL* is displayed for an extended time and no other status indications are displayed, either a hardware or software error exists.

NOT READY The presence of this character string indicates that the plotter is either powered-off or is off-line. A plot file will not be assigned to an idle plotter if the plotter is NOT READY.

HARD ERR. The presence of this character string indicates that a hardware error was detected in the CIU. The only way to clear this error is to IDLE EPS.

LOW SUPP. The presence of this character string indicates that the plotter is low on either paper, toner, or concentrate. A plot file will not be assigned to an idle plotter if the plotter has LOW SUPPLIES. If a plot file is being plotted when the LOW SUPP. indicator appears, the entire plot file will be plotted.

The NOS operator can control the plot process by entering one of the following commands:

```
K.eq,REPLOT
K.eq,END
```

where "eq" is the EST ordinal of the plotter. The REPLOT command is used to halt the plotting of a file and return the file to the plot queue. The END command is used to halt the plotting of a file. The END command does not return the file to the plot queue.

IV. INSTALLATION INSTRUCTIONS

EPS is supplied on a single nine-track magnetic tape recorded at 1600 bpi. The installation tape contains eight files. The contents of the files are:

File 1 A CCL procedure to copy each of the remaining files to a permanent file.

File 2 A CCL procedure to make the necessary system modifications and assemble/compile the EPS modules. The analyst performing the installation should inspect this file to assure that the NOS system modifications do not conflict with local site modifications. This procedure produces a binary file of corrections/additions for the system deadstart tape and also a number of binary files used for the initialization of EPS. This file is copied to file INSTALL.

File 3 This file is a sample CCL procedure file that will be invoked when EPS is started. This file is copied to file EPS.

File 4 This file contains the modify OPL for EPS. It's copied to file EPS2PL.

File 5 This file contains the binary load module for the CIU. It's copied to file PDPLGO.

File 6 This file contains the binary for the PDP Compass assembler. It's copied to file PDP. This file will normally not be used. It will only be used if modifications are required to the CIU program.

File 7 This file contains a test plot. It's copied to file TESTPLT.

File 8 This file contains a test plot a bit more interesting than the plot on file 7. It's copied to file DRAGON.

The steps to follow to install EPS are:

1. Assign the local file name "TAPE" to the installation tape and execute "BEGIN,,TAPE."

2. Inspect the NOS system modifications in file INSTALL for any conflicts with local site modifications.

3. Execute BEGIN,,INSTALL. This will create a binary file of additions and changes for the system deadstart tape

and also other files that will be used to initialize EPS. The files created by this procedure are:

LGO — This file contains the additions/corrections for the deadstart tape.

FVTESTB — This file contains the binary for a quick test on the CIU. The test transfers random data to the CIU and then reads it back and checks for errors. This test is executed each time EPS is initialized.

FVLDRB — This file contains the binary for the CIU boot loader. It reads the CIU program on file PDPLGO and loads it into the CIU.

VRETURN — This file contains the binary for a program used by the procedure file EPS to return a local file assigned to equipment type VT.

LIST — This is a local file that will contain the list output from the modification of the system OPL. It will also contain the list output from COMPASS for the assembly of the modified routines (CPUMTR is not listed, the modification is trivial and the listing huge).

LIST2 — This is a local file that will contain the list output from the COMPASS/FTN5 assembly of the EPS modules. The program for the CIU is not included in this listing.

4. Create a new CMR deck with a EST entry for the CIU. The format of the EST entry is:

```
EQxx=VT,ST=ON,CH=xx,EQ=0,UN=11.
```

The unit numbers associated with the CIU are four bit numbers. The lower three bits designate the physical device and bit 3 indicates if this unit is bootable. The CIU program supplied with EPS has three units defined:

Unit 0 — Ramtek display used with INTERSYS (an interactive image processing system).
Unit 1 — Benson plotter.
Unit 2 — Benson plotter with an Logic Sciences HSR-11 rasterizer. This version of EPS does not support the HSR-11 rasterizer.

If the system will include both a Ramtek display and a Benson plotter, the EST entries should be:

```
EQxx=VT,ST=ON,CH=cc,EQ=0,UN=00.   RAMTEK
EQyy=VT,ST=ON,CH=cc,EQ=0,UN=11.   BENSON
```

This will allow INTERSYS and EPS to share the CIU but will only allow the CIU to be booted from unit 11 which should always be assigned to EPS.

5. Create a new deadstart tape.

6. Create a plotter configuration file. This file must be an indirect access permanent file and should have the name PCFILE. It's accessed by the procedure file EPS when EPS is initialized. Since all EST entries associated with a CIU are identical, there is no distinguishing field that specifies a particular EST entry as being a plotter or the type of plotter (9324, 9336, 9344). PCFILE contains a coded line image for each plotter in the system. The format of the lines in PCFILE are:

   ```
   EQ=xx,type.
   ```

   where xx is the EST ordinal and type is one of the following, 9324, 9336, or 9344.

7. Modify the file EPS to reflect the proper user index and EST ordinal. Place a copy of EPS under user index 377777.

V. PLOTSS -- CYBER CPU RESIDENT SUBSYSTEM CODE

DATA STRUCTURES

The routines in PLOTSS use a data structure comprised of a PLOTTER TABLE, a CONTROLLER TABLE and FETs. The data structure is used for communicating with the PP routines CIO and XOO and for maintaining the state of each plotter. Various fields in each type of data structure (PLOTTER TABLE, CONTROLLER TABLE, CIO FET, and XOO FET) contain pointers to another structure. Refer to Fig. 2 to see how the different data structures are linked together.

PLOTTER TABLE

The PLOTTER TABLE contains a sixteen word entry for each plotter connected to EPS. Refer to Fig. 3 for a schematic of the PLOTTER TABLE. The definition of each field in the PLOTTER TABLE is:

JSN	Contains four characters that are either the JSN of the plot file assigned to this plotter or the characters IDL or IDL*. The character string IDL denotes that this plotter does not have a plot file assigned to it. The character string IDL* denotes that this plotter has just finished plotting a file and is waiting for the XOO circular buffer to empty.
STATE	Contains an address of the current state routine in the module PLOTF (Plot File Executive).
RESOLUTION	Contains the number of pixels per line.
EST	Contains the Equipment Status Table ordinal.
ID	Contains the plotter ID. This field is used to select the proper plotter when a file is routed with ID=xx specified.
E	Set when the END plot command is entered.
R	Set when the REPLOT command is entered.
ERR	Contains the address of the error message to be plotted.
QAC PEEK	Words 4 through 15 contain the first 12 words returned by the QAC PEEK request. These words are filled by the module PPQ (Process Plot Queue).

XOO FET

The communication with the PP routine XOO is performed by a FET and circular data buffer. Refer to Fig. 4 for a schematic of the XOO FET. The first five words of the XOO FET have the same format as a FET that

is used with CIO. Words FET+5 through FET+17 have special meaning. The definition and use of these words are:

MNEMONIC	DEFINITION AND USE
DROP	This field is used as the drop command for the PP routine XOO. XOO will continue to write data to the plotters until this field is non-zero. This field is only valid in the first FET of a controller chain.
STATUS	This field contains the status of the plotter. It's written by XOO and used by the K-display routines and by PPQ. PPQ will not assign a plot file to a plotter that is either not ready or has low paper supplies.
FIRST FET	This field contains a pointer to the first FET in a controller chain. All the FETs associated with a common CIU are linked together. When XOO is called, only the address of the first FET in the chain is passed to XOO.
PLOTTER	This field contains a pointer to the PLOTTER TABLE entry for this plotter.
NEXT	This field contains a pointer to the next FET in the chain. NEXT is initialized by PRESET and used by XOO.
XO.RL	The number of 60-bit words to transfer to the plotter for each plot raster line (record). XO.RL is initialized by PLOTF and used by PLTF.
XO.HDR	This is a five word entry that contains the control word and a fifteen 16-bit word header that is placed in the circular buffer at the beginning of each record. It is initialized by PLOTF and used by PLTF.
XO.NWDS	This is a working location used by the module PLTF. It is used to count the number of 60-bit words that have been transferred to the plotter. It is reset at the beginning of each record.
XO.STAT	This field represents the state of the module PLTF for this plotter. A zero value indicates that PLTF is at the start of a new record. A non-zero value indicates that PLTF is processing a record.

XO.SIZE This field contains the size of the circular buffer. Initialized by PRESET.

XO.NREC This field counts the number of records processed. Updated by PLTF and not used by anybody.

CIO FET

The FET that is used to communicate with CIO has three non-standard fields defined in FET+8 through FET+10. The definition of these fields are:

CIO.NWDS	FET+9	Number of 60-bit words in the next pru.
CIO.EOR	FET+9	Non-zero if an EOR was read.
CIO.SIZE	FET+10	Contains the size of the circular buffer.

CONTROLLER TABLE

The CONTROLLER TABLE contains a single word for each CIU connected to EPS. Refer to Fig. 3 for a schematic of the CONTROLLER TABLE. The definitions of the fields are:

FIRST XOO FET This field contains the address of the first FET in the chain. All FETs that are associated with a common CIU are linked together.

CS This field contains the channel number of this CIU.

PRS -- PRESET

The main program defines the data structures PLOTTER TABLE, XOO FETs, and CIO FETs with the macro PLOTTER. The main program also allocates space for the CONTROLLER TABLE. The main program, however, does not link the various data structures together, allocate space for circular buffers, or initialize the PLOTTER TABLE fields RESOLUTION, EST, and ID. This is the function of PRS.

PRS determines how to initialize the data structures by reading directives from the file PCFILE. PCFILE contains directives in the form of line images. Each directive defines one plotter. The format of the directives is:

EQ=nnnn,type.

nnnn The EST ordinal for the plotter.

type Denotes the type of plotter. The legal values of "type" can be 9324, 9336, or 9344.

After PRS determines the type and EST ordinal, it calls the PP routine XIO to assign the file name PLOTTERn to the specified EST ordinal. XIO returns the EST word in FET+6. PRS uses the EST word to determine the channel for this plotter. The channel number is used to build the CONTROLLER TABLE and to link the XOO FETs of all plotters sharing a common controller (CIU).

When PRS has processed all the directives on the PCFILE, the field length is increased and the circular buffers for CIO and XOO are allocated.

SOFTWARE MODULES

CONNECTIONS

The CPU resident code consists of seven modules:

1) PLOTSS MAIN LOOP
2) PPQ -- PROCESS PLOT QUEUE
3) PLOTF -- PLOT FILE EXECUTIVE
4) PLTF -- PLOT FILE DRIVER
5) BANRGEN -- GENERATE BANNER PAGE
6) KDISPLA -- K DISPLAY GENERATION
7) KINPUT -- OPERATOR INPUT

Refer to Fig. 5 for the direct connections between the main modules.

MAIN LOOP

The main loop of PLOTSS performs two types of tasks.

1) Tasks that are performed each time through the main loop.
2) Tasks that are performed periodically, approximately every two seconds.

Each time through the main loop, PLOTSS:

1) Calls PLOTF for each plotter.
2) Calls KINPUT to process operator commands.
3) Conditionally calls PPQ (if PPQSW is non-zero).

Approximately every two seconds, PLOTSS performs the following functions:

1) Examines each CIU defined by the CONTROLLER TABLE. If the CIU is idle, i.e., a copy of XOO is not currently assigned to it, a call to XOO is made to update the status of all the plotters connected to the CIU.
2) Calls KDISPLA to update the information in the K-display buffers.

PPQ -- PROCESS PLOT QUEUE

PPQ uses QAC to search the plot queue for the plot file with the greatest priority. If a file is found that can be plotted, the file is

attached with a QAC GET request and assigned to the appropriate plotter. PPQ is designed to be reentered multiple times. Whenever PPQ calls QAC for either a PEEK or a GET, it returns to the main loop before the PEEK or GET request completes. This allows the main loop to service the circular buffers of any active plotters. The location PPQSW contains the address in PPQ where processing is to continue. The values that location PPQSW can contain and the associated processing functions are:

negative	This is the initial entry to PPQ. The PEEK request block is initialized and the initial call to QAC is executed.
PPQONE	Each file returned in the PEEK reply buffer is examined. The file(s) with the highest priority and a compatible plotter ID is assigned to an available plotter. The assignment is performed by moving the twelve words from the PEEK reply buffer into the last twelve words of the PLOTTER TABLE. The actual attaching of the plot file is done by the processing in the next phase.
PPQTWO	Each entry in the PLOTTER TABLE is examined. For each plotter that is idle (word 0 of the PLOTTER TABLE contains "IDL") and has a plot file assigned (word 4 of the PLOTTER TABLE contains an JSN), QAC is called to attach the file.
PPQTHREE	This phase waits for the QAC GET request to complete. When the GET request is complete, the plotter status is changed to BEGIN PLOT. This is accomplished by setting word 0 of the PLOTTER TABLE to the plot file JSN and the address of P.BEGIN (an entry point in the module PLOTF).

PLOTF -- PLOT FILE EXECUTIVE

PLOTF is the PLOT FILE EXECUTIVE and its task is to manage the transfer of data from the disk resident plot file to the plotter. PLOTF is called from the MAIN LOOP for each plotter defined in the PLOTTER TABLE. With respect to PLOTF, each plotter can be in one of six states. The state of each plotter is defined by an address of the associated processing routine in PLOTF and is stored in the lower 18 bits of the first word in the PLOTTER TABLE. A brief description of each state is given below. For a more complete description, refer to the listing.

SYMBOL	DESCRIPTION
P.IDLE	This state indicates that the plotter does not have a plot file assigned to it. When the plotter is in this state, PLOTF does nothing more than exit.
P.BEGIN	This state initializes the plot process. Some initialization commands are sent to the plotter via XOO along with the banner page. The first

record of the plot file is read and the file checked for the proper format.

P.PLOT When the plotter is in this state, plot data is being transferred from the disk resident plot file (via CIO) to the plotter (via XOO). PLOTF does not transfer the data, rather it calls the module PLTF to transfer the data.

P.DONE When all the data has been transferred from the plot file to the plotter, this state is entered. This state plots the ending banner and sends commands to the plotter to position the paper so that the plot is exposed.

P.FLUSH This state waits until the circular buffer for XOO is empty.

P.END This state checks the repeat count of the plot file and either sets the state to P.BEGIN to repeat the plot or to P.IDLE if another copy is not required.

PLTF -- PLOT FILE DRIVER

PLTF is the routine that transfers data from the disk resident plot file to the Benson plotter. PLTF calls CIO to read the plot file and calls XOO to write the data to the plotter (via the CIU). PLTF is called from PLOTF and is passed the address of a CIO FET and the address of a XOO FET. PLTF will transfer data from the CIO buffer to the XOO buffer until one of the following conditions is true:

1. END-OF-FILE on the plot file.
2. CIO buffer emtpy.
3. XOO buffer full.
4. Record limit reached. The record limit is currently set for 100 records.
5. An error condition is detected from XOO. PLTF is a finite state machine with only two states:

State 0 -- Initialize to process a new record.
State 1 -- Transfer data (in prus) from the CIO buffer to the XOO buffer.

Refer to the comments in the listing for a complete description of the processing steps for each state.

When PLTF is executing, certain registers are dedicated:

A0: CIO FET address
X0: XOO FET address
B2: Contains the number of 60-bit words remaining to be transferred to XOO.
B5: The current value for the XOO circular buffer IN pointer.
B6: The value of the XOO circular buffer LIMIT pointer.

BANRGEN -- GENERATE BANNER PAGE

BANRGEN is called from PLOTF to generate the character data for the plotter banner page. BANRGEN generates the banner from the data in words 4 through 15 of the PLOTTER TABLE. These words are filled by the routine PP0 when the file is attached.

K-DISPLAY ROUTINES

The K-display module contains two routines. The routine KINPUT is called each pass through the main processing loop to process NOS operator commands. The routine KDISPLA is called approxiametly every two seconds to update the K-display buffers.

VI. XOO -- PLOTTER PPDRIVER

XOO is a pool PP program that transfers data from a Cyber resident circular buffer to a CIU resident buffer. XOO is a modified version the the PP program XIO. The differences between XOO and XIO are:

1. XOO performs only one type of function (WRITE DATA) while XIO performs both reads and writes as well as control functions.
2. XOO is called with a list of FETS. XIO only operates on a single FET.
3. The main processing loop of XOO and XIO are completely different.

Refer to Fig. xx for a flowchart of the processing loop of XOO.

VII. ICSYS -- CIU PROGRAM

ICSYS is the CIU resident program that contains the hardware device drivers. ICSYS contains three device drivers:

1. Ramtek 9400 color raster display.
2. Benson 93xx electrostatic plotter.
3. Benson 93xx electrostatic plotter with a Logic Sciences HSR-11 rasterizer. This device is currently not supported by EPS.

The main function of the CIU resident program is to receive data from the Cyber, do any reformatting that may be necessary, and send the data to the appropriate device. Refer to the document PDP Executive and Device Software Specifications for a detailed description on the internal structure of ICSYS and the communication protocol between ICSYS and the Cyber (XIO and XOO).

VIII. PLOT FILE FORMAT

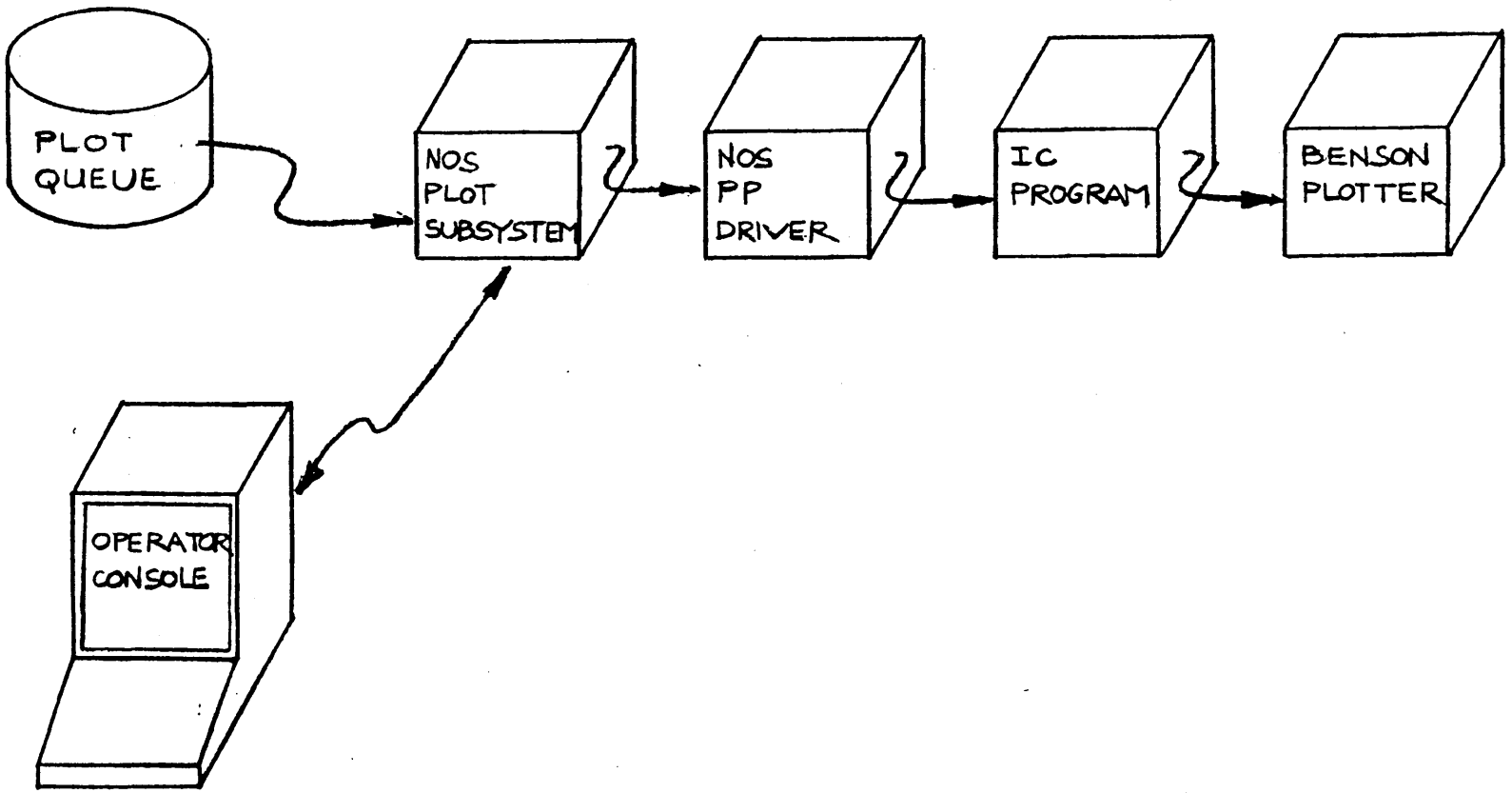
EPS accepts plot files in INTERSYS image format. INTERSYS image files are raster-formatted files with one raster per fixed length record. EPS requires that the pixel length be one bit per pixel. The first record of INTERSYS image files is an header record that describes the pixel length, record size, and contains other routine dependant data. Refer to appendix 1 for a schematic of the header record.

IX. XOO/CIU PLOTTER RECORD FORMAT

When EPS transfers plot data to the CIU resident plotter driver, it preceeds the plot data with a header of fifteen sixteen-bit words (four sixty-bit words). This header is used to communicate the type of data record to the plotter driver. Only the first three words of the header contain information. The format for the first three words is:

command	word-1	word-2	word-3	data record
RASTER	10$_{(8)}$	No. of words	not used	plot data
TEXT	12$_{(8)}$	No. of chars	size 100$_{(8)}$=small 101$_{(8)}$=large	char data
BEGIN PLOT	2	0	not used	not used
END PLOT	4	0	not used	not used
SLEW	6	263$_{(8)}$=short 265$_{(8)}$=long	not used	not used
HSR RESET	14$_{(8)}$	0	HSR unit	not used
HSR DATA	16$_{(8)}$	No. of words	HSR unit	vector data

FIG 1. FILE TRANSFER SUBSYSTEM



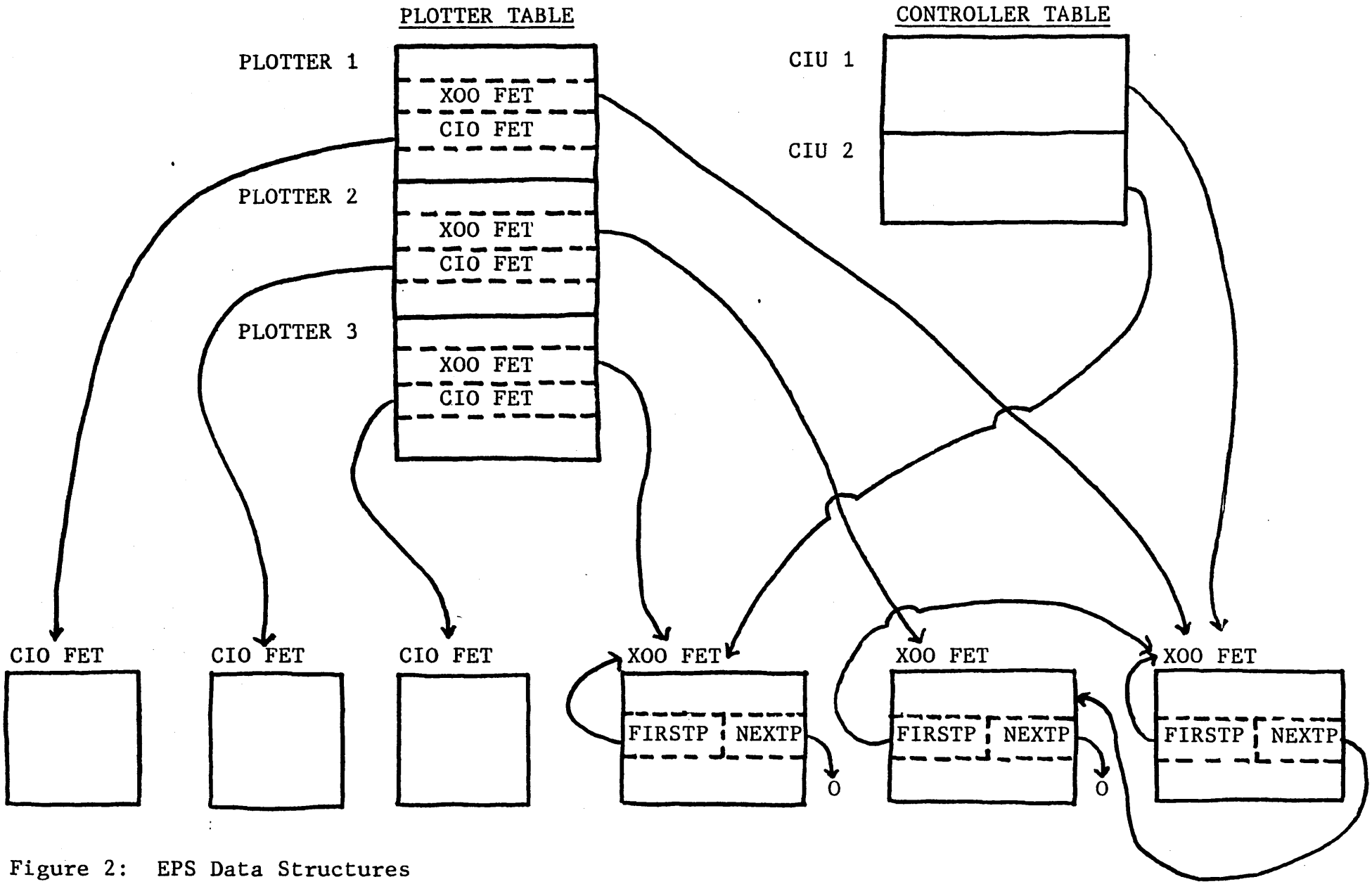
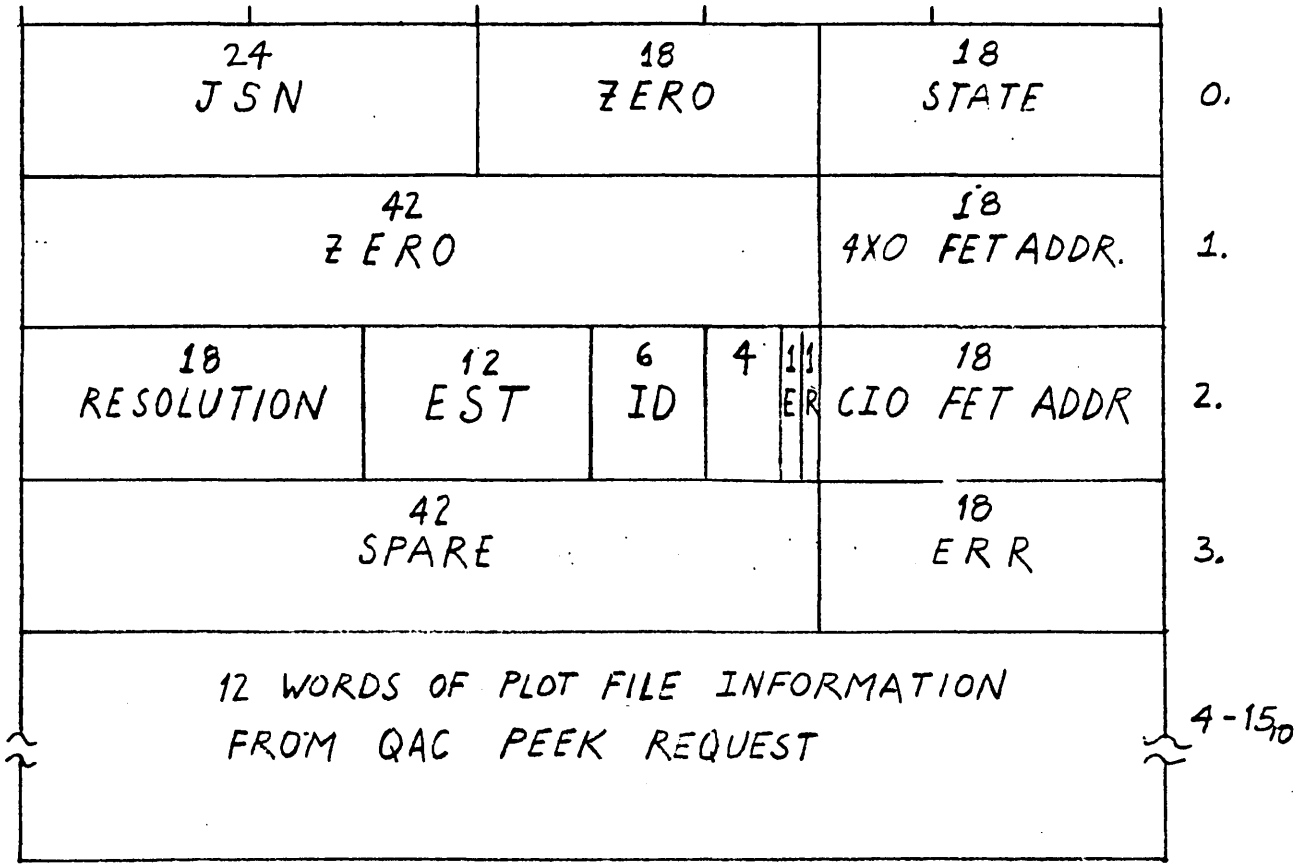


Figure 2: EPS Data Structures

FIG 3. PLOTTER TABLE

PTABLE



CONTROLLER TABLE

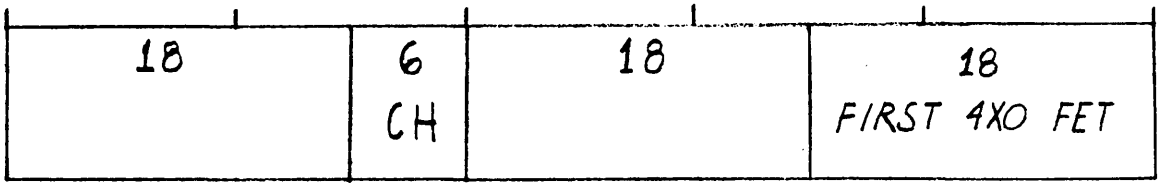
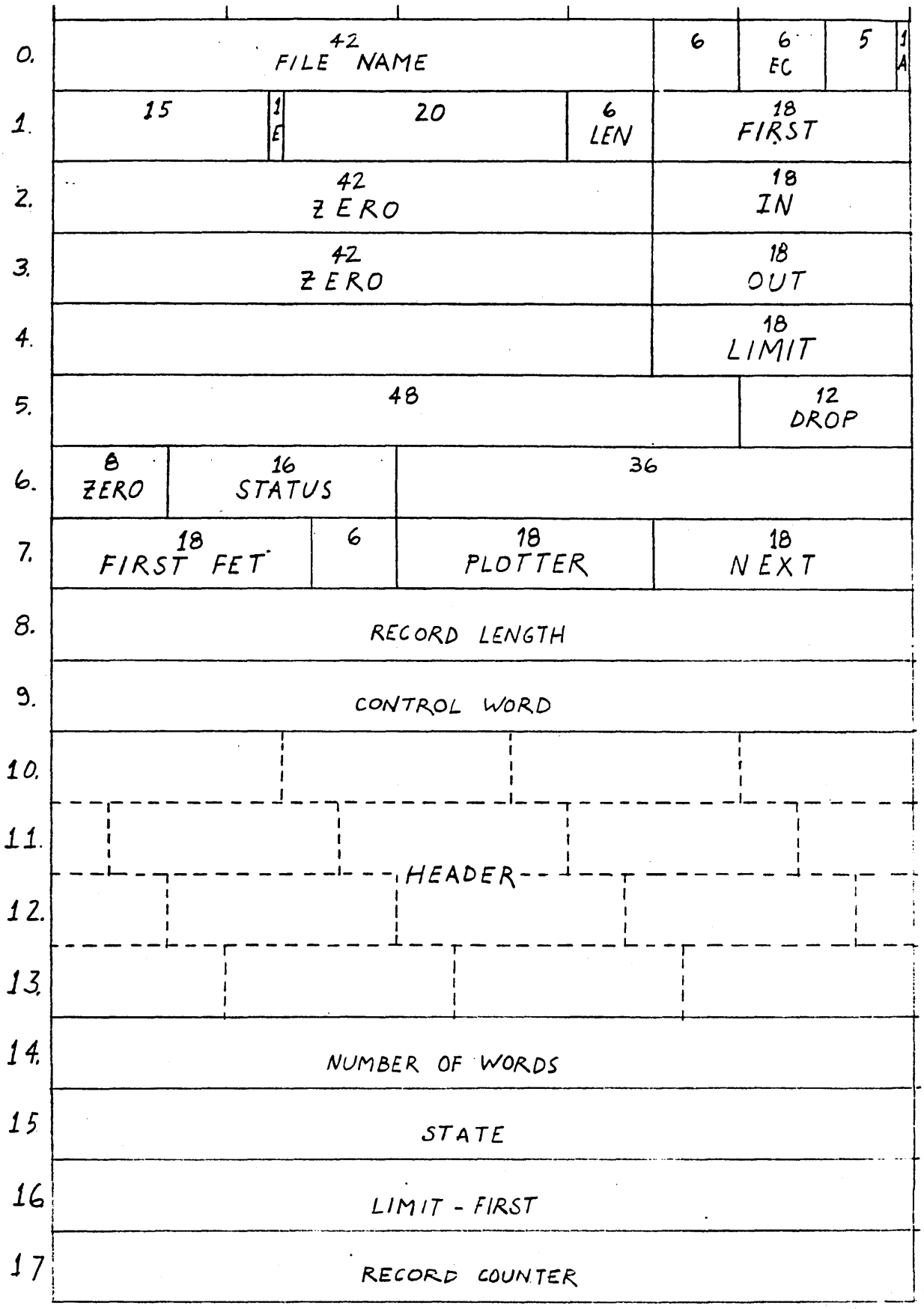
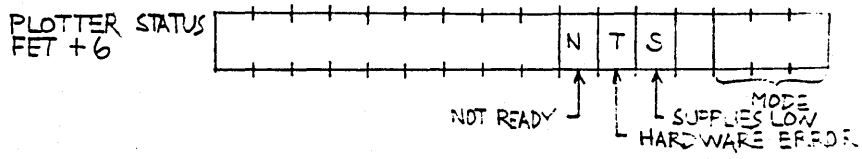


FIG 4. XOO FET


0.
42 FILE NAME
6
6 EC
5
1 A
1.
15
1 E
20
6 LEN
18 FIRST
2.
42 ZERO
18 IN
3.
42 ZERO
18 OUT
4.
18 LIMIT
5.
48
12 DROP
6.
8 ZERO
16 STATUS
36
7.
18 FIRST FET
6
18 PLOTTER
18 NEXT
8.
RECORD LENGTH
9.
CONTROL WORD
10.
11.
HEADER
12.
13.
14.
NUMBER OF WORDS
15
STATE
16
LIMIT - FIRST
17
RECORD COUNTER


PLOTTER STATUS
FET + 6
N
T
S
NOT READY
HARDWARE ERROR
MODE
SUPPLIES LOW

ICEM DDN Version 1.62

New Features and Enhancements Class

* Friday, October 31

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- GPL Lathe Roughing
- N / C Toolpath Macro
- Local Zoom
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