

SEPT 1982

E83-10267
HS-236-0019-1679
NASA-CR-170533

THEMATIC MAPPER

THEMATIC MAPPER

THEMATIC MAPPER

Made available under NASA sponsorship
In the interest of early and wide dissemination of Earth Resources Information System data for an effective use made by all.



(E83-10267) THEMATIC MAPPER FLIGHT MODEL
PRESHIPMENT REVIEW DATA PACKAGE. VOLUME 4:
APPENDIX. PART C: POWER SUPPLY DATA (Santa
Barbara Research Center) 365 p
HC A16/MF A01

N83-26136

Unclas
00267

CSSL 14B G3/43

THEMATIC MAPPER

Prepared for
GODDARD SPACE FLIGHT CENTER
Greenbelt, Maryland 20771
CONTRACT NAS 5-24200

FLIGHT MODEL
PRESHIPMENT REVIEW
DATA PACKAGE
VOLUME IV - APPENDIX
PART C - POWER SUPPLY DATA
Article IV - 3A

HUGHES

HUGHES AIRCRAFT COMPANY
SPACE AND COMMUNICATIONS GROUP



BEST AVAILABLE COPY



Prepared for
GODDARD SPACE FLIGHT CENTER
Greenbelt, Maryland 20771
CONTRACT NAS 5-24200

SEPT 1982

FLIGHT MODEL
PRESHIPMENT REVIEW
DATA PACKAGE
VOLUME IV - APPENDIX
PART C - POWER SUPPLY DATA

Article IV - 3A

HUGHES

HUGHES AIRCRAFT COMPANY
SPACE AND COMMUNICATIONS GROUP

Hughes Ref No. D4596 •

ORIGINAL PAGE IS
OF POOR QUALITY

Appendix C - Part I
Power Supply Performance Data
Acceptance Data Summary

ORIGINAL PAGE IS
OF POOR QUALITY

SANTA BARBARA RESEARCH CENTER
A Subsidiary of Hughes Aircraft Company
INTERNAL MEMORANDUM

TO: J. L. Engel CC: Distribution DATE: 9 February 1982
REF: HS236-7833
SUBJECT: Thematic Mapper Flight Model FROM: W. H. Freudenstei
Power Supply Acceptance Test Data
BLDG. B12 MAIL STA. 58
EXT. 6290 82-003

Summary

The acceptance test data package for the flight model power supply was reviewed and the data compared to the relevant specification. The power supply was found to be within specification. The flight model power supply is suitable for integration into the flight Thematic Mapper system.

Output Voltage Regulation

The power supply output voltages for the primary and redundant supplies are tabulated in the appended data. The data ranges from a low temperature of 30°F to a high temperature of 131°F. The input voltage range is from 23V to 35V; 28V data is also included. Power supply regulation in general is good.

The appended data shows certain voltages outlined. These represent telemetry levels which exceed the allowable maximum voltage level, 5.1 volts. These exceedences occur only when the power supply output windings are open circuited. This does not create a problem for operation of the system and is the same as was encountered on the engineering and protoflight systems.

The telemetry output for the outgas system also appears out of range (too high). This occurs because the outgas winding of the power supply is not loaded, except in the outgas mode. The outgas voltage and its telemetry output will be within specification when the outgas winding is loaded.

Output Voltage Ripple

Output voltage ripple was examined and found to be within specification.

To: J. L. Engel
Date: 9 February 1982

ORIGINAL PAGE IS
OF POOR QUALITY

HS236-7833
page 2

Efficiency

The power supply efficiencies are tabulated in the appended data pages. This data indicates that the power supply exceeds its minimum requirement for efficiency, 70%, under all operating conditions.

Overvoltage Protection

The power supply is designed to "turn-off" in the event of overvoltage. The input bus may not exceed 38 ± 2 volts. An examination of the appended data indicates that the power supply meets this requirement.

Undervoltage Protection

Drive to the power supply maxiswitcher and miniswitcher are removed when the input bus voltage drops below 19 ± 1 volt. The power supply meets the requirement as indicated by the appended summary of test data.

Telemetry

The output voltage telemetry for open circuit and picture mode voltages are presented in the appended data. The SMA +7 volt, Radiometer logic, CDVU logic and outgas heater telemetry voltages exceed the 5.1V saturation voltage in the open circuit configuration. This same condition existed for the protoflight and engineering model supplies. This condition poses no problems for normal operation; during troubleshooting a certain amount of information would be lost.

Impedances

The requirements for minimum impedance levels between returns were met in all cases.

Turn-On Requirements

The power supply turn-on requirements were met in the following manner. The system was turned on into internal standby, approximately 42 watts, at a bus voltage of 23 volts and a temperature of -25°C . The system was allowed to warm up to 0°C at which time it was turned off and then back on into a full picture mode load. The flight model power supply (both primary and redundant sides) meets the requirement for turn-on.

To: J. L. Engel
Date: 9 February 1982

ORIGINAL PAGE IS
OF POOR QUALITY

HS236-7833
page 3

Input Current Limit

The input current protection circuit was adjusted and measured as a part of the flight model power supply acceptance testing. The set point is a function of input voltage and is tabulated in the appended data for both the primary and redundant supplies.

Turn-On/Off Transients

The requirements for rate of change of current imposed on the input bus is a result of turn-on and turn-off of the power supply and was verified to be within the requirements imposed by the design specification.

Conclusions

The power supply, both primary and redundant sides meets the requirements imposed upon it by the relevant specifications. It should be noted that the design specification needs to be updated to include a change, agreed upon in 1981 and incorporated into the test specification, to change the SMA ± 29 volt range to 29.5 ± 1.5 vol.

The flight model power supply is from a performance viewpoint, ready for system integration.


W. H. Freudenstein

WHF:are
atc.

Distribution

Altman, L.
Benson, G. (El S)
Phillips, F. R.
Oxley, S. G.

ORIGINAL PAGE 1 OF POOR QUALITY SUMMARY OF ACCEPTANCE TEST DATA Long Form
FLIGHT MODEL POWER SUPPLY OUTPUTS
23.0 VOLT BUS, +32°F TEMPERATURE S.F. 2/5/6

OUTPUT	POWER SUPPLY 1				POWER SUPPLY 2			
	OPEN CIRCUIT VOLTAGE (VOLTS)	TLIMY OUTPUT (VOLTS)	PICTURE MODE VOLTAGE (VOLTS)	TLIMY OUTPUT (VOLTS)	OPEN CIRCUIT VOLTAGE (VOLTS)	TLIMY OUTPUT (VOLTS)	PICTURE MODE VOLTAGE (VOLTS)	TLIMY OUTPUT (VOLTS)
BAND 1+	23.53	4.287	20.15	3.687	23.70	4.326	20.43	3.74
BAND 1-	23.62	4.288	20.16	3.675	23.44	4.257	20.46	3.72
BAND 2+	23.78	4.321	19.98	3.646	23.25	4.272	20.28	3.70
BAND 2-	23.79	4.303	20.02	3.635	23.48	4.248	20.31	3.68
BAND 3+	24.12	4.379	20.07	3.660	23.50	4.272	20.24	3.69
BAND 3-	23.38	4.256	20.03	3.660	23.27	4.236	20.31	3.71
BAND 4+	23.72	4.299	20.12	3.661	23.62	4.285	20.44	3.72
BAND 4-	23.56	4.277	20.14	3.672	23.51	4.268	20.46	3.72
BAND 5/7+	22.97	4.188	19.86	3.642	23.08	4.214	20.00	3.66
BAND 5/7-	22.93	4.167	19.86	3.626	23.00	4.182	20.02	3.65
BAND 6+	22.84	4.129	20.03	3.634	22.98	4.160	20.34	3.69
BAND 6-	23.09	4.206	20.04	3.664	23.11	4.210	20.36	3.72
SMA HTR +	24.46	4.451	21.87	4.002	25.67	4.569	22.22	4.07
SMA HTR -	24.40	4.418	22.32	4.052	24.96	4.507	22.69	4.11
SMA +7	9.219	5.688	7.558	4.811	9.145	5.684	7.71	4.92
SMA +29	31.14	4.247	29.97	4.115	31.47	4.318	30.40	4.19
SMA -29	31.36	3.958	29.96	3.898	31.33	3.967	30.42	3.95
MUX	—	—	29.70	4.224	—	—	30.10	4.26
RAO LOGIC	9.459	5.122	8.303	4.558	9.685	5.248	8.39	4.60
COUW	9.159	5.073	7.519	4.222	9.225	5.107	7.66	4.29
ANALOG +	25.08	4.446	22.06	3.946	25.72	4.563	22.39	3.99
ANALOG -	23.60	3.918	22.13	3.890	23.20	4.056	22.42	3.93
ELECTRO	38.94	4.754	32.57	4.002	38.79	4.735	33.10	4.06
OUTGAS	100.46	4.998	100.90	5.047	99.50	4.951	100.78	5.03
PARASITIC	31.19	—	—	—	31.69	—	—	—

EFFICIENCY	(SPEC. >70%)	75.92%	76.17%
OVERVOLT.	(SPEC. 38 ± 2V)	38.09V	38.99V
UNDERVOLT.	(SPEC. 19 ± 1V)	ON/OFF 18.09V	18.036V
		OFF/ON 19.08V	18.864V
INPT CURRENT LIMIT	(NON-SPEC'D)	17.96 AMPS	19.45 AMPS.

(1)

ORIGINAL PAGE IS
OF POOR QUALITY

ORIGINAL PAGE IS
OF POOR QUALITY

FLIGHT MODEL POWER SUPPLY OUTPUTS

28.0 VOLT BUS, +32°F TEMPERATURE

OUTPUT	POWER SUPPLY 1				POWER SUPPLY 2			
	OPEN CIRCUIT VOLTAGE (VOLTS)	75MW OUTPUT (VOLTS)	PICTURE MODE VOLTAGE (VOLTS)	75MW OUTPUT (VOLTS)	OPEN CIRCUIT VOLTAGE (VOLTS)	75MW OUTPUT (VOLTS)	PICTURE MODE VOLTAGE (VOLTS)	75MW OUTPUT (VOLTS)
BAND 1+	23.74	4.332	20.40	3.747	24.74	4.524	20.68	3.783
BAND 1-	23.89	4.346	20.52	3.735	24.28	4.415	20.69	3.766
BAND 2+	24.32	4.424	20.36	3.707	24.03	4.380	20.55	3.750
BAND 2-	24.32	4.405	20.40	3.698	24.48	4.428	20.57	3.728
BAND 3+	25.47	4.633	20.43	3.718	24.51	4.444	20.50	3.732
BAND 3-	23.56	4.294	20.39	3.720	24.20	4.409	20.57	3.753
BAND 4+	24.21	4.394	20.48	3.721	24.67	4.479	20.68	3.759
BAND 4-	23.88	4.340	20.50	3.732	24.40	4.435	20.69	3.766
BAND 5/7+	23.26	4.244	20.20	3.684	24.18	4.410	20.20	3.699
BAND 5/7-	23.20	4.230	20.20	3.683	23.93	4.360	20.23	3.689
BAND 6+	22.95	4.150	20.39	3.691	23.84	4.316	20.54	3.724
BAND 6-	23.45	4.277	20.49	3.725	24.07	4.390	20.57	3.756
SMA HTR +	24.61	4.400	22.27	4.068	25.25	4.604	22.46	4.112
SMA HTR -	24.59	4.445	22.74	4.126	25.12	4.541	22.95	4.160
SMA +7	9.88	6.152	7.707	4.900	9.358	5.772	7.818	4.989
SMA +29	31.24	4.258	30.43	4.173	31.62	4.338	30.69	4.235
SMA -29	31.50	3.839	30.42	3.770	31.47	3.814	30.70	3.833
MUX	—	—	30.20	4.294	—	—	30.40	4.309
RAO LOGIC	9.391	5.086	8.455	4.638	9.771	5.296	8.481	4.650
COU	9.379	5.194	7.488	4.205	9.265	5.130	7.664	4.299
ANALOG +	25.98	4.609	22.35	3.997	26.38	4.628	22.51	4.024
ANALOG -	24.81	4.094	22.43	3.939	24.81	4.295	22.58	3.967
ELECTO	41.59	5.083	33.08	4.061	42.03	5.137	33.43	4.104
OUTGAS	101.25	5.039	103.43	5.135	100.73	5.013	102.13	5.105
PARASITIC	30.81	—	—	—	31.80	—	—	—

EFFICIENCY (SPEC. > 70%) 75.43%

OVERVOLT. (SPEC. 38 ± 2V) 38.09V

UNDERVOLT. (SPEC. 19 ± 1V) on/off 18.07V
off/on 18.92V

INPUT CURRENT (NON-SPEC'D) 15.141 Amperes

75.31%

39.14V

18.01V

18.88V

16.898 Amperes

ORIGINAL PAGE IS
OF POOR QUALITY

FLIGHT MODEL POWER SUPPLY OUTPUTS

35.0 VOLT BUS, +32°F TEMPERATURE

OUTPUT	POWER SUPPLY 1				POWER SUPPLY 2			
	OPEN CIRCUIT VOLTAGE (VOLTS)	TLMY OUTPUT (VOLTS)	PICTURE MODE VOLTAGE (VOLTS)	TLMY OUTPUT (VOLTS)	OPEN CIRCUIT VOLTAGE (VOLTS)	TLMY OUTPUT (VOLTS)	PICTURE MODE VOLTAGE (VOLTS)	TLMY OUTPUT (VOLTS)
BAND 1+	24.13	4.402	20.45	3.737	24.76	4.527	20.76	3.798
BAND 1-	24.33	4.429	20.46	3.726	24.15	4.395	20.78	3.780
BAND 2+	24.40	4.426	20.24	3.685	23.80	4.336	20.54	3.748
BAND 2-	24.40	4.420	20.27	3.676	24.30	4.399	20.57	3.730
BAND 3+	25.91	4.696	20.28	3.692	24.31	4.410	20.48	3.730
BAND 3-	23.36	4.256	20.24	3.695	23.98	4.377	20.55	3.749
BAND 4+	24.75	4.492	20.42	3.711	24.63	4.475	20.76	3.773
BAND 4-	24.28	4.415	20.45	3.722	24.25	4.414	20.78	3.779
BAND 5/7+	23.35	4.262	20.00	3.646	23.92	4.388	20.12	3.699
BAND 5/7-	23.30	4.247	19.99	3.646	23.68	4.314	20.15	3.667
BAND 6+	22.90	4.142	20.22	3.662	23.57	4.273	20.47	3.710
BAND 6-	23.56	4.302	20.23	3.695	23.87	4.360	20.50	3.743
SMA HTR +	24.60	4.476	22.05	4.630	25.03	4.562	22.39	4.093
SMA HTR -	24.60	4.442	22.57	4.095	24.90	4.503	22.91	4.155
SMA +7	11.206	6.902	7.67	4.877	11.432	7.034	7.819	4.988
SMA +29	31.24	4.258	30.21	4.143	31.42	4.312	20.66	4.230
SMA -29	31.50	3.822	30.20	3.553	31.28	3.788	30.67	3.655
MUX	—	—	29.88	4.252	—	—	30.26	4.285
RAO LOGIC	9.442	5.114	8.342	4.574	9.713	5.264	8.426	4.619
COU	9.647	5.343	7.459	4.188	9.547	5.297	7.651	4.292
ANALOG +	26.38	4.679	22.12	3.953	26.66	4.733	22.39	4.003
ANALOG -	24.97	4.456	22.19	3.908	24.78	4.310	22.46	3.941
ELECTRO	44.55	5.426	32.87	4.036	44.02	5.387	33.42	4.103
OUTGAS	103.08	5.129	104.82	5.24	101.31	5.041	103.22	5.159
PARASITIC	30.87	—	—	—	31.64	—	—	—
EFFICIENCY	(SPEC. >70%)	73.72%		73.45%				
OVERVOLT.	(SPEC. 38±2V)	38.54V		39.00V				
UNDERVOLT.	(SPEC. 19±1V)	on/off 18.074V		18.02V				
		off/on 18.911V		18.875V				
INPUT CURRENT	(NON-SPEC'D)	11.957 Amps		12.64 Amps.				

ORIGINAL PAGE IS
OF POOR QUALITY

FLIGHT MODEL POWER SUPPLY OUTPUTS

23.0 VOLT BUS, 78°F TEMPERATURE (AMBIENT)

OUTPUT	POWER SUPPLY 1				POWER SUPPLY 2			
	OPEN CIRCUIT VOLTAGE (VOLTS)	LOAD OUTPUT (VOLTS)	PICTURE MODE VOLTAGE (VOLTS)	LOAD OUTPUT (VOLTS)	OPEN CIRCUIT VOLTAGE (VOLTS)	LOAD OUTPUT (VOLTS)	PICTURE MODE VOLTAGE (VOLTS)	LOAD OUTPUT (VOLTS)
BAND 1+	23.12	4.216	20.46	3.737	23.27	4.250	20.60	3.768
BAND 1-	23.21	4.216	20.48	3.728	23.01	4.177	20.62	3.754
BAND 2+	23.31	4.239	20.31	3.697	22.87	4.163	20.46	3.732
BAND 2-	23.32	4.218	20.34	3.688	23.12	4.181	20.49	3.712
BAND 3+	23.82	4.328	20.41	3.714	23.14	4.209	20.42	3.719
BAND 3-	22.91	4.169	20.36	3.715	22.94	4.174	20.50	3.739
BAND 4+	23.36	4.235	20.43	3.711	23.18	4.206	20.60	3.746
BAND 4-	23.18	4.208	20.46	3.723	23.07	4.188	20.62	3.751
BAND 5/7+	22.71	4.146	20.20	3.694	22.81	4.165	20.16	3.689
BAND 5/7-	22.66	4.118	20.19	3.680	22.72	4.131	20.19	3.678
BAND 6+	22.55	4.076	20.37	3.685	22.66	4.103	20.51	3.719
BAND 6-	22.82	4.157	20.37	3.720	22.81	4.156	20.54	3.750
SMA HTZ +	24.41	4.451	22.21	4.057	24.68	4.508	22.42	4.103
SMA HTZ -	24.86	4.501	22.65	4.107	24.78	4.486	22.87	4.145
SMA +7	8.939	5.508	7.656	4.881	9.021	5.553	7.759	4.965
SMA +29	31.74	4.329	30.36	4.165	31.99	4.388	30.58	4.221
SMA -29	32.05	4.068	30.34	3.955	31.82	4.056	30.60	3.998
MUX	—	—	30.09	4.269	—	—	30.28	4.289
RAO LOGIC	9.508	5.152	8.544	4.687	9.646	5.228	8.552	4.691
COU	9.219	5.106	7.600	4.270	9.308	5.154	7.709	4.328
ANALOG +	25.85	4.590	22.40	4.005	26.24	4.661	22.52	4.027
ANALOG -	23.62	3.924	22.46	3.939	23.25	3.960	22.59	3.960
ELECTRO	38.48	4.696	32.99	4.051	38.23	4.666	33.28	4.087
OUTGAS	101.07	5.032	102.39	5.120	99.87	4.970	102.04	5.100
PARASITIC	30.92	—	—	—	31.31	—	—	—
EFFICIENCY	(SPEC. >70%)	75.18%		75.27%				
OVERVOLT.	(SPEC. 38 ± 2V)	38.50V		38.85V				
UNDERVOLT.	(SPEC. 19 ± 1V)	ON/OFF 18.016V OFF/ON 18.919V		18.042V				
INPUT CURRENT LIMIT	(NON-SPEC'D)	18.14 AMPS		19.92 AMPS				

FLIGHT MODEL POWER SUPPLY OUTPUTS

28.0 VOLT BUS, 78°F TEMPERATURE (AMBIENT)

OUTPUT	POWER SUPPLY 1				POWER SUPPLY 2			
	OPEN CIRCUIT VOLTAGE (VOLTS)	TLIMY OUTPUT (VOLTS)	PICTURE MODE VOLTAGE (VOLTS)	TLIMY OUTPUT (VOLTS)	OPEN CIRCUIT VOLTAGE (VOLTS)	TLIMY OUTPUT (VOLTS)	PICTURE MODE VOLTAGE (VOLTS)	TLIMY OUTPUT (VOLTS)
BAND 1+	23.56	4.298	20.58	3.760	24.25	4.434	20.71	3.795
BAND 1-	23.70	4.310	20.59	3.750	23.73	4.315	20.73	3.775
BAND 2+	24.12	4.389	20.43	3.719	23.61	4.299	20.57	3.757
BAND 2-	24.13	4.368	20.46	3.709	24.00	4.356	20.59	3.732
BAND 3+	25.39	4.617	20.51	3.733	24.30	4.390	20.51	3.778
BAND 3-	23.37	4.257	20.45	3.732	23.78	4.332	20.60	3.758
BAND 4+	24.04	4.363	20.55	3.734	24.16	4.385	20.71	3.769
BAND 4-	23.70	4.306	20.57	3.744	23.89	4.341	20.73	3.774
BAND 5/7+	23.20	4.229	20.27	3.700	23.63	4.324	20.20	3.708
BAND 5/7-	23.14	4.216	20.26	3.695	23.45	4.270	20.23	3.688
BAND 6+	22.88	4.135	20.46	3.701	23.32	4.220	20.55	3.726
BAND 6-	23.38	4.264	20.46	3.737	22.58	4.300	20.58	3.760
SMA HTR +	24.66	4.500	22.32	4.077	25.46	4.648	22.46	4.112
SMA HTR -	25.24	4.560	22.79	4.132	25.42	4.596	22.94	4.158
SMA +7	9.178	5.656	7.716	4.919	9.202	5.716	3.008	4.999
SMA +29	31.92	4.351	30.48	4.180	31.45	4.383	30.68	4.233
SMA -29	32.27	3.920	30.47	3.781	31.77	3.889	30.69	3.857
MUX	--	--	30.24	4.306	--	--	30.34	4.303
RAD. LOGIC	9.602	5.700	8.581	4.709	9.721	5.268	8.557	4.700
COUW	9.466	5.242	7.577	4.259	9.435	5.226	7.718	4.334
ANALOG +	26.64	4.727	22.55	4.014	26.85	4.761	22.53	4.031
ANALOG -	25.44	4.061	22.51	3.947	25.20	4.069	22.59	3.962
ELECTRO	41.70	5.096	33.13	4.069	41.60	5.085	33.40	4.103
OUTGAS	102.58	5.105	104.53	5.230	100.73	5.014	103.01	5.154
PARASITIC	30.94				31.17			
EFFICIENCY	(SPEC. >70%)		74.43%			74.84%		
OVERVOLT.	(SPEC. 38±2V)		37.8V			38.8V		
UNDERVOLT.	(SPEC. 19±1V)		on/off 18.07V			18.24V		
			off/on 18.9V			18.9V		
INPUT CURRENT LIMIT	(NON-SPEC'D)		15.96Amps			17.20 Amps		

(5)

FLIGHT MODEL POWER SUPPLY OUTPUTS

35.0 VOLT BUS, 78°F TEMPERATURE (AMBIENT)

OUTPUT	POWER SUPPLY 1				POWER SUPPLY 2			
	OPEN CIRCUIT VOLTAGE (VOLTS)	TLMY OUTPUT (VOLTS)	PICTURE MODE VOLTAGE (VOLTS)	TLMY OUTPUT (VOLTS)	OPEN CIRCUIT VOLTAGE (VOLTS)	TLMY OUTPUT (VOLTS)	PICTURE MODE VOLTAGE (VOLTS)	TLMY OUTPUT (VOLTS)
BAND 1+	23.98	4.372	20.53	3.752	24.56	4.490	20.79	3.812
BAND 1-	24.17	4.398	20.54	3.741	23.96	4.361	20.81	3.790
BAND 2+	24.28	4.416	20.34	3.706	23.67	4.307	20.62	3.765
BAND 2-	24.28	4.396	20.37	3.695	24.18	4.384	20.64	3.744
BAND 3+	26.21	4.770	20.10	3.717	24.29	4.423	20.55	3.746
BAND 3-	23.27	4.240	20.36	3.716	23.86	4.350	20.63	3.765
BAND 4+	24.61	4.466	20.51	3.726	24.46	4.443	20.80	3.785
BAND 4-	24.13	4.386	20.53	3.737	24.09	4.381	20.81	3.789
BAND 5/7+	23.31	4.253	20.08	3.668	23.83	4.363	20.17	3.714
BAND 5/7-	23.27	4.242	20.07	3.659	23.60	4.302	20.19	3.676
BAND 6+	22.84	4.131	20.29	3.674	23.47	4.250	20.53	3.721
BAND 6-	23.50	4.290	20.30	3.706	23.78	4.342	20.55	3.755
SMA HT2 +	24.72	4.512	22.11	4.041	25.56	4.657	22.41	4.102
SMA HT2 -	25.05	4.528	22.62	4.103	25.44	4.601	22.92	4.161
SMA +7	9.807	6.043	7.695	4.903	9.759	6.019	7.827	5.009
SMA +29	31.73	4.328	30.31	4.156	31.97	4.385	30.70	4.236
SMA -29	32.05	3.671	30.30	3.471	31.80	3.723	30.72	3.625
MUX	—	—	29.95	4.262	—	—	30.26	4.288
RAO LOGIC	9.58	5.199	8.465	4.644	9.853	5.340	8.516	4.673
COU	9.70	5.378	7.531	4.234	9.638	5.385	7.709	4.326
ANALOG +	26.88	4.779	22.21	3.975	27.23	5.339	22.46	4.018
ANALOG -	24.42	4.470	22.29	3.915	25.33	4.839	22.53	3.949
ELECTRO	45.29	5.544	32.97	4.050	47.76	5.480	33.46	4.111
OUTGAS	103.69	5.165	105.21	5.274	102.10	5.085	103.84	5.192
PARASITIC	31.00	—	—	—	—	—	—	—
EFFICIENCY	(SPEC. >70%)	73.25%		73.15%				
OVERVOLT.	(SPEC. 38±2V)	38.37V		38.93V				
UNDERVOLT.	(SPEC. 19±1V)	on/off 18.09V		18.08V				
		off/on 18.95V		18.88V				
INPUT CURRENT	(NON-SPEC'D)	12.29 Amps		12.699 Amps				
LIMIT								

FLIGHT MODEL POWER SUPPLY OUTPUTS

23.0 Volt Bus, +131°F TEMPERATURE

OUTPUT	POWER SUPPLY 1				POWER SUPPLY 2			
	OPEN CIRCUIT VOLTAGE (VOLTS)	TLIMY OUTPUT (VOLTS)	PICTURE MODE VOLTAGE (VOLTS)	TLIMY OUTPUT (VOLTS)	OPEN CIRCUIT VOLTAGE (VOLTS)	TLIMY OUTPUT (VOLTS)	PICTURE MODE VOLTAGE (VOLTS)	TLIMY OUTPUT (VOLTS)
BAND 1+	22.99	4.192	20.97	3.765	23.11	4.217	20.60	3.765
BAND 1-	23.08	4.190	20.99	3.754	22.85	4.146	20.61	3.750
BAND 2+	23.21	4.220	20.91	3.725	22.74	4.136	20.47	3.730
BAND 2-	23.22	4.197	20.95	3.715	23.00	4.156	20.47	3.709
BAND 3+	23.84	4.330	21.02	3.748	23.01	4.184	20.42	3.718
BAND 3-	22.81	4.148	20.95	3.744	22.84	4.152	20.51	3.736
BAND 4+	23.24	4.214	20.91	3.739	23.04	4.179	20.59	3.744
BAND 4-	23.06	4.183	20.94	3.749	22.94	4.162	20.61	3.746
BAND 5/7+	22.68	4.136	20.32	3.732	22.72	4.143	20.14	3.689
BAND 5/7-	22.62	4.108	20.31	3.717	22.44	4.113	20.17	3.673
BAND 6+	22.51	4.067	20.50	3.723	22.56	4.080	20.50	3.715
BAND 6-	22.78	4.150	20.50	3.758	22.72	4.138	20.54	3.747
SMA HTR +	24.29	4.429	22.33	4.098	24.57	4.484	22.43	4.103
SMA HTR -	24.77	4.483	22.78	4.146	24.67	4.465	22.89	4.146
SMA +7	9.106	5.613	7.688	4.919	9.189	5.656	7.730	4.965
SMA +29	32.36	4.414	30.54	4.190	32.74	4.490	30.50	4.207
SMA -29	32.86	4.192	30.53	3.994	32.48	4.161	30.52	3.986
MUX	—	—	30.34	4.316	—	—	30.20	4.277
RAO LOGIC	9.712	5.264	8.747	4.802	9.813	5.319	8.656	4.752
COU	9.381	5.196	7.666	4.312	9.486	5.254	7.768	4.366
ANALOG +	26.51	4.708	22.59	4.040	27.01	4.799	22.51	4.023
ANALOG -	23.94	3.964	22.66	3.973	23.77	3.990	22.57	3.956
ELECTRO	38.34	4.677	33.18	4.076	38.03	4.640	33.17	4.073
OUTGAS PARASITIC	102.82	5.119	103.53	5.176	101.76	5.066	103.01	5.149
EFFICIENCY	(SPEC. >70%)	74.05%		74.39%				
OVERVOLT.	(SPEC. 38±2V)	38.3V		38.5V				
UNDERVOLT.	(SPEC. 19±1V)	ON/OFF 18.00V		18.03V				
		OFF/ON 18.90V		18.90V				
INPUT CURRENT LIMIT	(NON-SPEC'D)	18.963 Amperes		20.90 Amperes				

ORIGINAL PAGE IS
OF POOR QUALITY

ORIGINAL PAGE IS
OF POOR QUALITY

FLIGHT MODEL POWER SUPPLY OUTPUTS

28.0 VOLT BUS, 131°F TEMPERATURE

OUTPUT	POWER SUPPLY 1				POWER SUPPLY 2			
	OPEN CIRCUIT VOLTAGE (VOLTS)	TLMY OUTPUT (VOLTS)	PICTURE MODE VOLTAGE (VOLTS)	TLMY OUTPUT (VOLTS)	OPEN CIRCUIT VOLTAGE (VOLTS)	TLMY OUTPUT (VOLTS)	PICTURE MODE VOLTAGE (VOLTS)	TLMY OUTPUT (VOLTS)
BAND 1+	23.40	4.269	20.65	3.772	23.91	4.369	20.72	3.793
BAND 1-	23.54	4.279	20.66	3.761	23.42	4.256	20.75	3.775
BAND 2+	23.94	4.357	20.44	3.724	23.29	4.240	20.55	3.750
BAND 2-	23.95	4.333	20.49	3.712	23.73	4.294	20.57	3.725
BAND 3+	23.30	4.603	20.55	3.742	23.80	4.320	20.40	3.773
BAND 3-	23.19	4.223	20.49	3.737	23.46	4.271	20.50	3.750
BAND 4+	23.89	4.337	20.60	3.743	23.84	4.328	20.72	3.760
BAND 4-	23.54	4.275	20.63	3.753	23.59	4.284	20.73	3.770
BAND 5/2+	23.12	4.215	20.35	3.717	23.40	4.276	20.22	3.710
BAND 5/7-	23.06	4.198	20.34	3.707	23.25	4.230	20.25	3.688
BAND 6+	22.79	4.120	20.53	3.714	23.11	4.180	20.50	3.726
BAND 6-	23.30	4.249	20.53	3.750	23.36	4.259	20.60	3.761
SM+ATR+	24.51	4.472	22.30	4.089	25.24	4.608	22.40	4.114
SM+ATR-	25.33	4.590	22.84	4.141	25.39	4.600	22.96	4.160
SMA+7	9.227	5.687	7.708	4.927	9.324	5.740	7.780	4.990
SMA+29	32.39	4.417	30.50	4.181	32.72	4.487	30.62	4.223
SMA-29	32.84	4.036	30.40	3.798	32.51	4.027	30.64	3.852
MUX	—	—	30.28	4.311	—	—	30.32	4.290
RAD. LOGIC	9.768	5.293	8.709	4.782	9.942	5.389	8.668	4.759
COUW	9.555	5.293	7.662	4.310	9.590	5.311	7.768	4.365
ANALOG+	27.07	4.805	22.51	4.023	27.50	4.885	22.55	4.030
ANALOG-	25.59	4.185	22.58	3.957	25.87	4.241	22.61	3.950
ELECTRO	41.55	5.077	33.14	4.068	41.22	5.037	33.32	4.092
OUTSRS	103.95	5.175	105.92	5.290	102.63	5.110	104.40	5.220
PARASITIC	31.07	—	—	—	—	—	—	—
EFFICIENCY	(SPEC. >70%)	73.91%		74.21%				
OVERVOLT.	(SPEC. 30±2V)	38.25V		38.82V				
UNDERVOLT.	(SPEC. 19±1V)	on/off 18.08V		18.08V				
		off/on 18.87V		18.88V				
INPUT CURRENT LIMIT	(NON-SPEC'D)	NA		18.863 Amps				

(8)

ORIGINAL PAGE IS
OF POOR QUALITY

FLIGHT MODEL POWER SUPPLY OUTPUTS

35.0 VOLT BUS, +131°F TEMPERATURE

OUTPUT	POWER SUPPLY 1				POWER SUPPLY 2			
	OPEN CIRCUIT VOLTAGE (VOLTS)	TLMY OUTPUT (VOLTS)	PICTURE MODE VOLTAGE (VOLTS)	TLMY OUTPUT (VOLTS)	OPEN CIRCUIT VOLTAGE (VOLTS)	TLMY OUTPUT (VOLTS)	PICTURE MODE VOLTAGE (VOLTS)	TLMY OUTPUT (VOLTS)
BAND 1 +	23.70	4.325	20.62	3.766	24.37	4.451	20.81	3.811
BAND 1 -	23.89	4.346	20.63	3.755	23.79	4.325	20.83	3.790
BAND 2 +	24.11	4.389	20.45	3.722	23.57	4.289	20.67	3.772
BAND 2 -	24.11	4.365	20.48	3.710	24.11	4.365	20.69	3.748
BAND 3 +	24.21	4.772	20.53	3.737	24.18	4.401	20.60	3.754
BAND 3 -	23.16	4.216	20.48	3.732	23.82	4.339	20.69	3.771
BAND 4 +	24.33	4.418	20.59	3.740	24.30	4.412	20.81	3.785
BAND 4 -	23.84	4.333	20.62	3.749	23.95	4.351	20.82	3.787
BAND 5/7 +	23.22	4.236	20.20	3.688	23.74	4.343	20.20	3.713
BAND 5/7 -	23.16	4.218	20.19	3.677	23.50	4.289	20.23	3.681
BAND 6 +	22.78	4.118	20.40	3.690	23.37	4.228	20.57	3.725
BAND 6 -	23.41	4.273	20.41	3.725	23.70	4.323	20.59	3.760
SMA HT2 +	24.54	4.479	22.23	4.059	25.60	4.687	22.44	4.105
SMA HT2 -	25.57	4.636	22.72	4.118	25.78	4.673	22.86	4.161
SMA +7	9.645	5.945	7.71	4.928	9.747	6.005	7.81	5.021
SMA +29	32.37	4.414	30.41	4.166	32.81	4.497	30.68	4.230
SMA -29	32.84	3.840	30.39	3.517	32.60	3.847	30.70	3.623
MUX	—	—	30.06	4.269	—	—	30.25	4.283
RAD. LOGIC	9.828	5.327	8.621	4.731	10.10	5.475	8.634	4.739
COUW	9.820	5.442	7.633	4.292	9.814	5.435	7.766	4.362
ANALOG +	27.62	4.909	22.35	3.995	28.02	4.981	22.50	4.023
ANALOG -	26.09	4.583	22.42	3.930	26.09	4.364	22.56	3.949
ELECTRO	45.06	5.516	33.07	4.060	44.49	5.445	33.43	4.105
OUTGAS	105.40	5.248	106.95	5.348	104.02	5.178	105.24	5.261
PARASITIC	31.23	—	—	—	32.01	—	—	—

EFFICIENCY (SPEC. > 70%) 72.45%
 OVERVOLT. (SPEC. 38 ± 2V) 38.25V
 UNDERVOLT. (SPEC. 19 ± 1V) ON/OFF 18.11V
 OFF/ON 18.90V
 INPUT CURRENT (NON-SPEC'D) 12.512A

72.61%
 38.81V
 18.06V
 18.895V
 13.234 AMPS.

**ORIGINAL PAGE IS
OF POOR QUALITY**

**Appendix C - Part 2
Power Supply Performance Data
Short Form Test Data**

ORIGINAL PAGE IS
OF POOR QUALITY

TS 16603
Rev B
18 December 1980

10.4 Performance test - Long Form



Ftd 13 1982

PROTOFLIGHT NA OR FLIGHT S/N 004 TEMPERATURE: 32°F
 IN-PROCESS NA QUAL NA OR ACCEPTANCE
 TESTING PHASE FINAL LOAD - LONG FORM LINE VOLTAGE: 23.0 VOLTS

REF. PARA.	DESCRIPTION	DVM SWITCH POSITIONS	LIMITS	MEASUREMENT	
				PRIMARY	REDUNDANT
5.10.1.1	Calibrate cmd gen	--	--	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
5.10.2.1	Input bus current	S26-1, S27-2 (S27-4 for redundant)		0.227mV <input checked="" type="checkbox"/>	230mV <input checked="" type="checkbox"/>
5.10.2.2	MIX output voltage	S26-3, S27-1	30.0 ±0.90V	29.82V <input checked="" type="checkbox"/>	29.91V <input checked="" type="checkbox"/>
5.10.2.3	MIX load current	S26-3, S27-12	3.55 ±0.40A	3.242A <input checked="" type="checkbox"/>	3.242A <input checked="" type="checkbox"/>

The rest of Section 5.10.2 requires only checking voltage - indicate by checkmarks.

5.10.2.4.1	B1 + output voltage	S26-1, S27-5			
5.10.2.4.2	B1 -	S27-6			
5.10.2.4.3	B1 -	S27-5			
5.10.2.4.4	B1 +	S27-7			
5.10.2.5.1	B2 +	S27-7			
5.10.2.5.2	B2 -	S27-8			
5.10.2.5.3	B2 -	S27-8			
5.10.2.5.4	B2 +	S27-7			
5.10.2.6.1	B3 +	S27-9			
5.10.2.6.2	B3 -	S27-10			
5.10.2.6.3	B3 -	S27-10			
5.10.2.6.4	B3 +	S27-9			
5.10.2.7.1	B4 +	S27-11			
5.10.2.7.2	B4 -	S27-12			
5.10.2.7.3	B4 -	S27-12			
5.10.2.7.4	B4 +	S26-1, S27-11			
5.10.2.8.1	B5, 7+	S26-2, S27-1			
5.10.2.8.2	B5, 7-	S27-2			
5.10.2.8.3	B5, 7-	S27-2			
5.10.2.8.4	B5, 7+	S27-1			
5.10.2.9.1	E6 +	S27-3			
5.10.2.9.2	B6 - output voltage	S26-2, S27-4			

Vertical column of checkmarks (✓) corresponding to the test items in the table above, indicating successful completion of each test.

17-11-1982
C-4, 703
24

ORIGINAL PAGE IS
OF POOR QUALITY

TS 16603
Rev B



~~TS 16603~~
SNU-1 1/24/81
FEB 03 1982

10.4 Performance test (continued)

REF. PARA.	DESCRIPTION	DVM SWITCH POSITIONS	LIMITS	MEASUREMENT	
				PRIMARY	REDUNDANT
5.10.2.9.3	B6 + output voltage	S26-2, S27-4		✓	✓
5.10.2.9.4	B6 - output voltage	S26-2, S27-3		✓	✓
5.10.2.10.1	SMA BUR + output voltage	↓ S27-5		✓	✓
5.10.2.10.2	-	↓ S27-6		✓	✓
5.10.2.10.3	-	↓ S27-6		✓	✓
5.10.2.10.4	-	↓ S27-5		✓	✓
5.10.2.11.1	-7V	S26-2, S27-7		✓	✓
5.10.2.11.2	-7V	(S27-8 for EDT)		✓	✓
5.10.2.12.1	-29V	S26-2, S27-9		✓	✓
5.10.2.12.2	-29V	(S27-11 for EDT)		✓	✓
5.10.2.12.3	-29V	S26-2, S27-10		✓	✓
5.10.2.12.4	SMA BUR -29V	(S27-12 for EDT)		✓	✓
5.10.2.13.1	Radimeter	S26-3, S27-2		✓	✓
5.10.2.13.2	Radimeter	S27-2		✓	✓
5.10.2.14.1	CDVU	S27-3		✓	✓
5.10.2.14.2	CDVU	S27-3		✓	✓
5.10.2.15.1	Analog +	S27-4		✓	✓
5.10.2.15.2	Analog -	S27-5		✓	✓
5.10.2.15.3	Analog -	S27-5		✓	✓
5.10.2.15.4	Analog +	S27-4		✓	✓
5.10.2.16.1	Electromech.	S27-6		✓	✓
5.10.2.16.2	Electromech.	↓ S27-6		✓	✓
5.10.2.17.1	Outgas output voltage	S26-3, S27-7		✓	✓
5.10.3.1	Bus voltage	S26-1, S27-1			
		(S27-3 for EDT)			
5.10.3.2	MUX load current	S26-3, S27-12	4.130 ± 0.025A	41.41	41.10
5.10.3.3	Bus current	S26-1, S27-2			
		(S27-4 for EDT)			
5.10.3.3.2	BPS Voltage	S26-1, S27-1		152.48	155.14
		S27-3)			
5.10.3.3.3	BPS Current	S26-1, S27-2		23.02	23.02
		(S27-4)		152.18	155.96
5.10.3.3.4	MUX Current	S26-3; S27-12		41.30	41.43

(2)

10.4 Performance test (continued)



Fto "3 982

REF. PARA.	DESCRIPTION	DVM SWITCH POSITIONS	LIMITS	MEASUREMENT	
				PRIMARY	REDUNDA
5.10.3.4.1	B1 + output voltage	S26-1, S27-5	20.50 \pm 2.50V	<u>20.15</u> (1)	<u>20.4</u>
5.10.3.4.2	B1 + output ripple	Look on Scope	<600 mV pk-pk	<u>20</u>	<u>30</u>
5.10.3.4.3	B1 - output voltage	S26-1, S27-6	-20.50 \pm 2.50V	<u>-20.16</u> (2)	<u>20.4</u>
5.10.3.4.4	B1 - output ripple	Look on Scope	<600 mV pk-pk	<u>20</u>	<u>30</u>
5.10.3.5.1	B2 + output voltage	S26-1, S27-7	20.50 \pm 2.50V	<u>19.98</u> (3)	<u>20.2</u>
5.10.3.5.2	B2 + output ripple	Look on Scope	<600 mV pk-pk	<u>30</u>	<u>20</u>
5.10.3.5.3	B2 - output voltage	S26-1, S27-8	-20.50 \pm 2.50V	<u>-20.02</u> (4)	<u>20.3</u>
5.10.3.5.4	B2 - output ripple	Seen on Scope	<600 mV pk-pk	<u>20</u>	<u>20</u>
5.10.3.6.1	B3 + output voltage	S26-1, S27-9	20.50 \pm 2.50V	<u>20.07</u> (5)	<u>20.3</u>
5.10.3.6.2	B3 + output ripple	Seen on Scope	<600 mV pk-pk	<u>20</u>	<u>20</u>
5.10.3.6.3	B3 - output voltage	S26-1, S27-10	-20.50 \pm 2.50V	<u>-20.03</u> (6)	<u>20.3</u>
5.10.3.6.4	B3 - output ripple	Seen on Scope	<600 mV pk-pk	<u>30</u>	<u>20</u>
5.10.3.7.1	B4 + output voltage	S26-1, S27-11	20.50 \pm 2.50V	<u>20.12</u> (7)	<u>20.4</u>
5.10.3.7.2	B4 + output ripple	Seen on Scope	<600 mV pk-pk	<u>20</u>	<u>20</u>
5.10.3.7.3	B4 - output voltage	S26-1, S27-12	-20.50 \pm 2.50V	<u>-20.14</u> (8)	<u>20.4</u>
5.10.3.7.4	B4 - output ripple	Seen on Scope	<600 mV pk-pk	<u>20</u>	<u>20</u>
5.10.3.8.1	B5,7 + voltage	S26-2, S27-1	20.50 \pm 2.50V	<u>19.86</u> (9)	<u>20.0</u>
5.10.3.8.2	B5,7 + ripple	Seen on Scope	<600 mV pk-pk	<u>20</u>	<u>40</u>
5.10.3.8.3	B5,7 - voltage	S26-3, S27-2	-20.50 \pm 2.50V	<u>-19.84</u> (10)	<u>20.0</u>
5.10.3.8.4	B5,7 - ripple	Seen on Scope	<600 mV pk-pk	<u>20</u>	<u>40</u>
5.10.3.9.1	B6 + voltage	S26-2, S27-3	20.50 \pm 2.50V	<u>20.03</u> (11)	<u>20.3</u>
5.10.3.9.2	B6 + ripple	Seen on Scope	<600 mV pk-pk	<u>20</u>	<u>20</u>
5.10.3.9.3	B6 - voltage	S26-2, S27-4	-20.50 \pm 2.50V	<u>-20.04</u> (12)	<u>20.3</u>
5.10.3.9.4	B6 - ripple	Seen on Scope	<600 mV pk-pk	<u>20</u>	<u>20</u>
5.10.3.10.1	SMA Htr + voltage	S26-2, S27-5	21.20 \pm 2.12V	<u>21.07</u> (13)	<u>22.12</u>
5.10.3.10.2	SMA Htr + ripple	Seen on Scope	<630 mV pk-pk	<u>20</u>	<u>20</u>
5.10.3.10.3	SMA Htr - voltage	S26-2, S27-6	-21.20 \pm 2.12V	<u>-22.32</u> (14)	<u>22.65</u>
5.10.3.10.4	SMA Htr - ripple	Seen on Scope	<630 mV pk-pk	<u>20</u>	<u>20</u>
5.10.3.11.1	SMA +7V voltage	S26-2, S27-7 (S27-8 for RDT)	7.10 \pm 0.80V	<u>7.558</u> (15)	<u>7.71</u>
5.10.3.11.2	SMA +7V output ripple	Seen on Scope	<10 mV pk-pk	<u>25</u>	<u>40</u>

10.6 Performance test (continued)

REF. PARA.	DESCRIPTION	SWITCH POSITIONS	LIMITS	TEST RESULTS
5.10.3.12.1	SMA +29V output voltage	S26-2, S27-9 (S27-11 for IOT)	29.50 \pm 1.50V	<u>29.77 (2)</u> <u>30.40</u>
5.10.3.12.2	SMA +29V ripple	Seen on Scope	< 70 mV, pk-pk	<u>30</u> <u>40</u>
5.10.3.12.3	SMA -29V voltage	S26-2, S27-10 (S27-12 for IOT)	-29.50 \pm 1.50V	<u>-29.96 (2)</u> <u>-30.42</u>
5.10.3.12.4	SMA -29V ripple	Seen on Scope	< 70 mV pk-pk	<u>30</u> <u>40</u>
5.10.3.13.1	MIX voltage	S26-3, S27-1	30.00 \pm 0.90V	<u>29.70 (2)</u> <u>30.10</u>
5.10.3.13.2	MIX ripple	Seen on Scope	< 60 mV, pk-pk	<u>40</u> <u>45</u>
5.10.3.14.1	Radiometer voltage	S26-3, S27-2	8.50 \pm 0.85V	<u>8.303 (2)</u> <u>8.39</u>
5.10.3.14.2	Radiometer ripple	Seen on Scope	< 50 mV pk-pk	<u>20</u> <u>30</u>
5.10.3.15.1	CDVU voltage	S26-3, S27-3	8.00 \pm 0.80V	<u>7.519 (2)</u> <u>7.66</u>
5.10.3.15.2	CDVU ripple	Seen on Scope	< 60 mV pk-pk	<u>20</u> <u>30</u>
5.10.3.16.1	Analog + voltage	S26-3, S27-4	21.20 \pm 2.12V	<u>22.06 (2)</u> <u>22.39</u>
5.10.3.16.2	Analog + ripple	Seen on Scope	< 50 mV pk-pk	<u>25</u> <u>30</u>
5.10.3.16.3	Analog - voltage	S26-3, S27-5	-21.20 \pm 2.12V	<u>-22.13 (2)</u> <u>-22.42</u>
5.10.3.16.4	Analog - ripple	Seen on Scope	< 50 mV pk-pk	<u>20</u> <u>30</u>
5.10.3.17.1	Electromech. voltage	S26-3, S27-6	33.40 \pm 3.34V	<u>32.57 (2)</u> <u>33.10</u>
5.10.3.17.2	Electromech. ripple	Seen on Scope	< 1.0V pk-pk	<u>20</u> <u>40</u>
5.10.3.18.1	Outgas voltage	S26-3, S27-7	100.0 \pm 12.0V	<u>100.90</u> <u>100.78</u>
5.10.3.18.2	Outgas output ripple	Seen on Scope	< 0.0V pk-pk	<u>75mV</u> <u>100mV</u>
5.10.4.1	Input current telemetry	S26-4, S28-7 (S28-6 for IOT)		<u>4.652</u> <u>4.62</u>
5.10.4.2.1	Band 1 + volt. telemetry	S26-6, S28-5		<u>3.687</u> <u>3.74</u>
5.10.4.2.2	Band 1 -	S28-6		<u>3.675</u> <u>3.72</u>
5.10.4.3.1	Band 2+	S28-7		<u>3.646</u> <u>3.70</u>
5.10.4.3.2	Band 2-	S28-8		<u>3.635</u> <u>3.68</u>
5.10.4.4.1	Band 3+	S28-9		<u>3.660</u> <u>3.69</u>
5.10.4.4.2	Band 3-	S28-10		<u>3.660</u> <u>3.71</u>
5.10.4.5.1	Band 4+	S28-11		<u>3.661</u> <u>3.72</u>
5.10.4.5.2	Band 4-	S26-4, S28-12		<u>3.672</u> <u>3.72</u>
5.10.4.6.1	Band 5,7+	S26-5, S28-1		<u>3.642</u> <u>3.66</u>
5.10.4.6.2	Band 5,7- volt. telemetry	S26-5, S28-2		<u>3.626</u> <u>3.65</u>

ORIGINAL PAGE IS
OF POOR QUALITY

TS 16603
Rev B
18 December 1980

10.4 Performance test (continued)

FEB 03 1982

REF. PARA.	DESCRIPTION	DVM SWITCH POSITIONS	LIMITS	MEASUREMENT	
				PRIMARY	REDUNDA
5.10.4.7.1	Band 6 + volt. telemetry	S26-5, S28-3		3.634	3.64
5.10.4.7.2	Band 6 -	S28-4		3.64	3.72
5.10.4.8.1	SMA Htr +	S28-5		4.022	4.01
5.10.4.8.2	SMA Htr -	S28-6		4.052	4.11
5.10.4.9	SMA +7V	S26-5, S27-7 (S27-8 for RDT)		4.011	4.09
5.10.4.10.1	SMA +29V	S26-5, S28-9 (S27-11 for RDT)		4.115	4.19
5.10.4.10.2	SMA -29V	S26-5, S28-10 (S27-12 for RDT)		3.898	3.92
5.10.4.11	MUX	S26-6, S28-1		4.224	4.24
5.10.4.12	Radiometer	S26-6, S28-2		4.552	4.66
5.10.4.13	CDVU	S26-6, S28-3		4.222	4.24
5.10.4.14.1	Analog + volt. telemetry	S26-6, S28-4		3.946	3.94
5.10.4.14.2	Analog -	S26-6, S28-5		3.890	3.91
5.10.4.15	Electromech.	S28-6		4.002	4.01
5.10.4.16	Outgas volt. telemetry	S26-6, S28-7		5.042	5.03
5.10.5.1.1	Analog + load current	S26-3, S27-11 mV ÷ 10 = Amps		15.472	15.6
5.10.5.1.2	MUX	S26-3, S27-12 mV ÷ 10 = Amps		41.51	41.5
5.10.5.1.3	Band 1 +	S26-7, S34-1 mV ÷ 0.5 = mA		89.73	91.0
5.10.5.1.4	Band 1 -	S34-2		- 89.91	91.2
5.10.5.1.5	2 +	S34-3		89.83	91.1
5.10.5.1.6	2 -	S34-4		- 89.69	90.9
5.10.5.1.7	3 +	S34-5		89.53	90.1
5.10.5.1.8	3 -	S34-6		- 89.43	90.6
5.10.5.1.9	4 +	S34-7		89.64	91.0
5.10.5.1.10	4 -	S34-8		- 89.36	90.5
5.10.5.1.11	5,7 +	S34-9		89.50	90.6
5.10.5.1.12	5,7 -	S34-10		- 88.71	99.3
5.10.5.1.13	6 +	S34-11		46.63	47.3
5.10.5.1.14	Band 6 -	S26-7, S34-12		- 46.48	47.2
5.10.5.1.15	SMA Htr +	S26-8, S34-1 mV ÷ 0.5 = mA		47.70	47.9
5.10.5.1.16	SMA Htr - load current	S26-8, S34-2 mV = mA		- 8.822	8.9

5

ORIGINAL PAGE IS
OF POOR QUALITY

MAC
TEST
S22

TS 16603
Rev B

number 1980
SCN-2 7-6-81
SCN-3 4/8/81

10.4 Performance test (continued)

FEB 03 1982

REF. PARA.	DESCRIPTION	DVH SWITCH POSITIONS	LIMITS	MEASUREMENT	
				PRIMARY	REDUND
5.10.5.1.17	SMA +29V load current	S26-8, S34-3	mV ÷ 0.402 = mA	49.92 (40)	50
5.10.5.1.18	SMA -29V	S34-4	mV ÷ 0.402 = mA	-49.66 (40)	50
5.10.5.1.19	SMA +7V	S34-5	V ÷ 0.1 = Amps	277.5 (40)	28
5.10.5.1.20	Analog -	S34-6	mV ÷ 0.402 = mA	-265.2 (40)	26
5.10.5.1.21	Radiometer	S34-9	mV ÷ 0.5 = mA	149.00 (40)	150
5.10.5.1.22	CDVU	S34-10	mV ÷ 0.5 = mA	269.4 (40)	27
5.10.5.1.23	Electromech. load current	S26-8, S34-11	mV ÷ 0.402 = mA	207.3 (40)	21
5.10.5.2.1	Bus power supply voltage	S26-1, S27-1 (S27-3 for RDT)		23.05	23.0
5.10.5.2.2	Bus input current	S26-1, S27-2 (S27-4 for RDT)	mV ÷ 10 = Amps	153.16 (48)	156
5.10.5.2.3	P _{IN} (Section 5.10.5)			853.053	360
5.10.5.2.4	P _{IN} (Section 5.10.3)			851.161	352
5.10.5.2.5	P _{IN} (avg)			852.078	352.1
5.10.5.2.9	Input current at current limit		26-1, 27-2 (26-1 27-4 Rdt)	179.6	196
	Input voltage at current limit		27-1 (27-3 Rdt)	23.08	22
	MUX voltage at current limit		26-3, 27-1	27.73	27
	MUX current at current limit		27-12	56.33	50
5.10.5.3.1	P _{OUT}			265.571	276.5
5.10.5.3.2	Efficiency		> 70%	75.92%	76

ORIGINAL PAGE IS
OF POOR QUALITY

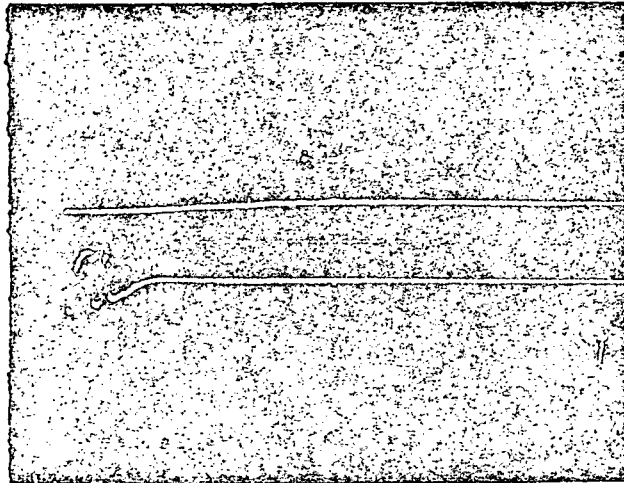
HAC
TEST
S32

TS 16603
Rev B
18 December 1980

10.4 Performance test (continued)

FEB 03 1982

REF. PARA.	DESCRIPTION	DVM SWITCH POSITIONS	LIMITS	MEASUREMENT	
				PRIMARY	REDUND
5.10.6.1	+7V output pulsed	S26-2, S27-7 (S27-8 for RDT)	7.10 \pm 0.80V	6.839	7.11
5.10.6.2	Photograph of transients induced on input bus current and SMA +7V output voltage as SMA +7V output is being pulse-loaded-PRIMARY SIDE				

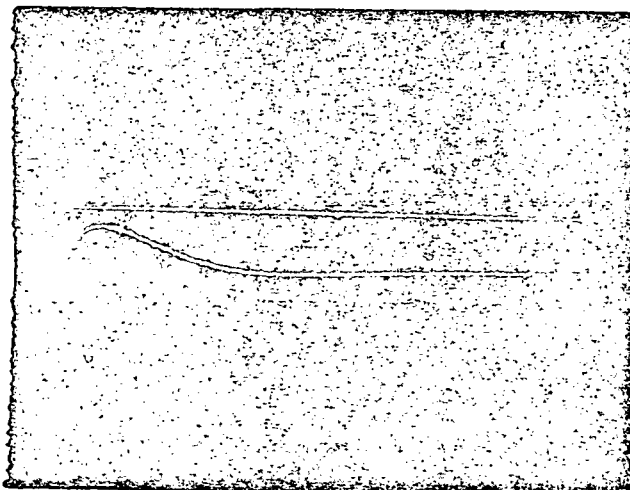


7.531 v. Hi.
6.839 v. Lo.

(0.2A) CURRENT/DIV: 2A/div
(1V) VOLTAGE/DIV: 2V/div
(200uS) SWEEP RATE: 200uS/div

zero

5.10.6.2 Photograph of transients induced on input bus current and SMA +7V output voltage as pulse-load on SMA +7V outputs is being removed - PRIMARY SIDE



(0.2A) CURRENT/DIV: 2 amp's D
(1V) VOLTAGE/DIV: 2V/div
(200uS) SWEEP RATE: 50uS/div

zero for both

7

ORIGINAL PAGE IS
OF POOR QUALITY



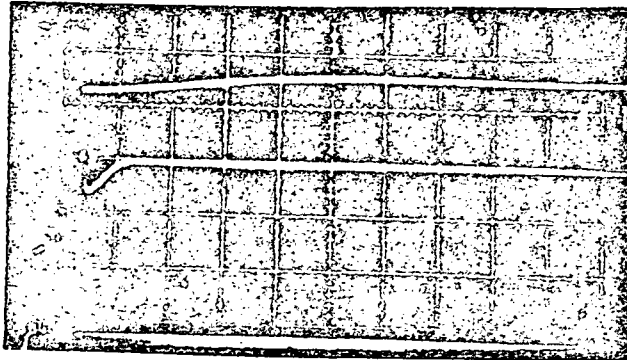
TS 16603
Rev B
18 December 1980

FEB 03 1982

10.4 Performance test (continued)

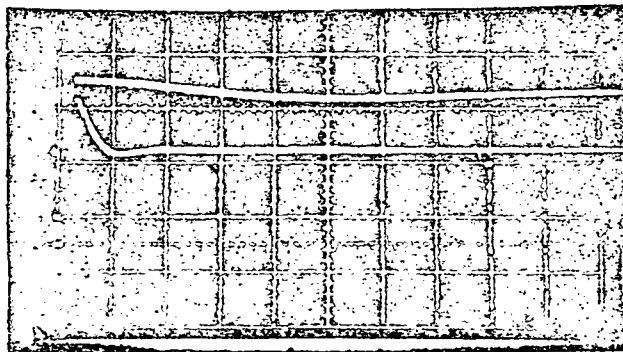
REF. PARA. _____ DESCRIPTION _____

5.10.6.2 Photograph of transients induced on input bus current and SMA +7V output voltage as SMA +7V output is being pulse-loaded-REDUNDANT SIDE



(0.2A) CURRENT/DIV: 2 A A.C.
(1V) VOLTAGE/DIV: 2 V
(200uS) SWEEP RATE: 200 us

5.10.6.2 Photograph of transients induced on input bus current and SMA +7V output voltage as pulse-load is being removed-REDUNDANT SIDE



(0.2A) CURRENT/DIV: 2 A A.C.
(1V) VOLTAGE/DIV: 2 V
(200uS) SWEEP RATE: 200 us

⑧

ORIGINAL PAGE IS
OF POOR QUALITY

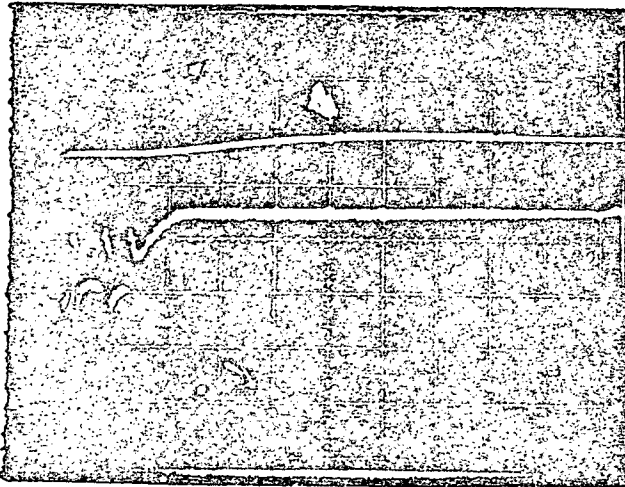
HAC
TEST
532

TS 16603
Rev B
~~98 December 1980~~
SEA 2 7-6-81

FEB 03 1982

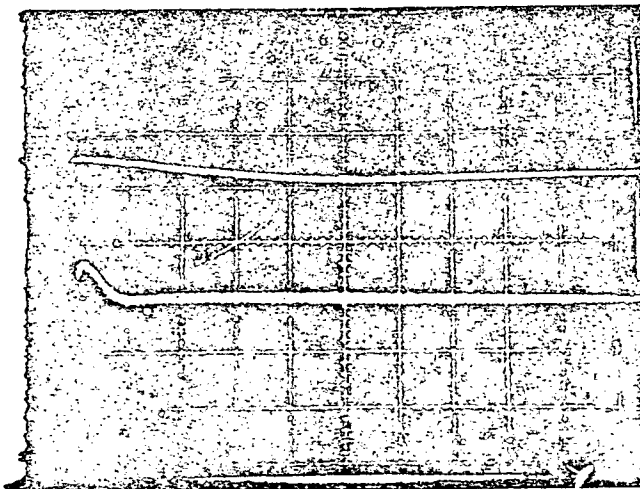
10.4 Performance test (continued)

REF. PARA.	DESCRIPTION	DVM SWITCH POSITIONS	LIMITS	MEASUREMENT	
				PRIMARY	REFDUM
5.10.6.3	Input bus current	S26-1, S27-2 (S27-4 for RDT)		<u>156.07</u>	<u>162</u>
5.10.6.4	SMA +7V TM- pulsed	S26-5, S28-7 (S28-8 for RDT)		<u>4.417</u>	<u>4.6</u>
5.10.6.5	SMA +7V load current- pulsed	(S26-8, S34-5)		<u>458.6</u>	<u>476</u>
5.10.6.6	Photograph of transients induced on input bus current and SMA +7V load current				
				SIDE	



(1A) * SMA CURRENT/DIV: 100mA
 (NA) BUS CURRENT/DIV: 100mA
 (200uS) SWEEP RATE: 200uS
 * Using 0.1 ohm shunt and 100 mV/Div on scope

5.10.6.6 Photograph of transients induced on input bus current and SMA +7V load current as pulse-load is being removed-PRIMARY SIDE



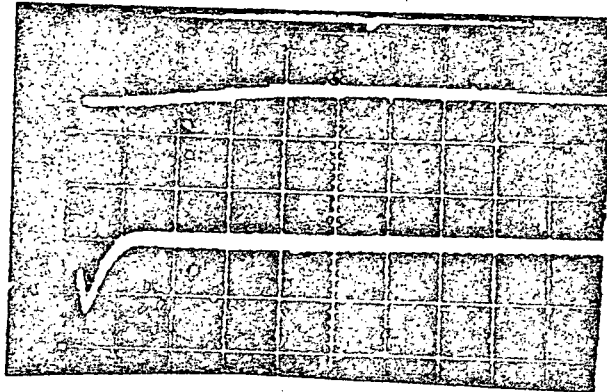
(1A) * SMA CURRENT/DIV: 100mA
 (NA) BUS CURRENT/DIV: 100mA
 (200uS) SWEEP RATE: 200uS

*Using 0.1 ohm shunt and 100mV/Div on Scope

10.4 Performance test (continued)

FEB 13 1982

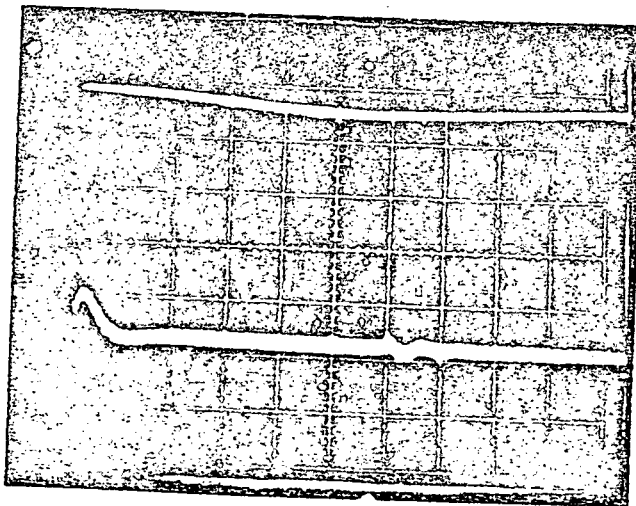
REF. PARA.	DESCRIPTION
5.10.6.6	Photograph of transients induced on input bus current and SMA + 7V load current as SMA + 7V output is being pulse loaded - REDUNDANT SIDE



(1A)* SMA CURRENT/DIV: 100 μ A
(2A) BUS CURRENT/DIV: 2 μ A
(200 μ S) SWEEP RATE: 200 μ s

*Using 0.1 Ω shunt and
100 mV/Div on scope.

5.10.6.6 Photograph of transients induced on input bus current and SMA + 7V load current as pulse-load is removed - REDUNDANT SIDE



(1A)* SMA CURRENT/DIV: 100 μ A
(2A) BUS CURRENT/DIV: 2 μ A
(200 μ S) SWEEP RATE: 200 μ s

*Using 0.1 Ω shunt and
100mV/Div on scope.

ORIGINAL PAGE IS
OF POOR QUALITY

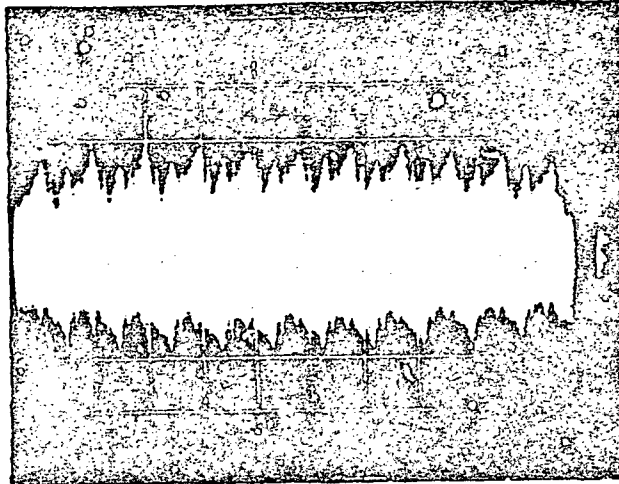
MAC
TEST
S32

TS 16603
Rev B
18 December 1980

10.4 Performance test (continued)

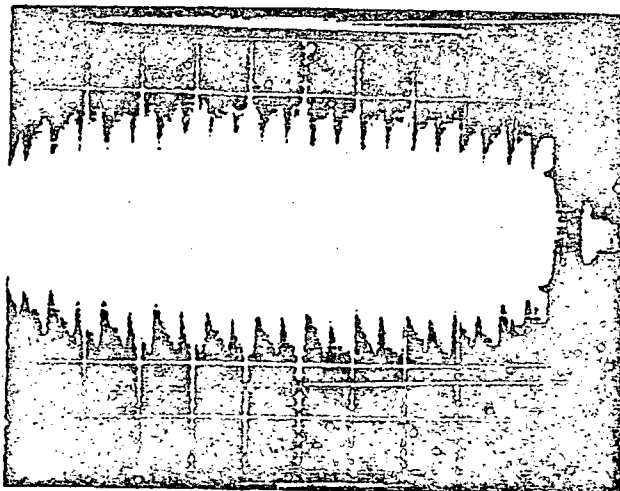
FEB 13 1982

REF. PARA.	DESCRIPTION
5.10.7.1	Photograph of reflected input current ripple - PRIMARY SIDE



(1mA) CURRENT/DIV: 2mA A.
(10uS) SWEEP RATE: 10uS

5.10.7.1 Photograph of reflected input current ripple - REDUNDANT SIDE



(1mA) CURRENT/DIV: 2mA A.
(10uS) SWEEP RATE: 10uS

3.10.8.1.1 Input current - full load S26-1, S27-2
(S27-4 for RDT)

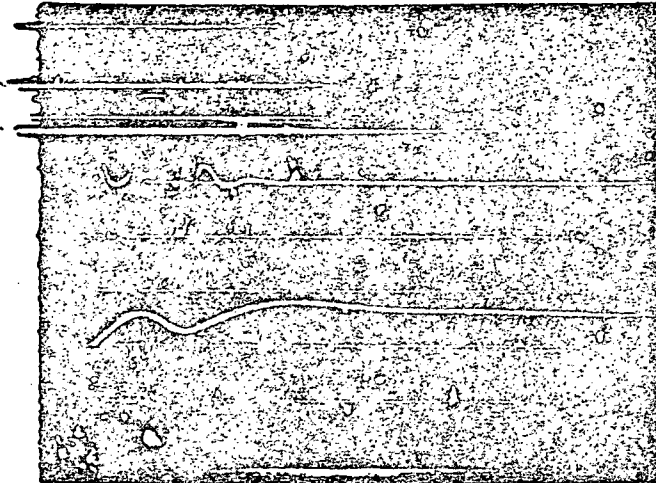
REC
TEST
532

120.89mV 155.21
125.56mV 125.20

3.10.8.1.2 Input current w/o analog load Same

FEB 03 1982

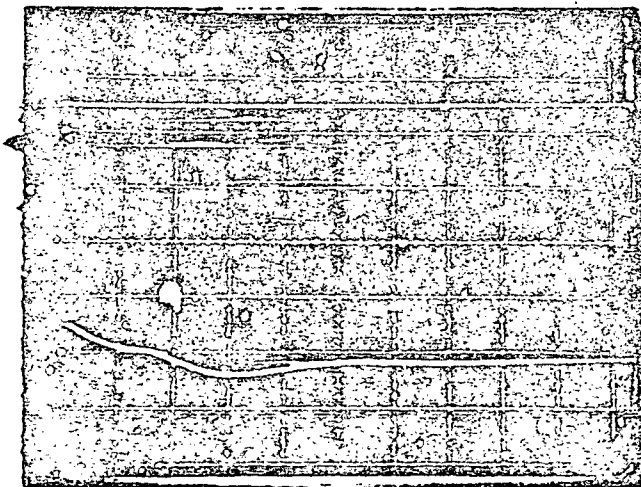
5.10.8.1.3 Photograph of transients induced on input bus current and analog + voltage as analog output is enabled - PRIMARY SIDE



OUTPUT VOLTAGE - LEADER
21.96V

(2V) VOLTAGE/DIV: 2V/DIV
(1A) CURRENT/DIV: 1A/DIV
(500ns) SWEEP RATE: 500ns

5.10.8.1.3 Photograph of transients induced on input bus current and analog + voltage as analog output is disabled - PRIMARY SIDE



INPUT VOLTAGE
25.06V

(5V) VOLTAGE/DIV: 2V/DIV
(1A) CURRENT/DIV: 1A/DIV
(1ms) SWEEP RATE: 500ns

Bus Current

ORIGINAL PAGE IS
OF POOR QUALITY

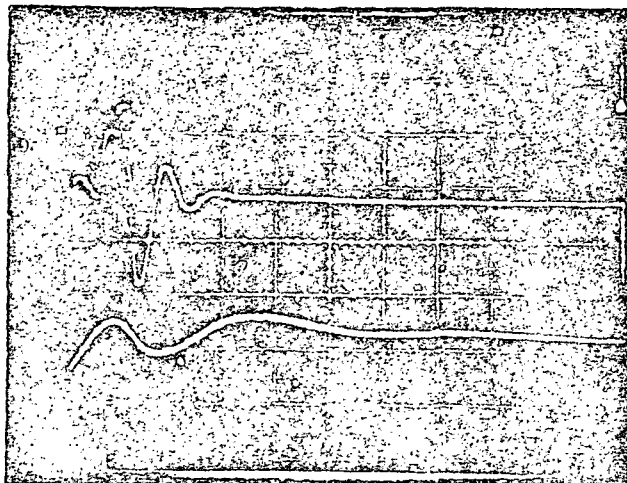


TS 16603
Rev B
18 December 1980

10.4 Performance test (continued)

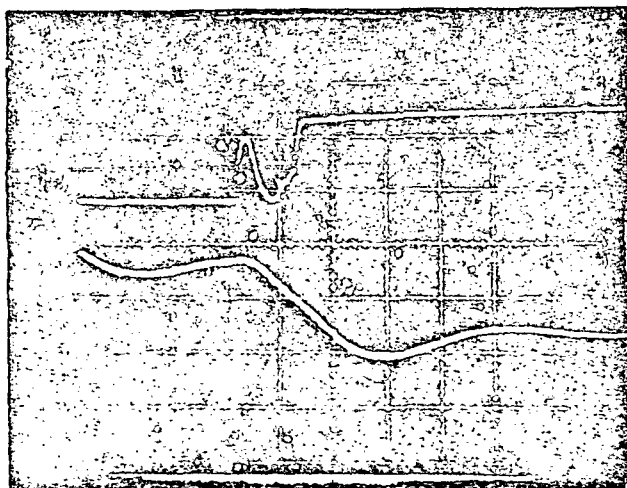
FEB 03 1982

REF. PARA.	DESCRIPTION
5.10.8.1.3	Photograph of transients induced on input bus current and analog + output voltage as analog output is enabled - REDUNDANT SIDE.



(2V) VOLTAGE/DIV: 2V
(1A) CURRENT/DIV: 1A
(500uS) SWEEP RATE: 500uS

5.10.8.1.3	Photograph of transients induced on input bus current and analog + output voltage as analog output is disabled - REDUNDANT SIDE.
------------	--



(3V) VOLTAGE/DIV: 2V
(1A) CURRENT/DIV: 1A
(1uS) SWEEP RATE: 500uS

(B)

ORIGINAL PAGE IS
OF POOR QUALITY



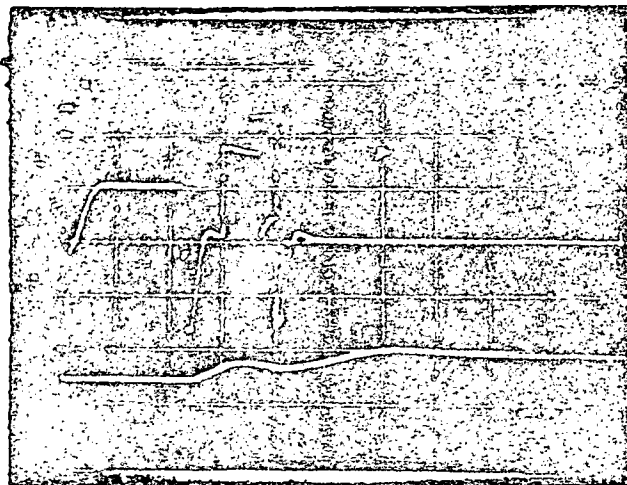
TS 16603
Rev B
18 December 1980

10.4 Performance test (continued)

FEB 03 1982

F. PARA.	DESCRIPTION	DVM SWITCH POSITIONS	LIMITS	MEASUREMENT	
				PRIMARY	REDUNDANT
5.10.8.2.1	Input bus current w/o SMA +7V load	S26-1, S27-2 (S27-4 for RDT)		142.21mV	142.5
5.10.8.2.2	Photograph of transients induced on input bus current and SMA +7V output voltage as SMA +7V is enabled - PRIMARY SIDE.				

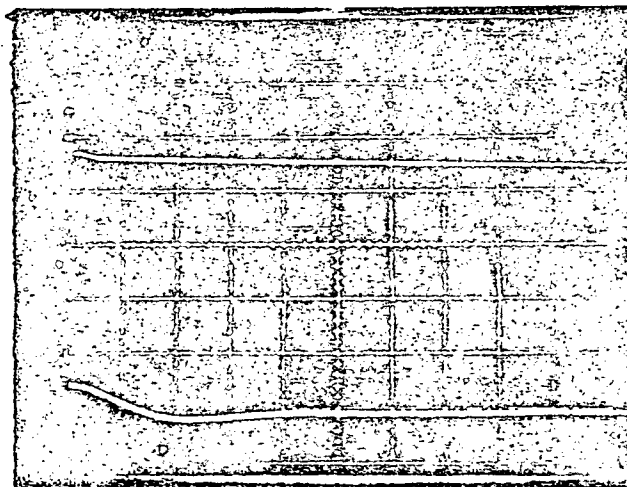
NO LOAD 9.284Voc
LOADED 7.526Voc



OUTPUT VOLTAGE
7.526V
(5V) VOLTAGE/DIV: 2 Volts/div
(1A) CURRENT/DIV: 1A/div
(200ns) SWEEP RATE: 500ns/div

BUS CURRENT

5.10.8.2.2 Photograph of transients induced on input bus current and SMA +7V output voltage as SMA +7V is disabled - PRIMARY SIDE.



OUTPUT VOLTAGE
~~2.000V~~ 6.37Voc
9.284V 9/1/82

(2V) VOLTAGE/DIV: 2 Volts/div
(1A) CURRENT/DIV: 1A/div
(2ns) SWEEP RATE: 500ns/div

BUS CURRENT

114

ORIGINAL PAGE IS
OF POOR QUALITY



TS 16603
Rev B
18 December 1980

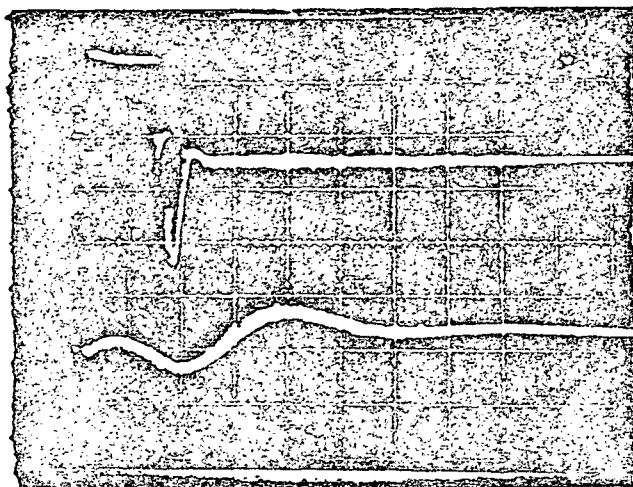
10.4 Performance test (continued)

FEB 03 1982

REF. PARA.

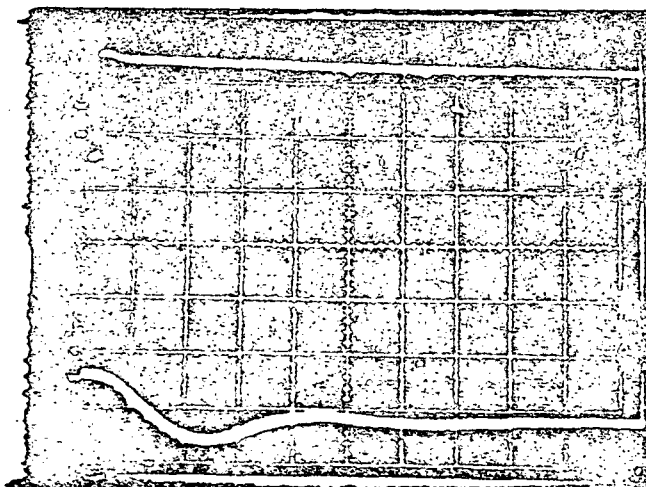
DESCRIPTION

5.10.8.2.2 Photograph of transients induced on input bus current and SMA +7 output voltage as SMA +7V is enabled - REDUNDANT SIDE



(5V) VOLTAGE/DIV: 2V
(1A) CURRENT/DIV: 1A
(200 μ S) SWEEP RATE: 500 μ s

5.10.8.2.2 Photograph of transients induced on input bus current and SMA +7V output voltage as SMA +7V is disabled - REDUNDANT SIDE



(2V) VOLTAGE/DIV: 2V
(1A) CURRENT/DIV: 1A
(2ms) SWEEP RATE: 500 μ sec

15

ORIGINAL PAGE IS
OF POOR QUALITY

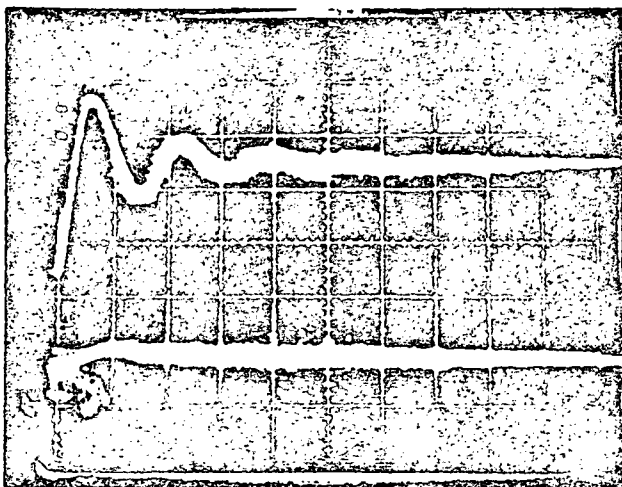
MAC
TEST
S32

TS 16603
Rev B
18 December 198

10.4 Performance test (continued)

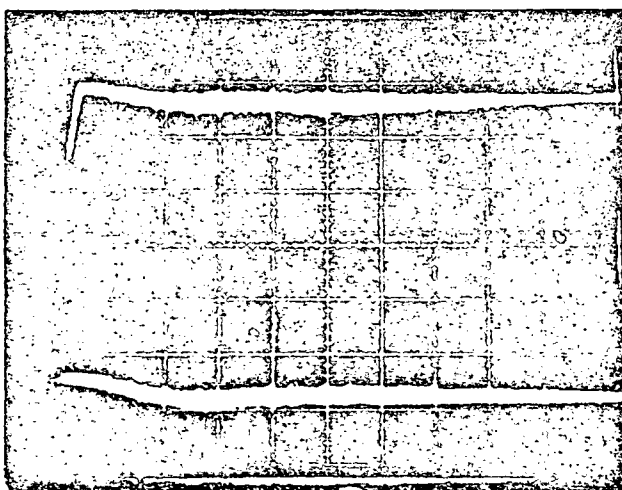
FEB 03 1982

REF. PARA.	DESCRIPTION	DVM SWITCH POSITIONS	LIMITS	MEASUREMENT	
				PRIMARY	REUNDU
5.10.8.2.3	Input bus current w/o SMA +29V load	S26-1, S27-2 (S27-4 for RDT)	148.56 152.56 V 154V 6.25502 A		
5.10.8.2.4	Photograph of transients induced on input bus current and SMA +29V output voltage as SMA +29V is enabled - PRIMARY SIDE				



(2V) VOLTAGE/DIV: 1.0V/div
(0.5V) CURRENT/DIV: 0.5A/div
(1ms) SWEEP RATE: 50ns/div

5.10.8.2.4 Photograph of transients induced on input bus current and SMA +29V output voltage as SMA +29V is disabled - PRIMARY SIDE



(2V) VOLTAGE/DIV: 1.0V/div
(0.5A) CURRENT/DIV: 0.5A/div
(1ms) SWEEP RATE: 50ns/div

ORIGINAL PAGE IS
OF POOR QUALITY



TS 16603
Rev B
18 December 1980

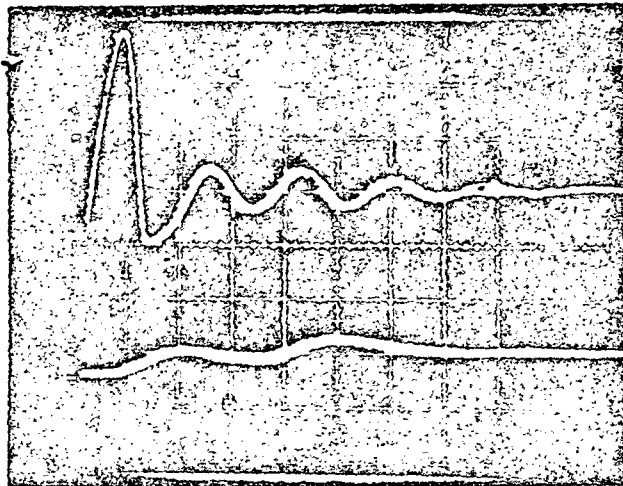
10.4 Performance test (continued)

FEB 03 1982

EF. PARA.

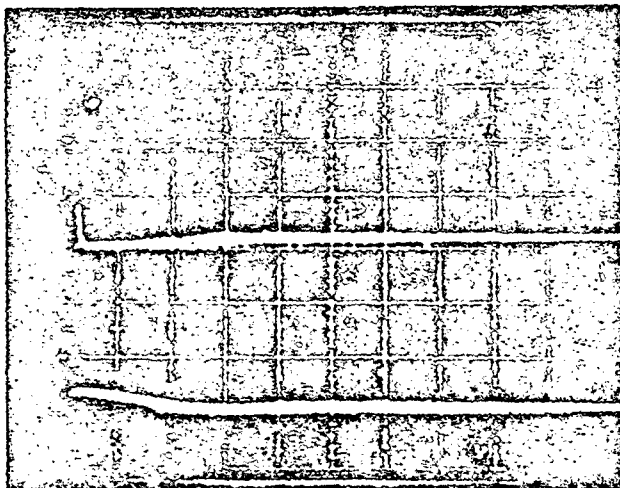
DESCRIPTION

5.10.8.2.4 Photograph of transients induced on input bus current and SMA +29V output voltage as SMA +29V is enabled - REDUNDANT SIDE



(2V) VOLTAGE/DIV: 1V
(0.5A) CURRENT/DIV: .5A
(1ms) SWEEP RATE: 500ns

5.10.8.2.4 Photograph of transients induced on input bus current and SMA +29V output voltage as +29V is disabled - REDUNDANT SIDE



(2V) VOLTAGE/DIV: 1V
(0.5) CURRENT/DIV: .5A
(1ms) SWEEP RATE: 500ns

ORIGINAL PAGE IS
OF POOR QUALITY



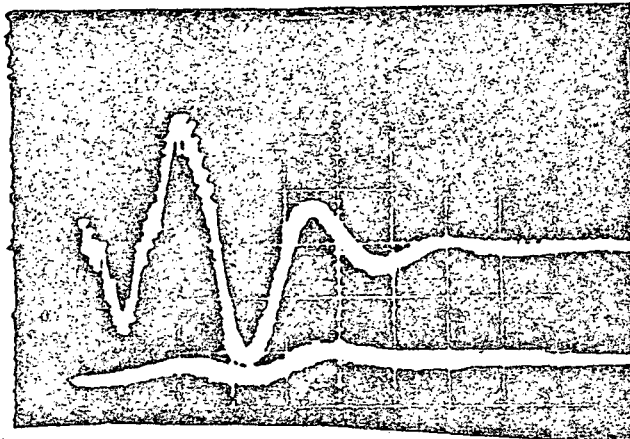
TS 16603
Rev B
18 December 1980

10.4 Performance test (continued)

FEB 03 1982

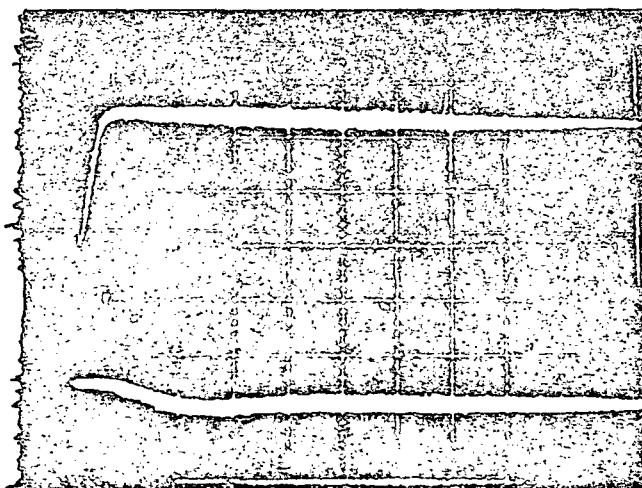
EF. PARA.	DESCRIPTION	DVM SWITCH POSITIONS	LIMITS	MEASUREMENT	
				PRIMARY	REDUNDANT
5.10.8.3.1	Input bus current w/o CDVU load	S26-1, S27-2 (S27-4 for RDT)		148.29mV	15311
5.10.8.3.2	Photograph of transients induced on input bus current and CDVU output voltage as CDVU is enabled - PRIMARY SIDE				

LOADED 7.503
UNLOADED 9.234



(2V) VOLTAGE/DIV: 1.0V/DIV.
(0.5A) CURRENT/DIV: 0.5A/DIV.
(1ms) SWEEP RATE: 50ns/DIV.

5.10.8.3.2 Photograph of transients induced on input bus current and CDVU output voltage as CDVU is disabled - PRIMARY SIDE



(2V) VOLTAGE/DIV: 1.0V/DIV.
(0.5V) CURRENT/DIV: 0.5A/DIV.
(1ms) SWEEP RATE: 50ns/DIV.

ORIGINAL PAGE IS
OF POOR QUALITY

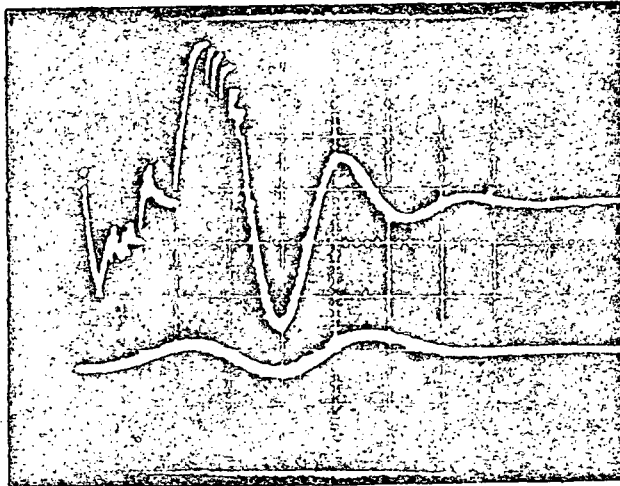


TS 16503
Rev B
18 December 1980

10.4 Performance test (continued)

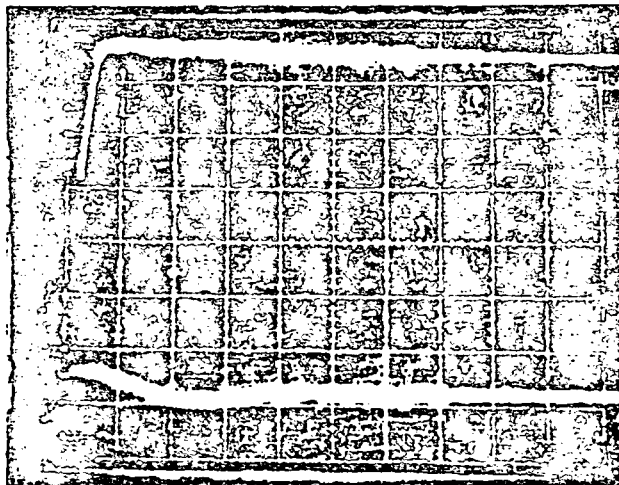
FEB 03 1982

REF. PARA.	DESCRIPTION
5.10.8.3.2	Photograph of transients induced on input bus current and CDVU output voltage as CDVU is enabled - REDUNDANT SIDE



(2V) VOLTAGE/DIV: 1V
(0.5A) CURRENT/DIV: 5A
(1ms) SWEEP RATE: 500ns

5.10.8.3.2	Photograph as transients induced on input bus current and CDVU output voltage as CDVU is disabled - REDUNDANT SIDE
------------	--



(2V) VOLTAGE/DIV: 1V
(0.5A) CURRENT/DIV: 5A
(1ms) SWEEP RATE: 500ns

ORIGINAL PAGE IS
OF POOR QUALITY



TS 16603
Rev B
18 December 1980

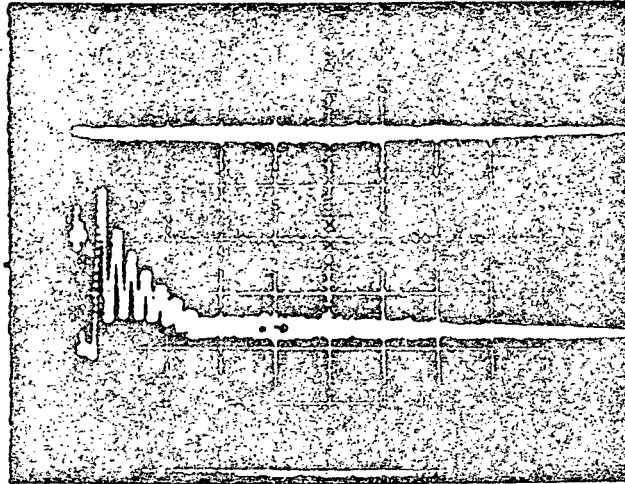
10.4 Performance test (continued)

FEB 03 1982

TF, PARA.

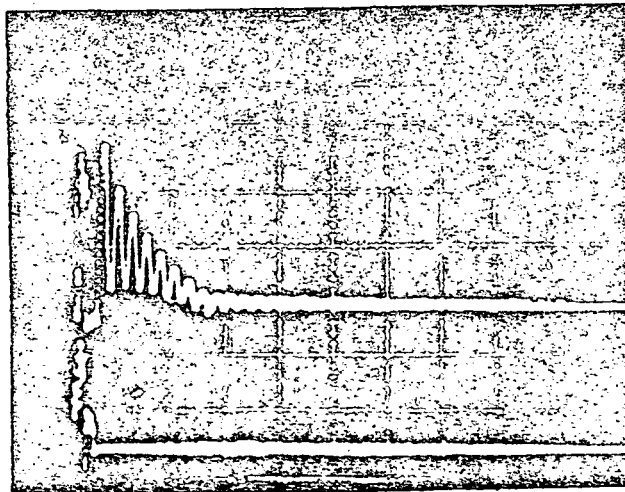
DESCRIPTION

5.10.9.1 Photograph of turn-off transient of input bus voltage and input bus current as bus voltage is removed - PRIMARY SIDE



(5V) VOLTAGE/DIV: 5V/div
(5A) CURRENT/DIV: 5A/div
(500us) SWEEP RATE: 500us/div

Photograph of turn-off transient of input bus voltage and input bus current as bus voltage is removed - REDUNDANT SIDE



(5V) VOLTAGE/DIV: 5V
(5A) CURRENT/DIV: 5A
(500us) SWEEP RATE: 500us/div

V Bus

I Bus

ORIGINAL PAGE IS
OF POOR QUALITY

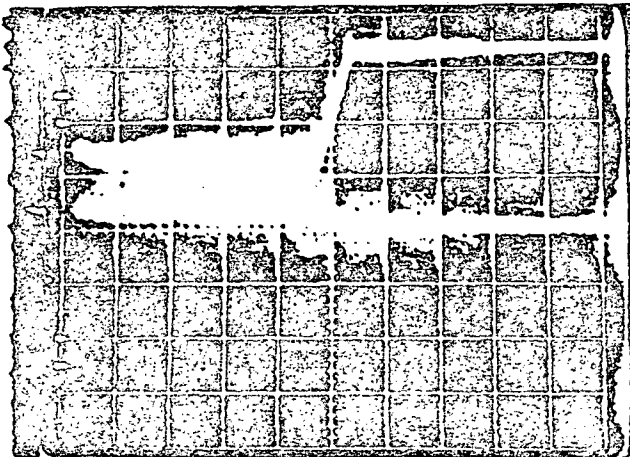


TS 16603
Rev B
18 December 1981

FEB 03 1982

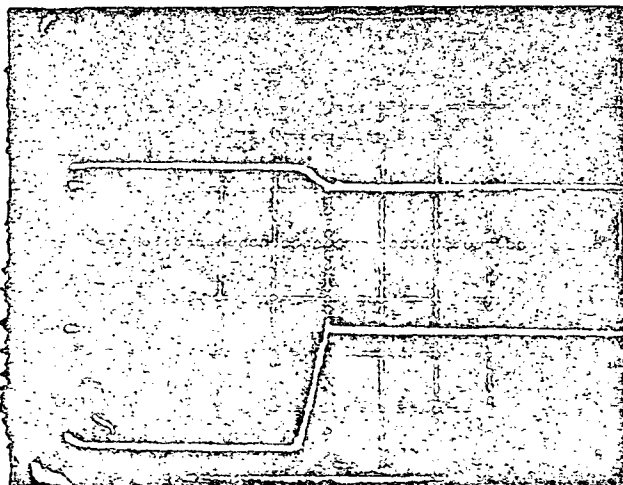
10.4 Performance test (continued)

REF. PARA.	DESCRIPTION	DVM SWITCH POSITIONS	LIMITS	MEASUREMENT	
				PRIMARY	REDUNDA
5.10.9.2	UIT stays off when bus is reapplied.	S1-ON (S2-ON for RDT)	--	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
5.10.9.3	Photograph of turn-on transient of bus voltage and current as ON command is issued - PRIMARY SIDE				



(5V) VOLTAGE/DIV: 5V/div.
(5A) CURRENT/DIV: 5A/div.
(100ms) SWEEP RATE: 100ms/div.

5.10.9.3 Photograph of turn-on transient of bus voltage and current as ON command is issued - REDUNDANT SIDE



(5V) VOLTAGE/DIV: 5V
(5A) CURRENT/DIV: 5A
(100ms) SWEEP RATE: 100ms/Sec

ORIGINAL PAGE IS
OF POOR QUALITY

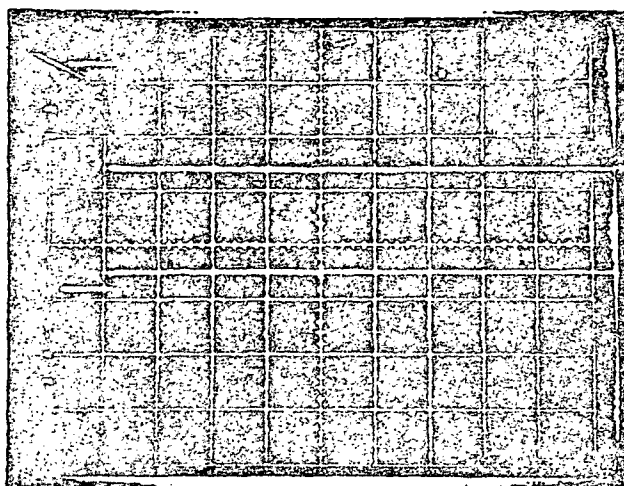
HAC
TEST
S32

TS 16603
Rev B
18 December 1980

10.4 Performance test (continued)

FEB 03 1982

PARA.	DESCRIPTION
5.10.9.4	Photograph of turn-off transient of input bus voltage and current as OFF command is issued - PRIMARY SIDE



0.6sec

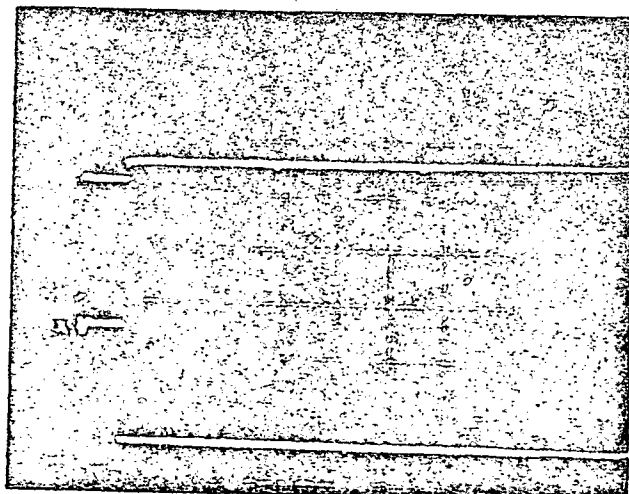
(5V) VOLTAGE/DIV: 5V/DIV.

(5A) CURRENT/DIV: 5A/DIV.

(10ms) SWEEP RATE: 10ms/div.

Bus Voltage

5.10.9.4 Photograph of turn-off transient of input bus voltage and current as OFF command is issued - REDUNDANT SIDE



(5V) VOLTAGE/DIV: 5V

(5A) CURRENT/DIV: 5A

(10ms) SWEEP RATE: 10ms/div

ORIGINAL PAGE IS
OF POOR QUALITY

HAC
TEST
S32

TS 16603
Rev B
18 December 1

10.4 Performance test (continued)

FEB 03 1982

REF. PARA.	DESCRIPTION	DVM SWITCH POSITIONS	LIMITS	PRIMARY	REDUN
5.10.9.5	Record	S27-2 (S27-4)		152.13 mV	152
5.10.9.6	Record	(S27-4 (S27-2)		50.37 mV	93
	Record	S27-2 (S27-4)		31.11 mV	128
5.10.9.7	Record that UUT turns on.	(Checkmark)		✓	✓
5.10.10.1	Input bus current AFTER it reads ~ 17A AND input bus voltage reads ~ 21V.	S26-1, S27-2 (S27-4 for RDT)		150.16 mV	150
5.10.10.2	Input bus voltage with 17.0A load	S26-1, S27-1 (S27-3 for RDT)		23.04	23.1
5.10.10.3	Input current telemetry output	S26-4, S28-2 (S28-4 for RDT)		4.534	4.4
5.10.10.4	Input current telemetry output	S26-4, S28-2 (S28-4 for RDT)		3.503	3.5
	Input bus voltage	S26-1, S27-1 (S27-3 for RDT)		23.09	23.0
	Input bus current	S26-1, S27-2 (S27-4 for RDT)		114.50 mV	119
5.10.10.5	Input current telemetry output	S26-4, S28-2 (S28-4 for RDT)		3.061	2.9
	Input bus voltage	S26-1, S27-1 (S27-3 for RDT)		23.03	23.1
	Input bus current	S26-1, S27-2 (S27-4 for RDT)		100.73 mV	103
5.10.10.6	Input current telemetry output	S26-4, S28-2 (S28-4 for RDT)		2.497	2.5
	Input bus voltage	S26-1, S27-1 (S27-3 for RDT)		23.01	23.0
	Input bus current	S26-1, S27-2 (S27-4 for RDT)		85.57 mV	89.7
5.10.10.7	Input current telemetry output	S26-4, S28-2 (S28-4 for RDT)		2.062	2.0
	Input bus voltage	S26-1, S27-1 (S27-3 for RDT)		23.06	23.1
	Input bus current	S26-1, S27-2 (S27-4 for RDT)		73.08 mV	76.56

(23)

ORIGINAL PAGE IS
OF POOR QUALITY

HAC
TEST
S32

TS 16603
Rev B
18 December 1961

10.4 Performance test (continued)

FEB 03 1982

REF. PARA.	DESCRIPTION	DVM SWITCH POSITIONS	LIMITS	MEASUREMENT	
				PRIMARY	REDUND
5.10.10.8	Input current telemetry output	S26-4, S28-2 (S28-4 for RDT)	1.539	1.46	
	Input bus voltage	S26-1, S27-1 (S27-3 for RDT)	23.02	23.01	
	Input bus current	S26-1, S27-2 (S27-4 for RDT)	57.51 mV	59.24	
5.10.10.9	Input current telemetry output	S26-4, S28-2 (S28-4 for RDT)	1.0050	1.01	
	Input bus voltage	S26-1, S27-1 (S27-3 for RDT)	23.02	23.0	
	Input bus current	S26-1, S27-2 (S27-4 for RDT)	41.55	47.46	
5.10.10.10	Input current telemetry output	S26-4, S28-2 (S28-4 for RDT)	0.5417	1.509	
	Input bus voltage	S26-1, S27-1 (S27-3 for RDT)	23.02	23.00	
	Input bus current	S26-1, S27-2 (S27-4 for RDT)	26.53 mV	30.74	
5.10.10.11	Input current telemetry output	S26-4, S28-2 (S28-4 for RDT)	0.231	1.211	
	Input bus voltage	S26-1, S27-1 (S27-3 for RDT)	23.09	23.08	
	Input bus current	S26-1, S27-2 (S27-4 for RDT)	20.18 mV	22.21	
5.10.10.12	Input current telemetry output	S26-4, S28-2 (S28-4 for RDT)	19.72 mV	56.09	
	Input bus voltage	S26-1, S27-1 (S27-3 for RDT)	22.99	23.00	
	Input bus current	S26-1, S27-2 (S27-4 for RDT)	13.523 mV	13.87	
5.10.11.1	Band 1+ output voltage	S26-1, S27-5	23.53	23.70	
5.10.11.2	Band 1- output voltage	S27-6	-23.02	-23.46	
5.10.11.3	2+	S27-7	23.78	23.25	
5.10.11.4	2-	S27-8	-23.79	-23.49	
5.10.11.5	3+	S27-9	24.12	23.50	
5.10.11.6	3-	S27-10	-23.38	-23.27	
5.10.11.7	Band 4+ output voltage	S26-1, S27-11	23.72	23.62	

ORIGINAL PAGE IS
OF POOR QUALITY



TS 16603
Rev B

~~10.4~~ 10.4
~~2.6-8~~ 2.6-8

10.4 Performance test (continued)

REF. PARA.	DESCRIPTION	DVM SWITCH POSITIONS	FEB 03 1982 LIMITS	MEASUREMENT	
				PRIMARY	SECONDARY
5.10.11.8	Band 4- output voltage	S26-1, S27-12		<u>-28.56</u>	<u>-28.51</u>
5.10.11.9	5,7+	S26-2, S27-1		<u>22.97</u>	<u>23.68</u>
5.10.11.10	5,7-	S27-2		<u>-72.92</u>	<u>-73.01</u>
5.10.11.11	6+	S27-3		<u>22.86</u>	<u>22.9</u>
5.10.11.12	Band 6-	S27-4		<u>-23.09</u>	<u>-23.1</u>
5.10.11.13	SMA Htr +	S27-5		<u>24.46</u>	<u>25.0</u>
5.10.11.14	Htr -	S27-6		<u>-24.00</u>	<u>-24.9</u>
5.10.11.15	+7V	S27-7		<u>9.219</u>	N/A
5.10.11	+7V	(S27-8 For RDT)		N/A	<u>9.145</u>
5.10.11	+29V	S27-9		<u>31.14</u>	N/A
5.10.11	+29V	(S27-11 For RDT)		N/A	<u>31.47</u>
5.10.11	-29V	S27-10		<u>-31.36</u>	N/A
	SMA -29V	S26-2, (S27-12 for RDT)		N/A	<u>-31.87</u>
5.10.11.18	Radiometer	S26-3, S27-2		<u>9.459</u>	<u>9.69</u>
5.10.11.19	CDVU	S27-3		<u>9.159</u>	<u>9.22</u>
5.10.11.20	Analog +	S27-4		<u>25.08</u>	<u>27.71</u>
5.10.11.21	Analog -	S27-5		<u>-23.62</u>	<u>-23.2</u>
5.10.11.22	Electromech.	S27-6		<u>38.94</u>	<u>38.71</u>
5.10.11.23	Outgas	S27-7		<u>90.56</u>	<u>99.5</u>
5.10.11.24	Parasitic	S27-9		<u>31.19</u>	N/A
	Parasitic output voltage	S26-3, (S27-10 for RDT)		N/A	<u>31.66</u>
5.10.11.25	Band 1+ TM output	S26-4, S28-5		<u>4.287</u>	<u>4.32</u>
5.10.11.26	1-	S28-6		<u>4.288</u>	<u>4.25</u>
5.10.11.27	2+	S28-7		<u>4.321</u>	<u>4.231</u>
5.10.11.28	2-	S28-8		<u>4.303</u>	<u>4.24</u>
5.10.11.29	3+	S28-9		<u>4.372</u>	<u>4.27</u>
5.10.11.30	3-	S28-10		<u>4.256</u>	<u>4.231</u>
5.10.11.31	4+	S28-11		<u>4.299</u>	<u>4.291</u>
5.10.11.32	4-	S26-4, S28-12		<u>4.277</u>	<u>4.26</u>
5.10.11.33	Band 5,7+ TM output	S26-5, S28-1		<u>4.188</u>	<u>4.211</u>

ORIGINAL PAGE IS
 OF POOR QUALITY

10.4 Performance test (continued)

FEB 03 1982

REF. PARA.	DESCRIPTION	DVM SWITCH POSITIONS	MEASUREMENT	
			PRIMARY	REDUNDANT
5.10.11.34	Band 5,7- IM output	S26-5, S28-2	<u>4.167</u>	<u>4.192</u>
5.10.11.35	6+	S28-3	<u>4.129</u>	<u>4.160</u>
5.10.11.36	Band 6-	S28-4	<u>4.206</u>	<u>4.210</u>
5.10.11.37	SMA Htr +	S28-5	<u>4.451</u>	<u>4.569</u>
5.10.11.38	Htr -	S28-6	<u>4.410</u>	<u>4.507</u>
5.10.11.39	+7V	S28-7 (S28-8 for RDT)	<u>5.688</u>	<u>5.634</u>
5.10.11.40	+29V	S28-9 (S28-13 for RDT)	<u>4.247</u>	<u>4.318</u>
5.10.11.41	SMA -29V	S26-5, S28-10 (S28-12 for RDT)	<u>3.958</u>	<u>3.967</u>
5.10.11.42	Radiometer	S26-6, S28-2	<u>5.122</u>	<u>5.248</u>
5.10.11.43	CDVU	S28-3	<u>5.073</u>	<u>5.107</u>
5.10.11.44	Analog +	S28-4	<u>4.446</u>	<u>4.553</u>
5.10.11.45	Analog -	S28-5	<u>3.918</u>	<u>4.056</u>
5.10.11.46	Electromech.	S28-6	<u>4.754</u>	<u>4.735</u>
5.10.11.47	Outgas - IM output	S26-6, S28-7	<u>4.998</u>	<u>4.951</u>
5.10.12.1	Bus voltage	S26-1, S27-1 (S27-3 for RDT)	<u>22.96</u>	<u>23.06</u>
5.10.12.2	Input bus current	S26-1, S27-2 (S27-4 for RDT)	<u>50.49</u> <u>49.552</u> ^{with}	<u>50.450</u>
5.10.12.3	SMA Htr + output voltage	S26-2, S27-5	<u>21.52</u>	<u>21.75</u>
5.10.12.4	Htr + ripple	Seen on Scope	<u><50 mV pk-pk</u> <u>80</u>	<u>25 mV</u>
5.10.12.5	Htr - voltage	S26-2, S27-6	<u>-22.03</u>	<u>-22.28</u>
5.10.12.6	SMA Htr - ripple	Seen on Scope	<u><50 mV pk-pk</u> <u>40</u>	<u>30</u>
5.10.12.7	CDVU voltage	S26-3, S27-3	<u>7.455</u>	<u>7.648</u>
5.10.12.8	CDVU ripple	Seen on Scope	<u><50 mV pk-pk</u> <u>40</u>	<u>40</u>
5.10.12.9	Outgas - output voltage	S26-3, S27-7	<u>86.53</u>	<u>86.28</u>
5.10.12.10	Outgas - output ripple	Seen on Scope	<u>2.50V pk-pk</u> <u>180 mV</u>	<u>190</u>
5.10.12.11	Parasitic output voltage	S26-3, S27-9 (S27-10 for RDT)	<u>30.22</u>	<u>30.36</u>
5.10.12.12	Parasitic output ripple	Seen on Scope	<u><500 mV pk-pk</u> <u>90</u>	<u>90</u>

ORIGINAL PAGE IS
OF POOR QUALITY

T: 16603
Rev B
18 December 1980

FEB 03 1982



10.4 Performance test (continued)

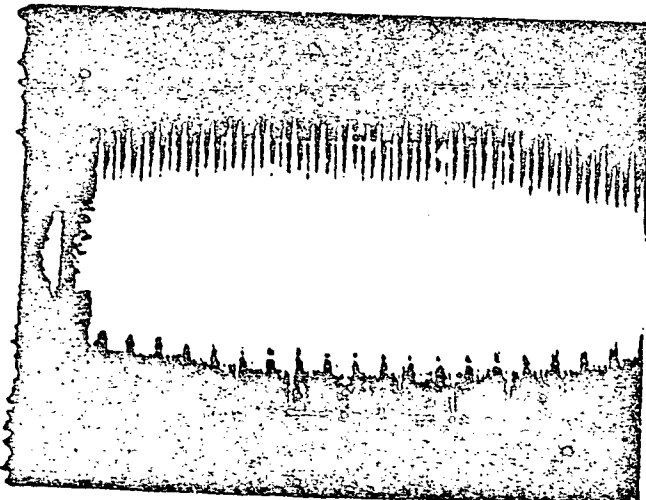
REF. PARA.	DESCRIPTION	DVM SWITCH POSITIONS	LIMITS	MEASUREMENT	
				PRIMARY	REDUNDANT
5.10.13.1	Input current telemetry	S26-4, S28-2 (S28-4 for RDT)		<u>1.367</u>	<u>6.214</u>
5.10.13.2	SMA Htr + output	S26-5, S28-5		<u>3.929</u>	<u>5.980</u>
5.10.13.3	SMA Htr -	S26-5, S28-6		<u>3.927</u>	<u>4.042</u>
5.10.13.4	CDVU	S26-6, S28-3		<u>4.183</u>	<u>4.298</u>
5.10.13.5	Outgas output telemetry	S26-6, S28-7		<u>4.319</u>	<u>4.329</u>
5.10.14.1	Photograph of reflected input current ripple in outgas mode - PRIMARY SIDE				



(2mA) CURRENT/DIV: 2 mA.C.

(10μS) SWEEP RATE: 10 μS

5.10.14.1 Photograph of reflected input current ripple in outgas mode - REDUNDANT SIDE



(2mA) CURRENT/DIV: 2 mA.A.C.

(10μS) SWEEP RATE: 10 μS

ORIGINAL PAGE IS
OF POOR QUALITY

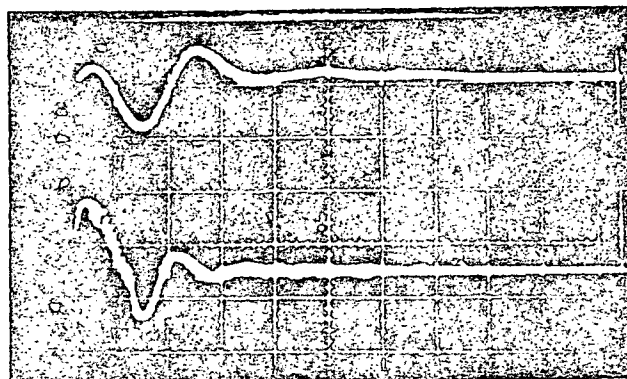


TS 16603
Rev B
18 December 1980

10.4 Performance test (continued)

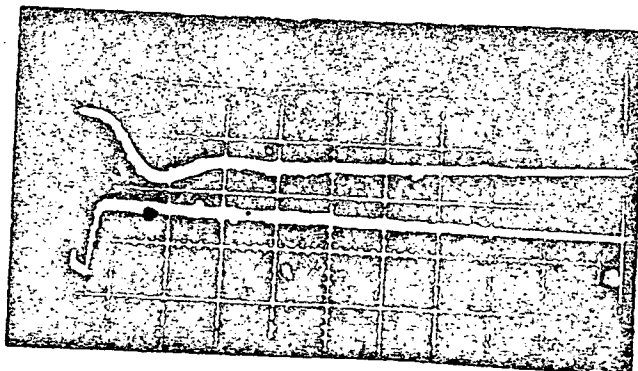
FEB 03 82

REF. PARA.	DESCRIPTION	DVM SWITCH POSITIONS	LIMITS	MEASUREMENT	
				PRIMARY	REDUNDANT
5.10.15.1.1	Input current with CDVU off.	S26-1, S27-2 (S27-4 for RDT)		4760	4746
5.10.15.1.2	Photograph of input bus current and CDVU output voltage as CDVU load is enabled - PRIMARY SIDE				



(2V) VOLTAGE/DIV: 2 V
(200mA) CURRENT/DIV: 200 mA
(1ms) SWEEP RATE: 1 ms

5.10.15.1.2 Photograph of input bus current and CDVU output voltage as CDVU load is disabled - PRIMARY SIDE



(2V) VOLTAGE/DIV: 2 V
(200mA) CURRENT/DIV: 200 mA
(2ms) SWEEP RATE: 2 ms

38

ORIGINAL PAGE IS
OF POOR QUALITY

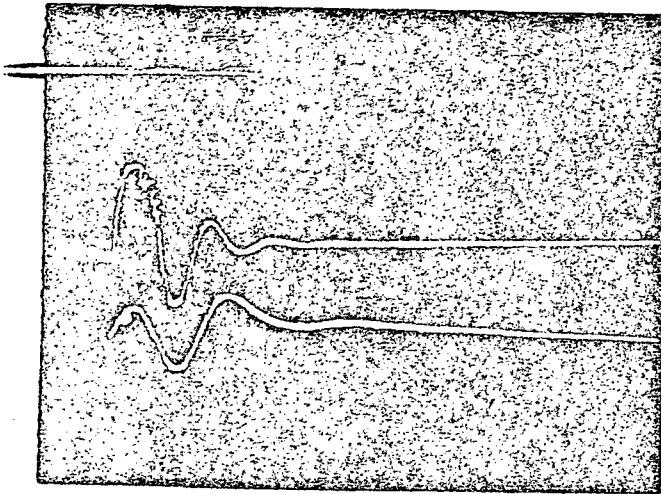
4AC
TEST
S32

TS 16603
Rev B
18 December 1980

10.4 Performance test (continued)

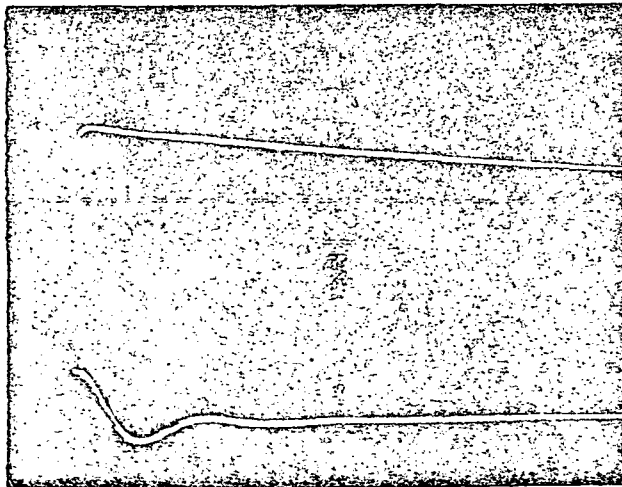
FEB 03 1982

REF. PARA.	DESCRIPTION
5.10.15.1.2	Photograph of input bus current and CDVU output voltage as CDVU load is enabled - REDUNDANT SIDE



(2V) VOLTAGE/DIV: 2 V
(200mA) CURRENT/DIV: 200 mA
(1mS) SWEEP RATE: 1mS

5.10.15.1.2	Photograph of input bus current and CDVU output voltage as CDVU load is disabled - REDUNDANT SIDE
-------------	---



(2V) VOLTAGE/DIV: 2 V
(200mA) CURRENT/DIV: 200 mA
(2mS) SWEEP RATE: 1mS

ORIGINAL PAGE IS
OF POOR QUALITY

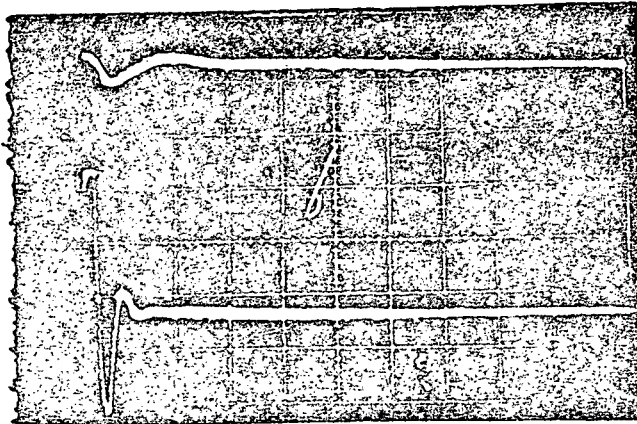
HAL
TEST
532

TS 16603
Rev B
18 December 1980

10.4 Performance test (continued)

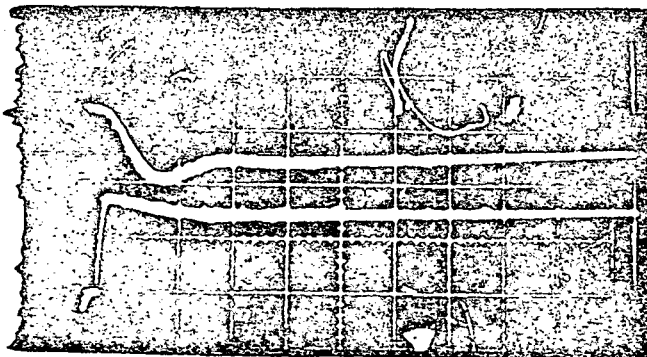
FEB 03 1982

REF. PARA.	DESCRIPTION	DVM SWITCH POSITIONS	LIMITS	MEASUREMENT	
				PRIMARY	REDUNDANT
5.10.15.2.1	Input bus current with outgas disabled	S26-1, S27-2 (S27-4 for RDT)		17.37mV	17.61
5.10.15.2.2	Photograph of input bus current and outgas voltage as outgas load is enabled - PRIMARY SIDE				



(5V) VOLTAGE/DIV: 5V
(2A) CURRENT/DIV: 2A
(1mS) SWEEP RATE: 1mS

5.10.15.2.2 Photograph of input bus current and outgas voltage as outgas load
is disabled - PRIMARY SIDE



(5V) VOLTAGE/DIV: 5V
(2A) CURRENT/DIV: 2A
(2mS) SWEEP RATE: 1mS

ORIGINAL PAGE IS
OF POOR QUALITY

FEB 03 1982



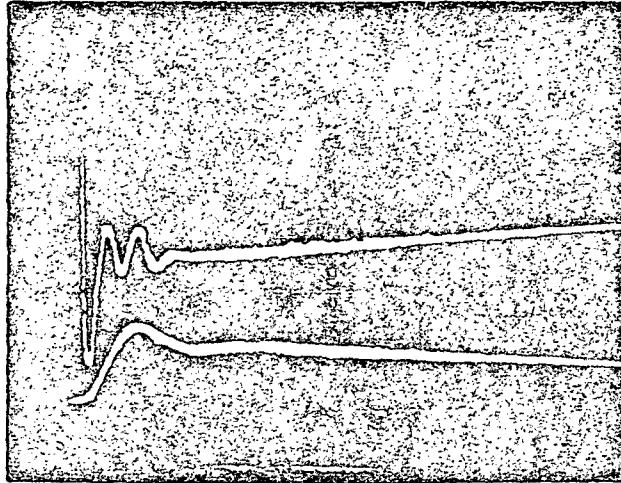
TS 16603
Rev B
18 December 1980

10.4 Performance test (continued)

TEST PARA.

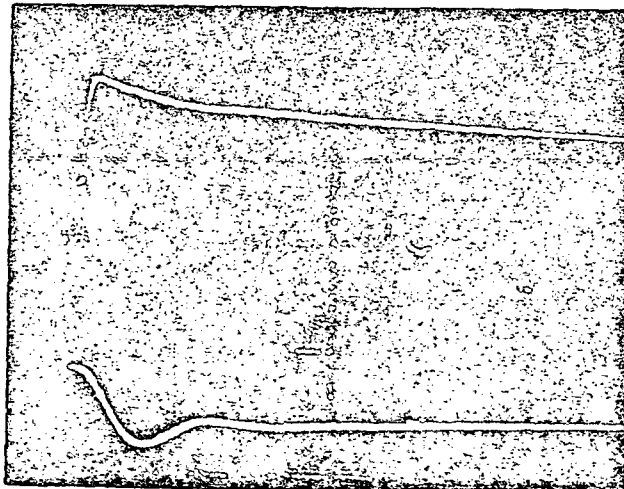
DESCRIPTION

5.10.15.2.2 Photograph of input current and outgas voltage as outgas load is enabled - TEST SIDE



(5V) VOLTAGE/DIV: 5V
(2A) CURRENT/DIV: 2A
(500 μ S) SWEEP RATE: 1 μ S

5.10.15.2.2 Photograph of input bus current and outgas voltage as outgas load is disabled - REDUNDANT SIDE



(5V) VOLTAGE/DIV: 5V
(2A) CURRENT/DIV: 2A
(1mS) SWEEP RATE: 1mS

(31)

ORIGINAL PAGE IS
OF POOR QUALITY

TS 16603
Rev B

~~TS 16603~~
~~Rev B~~

10.4 Performance test (continued)

REF. PARA.	DESCRIPTION	DVM SWITCH POSITION	LIMITS	MEASUREMENT	
				PRIMARY	REDUNDANT
5.10.16.1	BPS voltage	S26-1, S27-1 (S27-3 for EDT)		<u>23.01</u> (49)	<u>23.01</u>
5.10.16.2	BPS current	S26-1, S27-2 (S27-4 for EDT)		<u>20.51</u> (50)	<u>21.21</u>
5.10.16.3	SMA Htr +output voltage	S26-2, S27-5		<u>21.51</u> (13)	<u>21.77</u>
5.10.16.4	SMA Htr +load current	S26-8, S34-1		<u>46.37</u> (12)	<u>46.94</u>
5.10.16.5	SMA Htr -output voltage	S26-2, S27-6		<u>-21.87</u> (14)	<u>-22.19</u>
5.10.16.6	SMA Htr -load current	S26-8, S34-2		<u>-8.63</u> (17)	<u>-8.75</u>
5.10.16.7	CDVU output voltage	S26-3, S27-3		<u>7.44</u> (20)	<u>7.63</u>
5.10.16.8	CDVU load current	S26-8, S34-10		<u>26.67</u> (45)	<u>27.35</u>
5.10.16.9	Parasitic output voltage	S26-3, S27-9 (S27-10)	30.41	<u>30.41</u> (23)	<u>30.83</u>
5.10.16.10	Parasitic load current	S26-8, S34-7		<u>141.73</u> (16)	<u>143.69</u>
5.10.16.11	Input power (5.10.16.1 x 5.10.16.2)			<u>47.104</u>	<u>48.804</u>
5.10.16.12	Output power ((5.10.16.3 x 5.10.16.4) + (5.10.16.5 x 5.10.16.6) + (5.10.15.7 x 5.10.16.8) + (5.10.16.9 x 5.10.16.10))	(Primary) (Redundant) N/A N/A N/A N/A N/A N/A		<u>16.873</u>	<u>17.43</u>
5.10.16.13	Efficiency ((5.10.16.12) ÷ (5.10.16.11)) x 100%			<u>35.8%</u>	<u>35.7%</u>

ORIGINAL PAGE IS
OF POOR QUALITY

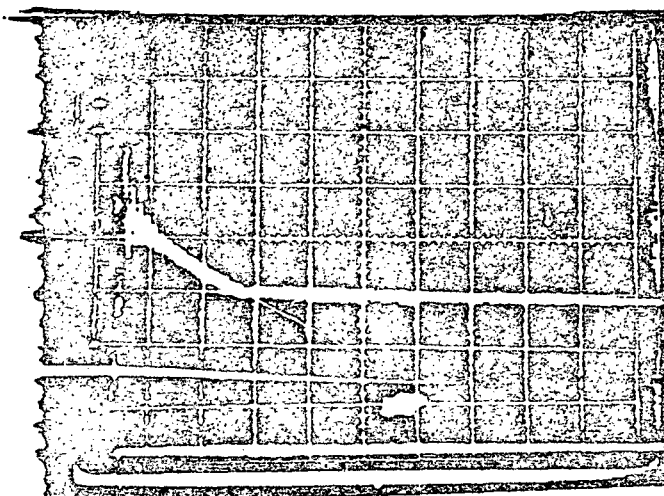
TS 16603
Rev B
18 December 1980

HAC
TEST
S32

FEB 03 1982

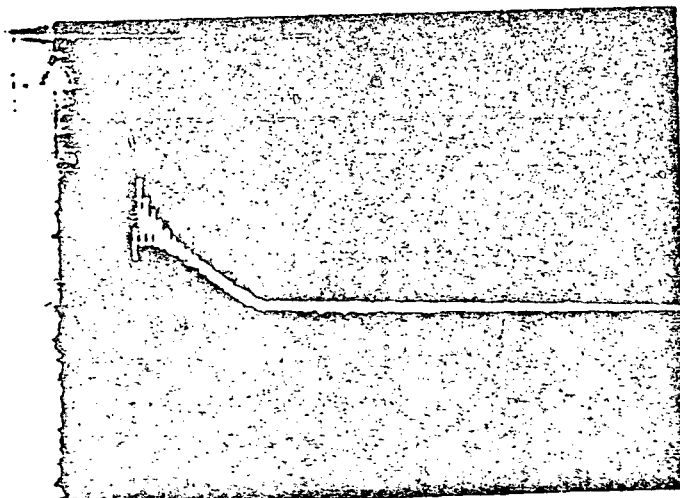
10.4 Performance test (continued)

5.10.17.1 Photograph of input bus current and input bus voltage
as is disable - PRIMARY SIDE



(5V) VOLTAGE/DIV: 5V
(2A) CURRENT/DIV: 2A
(1ms) SWEEP RATE: 1ms

Photograph of input bus current and input bus voltage
as is disabled - REDUNDANT SIDE



5V) VOLTAGE/DIV: 5V
2A) CURRENT/DIV: 2A
1ms) SWEEP RATE: 1ms

33

ORIGINAL PAGE IS
OF POOR QUALITY

TS 16603
Rev B
18 December 1980

FEB 03 1982



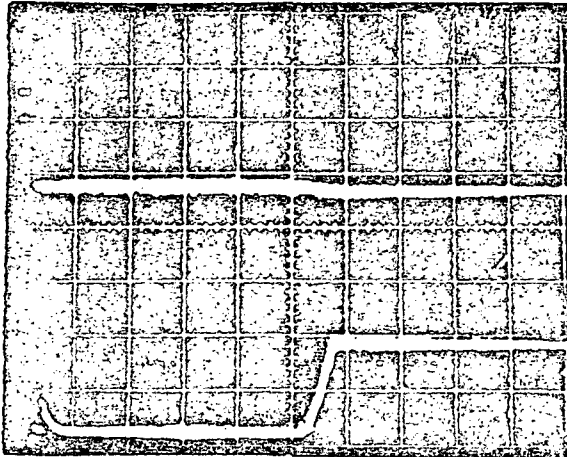
10.4 Performance test (continued)

5.10.17.2 Unit stays off (check)

↓
Primary

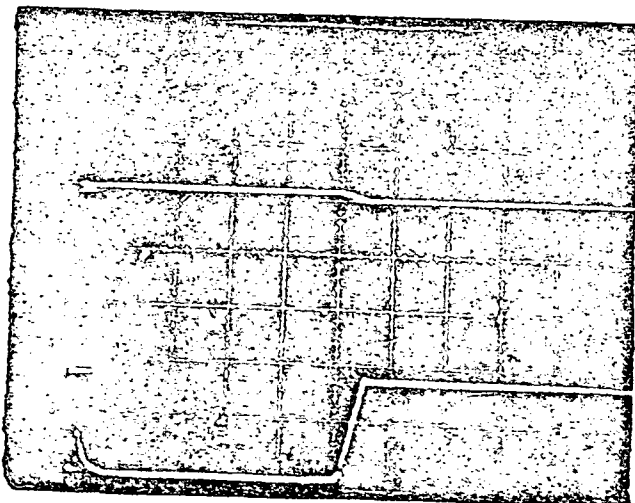
✓
Redundant

5.10.17.3 Photograph of input bus current and input bus voltage
as is enabled - PRIMARY SIDE



(2V) VOLTAGE/DIV: 5V
(2A) CURRENT/DIV: 2A
(100ms) SWEEP RATE: 100ms

5.10.17.3 Photograph of input bus current and input bus voltage as
as is enabled - REDUNDANT SIDE



(2V) VOLTAGE/DIV: 5V
(2A) CURRENT/DIV: 2A
(100ms) SWEEP RATE: 100ms

34

ORIGINAL PAGE IS
OF POOR QUALITY

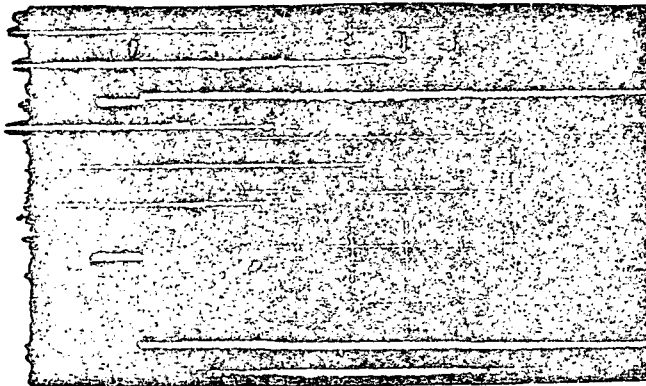
FEB 03 1982



Rev B
18 December 1981

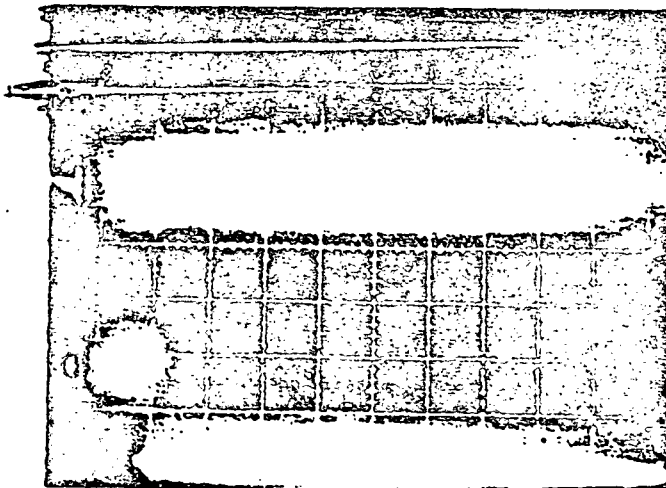
10.4 Performance test (continued)

5.10.17.4 Photograph of input bus current and input bus voltage
as is disabled - PRIMARY SIDE



(2V) VOLTAGE/DIV: 5V
(2A) CURRENT/DIV: 2A
(10ms) SWEEP RATE: 10ms

5.10.17.4 Photograph of input bus current and input bus voltage
as is disabled - REDUNDANT SIDE



(2V) VOLTAGE/DIV: 5V
(2A) CURRENT/DIV: 2A
(10ms) SWEEP RATE: 10ms

35

FEB 03 1982

HAC
TEST
532

TS 16603
Rev B
18 December 1980

10.4 Performance test (continued)

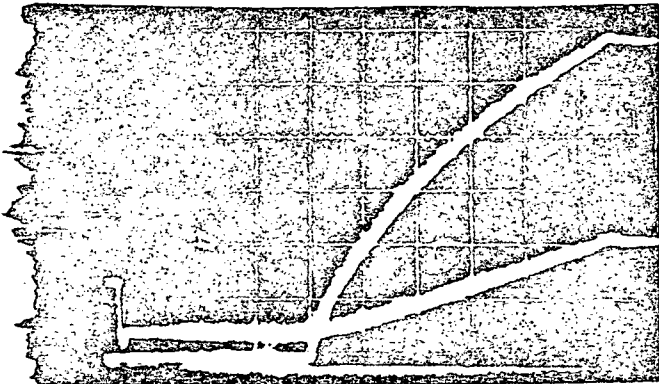
F. PARA.	DESCRIPTION	DVM SWITCH POSITIONS	LIMITS	MEASUREMENT	
				PRIMARY	REDUNDANT

5.10.17.5 Record that UUT operates correctly.

(checkmark)

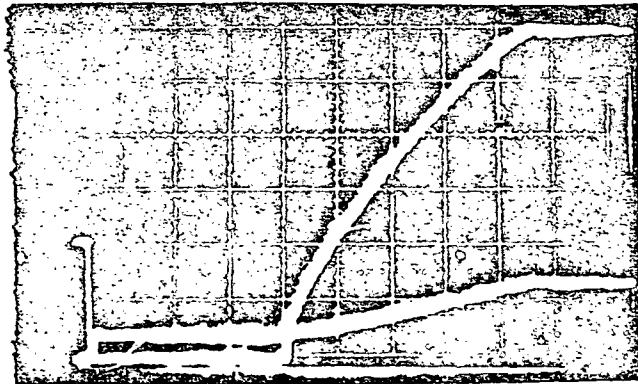
✓ ✓

5.10.18.1 Photograph of input bus current and MUX output voltage as MUX enable command is issued (all loads are ON except outgas) - PRIMARY SIDE



(5V) VOLTAGE/DIV: 5V
(5A) CURRENT/DIV: 5A
(20ms) SWEEP RATE: 10ms

5.10.18.2 Photograph of input bus current and parasitic output voltage as parasitic enable command is issued (all loads are ON except outgas) - PRIMARY SIDE



(5V) VOLTAGE/DIV: 5V
(5A) CURRENT/DIV: 5A
(20ms) SWEEP RATE: 10ms

36

ORIGINAL PAGE IS
OF POOR QUALITY

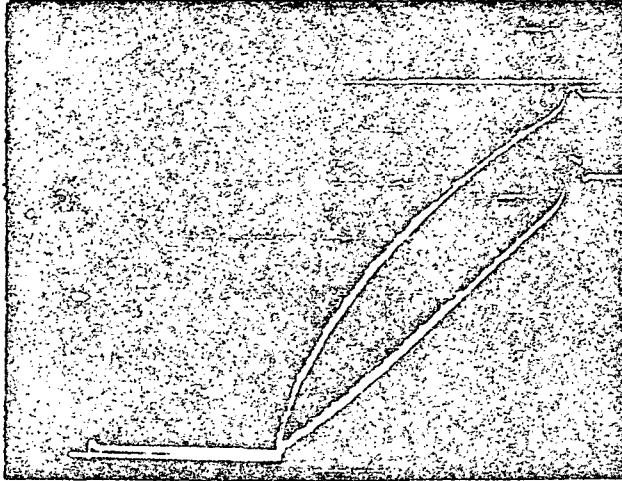
FAC
TEST
S32

TS 16603
Rev B
18 December 1981

FEB 03 1982

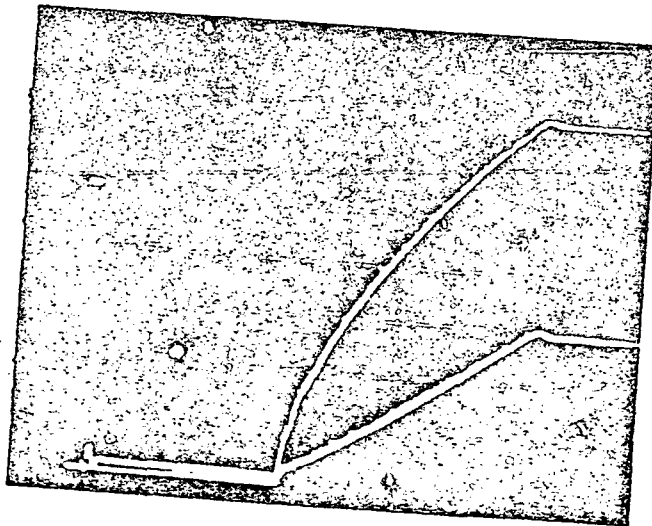
10.4 Performance test (continued)

- .10.18.1 Photograph of input bus current and MUX output voltage as MUX enable command is issued (all loads are ON except outgas) - REDUNDANT SIDE



(5V) VOLTAGE/DIV: 5V
(5A) CURRENT/DIV: 5A
(20ms) SWEEP RATE: 10ms

- 5.10.18.2 Photograph of input bus current and MUX output voltage as parasitic enable command is issued (all loads are ON except outgas) - REDUNDANT SIDE



(5v) Volts/Div: 5V
(5A) Current/Div: 5A
(20ms) Sweep Rate: 10ms

37

FEB 03 1982

HAC
TEST
S32

TS 16603
Rev B
7-6-81

10.4 Performance test (continued)

REF. PARA.	DESCRIPTION	B7M SWITCH POSITIONS	LIMITS	MEASUREMENT	
				PRIMARY	REDUNDANT
5.10.18.4	Undervoltage Trip Point (ON/OFF)	S26-1, S27-1 (S27-3 for RDT)	18.0 ± 1.50V	18.09	18.0
5.10.18.5	UUT stays OFF			✓	✓
5.10.18.6	Undervoltage Trip Point (OFF/ON)	S26-1, S27-1 (S27-3 for RDT)	19.0 ± 1.50V	19.08	18.8
5.10.18.7	Overvoltage Trip Point	S26-1, S27-1 (S27-3 for RDT)	38.0 ± 2V	38.09	38.09
5.10.18.8	UUT stays OFF			✓	✓
5.10.18.9	UUT turns ON			✓	✓

ORIGINAL PAGE IS
OF POOR QUALITY

2/3/82
DATE

ELLARS/Bevison
TESTER(S)

38

ORIGINAL PAGE IS
OF POOR QUALITY

TS 16603
Rev B
18 December 1980



10.4 Performance test - Long Form

FEB 03 1982

PROTOFLIGHT DNA, OR FLIGHT S/N 004 TEMPERATURE: 32° F
 IN-PROCESS DNA, QUAL DNA, OR ACCEPTANCE
 TESTING PHASE Final Gold Long Form LINE VOLTAGE: 28.0 VOLTS

REF. PARA.	DESCRIPTION	DVM SWITCH POSITIONS	LIMITS	MEASUREMENT	
				PRIMARY	REDUNDANT
5.10.1.1	Calibrate cmd gen	--	--	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
5.10.2.1	Input bus current	S26-1, S27-2 (S27-4 for redundant)		<u>23.4mV</u>	<u>23.1mV</u>
5.10.2.2	MUX output voltage	S26-3, S27-1	30.0 ±0.90V	<u>29.84V</u>	<u>30.09</u>
5.10.2.3	MUX load current	S26-3, S27-12	3.55 ±0.40A	<u>3.234A</u>	<u>3.276mV</u>

The rest of Section 5.10.2 requires only checking voltage - indicate by checkmarks.

5.10.2.4.1	B1 + output voltage	S26-1, S27-5		<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
5.10.2.4.2	B1 -	S27-5		<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
5.10.2.4.3	B1 -	S27-5		<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
5.10.2.4.4	B1 +	S27-7		<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
5.10.2.5.1	B2 +	S27-7		<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
5.10.2.5.2	B2 -	S27-8		<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
5.10.2.5.3	B2 -	S27-8		<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
5.10.2.5.4	B2 +	S27-7		<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
5.10.2.6.1	B3 +	S27-9		<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
5.10.2.6.2	B3 -	S27-10		<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
5.10.2.6.3	B3 -	S27-10		<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
5.10.2.6.4	B3 +	S27-9		<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
5.10.2.7.1	B4 +	S27-11		<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
5.10.2.7.2	B4 -	S27-12		<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
5.10.2.7.3	B4 -	S27-12		<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
5.10.2.7.4	B4 +	S26-1, S27-11		<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
5.10.2.8.1	B5,7+	S26-2, S27-1		<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
5.10.2.8.2	B5,7-	S27-2		<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
5.10.2.8.3	B5,7-	S27-2		<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
5.10.2.8.4	B5,7+	S27-1		<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
5.10.2.9.1	B6 +	S27-3		<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
5.10.2.9.2	B6 - output voltage	S26-2, S27-4		<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>

REVIEWED
FOR G.E. 3
6-1-82
2/7/82

ORIGINAL PAGE IS
OF POOR QUALITY

TS 15603
Rev B
~~10-20-60-0000~~
SPU-1 1/24/82



10.4 Performance test (continued)

FEB 03 1982

REF. PARA.	DESCRIPTION	DVM SWITCH POSITIONS	LEADS	MEASUREMENT	
				PRIMARY	REDUNDANT
5.10.2.9.3	B6 - output voltage	S26-2, S27-4		✓	✓
5.10.2.9.4	B8 - output voltage	S26-2, S27-3		✓	✓
5.10.2.10.1	SMA HTR + output voltage	S27-5		✓	✓
5.10.2.10.2	-	S27-6		✓	✓
5.10.2.10.3	-	S27-6		✓	✓
5.10.2.10.4	-	S27-5		✓	✓
5.10.2.11.1	-7V	S26-2, S27-7		✓	✓
5.10.2.11.2	-7V	(S27-8 for RDT)		✓	✓
5.10.2.12.1	+29V	S26-2, S27-9		✓	✓
		(S27-11 for RDT)		✓	✓
5.10.2.12.2	-29V	S26-2, S27-10		✓	✓
		(S27-12 for RDT)		✓	✓
5.10.2.12.3	-29V	S26-2, S27-10		✓	✓
5.10.2.12.4	SMA HTR +29V	S26-2, S27-9		✓	✓
5.10.2.13.1	Radiometer	S26-3, S27-2		✓	✓
5.10.2.13.2	Radiometer	S27-2		✓	✓
5.10.2.14.1	CDVU	S27-3		✓	✓
5.10.2.14.2	CDVU	S27-3		✓	✓
5.10.2.15.1	Analog +	S27-4		✓	✓
5.10.2.15.2	Analog -	S27-5		✓	✓
5.10.2.15.3	Analog -	S27-5		✓	✓
5.10.2.15.4	Analog +	S27-6		✓	✓
5.10.2.16.1	Electromech.	S27-6		✓	✓
5.10.2.16.2	Electromech.	S27-6		✓	✓
5.10.2.17.1	Oxygen output voltage	S26-3, S27-7		✓	✓
5.10.3.1	Bus voltage	S26-1, S27-1 (S27-3 for RDT)		78.00 (49)	28.01
5.10.3.2	MIX load current	S26-3, S27-12	4.130 +0.023A	41.32	41.32
5.10.3.3	Bus current	S26-1, S27-2 (S27-4 for RDT)		131.08	131.08
5.10.3.3.1	BPS Voltage	S26-1, S27-1 (S27-3)		28.00 V	28.00
5.10.3.3.2	BPS Current	S26-1, S27-2 (S27-4)		439.23 mA	431.41
5.10.3.3.4	MIX Current	S26-3, S27-12		41.35	41.35

(90)

TS 16603
 Rev B
 18 December 1980

ORIGINAL PAGE IS
 OF POOR QUALITY

10.4 Performance test (continued) EB 0 3 1982

REF. PARA.	DESCRIPTION	DVM SWITCH POSITIONS	LIMITS	MEASUREMENT	
				PRIMARY	REDUNDA
5.10.3.4.1	B1 + output voltage	S26-1, S27-5	20.50 \pm 2.50V	20.49 (1) <u>20.67</u>	
5.10.3.4.2	B1 + output ripple	Look on Scope	<600 mV pk-pk	<u>20</u>	<u>20</u>
5.10.3.4.3	B1 - output voltage	S26-1, S27-6	-20.50 \pm 2.50V	20.52 (2) <u>20.69</u>	
5.10.3.4.4	B1 - output ripple	Look on Scope	<600 mV pk-pk	<u>20</u>	<u>20</u>
5.10.3.5.1	B2 + output voltage	S26-1, S27-7	20.50 \pm 2.50V	20.36 (3) <u>20.55</u>	
5.10.3.5.2	B2 + output ripple	Look on Scope	<600 mV pk-pk	<u>20</u>	<u>20</u>
5.10.3.5.3	B2 - output voltage	S26-1, S27-8	-20.50 \pm 2.50V	20.40 (4) <u>20.57</u>	
5.10.3.5.4	B2 - output ripple	Seen on Scope	<600 mV pk-pk	<u>20</u>	<u>20</u>
5.10.3.6.1	B3 + output voltage	S26-1, S27-9	20.50 \pm 2.50V	20.43 (5) <u>20.50</u>	
5.10.3.6.2	B3 + output ripple	Seen on Scope	<600 mV pk-pk	<u>20</u>	<u>20</u>
5.10.3.6.3	B3 - output voltage	S26-1, S27-10	-20.50 \pm 2.50V	20.38 (6) <u>20.57</u>	
5.10.3.6.4	B3 - output ripple	Seen on Scope	<600 mV pk-pk	<u>20</u>	<u>20</u>
5.10.3.7.1	B4 + output voltage	S26-1, S27-11	20.50 \pm 2.50V	20.48 (7) <u>20.67</u>	
5.10.3.7.2	B4 + output ripple	Seen on Scope	<600 mV pk-pk	<u>20</u>	<u>20</u>
5.10.3.7.3	B4 - output voltage	S26-1, S27-12	-20.50 \pm 2.50V	20.50 (8) <u>20.69</u>	
5.10.3.7.4	B4 - output ripple	Seen on Scope	<600 mV pk-pk	<u>20</u>	<u>20</u>
5.10.3.8.1	B5,7 + voltage	S26-2, S27-1	20.50 \pm 2.50V	20.20 (9) <u>20.20</u>	
5.10.3.8.2	B5,7 + ripple	Seen on Scope	<600 mV pk-pk	<u>20</u>	<u>20</u>
5.10.3.8.3	B5,7 - voltage	S26-3, S27-2	-20.50 \pm 2.50V	20.20 (10) <u>20.23</u>	
5.10.3.8.4	B5,7 - ripple	Seen on Scope	<600 mV pk-pk	<u>20</u>	<u>20</u>
5.10.3.9.1	B6 + voltage	S26-2, S27-3	20.50 \pm 2.50V	20.39 (11) <u>20.57</u>	
5.10.3.9.2	B6 + ripple	Seen on Scope	<600 mV pk-pk	<u>20</u>	<u>20</u>
5.10.3.9.3	B6 - voltage	S26-2, S27-4	-20.50 \pm 2.50V	20.40 (12) <u>20.57</u>	
5.10.3.9.4	B6 - ripple	Seen on Scope	<600 mV pk-pk	<u>20</u>	<u>20</u>
5.10.3.10.1	SMA Htr + voltage	S26-2, S27-5	21.20 \pm 2.12V	22.27 (13) <u>22.46</u>	
5.10.3.10.2	SMA Htr + ripple	Seen on Scope	<630 mV pk-pk	<u>20</u>	<u>20</u>
5.10.3.10.3	SMA Htr - voltage	S26-2, S27-6	-21.20 \pm 2.12V	22.74 (14) <u>22.95</u>	
5.10.3.10.4	SMA Htr - ripple	Seen on Scope	<630 mV pk-pk	<u>20</u>	<u>20</u>
5.10.3.11.1	SMA +7V ∇ voltage	S26-2, S27-7 (S27-8 for RDT)	7.10 \pm 0.80V	7.77 (15) <u>7.88</u>	
5.10.3.11.2	SMA +7V output ripple	Seen on Scope	<10 mV pk-pk	<u>30</u>	<u>40</u>

(41)

10.4 Performance Test (continued)

REF. PARA.	DESCRIPTION	TEST POINTS	LDOTS	MEASUREMENT	
				FINAL	INTERIM
S.10.3.12.1	SEA +29V output voltage	S26-2, S27-9 (S27-11 for HDT)	29.50 \pm 1.50V	<u>30.43</u> (16)	<u>30.69</u>
S.10.3.12.2	SEA +29V ripple	Seen on Scope	<870 mV, pk-pk	<u>40</u>	<u>50</u>
S.10.3.12.3	SEA -29V voltage	S26-2, S27-10 (S27-12 for HDT)	-29.50 \pm 1.50V	<u>-30.42</u> (17)	<u>-30.70</u>
S.10.3.12.4	SEA -29V ripple	Seen on Scope	<870 mV pk-pk	<u>40</u>	<u>50</u>
S.10.3.13.1	HEX voltage	S26-3, S27-1	30.00 \pm 0.90V	<u>30.30</u> (18)	<u>30.40</u>
S.10.3.13.2	HEX ripple	Seen on Scope	<900 mV, pk-pk	<u>60</u>	<u>70</u>
S.10.3.14.1	Radiometer voltage	S26-3, S27-2	8.50 \pm 0.85V	<u>8.455</u> (19)	<u>8.481</u>
S.10.3.14.2	Radiometer ripple	Seen on Scope	<250 mV pk-pk	<u>30</u>	<u>30</u>
S.10.3.15.1	CDVV voltage	S26-3, S27-3	8.00 \pm 0.80V	<u>7.688</u> (20)	<u>7.664</u>
S.10.3.15.2	CDVV ripple	Seen on Scope	<240 mV pk-pk	<u>20</u>	<u>30</u>
S.10.3.16.1	Analog + voltage	S26-3, S27-4	21.20 \pm 2.12V	<u>22.35</u> (21)	<u>22.51</u>
S.10.3.16.2	Analog + ripple	Seen on Scope	<630 mV pk-pk	<u>30</u>	<u>30</u>
S.10.3.16.3	Analog - voltage	S26-3, S27-5	-21.20 \pm 2.12V	<u>-22.42</u> (22)	<u>-22.58</u>
S.10.3.16.4	Analog - ripple	Seen on Scope	<630 mV pk-pk	<u>30</u>	<u>30</u>
S.10.3.17.1	Electromech. voltage	S26-3, S27-6	33.40 \pm 3.34V	<u>33.08</u> (23)	<u>33.43</u>
S.10.3.17.2	Electromech. ripple	Seen on Scope	<1.0V pk-pk	<u>20</u>	<u>40</u>
S.10.3.18.1	Output voltage	S26-3, S27-7	100.0 \pm 12.0V	<u>103.48</u>	<u>102.13</u>
S.10.3.18.2	Output output ripple	Seen on Scope	<1.0V pk-pk	<u>140</u> mV	<u>180</u> mV
S.10.4.1	Input current telemetry	S26-4, S28-2 (S28-4 for HDT)		<u>3.749</u>	<u>3.770</u>
S.10.4.2.1	Band 1 + volt. telemetry	S26-4, S28-5		<u>3.747</u>	<u>3.783</u>
S.10.4.2.2	Band 1 -	S28-6		<u>3.735</u>	<u>3.766</u>
S.10.4.3.1	Band 2+	S28-7		<u>3.707</u>	<u>3.750</u>
S.10.4.3.2	Band 2-	S28-8		<u>3.698</u>	<u>3.728</u>
S.10.4.4.1	Band 3+	S28-9		<u>3.718</u>	<u>3.732</u>
S.10.4.4.2	Band 3-	S28-10		<u>3.720</u>	<u>3.753</u>
S.10.4.5.1	Band 4+	S28-11		<u>3.721</u>	<u>3.759</u>
S.10.4.5.2	Band 4-	S26-4, S28-12		<u>3.732</u>	<u>3.766</u>
S.10.4.6.1	Band 5,7+	S26-5, S28-1		<u>3.684</u>	<u>3.699</u>
S.10.4.6.2	Band 5,7- volt. telemetry	S26-5, S28-2		<u>3.683</u>	<u>3.689</u>

ORIGINAL PAGE IS
OF POOR QUALITY

FEB 03 1982



TS 16603
Rev B
18 December 1980

10.4 Performance test (continued)

REF. PARA.	DESCRIPTION	DVM SWITCH POSITIONS	LIMITS	MEASUREMENT	
				PRIMARY	REDUNDANT
5.10.4.7.1	Band 6 + volt. telemetry	S26-5, S28-3		<u>3.691</u>	<u>3.724</u>
5.10.4.7.2	Band 6 -	S28-4		<u>3.725</u>	<u>3.756</u>
5.10.4.8.1	SMA Htr +	S28-5		<u>4.068</u>	<u>4.112</u>
5.10.4.8.2	SMA Htr -	S28-6		<u>4.126</u>	<u>4.160</u>
5.10.4.9	SMA +7V	S26-5, S27-7 (S27-8 for RDT)		<u>4.980</u>	<u>4.999</u>
5.10.4.10.1	SMA +29V	S26-5, S28-9 (S27-11 for RDT)		<u>4.173</u>	<u>4.235</u>
5.10.4.10.2	SMA -29V	S26-5, S28-10 (S27-12 for RDT)		<u>3.770</u>	<u>3.833</u>
5.10.4.11	MIX	S26-6, S28-1		<u>4.794</u>	<u>4.309</u>
5.10.4.12	Radiometer	S26-6, S28-2		<u>4.638</u>	<u>4.650</u>
5.10.4.13	CDVU	S26-6, S28-3		<u>4.205</u>	<u>4.299</u>
5.10.4.14.1	Analog + volt. telemetry	S26-6, S28-4		<u>3.997</u>	<u>4.029</u>
5.10.4.14.2	Analog -	S26-6, S28-5		<u>3.939</u>	<u>3.967</u>
5.10.4.15	Electromech.	S28-6		<u>4.061</u>	<u>4.104</u>
5.10.4.16	Outgas volt. telemetry	S26-6, S28-7		<u>5.175</u>	<u>5.105</u>
5.10.5.1.1	Analog + load current	S26-3, S27-11 mV ÷ 10 = Amps		<u>15.645</u>	<u>15.721</u>
5.10.5.1.2	MIX	S26-3, S27-12 mV ÷ 10 = Amps		<u>41.37</u>	<u>41.33</u>
5.10.5.1.3	Band 1 +	S26-7, S34-1 mV ÷ 0.5 = mA		<u>91.24</u>	<u>91.32</u>
5.10.5.1.4	Band 1 -	S34-2		<u>91.42</u>	<u>91.99</u>
5.10.5.1.5	2 +	S34-3		<u>91.39</u>	<u>91.39</u>
5.10.5.1.6	2 -	S34-4		<u>91.22</u>	<u>91.99</u>
5.10.5.1.7	3 +	S34-5		<u>91.09</u>	<u>91.93</u>
5.10.5.1.8	3 -	S34-6		<u>90.91</u>	<u>91.39</u>
5.10.5.1.9	4 +	S34-7		<u>91.13</u>	<u>91.93</u>
5.10.5.1.10	4 -	S34-8		<u>90.80</u>	<u>91.93</u>
5.10.5.1.11	5,7 +	S34-9		<u>90.90</u>	<u>90.87</u>
5.10.5.1.12	5,7 -	S34-10		<u>90.09</u>	<u>90.19</u>
5.10.5.1.13	6 +	S34-11		<u>87.41</u>	<u>87.76</u>
5.10.5.1.14	Band 6 -	S26-7, S34-12		<u>47.25</u>	<u>47.64</u>
5.10.5.1.15	SMA Htr +	S26-8, S34-1 mV ÷ 0.5 = mA		<u>48.00</u>	<u>48.42</u>
5.10.5.1.16	SMA Htr - load current	S26-8, S34-2 mV = mA		<u>89.83</u>	<u>90.60</u>

ORIGINAL PAGE IS
OF POOR QUALITY

TS 16603
Rev B

~~REV 2 7-6-81~~
~~REV 3 4/8/81~~

10.4 Performance test (continued)

REF. PARA.	DESCRIPTION	DVM SWITCH POSITIONS	LIMITS	MEASUREMENT	
				PRIMARY	REDUNDANT
5.10.5.1.17	SMA +29V load current	S26-8, S34-9	mV ÷ 0.402 = mA	<u>50.72</u> (40)	<u>51.15</u>
5.10.5.1.18	SMA -29V	S34-4	mV ÷ 0.402 = mA	<u>50.47</u> (40)	<u>50.96</u>
5.10.5.1.19	SMA +7V	S34-5	V ÷ 0.1 = Amps	<u>297.3</u> (40)	<u>296.2</u>
5.10.5.1.20	Analog -	S34-6	mV ÷ 0.402 = mA	<u>268.9</u> (40)	<u>270.2</u>
5.10.5.1.21	Radiometer	S34-9	mV ÷ 0.5 = mA	<u>151.59</u> (40)	<u>151.95</u>
5.10.5.1.22	CDVU	S34-10	mV ÷ 0.5 = mA	<u>269.2</u> (40)	<u>274.0</u>
5.10.5.1.23	Electromech. load current	S26-8, S34-11	mV ÷ 0.402 = mA	<u>216.5</u> (40)	<u>212.6</u>
5.10.5.2.1	Bus power supply voltage	S26-1, S27-1 (S27-3 for RDT)		<u>28.08</u> (40)	<u>28.01</u>
5.10.5.2.2	Bus input current	S26-1, S27-2 (S27-4 for RDT)	mV ÷ 10 = Amps	<u>128.57</u> (40)	<u>131.14</u>
5.10.5.2.3	P _{IN} (Section 5.10.5)			<u>22.684</u>	<u>367.32</u>
5.10.5.2.4	P _{IN} (Section 5.10.3)			<u>362.964</u>	<u>367.15</u>
5.10.5.2.5	P _{IN} (avg)			<u>362.834</u>	<u>367.84</u>
5.10.5.2.9	Input current at current limit		26-1, 27-2 (26-1 27-4 Rdt)	<u>151.41</u>	<u>169.98</u>
	Input voltage at current limit		27-1 (27-3 Rdt)	<u>27.75</u>	<u>27.61</u>
	MUX voltage at current limit		26-3, 27-1	<u>30.29</u>	<u>30.47</u>
	MUX current at current limit		27-12	<u>52.16</u>	<u>52.21</u>
5.10.5.3.1	P _{OUT}			<u>271.866</u>	<u>274.71</u>
5.10.5.3.2	Efficiency		≥ 70%	<u>75.43</u>	<u>75.31</u>

84

ORIGINAL PAGE IS
OF POOR QUALITY

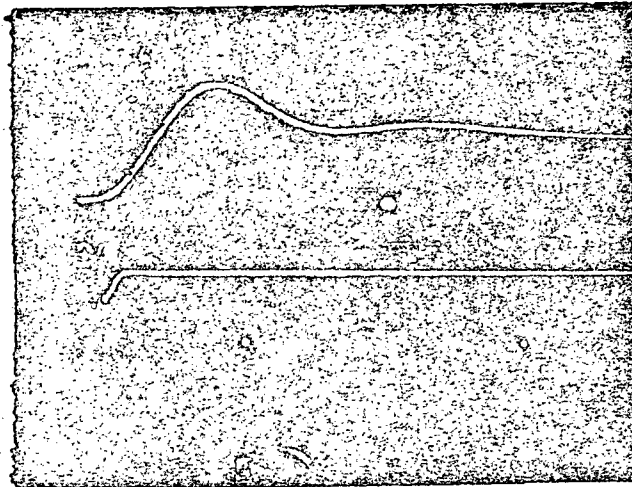
TS 16603
Rev B
18 December 1980

W
TEST
S23

10.4 Performance test (continued)

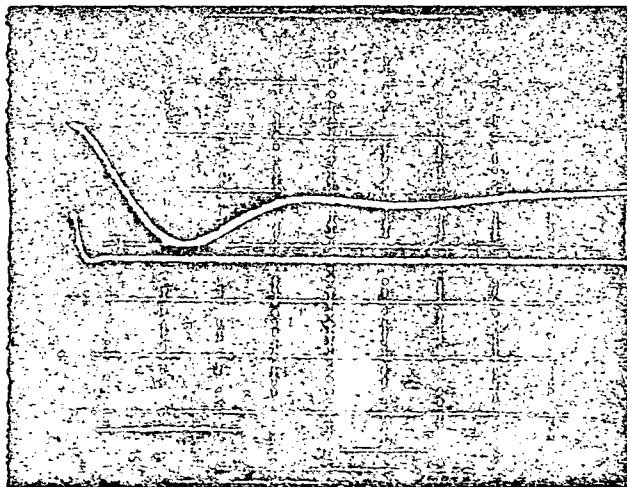
FEB 03 1982

REF. PARA.	DESCRIPTION	DVM SWITCH POSITIONS	LIMITS	MEASUREMENT	
				PRIMARY	REDUNDANT
5.10.6.1	+7V output pulsed	S26-2, S27-7 (S27-8 for RDT)	7.10 \pm 0.80V	<u>7.031</u>	<u>7.161</u>
5.10.6.2	Photograph of transients induced on input bus current and SMA +7V output voltage as SMA +7V output is being pulse-loaded-PRIMARY SIDE				



(0.2A) CURRENT/DIV: .2A A.C.
(1V) VOLTAGE/DIV: 2V
(200 μ S) SWEEP RATE: 200 μ s/div
500 μ s/div

5.10.6.2 Photograph of transients induced on input bus current and SMA +7V output voltage as pulse-load on SMA +7V outputs is being removed - PRIMARY SIDE



(0.2A) CURRENT/DIV: .2A A.C.
(1V) VOLTAGE/DIV: 2V
(200 μ S) SWEEP RATE: 500 μ s/div

ORIGINAL PAGE IS
OF POOR QUALITY

TS 16603
Rev B
18 December 1980

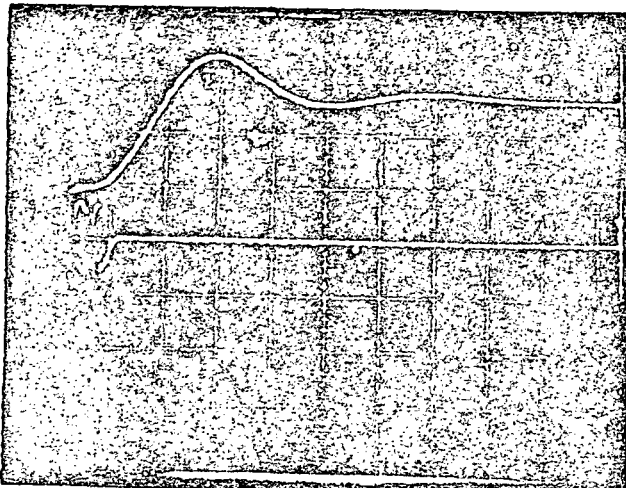


FEB 03 1982

10.4 Performance test (continued)

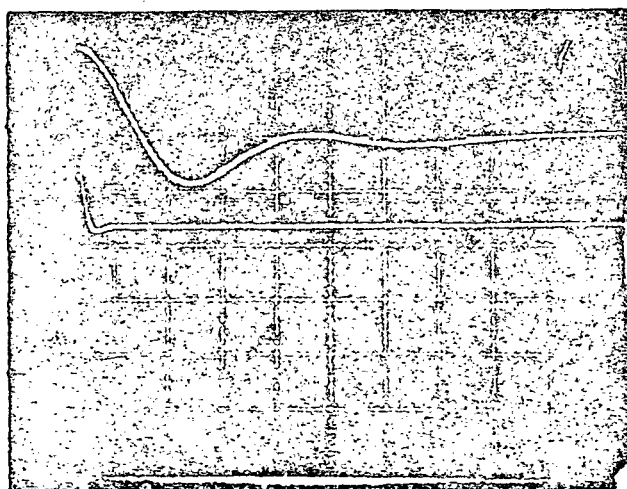
REF. PARA. _____ DESCRIPTION _____

5.10.6.2 Photograph of transients induced on input bus current and SMA +7V output voltage as SMA +7V output is being pulse-loaded-REDUNDANT SIDE



(0.2A) CURRENT/DIV: .2A A.C.
(1V) VOLTAGE/DIV: 2V
(200uS) SWEEP RATE: 500uS

5.10.6.2 Photograph of transients induced on input bus current and SMA +7V output voltage as pulse-load is being removed-REDUNDANT SIDE



(0.2A) CURRENT/DIV: .2A A.C.
(1V) VOLTAGE/DIV: 2V
(200uS) SWEEP RATE: 500uS

ORIGINAL PAGE IS
OF POOR QUALITY

TS 16603

Rev B

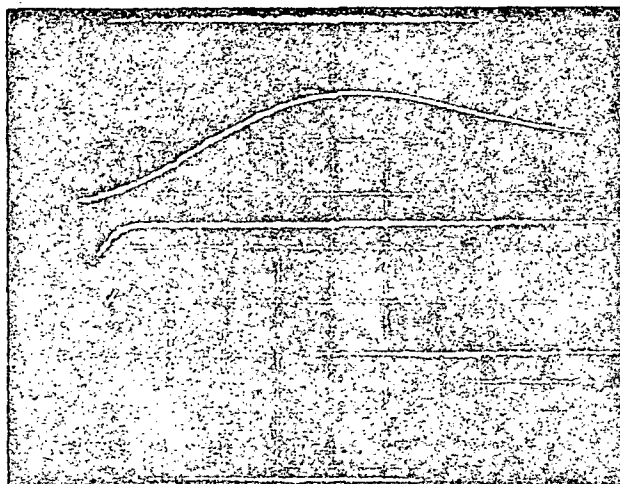
~~24 December 1980~~
Feb 8 7-6-81

W. TEST
523

FEB 03 1982

10.4 Performance test (continued)

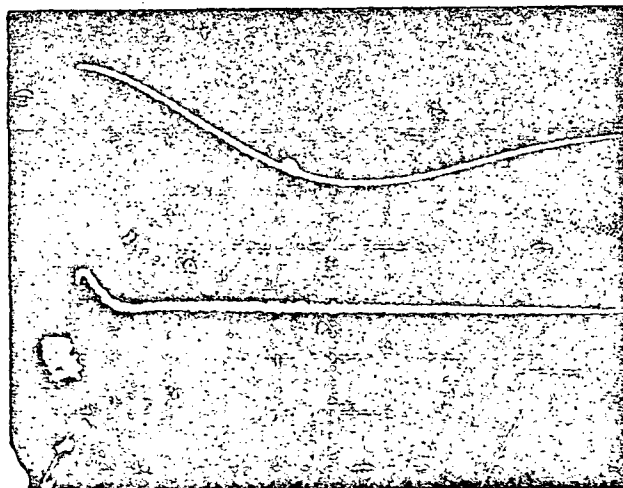
REF. PARA.	DESCRIPTION	DVM SWITCH POSITIONS	LIMITS	MEASUREMENT	
				PRIMARY	REDUNDANT
5.10.6.3	Input bus current	S26-1, S27-2 (S27-4 for RDT)		<u>134.40</u>	<u>136.6</u>
5.10.6.4	SMA +7V TH- pulsed	S26-5, S28-7 (S28-8 for RDT)		<u>454.9</u>	<u>467.1</u>
5.10.6.5	SMA +7V load current-pulsed	(S26-8, S34-5)		<u>470.6</u>	<u>477.7</u>
5.10.6.6	Photograph of transients induced on input bus current and SMA +7V load current as SMA +7V output is being pulse-loaded-PRIMARY SIDE				



(1A) * SMA CURRENT/DIV: .1V
(1A) BUS CURRENT/DIV: 200 mA
(200ns) SWEEP RATE: 250 ns

*Using D.L. short and
100 mV/Div on scope

5.10.6.6 Photograph of transients induced on input bus current and SMA +7V load current as pulse-load is being removed-PRIMARY SIDE



(1A) * SMA CURRENT/DIV: .1V
(1A) BUS CURRENT/DIV: 200 mA
(200ns) SWEEP RATE: 200 ns

*Using D.L. short and
100mV/Div on Scope

47

ORIGINAL PAGE 10
OF POOR QUALITY

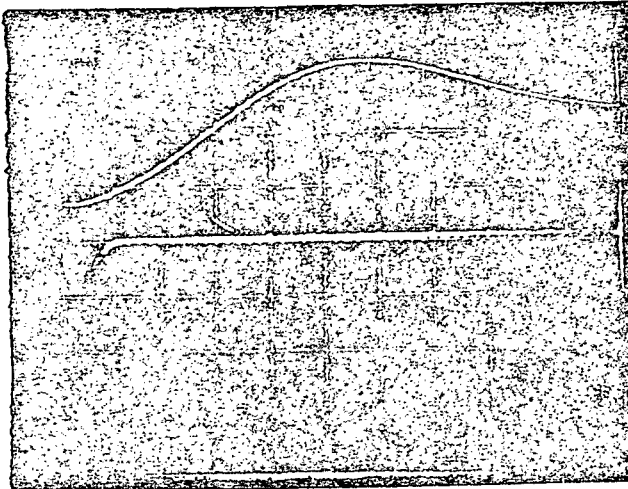


TS 16603
Rev B
~~18 December 1980~~
Sec-2 26-81

10.4 Performance test (continued)

FEB 03 1982

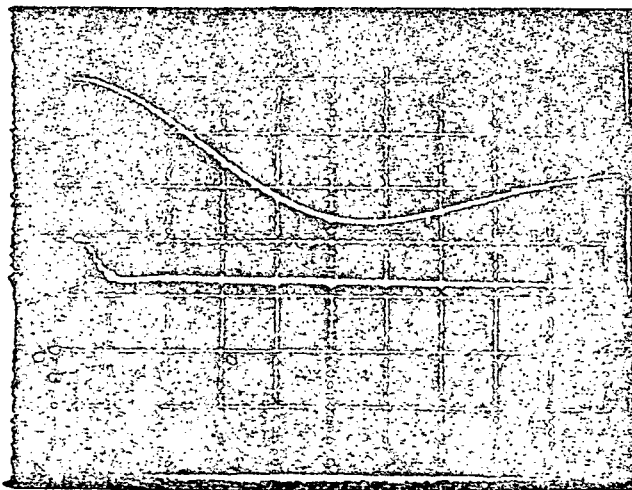
REF. PARA.	DESCRIPTION
5.10.6.6	Photograph of transients induced on input bus current and SMA + 7V load current as SMA + 7V output is being pulse loaded - REDUNDANT SIDE



(1A)* SMA CURRENT/DIV: .1V
(2A) BUS CURRENT/DIV: 200mA
(200uS) SWEEP RATE: 200uS

*Using 0.1 Ω shunt and 100 mV/Div on scope.

5.10.6.6 Photograph of transients induced on input bus current and SMA + 7V load current as pulse-load is removed - REDUNDANT SIDE



(1A)* SMA CURRENT/DIV: .1
(2A) BUS CURRENT/DIV: 200mA
(200uS) SWEEP RATE: 200uS

*Using 0.1 Ω shunt and 100mV/Div on scope.

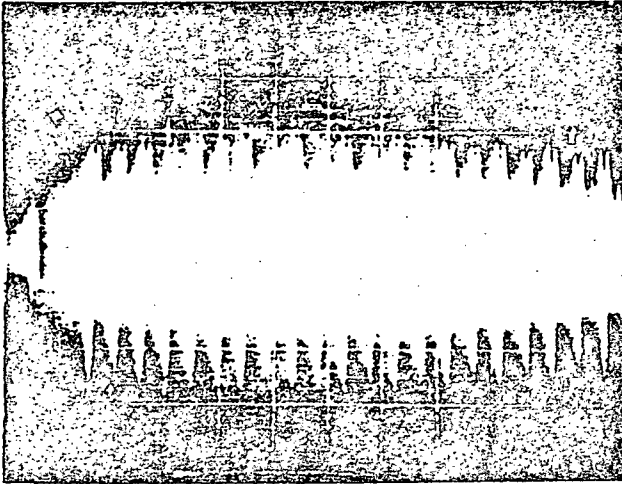
ORIGINAL PAGE IS
OF POOR QUALITY

TS 16603
Rev B
18 December 1980



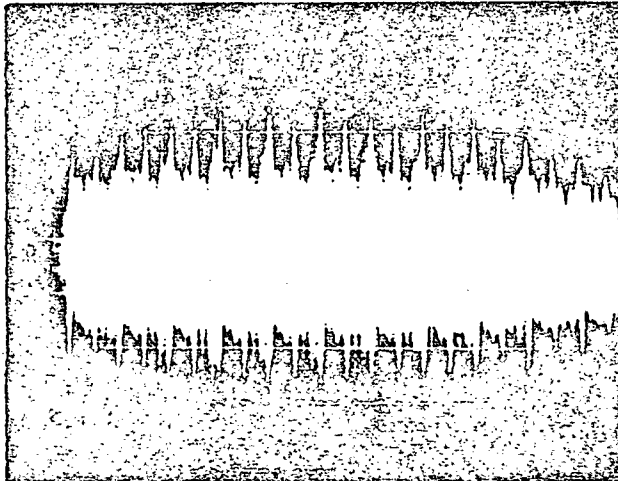
10.4 Performance test (continued)

REF. PARA.	DESCRIPTION	DATE
5.10.7.1	Photograph of reflected input current ripple - PRIMARY SIDE	FEB 03 1982



(1mA) CURRENT/DIV: 2mA A.
(10uS) SWEEP RATE: 10 μ s

5.10.7.1 Photograph of reflected input current ripple - REDUNDANT SIDE



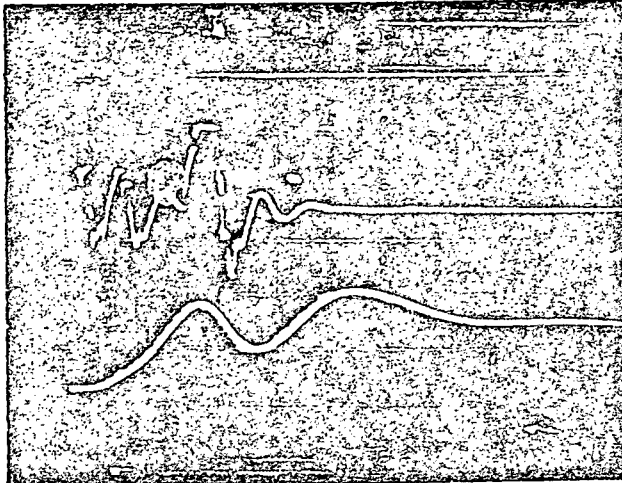
(1mA) CURRENT/DIV: 2mA A.
(10uS) SWEEP RATE: 10 μ s

ORIGINAL PAGE IS
OF POOR QUALITY

- 5.10.8.1.1 Input current - full load S26-1, S27-2
(S27-4 for RDT)
- 5.10.8.1.2 Input current w/o analog Same
load
- 5.10.8.1.3 Photograph of transients induced on input bus current and analog + voltage as
analog output is enabled - PRIMARY STDE

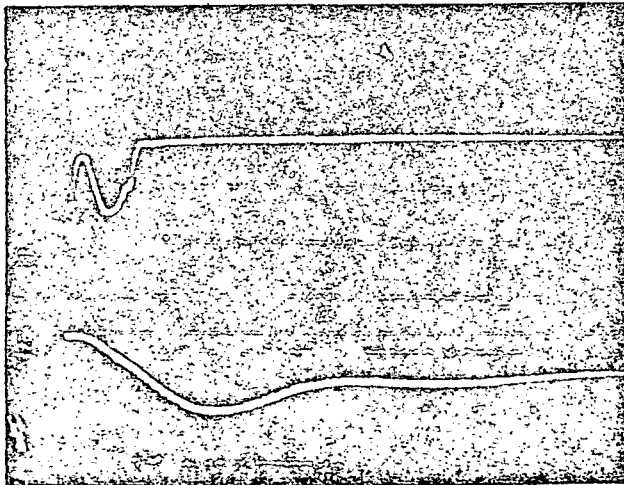
129.46 13.30
102.54 127.24257 105.01
R. Ellison 8-3-82

FEB 03 1982



(2V) VOLTAGE/DIV: 2V
(1A) CURRENT/DIV: 1A
(500us) SWEEP RATE: 500us

- 5.10.8.1.3 Photograph of transients induced on input bus current and analog + voltage as
analog output is disabled - PRIMARY SIDE



(5V) VOLTAGE/DIV: 2V
(1A) CURRENT/DIV: 1A
(1ms) SWEEP RATE: 500us

ORIGINAL PAGE IS
OF POOR QUALITY

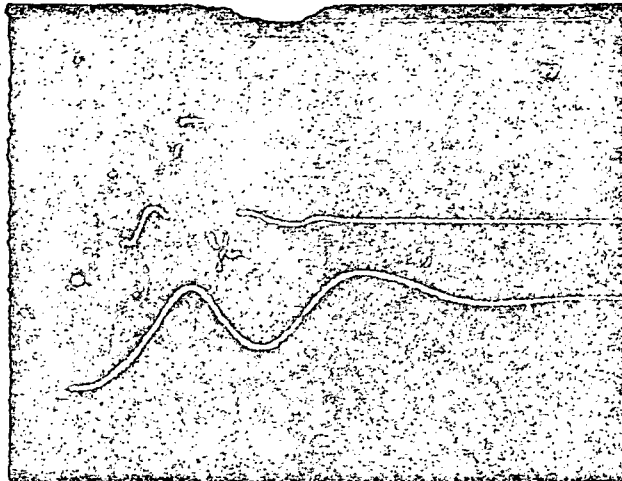
IS 16603
Rev B
18 December 1980

TEST
S23

FEB 03 1982

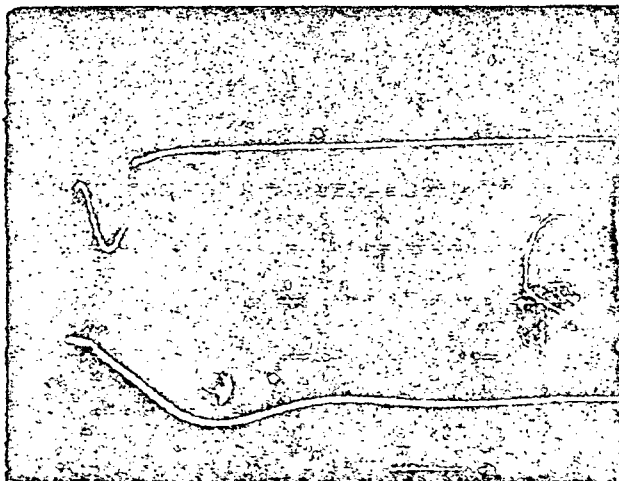
10.4 Performance test: (continued)

REF. PARA.	DESCRIPTION
5.10.8.1.3	Photograph of transients induced on input bus current and analog + output voltage as analog output is enabled - REDUNDANT SIDE.



(2V) VOLTAGE/DIV: 2V
(1A) CURRENT/DIV: 1A
(500 μ S) SWEEP RATE: 500 μ S

5.10.8.1.3 Photograph of transients induced on input bus current and analog - output voltage as analog output is disabled - REDUNDANT SIDE.



(5V) VOLTAGE/DIV: 2V
(1A) CURRENT/DIV: 1A
(1 μ S) SWEEP RATE: 500 μ S

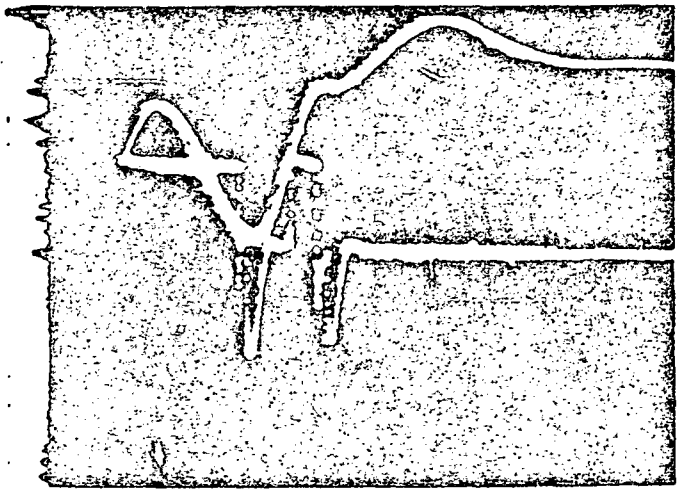
ORIGINAL PAGE IS
OF POOR QUALITY

TS 16603
Rev B
18 December 1980

10.4 Performance test (continued)

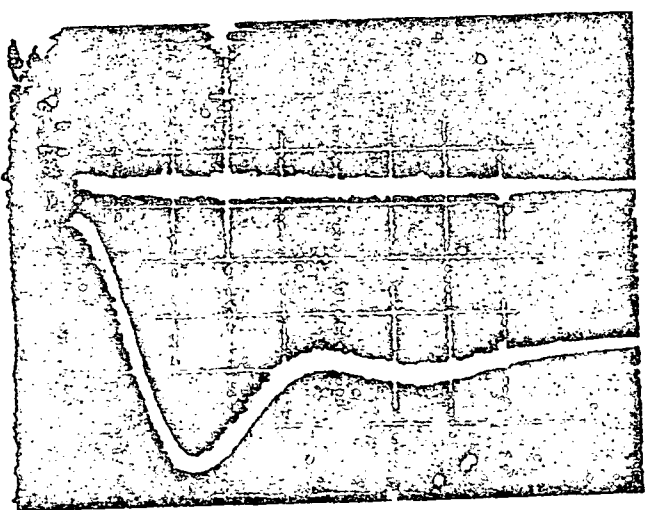
MAX
TEST
S23

F. PARA.	DESCRIPTION	DVM SWITCH POSITIONS	LIMITS	MEASUREMENT	
				PRIMARY	REDUNDAN
5.10.8.2.1	Input bus current w/o SMA +7V load	S26-1, S27-2 (S27-4 for RDT)		<u>118.07</u>	<u>119.42</u>
5.10.8.2.2	Photograph of transients induced on input bus current and SMA +7V output SIDE.				



(5V) VOLTAGE/DIV: 2V
(1A) CURRENT/DIV: .2A
(200uS) SWEEP RATE: 500 uSec

5.10.8.2.2 Photograph of transients induced on input bus current and SMA +7V output voltage as SMA +7V is disabled - PRIMARY SIDE.



(2V) VOLTAGE/DIV: 2V
(1A) CURRENT/DIV: .2A
(2mS) SWEEP RATE: 500 uSec

ORIGINAL PAGE IS
OF POOR QUALITY

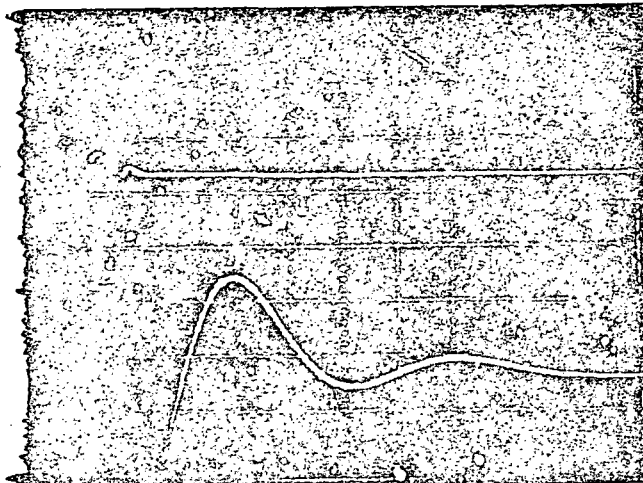
TS 16603
Rev 7
18 December 19

110 00 1562



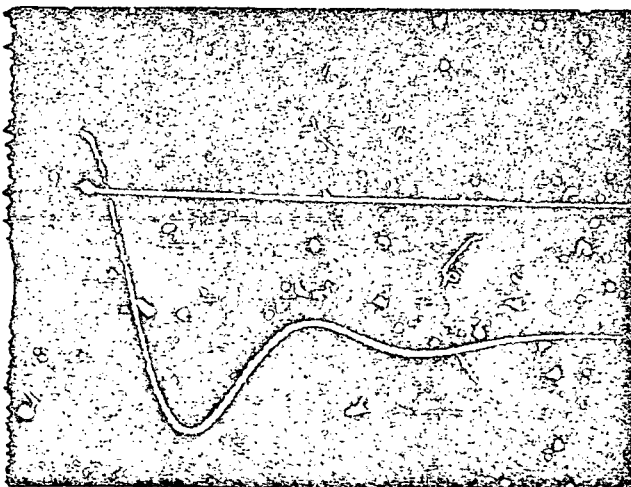
10.4 Performance test (continued)

REF. PARA.	DESCRIPTION
J.10.8.2.2	Photograph of transients induced on input bus current and SMA +7 output voltage as SMA +7V is enabled - REDUNDANT SIDE



(5V) VOLTAGE/DIV: 2V
(1A) CURRENT/DIV: .2A
(200uS) SWEEP RATE: 500uS

J.10.8.2.2	Photograph of transients induced on input bus current and SMA +7V output voltage as SMA +7V is disabled - REDUNDANT SIDE
------------	--



(2V) VOLTAGE/DIV: 2V
(1A) CURRENT/DIV: .2A
(2mS) SWEEP RATE: 500uS

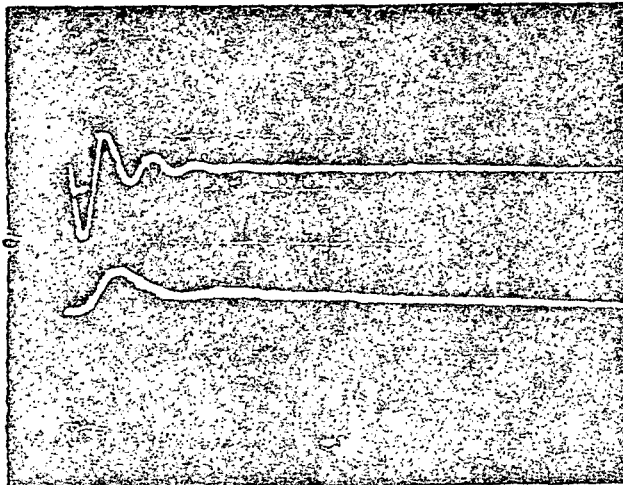
ORIGINAL PAGE IS
OF POOR QUALITY

TS 16603
Rev B
18 December 1980

10.4 Performance test (continued)

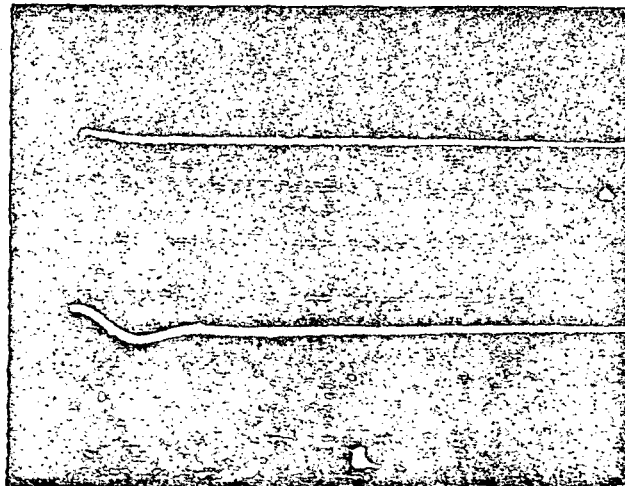
DEC 05 1982
TEST
S25

EF. PARA.	DESCRIPTION	DVM SWITCH POSITIONS	LIMITS	MEASUREMENT	
				PRIMARY	REDUNDANT
5.10.8.2.3	Input bus current w/o SMA +29V load	S26-1, S27-2 (S27-4 for RDT)		125.64	127.41
5.10.8.2.4	Photograph of transients induced on input bus current and SMA +29V output voltage as SMA +29V is enabled - PRIMARY SIDE				



(2V) VOLTAGE/DIV: 2V
(0.5V) CURRENT/DIV: .5A
(1ms) SWEEP RATE: 1ms

5.10.8.2.4 Photograph of transients induced on input bus current and SMA +29V output
voltage as SMA -29V is disabled - PRIMARY SIDE



(2V) VOLTAGE/DIV: 2V
(0.5A) CURRENT/DIV: .5A
(1ms) SWEEP RATE: 1ms

ORIGINAL PAGE IS
OF POOR QUALITY



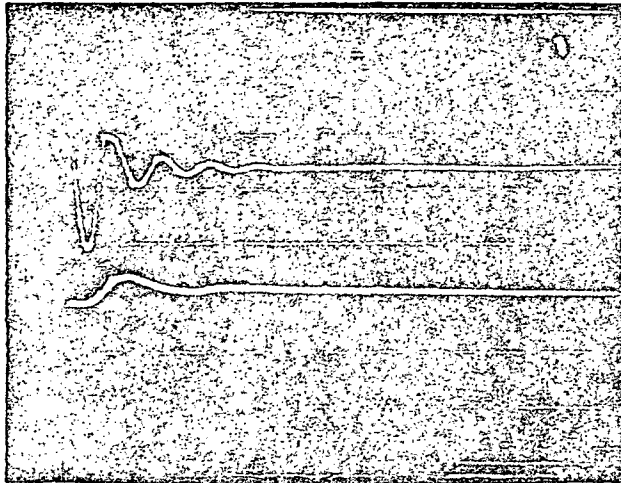
TS 16603
Rev B
18 December 1980

10.4 Performance test (continued)

FEB 03 1982

TEST PARA. DESCRIPTION

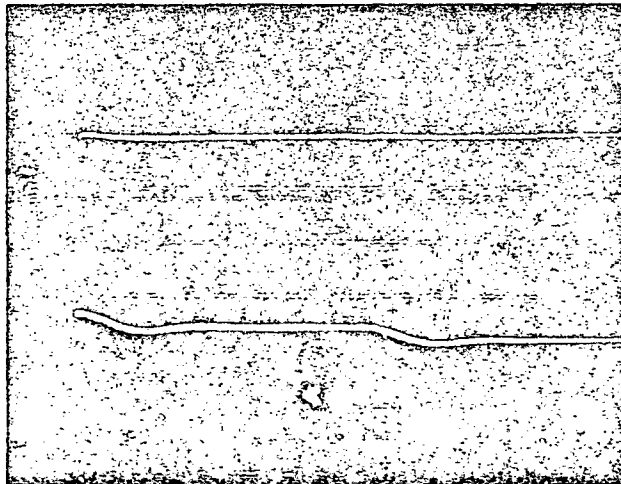
5.10.8.2.4 Photograph of transients induced on input bus current and SMA +29V output voltage as SMA +29V is enabled - REDUNDANT SIDE



SAME

(2V) VOLTAGE/DIV: _____
(A) CURRENT/DIV: _____
(1ms) SWEEP RATE: _____

5.10.8.2.4 Photograph of transients induced on input bus current and SMA +29V output voltage as +29V is disabled - REDUNDANT SIDE



SAME

(2V) VOLTAGE/DIV: _____
(0.5) CURRENT/DIV: _____
(1ms) SWEEP RATE: _____

ORIGINAL PAGE IS
OF POOR QUALITY

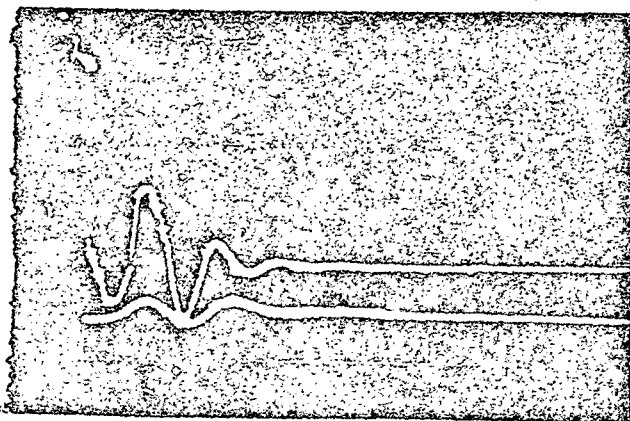
TS 16603
Rev B
18 December 1980

10.4 Performance test (continued)

FEB 03 1982

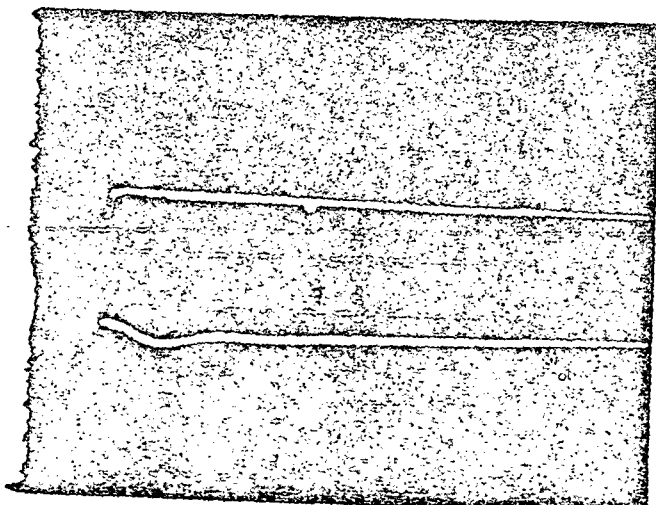


REF. PARA.	DESCRIPTION	DVM SWITCH POSITIONS	LIMITS	MEASUREMENT	
				PRIMARY	REDUNDANT
5.10.8.3.1	Input bus current w/o CDVU load	S26-1, S27-2 (S27-4 for RDT)		127.15	128.77
5.10.8.3.2	Photograph of transients induced on input bus current and CDVU output voltage as CDVU is enabled - PRIMARY SIDE				



(2V) VOLTAGE/DIV: 2V
(0.5A) CURRENT/DIV: .5A
(1mS) SWEEP RATE: 1mS

5.10.8.3.2 Photograph of transients induced on input bus current and CDVU output voltage as CDVU is disabled - PRIMARY SIDE



(2V) VOLTAGE/DIV: 2V
(0.5V) CURRENT/DIV: .5
(1mS) SWEEP RATE: 1mS

ORIGINAL PAGE IS
OF POOR QUALITY

TS 16603
Rev B
18 December 1980

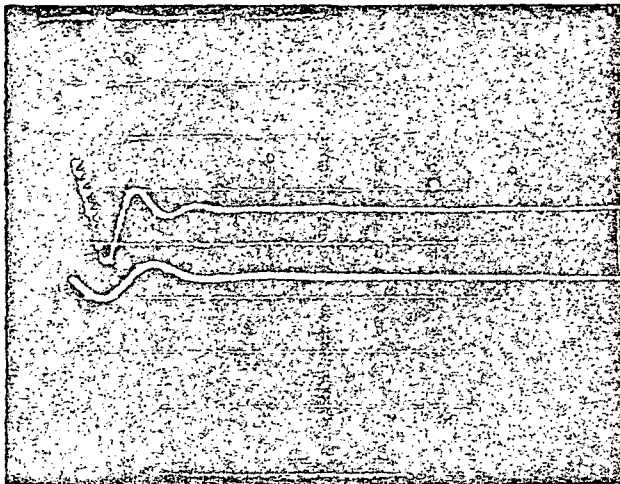


FEB 03 1982

10.4 Performance test (continued)

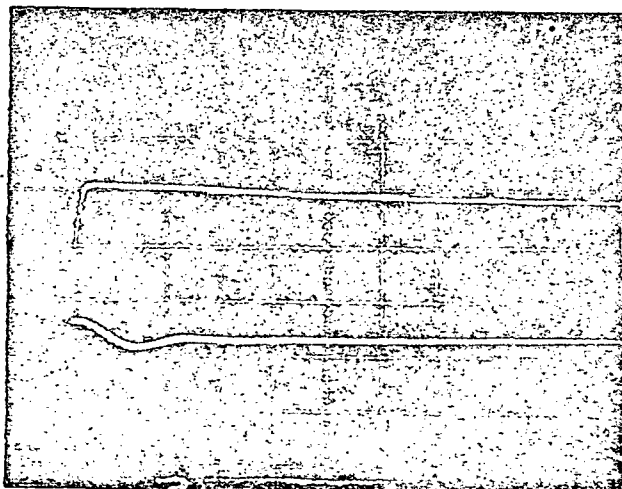
IF. PARA. DESCRIPTION

5.10.8.3.2 Photograph of transients induced on input bus current and CDVU output voltage as CDVU is enabled - REDUNDANT SIDE



(2V) VOLTAGE/DIV: 5ms
(0.5A) CURRENT/DIV: "
(1ms) SWEEP RATE: "

5.10.8.3.2 Photograph as transients induced on input bus current and CDVU output voltage as CDVU is disabled - REDUNDANT SIDE



(2V) VOLTAGE/DIV: 5ms
(0.5A) CURRENT/DIV: "
(1ms) SWEEP RATE: "



10.4 Performance test (continued)

FEB 10 1982

EF. PARA.

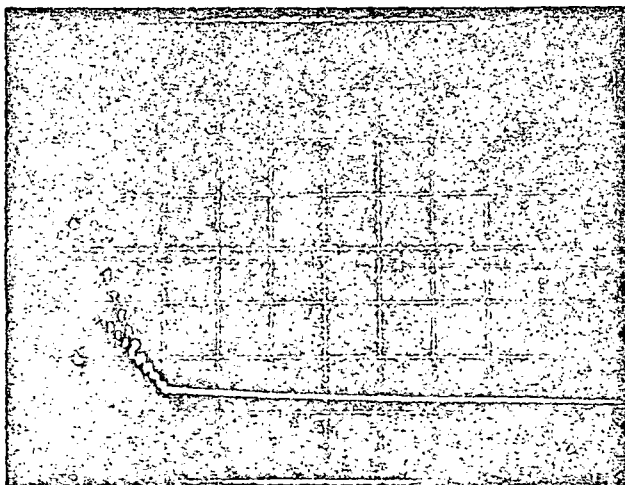
DESCRIPTION

5.10.9.1 Photograph of turn-off transient of input bus voltage and input bus current as bus voltage is removed - PRIMARY SIDE



(5V) VOLTAGE/DIV: 5V
(5A) CURRENT/DIV: 5A
(500uS) SWEEP RATE: 500uSec

Photograph of turn-off transient of input bus voltage and input bus current as bus voltage is removed - REDUNDANT SIDE



(5V) VOLTAGE/DIV: 5V
(5A) CURRENT/DIV: 5A
(500uS) SWEEP RATE: 1.01 Sec

58

ORIGINAL PAGE IS
OF POOR QUALITY

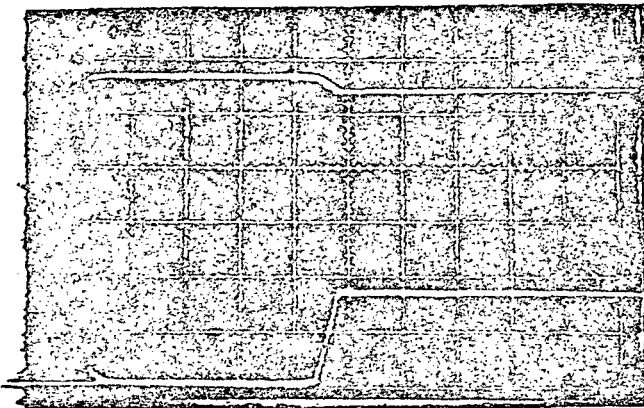
TS 16603
Rev B
18 December 1980



FEB 03 1982

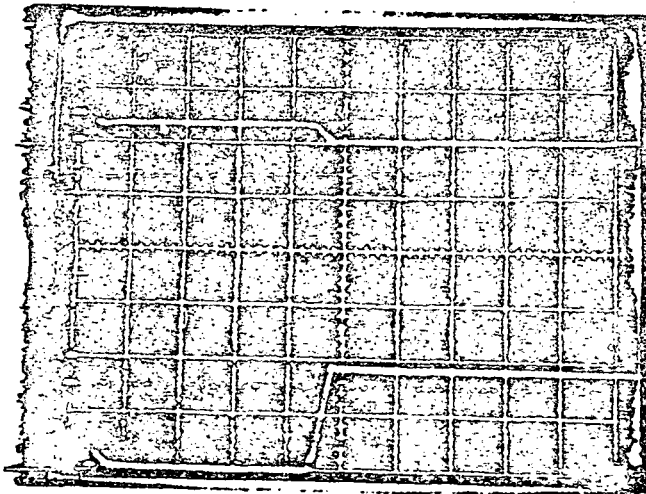
10.4 Performance test (continued)

REF. PARA.	DESCRIPTION	DVM SWITCH POSITIONS	LIMITS	MEASUREMENT	
				PRIMARY	REDUNDANT
5.10.9.2	UUT stays off when bus is reapplied.	S1-ON (S2-ON for RDT)	--	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
5.10.9.3	Photograph of turn-on transient of bus voltage and current as ON command is issued - PRIMARY SIDE				



(5V) VOLTAGE/DIV: 5V
(5A) CURRENT/DIV: 5A
(100ms) SWEEP RATE: 100ms

5.10.9.3 Photograph of turn-on transient of bus voltage and current as ON command is issued - REDUNDANT SIDE



(5V) VOLTAGE/DIV: 5V
(5A) CURRENT/DIV: 5A
(100ms) SWEEP RATE: 100

59

ORIGINAL PAGE IS
OF POOR QUALITY

FEB 03 1982

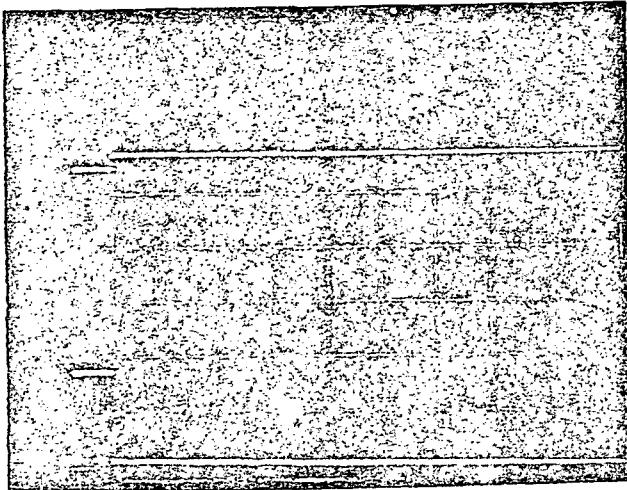


TS 16603
Rev B
18 December 1980

10.4 Performance test (continued)

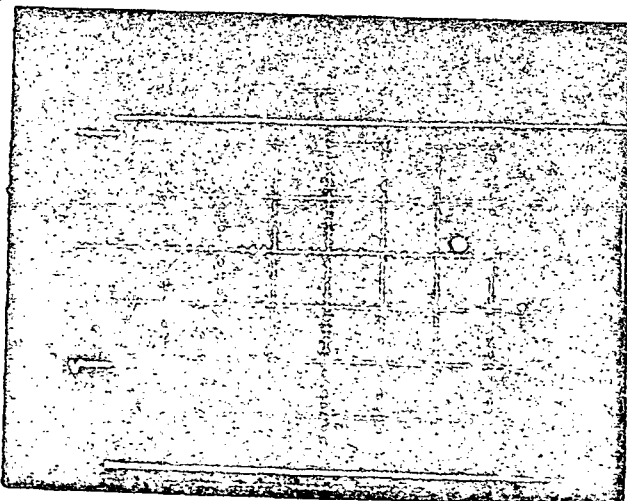
IF. PARA. DESCRIPTION

5.10.9.4 Photograph of turn-off transient of input bus voltage and current as *OFF* command is issued - PRIMARY SIDE



(5V) VOLTAGE/DIV: 5V
(5A) CURRENT/DIV: 5A
(10ms) SWEEP RATE: 10ms

5.10.9.4 Photograph of turn-off transient of input bus voltage and current as *OFF* command is issued - REDUNDANT SIDE



(5V) VOLTAGE/DIV: 5V
(5A) CURRENT/DIV: 5A
(10ms) SWEEP RATE: 10ms

ORIGINAL PAGE IS
OF POOR QUALITY FEB 03 1982

TS 16603
Rev B
18 December 1980



10.4 Performance test (continued)

REF. PARA.	DESCRIPTION	DVM SWITCH POSITIONS	LIMITS	PRIMARY	REDUNDAN
5.10.9.5	Record	S27-2 (S27-4)		<u>125.51mV</u>	<u>131.34</u>
5.10.9.6	Record	(S27-4 (S27-2)		<u>46.35mV</u>	<u>26.34</u>
	Record	S27-2 (S27-4)		<u>26.40mV</u>	<u>11.48</u>
5.10.9.7	Record that UUT turns on.	(Checkmark)		<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
5.10.10.1	Input bus current AFTER it reads ~ 17A AND input bus voltage reads ~ 21V.	S26-1, S27-2 (S27-4 for RDT)		<u>139.94mV</u>	<u>151.31</u>
5.10.10.2	Input bus voltage with 17.0A load	S26-1, S27-1 (S27-3 for RDT)		<u>28.02V</u>	<u>28.11</u>
5.10.10.3	Input current telemetry output	S26-4, S28-2 (S28-4 for RDT)	4.086	<u>2.745V</u>	<u>4.455</u>
5.10.10.4	Input current telemetry output	S26-4, S28-2 (S28-4 for RDT)		<u>3.532V</u>	<u>3.561</u>
	Input bus voltage	S26-1, S27-1 (S27-3 for RDT)		<u>29.04V</u>	<u>29.01</u>
	Input bus current	S26-1, S27-2 (S27-4 for RDT)		<u>12327A</u>	<u>12633</u>
5.10.10.5	Input current telemetry output	S26-4, S28-2 (S28-4 for RDT)		<u>3.046V</u>	<u>3.056</u>
	Input bus voltage	S26-1, S27-1 (S27-3 for RDT)		<u>28.01V</u>	<u>28.00</u>
	Input bus current	S26-1, S27-2 (S27-4 for RDT)		<u>108.03mV</u>	<u>108.82</u>
5.10.10.3	Input current telemetry output	S26-4, S28-2 (S28-4 for RDT)		<u>2.570V</u>	<u>2.573</u>
	Input bus voltage	S26-1, S27-1 (S27-3 for RDT)		<u>28.02V</u>	<u>28.06</u>
	Input bus current	S26-1, S27-2 (S27-4 for RDT)		<u>92.42mV</u>	<u>91.12</u>
5.10.10.7	Input current telemetry output	S26-4, S28-2 (S28-4 for RDT)		<u>1.986V</u>	<u>2.064</u>
	Input bus voltage	S26-1, S27-1 (S27-3 for RDT)		<u>28.01V</u>	<u>28.03</u>
	Input bus current	S26-1, S27-2 (S27-4 for RDT)		<u>75.10mV</u>	<u>79.6</u>

ORIGINAL PAGE IS
OF POOR QUALITY

IS 16603
Rev B
18 December 1980

10.4 Performance test (continued)

FEB 0 1982



REF. PARA.	DESCRIPTION	DVM SWITCH POSITIONS	LIMITS	MEASUREMENT	
				PRIMARY	REDUNDANT
5.10.10.8	Input current telemetry output	S26-4, S28-2 (S28-4 for RDT)		<u>1.536V</u>	<u>1.522</u>
	Input bus voltage	S26-1, S27-1 (S27-3 for RDT)		<u>28.01V</u>	<u>28.01</u>
	Input bus current	S26-1, S27-2 (S27-4 for RDT)		<u>60.48mA</u>	<u>61.38</u>
5.10.10.9	Input current telemetry output	S26-4, S28-2 (S28-4 for RDT)		<u>1.098V</u>	<u>1.0086</u>
	Input bus voltage	S26-1, S27-1 (S27-3 for RDT)		<u>28.00V</u>	<u>28.02</u>
	Input bus current	S26-1, S27-2 (S27-4 for RDT)		<u>41.28mA</u>	<u>45.69</u>
5.10.10.10	Input current telemetry output	S26-4, S28-2 (S28-4 for RDT)		<u>1.5168V</u>	<u>.5559</u>
	Input bus voltage	S26-1, S27-1 (S27-3 for RDT)		<u>28.06V</u>	<u>28.00</u>
	Input bus current	S26-1, S27-2 (S27-4 for RDT)		<u>34.99mA</u> <u>.194V</u>	<u>29.95mA</u>
5.10.10.11	Input current telemetry output	S26-4, S28-2 (S28-4 for RDT)		<u>1.144V</u>	<u>.2268</u>
	Input bus voltage	S26-1, S27-1 (S27-3 for RDT)		<u>28.05V</u>	<u>28.00</u>
	Input bus current	S26-1, S27-2 (S27-4 for RDT)		<u>28.20mA</u>	<u>24.09</u>
5.10.10.12	Input current telemetry output	S26-4, S28-2 (S28-4 for RDT)		<u>-28.00</u>	<u>-98.65</u>
	Input bus voltage	S26-1, S27-1 (S27-3 for RDT)		<u>28.01</u>	<u>28.02</u>
	Input bus current	S26-1, S27-2 (S27-4 for RDT)		<u>11.959mA</u>	<u>12.20</u>
5.10.11.1	Band 1- output voltage	S26-1, S27-5		<u>23.74V</u>	<u>24.74</u>
5.10.11.2	Band 1- output voltage	S27-6		<u>-23.88</u>	<u>-24.08</u>
5.10.11.3	2+	S27-7		<u>24.32</u>	<u>24.03</u>
5.10.11.4	2-	S27-8		<u>-24.32</u>	<u>-24.48</u>
5.10.11.5	3+	S27-9		<u>25.47</u>	<u>24.51</u>
5.10.11.6	3-	S27-10		<u>-23.56</u>	<u>-24.20</u>
5.10.11.7	Band 4+ output voltage	S26-1, S27-11		<u>24.21</u>	<u>24.67</u>

ORIGINAL PAGE IS
OF POOR QUALITY

TS 16603
Rev B

FEB 03 1982

12 December 1982
SMA-3 24-81

10.4 Performance test (continued)

REF. PARA.	DESCRIPTION	DVM SWITCH POSITIONS	LIMITS	MEASUREMENT	
				PRIMARY	SECONDARY
5.10.11.8	Band 4- output voltage	S26-1, S27-12		-23.89	-24.40
5.10.11.9	5,7+	S26-2, S27-1		23.26	24.1
5.10.11.10	5,7-	S27-2		-23.20	-23.93
5.10.11.11	6+	S27-3		22.95	23.84
5.10.11.12	Band 6-	S27-4		-23.45	-24.07
5.10.11.13	SMA Htr +	S27-5		24.61	25.25
5.10.11.14	Htr -	S27-6		-24.69	-25.11
5.10.11.15	+7V	S27-7		9.88	N/A
5.10.11	+7V	(S27-8 For RDT)		N/A	9.358
5.10.11	+29V	S27-9		31.24	N/A
5.10.11	+29V	(S27-11 For RDT)		N/A	31.62
5.10.11	-29V	S27-10		-31.60	N/A
	SMA -29V	S26-2, (S27-12 for RDT)		N/A	-31.47
5.10.11.18	Radiometer	S26-3, S27-2		9.391	9.771
5.10.11.19	CDVU	S27-3		9.379	9.265
5.10.11.20	Analog +	S27-4		25.98	26.38
5.10.11.21	Analog -	S27-5		-24.81	-24.81
5.10.11.22	Electromech.	S27-6		41.59	42.03
5.10.11.23	Outgas	S27-7		101.25	100.73
5.10.11.24	Parasitic	S27-9		30.81	N/A
	Parasitic output voltage	S26-3, (S27-10 for RDT)		N/A	31.80
5.10.11.25	Band 1+ TM output	S26-4, S28-5		4.322	4.524
5.10.11.26	1-	S28-6		4.346	4.015
5.10.11.27	2+	S28-7		4.424	4.380
5.10.11.28	2-	S28-8		4.405	4.228
5.10.11.29	3+	S28-9		4.633	4.444
5.10.11.30	3-	S28-10		4.294	4.409
5.10.11.31	4+	S28-11		4.394	4.479
5.10.11.32	4-	S26-4, S28-12		4.340	4.235
5.10.11.33	Band 5,7+ TM output	S26-5, S28-1		4.244	4.410

ORIGINAL PAGE IS
OF POOR QUALITY

TS 16603
Rev B

FEB 10 1982



~~SECRET~~
84-81

10.4 Performance test (continued)

REF. PARA.	DESCRIPTION	DVM SWITCH POSITIONS	LIMITS	MEASUREMENT	
				PRIMARY	REFERENCE
5.10.11.34	Band 5,7- IM output	S26-5, S28-2		<u>4.230</u>	<u>4.360</u>
5.10.11.35	6+	S28-3		<u>4.150</u>	<u>4.316</u>
5.10.11.36	Band 6-	S28-4		<u>4.277</u>	<u>4.390</u>
5.10.11.37	SMA Htr +	S28-5		<u>4.480</u>	<u>4.608</u>
5.10.11.38	Htr -	S28-6		<u>4.445</u>	<u>4.581</u>
5.10.11.39	+7V	S28-7 (S28-8 for RDT)		<u>6.152</u>	<u>5.772</u>
5.10.11.40	+29V	S28-9 (S28-11 for RDT)		<u>4.258</u>	<u>4.338</u>
5.10.11.41	SMA -29V	S26-5, S28-10 (S28-12 for RDT)		<u>3.839</u>	<u>3.814</u>
5.10.11.42	Radiometer	S26-6, S28-2		<u>5.086</u>	<u>5.296</u>
5.10.11.43	CDVU	S28-3		<u>5.194</u>	<u>5.130</u>
5.10.11.44	Analog +	S28-4		<u>4.609</u>	<u>4.678</u>
5.10.11.45	Analog -	S28-5		<u>4.094</u>	<u>4.275</u>
5.10.11.46	Electromech.	S28-6		<u>5.083</u>	<u>5.187</u>
5.10.11.47	Outgas - IM output	S26-6, S28-7		<u>5.439</u>	<u>5.013</u>
5.10.12.1	Bus voltage	S26-1, S27-1 (S27-3 for RDT)		<u>28.45</u>	<u>28.00</u>
5.10.12.2	Input bus current	S26-1, S27-2 (S27-4 for RDT)		<u>42.25mA</u>	<u>42.57</u>
5.10.12.3	SMA Htr + output voltage	S26-2, S27-5		<u>21.43V</u>	<u>21.77V</u>
5.10.12.4	Htr + ripple	Seen on Scope	<330 mV pk-pk	<u>40</u>	<u>40</u>
5.10.12.5	Htr - voltage	S26-2, S27-6		<u>-22.01</u>	<u>-22.38</u>
5.10.12.6	SMA Htr - ripple	Seen on Scope	<330 mV pk-pk	<u>40</u>	<u>30</u>
5.10.12.7	CDVU voltage	S26-3, S27-3		<u>7.451V</u>	<u>7.668</u>
5.10.12.8	CDVU ripple	Seen on Scope	<40 mV pk-pk	<u>60</u>	<u>40</u>
5.10.12.9	Outgas - output voltage	S26-3, S27-7		<u>86.39V</u>	<u>86.47V</u>
5.10.12.10	Outgas - output ripple	Seen on Scope	2.50V pk-pk	<u>230mV</u>	<u>250mV</u>
5.10.12.11	Parasitic output voltage	S26-3, S27-9 (S27-10 for RDT)		<u>30.03V</u>	<u>30.33</u>
5.10.12.12	Parasitic output ripple	Seen on Scope	<900 mV pk-pk	<u>100</u>	<u>100</u>

ORIGINAL PAGE IS
OF POOR QUALITY

TS 16603
Rev B
18 December 1980

FEB 03 1982

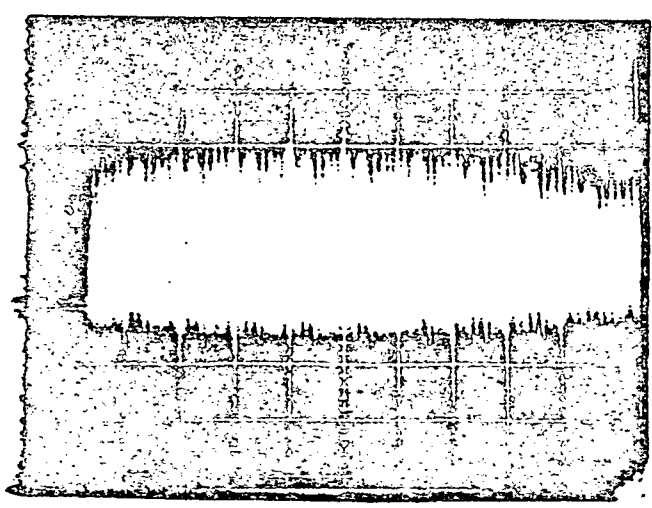
10.4 Performance test (continued)

EF. PARA.	DESCRIPTION	DVM SWITCH POSITIONS	LIMITS	MEASUREMENT	
				PRIMARY	REDUNDANT
5.10.13.1	Input current telemetry	S26-4, S28-2 (S28-4 for RDT)		1.022V	0.991V
5.10.13.2	SMA Htr + output	S26-5, S28-5		3.911	4.307
5.10.13.3	SMA Htr -	S26-5, S28-6		3.993	4.200
5.10.13.4	CDVU	S26-6, S28-3		4.180	4.301
5.10.13.5	Outgas output telemetry	S26-6, S28-7		4.312	4.339
5.10.14.1	Photograph of reflected input current ripple in outgas mode - PRIMARY SIDE				



(2mA) CURRENT/DIV: 2 mA A.C.
 (10uS) SWEEP RATE: 10 uSec

5.10.14.1 Photograph of reflected input current ripple in outgas mode - REDUNDANT SIDE



(2mA) CURRENT/DIV: 2 mA A.C.
 (10uS) SWEEP RATE: 10 uSec

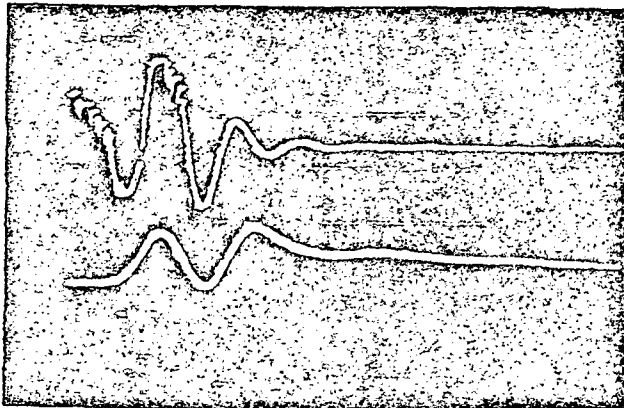
ORIGINAL PAGE IS
OF POOR QUALITY

TS 16603
Rev B
18 December 1980

18 DEC 1980

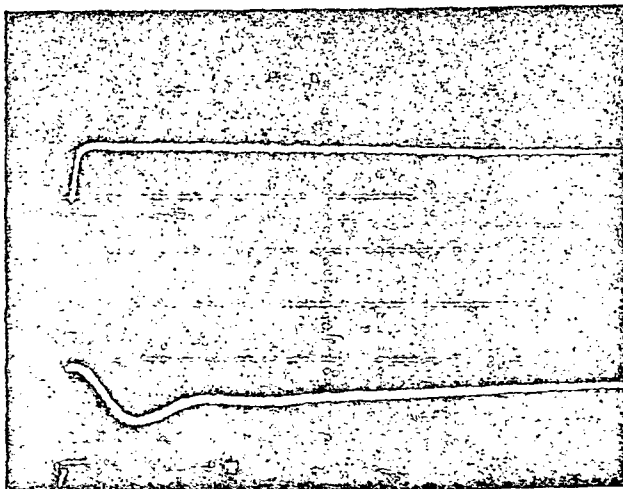
10.4 Performance test (continued)

REF. PARA.	DESCRIPTION	DVM SWITCH POSITIONS	LIMITS	MEASUREMENT	
				PRIMARY	REDUNDANT
5.10.15.1.1	Input current with CDVU off.	S26-1, S27-2 (S27-4 for RDT)		39.97mA	40.26
5.10.15.1.2	Photograph of input bus current and CDVU output voltage as CDVU load is enabled - PRIMARY SIDE				



(2V) VOLTAGE/DIV: 2V
(200mA) CURRENT/DIV: 200mA
(1ms) SWEEP RATE: 1ms

5.10.15.1.2 Photograph of input bus current and CDVU output voltage as CDVU load
is disabled - PRIMARY SIDE



(2V) VOLTAGE/DIV: 2V
(200mA) CURRENT/DIV: 200mA
(2ms) SWEEP RATE: 1ms

66

ORIGINAL PAGE IS
OF POOR QUALITY

TS 16603
Rev B
18 December 1980

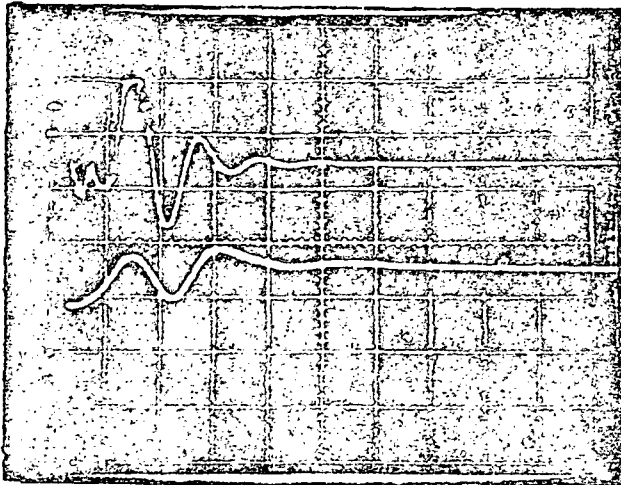
FEB 0 1982



10.4 Performance test (continued)

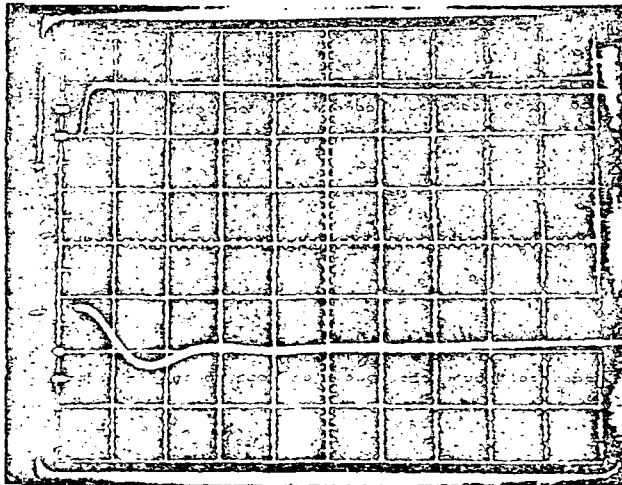
REF. PARA. DESCRIPTION

5.10.15.1.2 Photograph of input bus current and CDVU output voltage as CDVU load is enabled - REDUNDANT SIDE



(2V) VOLTAGE/DIV: Same
(200mA) CURRENT/DIV: "
(1mS) SWEEP RATE: "

5.10.15.1.2 Photograph of input bus current and CDVU output voltage as CDVU load is disabled - REDUNDANT SIDE

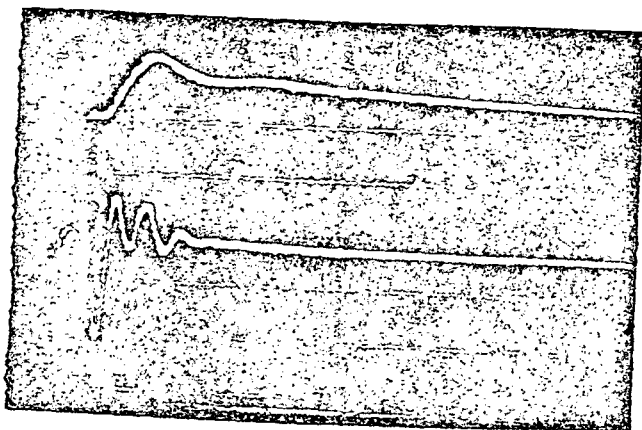


(2V) VOLTAGE/DIV: Same
(200mA) CURRENT/DIV: "
(2mS) SWEEP RATE: "

10.4 Performance test (continued)

FEB 03 1981

REF. PARA.	DESCRIPTION	DVM SWITCH POSITIONS	LIMITS	MEASUREMENT	
				PRIMARY	REDUNDANT
5.10.15.2.1	Input bus current with outgas disabled	S26-1, S27-2 (S27-4 for RDT)		14.88mV	15.14
5.10.15.2.2	Photograph of input bus current and outgas voltage as outgas load is enabled - PRIMARY SIDE				

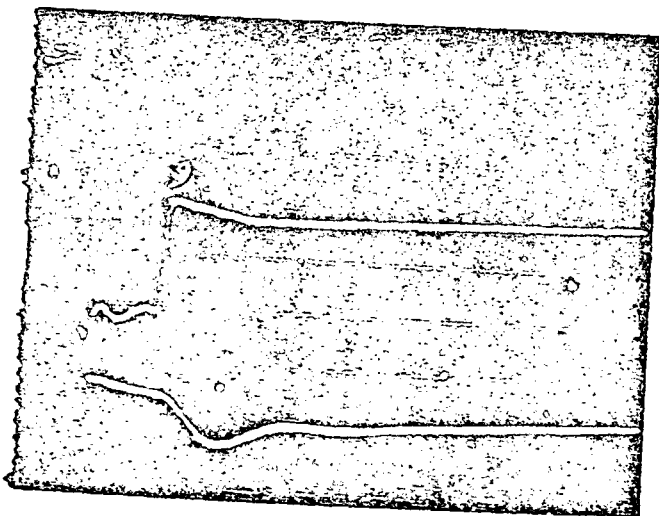


I Bus

V outgas

(5V) VOLTAGE/DIV: 5V
(2A) CURRENT/DIV: 2A
(1ms) SWEEP RATE: 1ms

5.10.15.2.2 Photograph of input bus current and outgas voltage as outgas load is disabled - PRIMARY SIDE



(5V) VOLTAGE/DIV: 5V
(2A) CURRENT/DIV: 2A
(2ms) SWEEP RATE: 1ms

ORIGINAL PAGE IS
OF POOR QUALITY

TS 16603
Rev B
18 December 1980

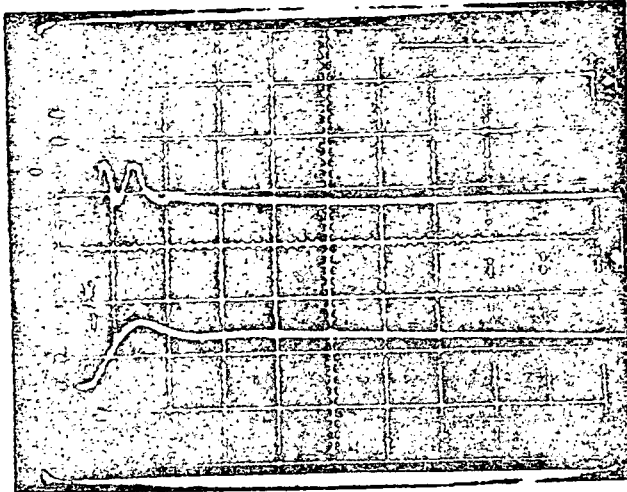
FEB 03 1982



10.4 Performance test (continued)

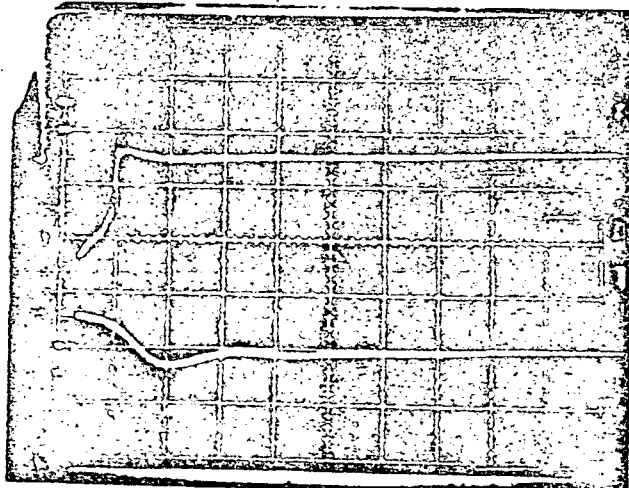
REF. PARA. DESCRIPTION

5.10.15.2.2 Photograph of input bus current and outgas voltage as outgas load is enabled - REDUNDANT SIDE



(5V) VOLTAGE/DIV: Same
(2A) CURRENT/DIV: "
(500ns) SWEEP RATE: "

5.10.15.2.2 Photograph of input bus current and outgas voltage as outgas load is disabled - REDUNDANT SIDE



(5V) VOLTAGE/DIV: Same
(2A) CURRENT/DIV: "
(1ms) SWEEP RATE: "

10.4 Performance test (continued)

REF. PARA.	DESCRIPTION	DVM SWITCH POSITION	LIMITS	MEASUREMENT	
				PRIMARY	REDUNDANT
5.10.16.1	BPS voltage	S26-1, S27-1 (S27-3 for EDT)		<u>28.06V</u> (49)	<u>28.03</u>
5.10.16.2	BPS current	S26-1, S27-2 (S27-4 for EDT)		<u>17.63mA</u> (50)	<u>18.14</u>
5.10.16.3	SMA Htr +output voltage	S26-2, S27-5		<u>21.56V</u> (13)	<u>21.82</u>
5.10.16.4	SMA Htr +load current	S26-8, S34-1		<u>46.48mA</u> (38)	<u>47.69</u>
5.10.16.5	SMA Htr -output voltage	S26-2, S27-6		<u>-21.93</u> (14)	<u>-22.26</u>
5.10.16.6	SMA Htr -load current	S26-8, S34-2		<u>-26.60mA</u> (39)	<u>-28.785</u>
5.10.16.7	CDVU output voltage	S26-3, S27-3		<u>7.452V</u> (20)	<u>7.656</u>
5.10.16.8	CDVU load current	S26-8, S34-10		<u>0.266V</u> (45)	<u>274.1</u>
5.10.16.9	Parasitic output voltage	S26-3, S27-9 (S27-10)		<u>30.49V</u> (22)	<u>30.90</u>
5.10.16.10	Parasitic load current	S26-8, S34-7		<u>142.06mA</u> (46)	<u>160.03</u>
5.10.16.11	Input power (5.10.16.1 x 5.10.16.2)			<u>49.97</u>	<u>50.25</u>
5.10.16.12	Output power	(Primary) (Redundant)		<u>16.928</u>	<u>17.52</u>
	((5.10.16.3 x 5.10.16.4)	NA	NA		
	+ (5.10.16.5 x 5.10.16.6)				
	+ (5.10.15.7 x 5.10.16.8)				
	+ (5.10.16.9 x 5.10.16.10)				
5.10.16.13	Efficiency ((5.10.16.12) ÷ (5.10.16.11)) x 100%			<u>34.2%</u>	<u>34.5%</u>

ORIGINAL PAGE IS
OF POOR QUALITY

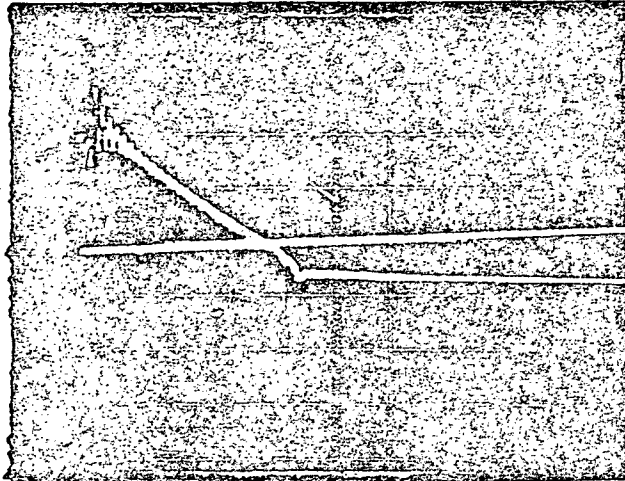
TS 16603
Rev B
18 December 1980



FEB 03 1982

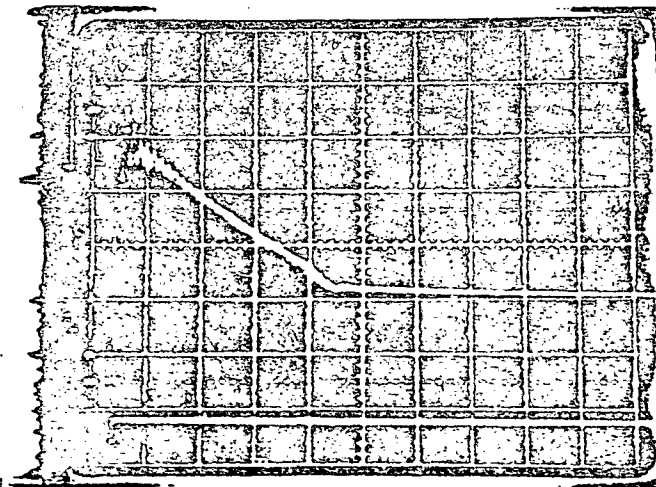
10.4 Performance test (continued)

5.10.17.1 Photograph of input bus current and input bus voltage
as is disable - PRIMARY SIDE



(5V) VOLTAGE/DIV: 5V
(2A) CURRENT/DIV: 2A
(1ms) SWEEP RATE: 1ms

5.10.17.1 Photograph of input bus current and input bus voltage
as is disabled - REDUNDANT SIDE



(5V) VOLTAGE/DIV: 5V
(2A) CURRENT/DIV: 2A
(1ms) SWEEP RATE: 1ms

71



10.4 Performance test (continued)

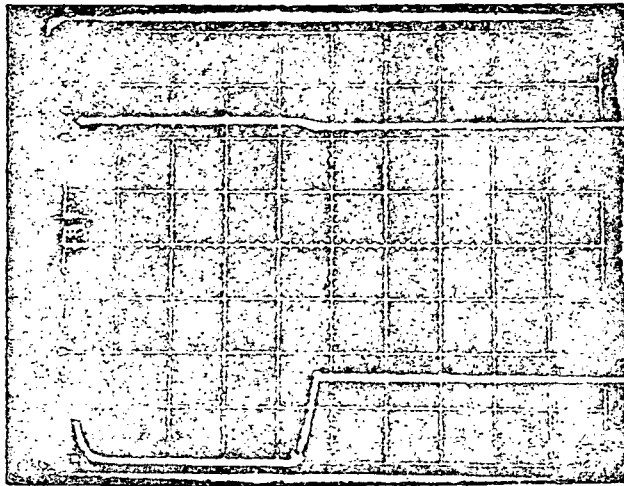
5.10.17.2 Unit stays off (check)

✓
Primary

✓
Redundant

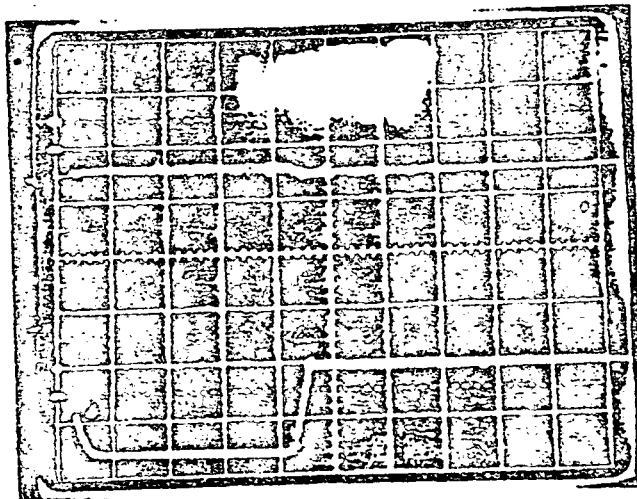
FFR 0 3 1982

5.10.17.3 Photograph of input bus current and input bus voltage
as is enabled - PRIMARY SIDE



SW
(2V) VOLTAGE/DIV: 2V
(2A) CURRENT/DIV: 2A
(100ms) SWEEP RATE: 100ms

5.10.17.3 Photograph of input bus current and input bus voltage as
as is enabled - REDUNDANT SIDE



5V
(2V) VOLTAGE/DIV: 2V
(2A) CURRENT/DIV: 2A
(100ms) SWEEP RATE: 100ms

72

ORIGINAL PAGE IS
OF POOR QUALITY

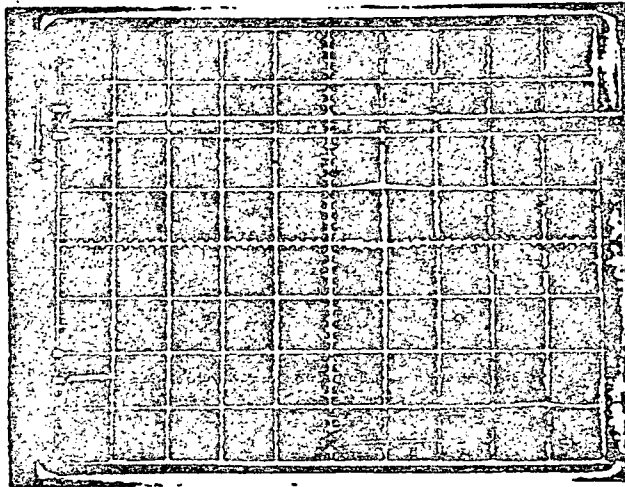
Rev B
18 December 1980

10.4 Performance test (continued)

MAC
TEST
S23

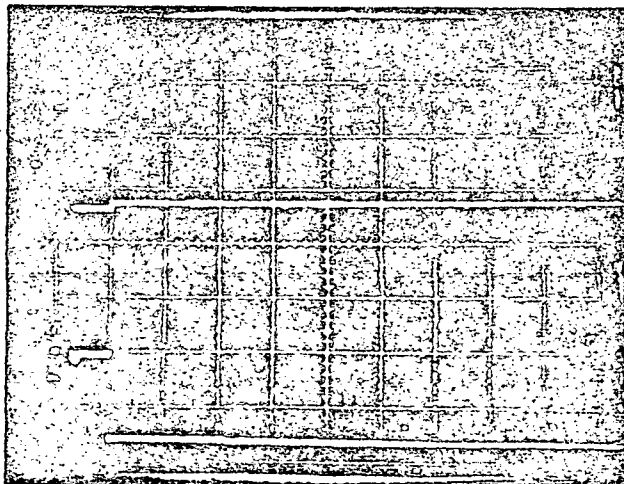
12005 202

5.10.17.4 Photograph of input bus current and input bus voltage
as is disabled - PRIMARY SIDE



(2V) VOLTAGE/DIV: 2V
(2A) CURRENT/DIV: 2A
(10ms) SWEEP RATE: 10ms

5.10.17.4 Photograph of input bus current and input bus voltage



(2V) VOLTAGE/DIV: 5V
(2A) CURRENT/DIV: 2A
(10ms) SWEEP RATE: 10ms

73

ORIGINAL PAGE IS
OF POOR QUALITY

TS 16603
Rev B
18 December 1980



10.4 Performance test (continued)

T. PARA.	DESCRIPTION	DVM SWITCH POSITIONS	LIMITS	MEASUREMENT	
				PRIMARY	REDUNDANT

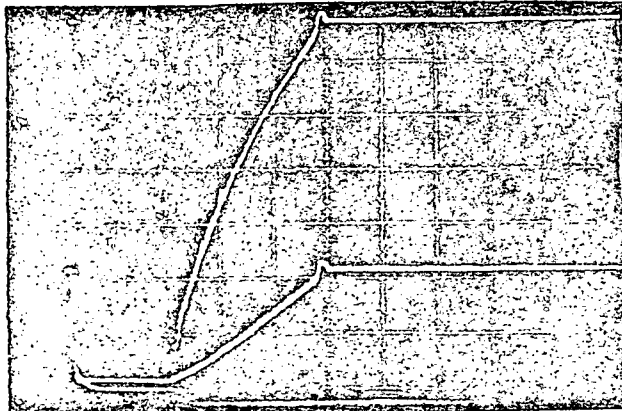
FEB 03 1982

5.10.17.5 Record that UUT operates correctly.

(checkmark)

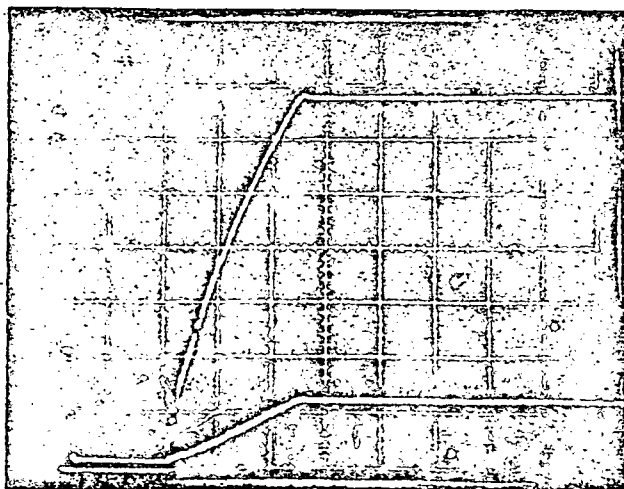
✓ ✓

5.10.18.1 Photograph of input bus current and MDX output voltage as MIX enable command is issued (all loads are ON except outgas) - PRIMARY SIDE



(5V) VOLTAGE/DIV: 5V
(5A) CURRENT/DIV: 5A
(20mS) SWEEP RATE: 20mS

5.10.18.2 Photograph of input bus current and parasitic output voltage as parasitic enable command is issued (all loads are ON except outgas) - PRIMARY SIDE



(5V) VOLTAGE/DIV: 5V
(5A) CURRENT/DIV: 5A
(20mS) SWEEP RATE: 20mS

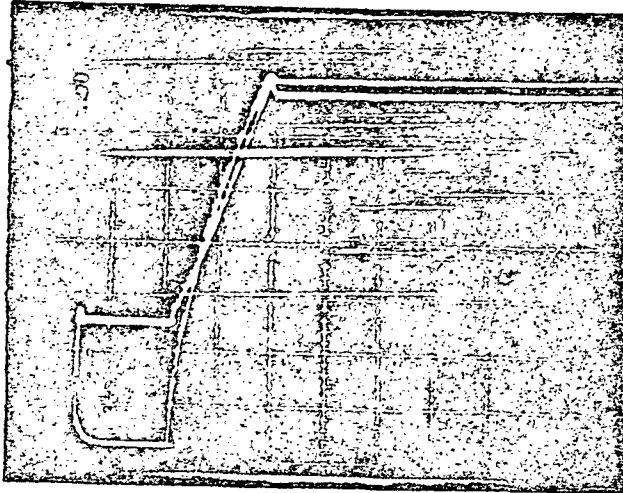
ORIGINAL PAGE IS
OF POOR QUALITY



FEB 03 1982

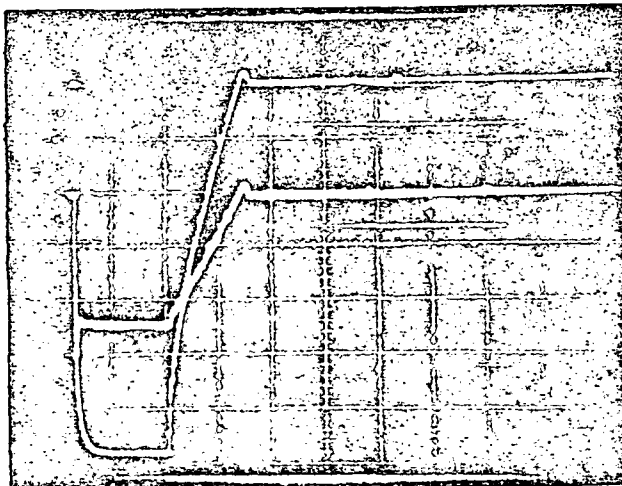
10.4 Performance test (continued)

- .10.18.1 Photograph of input bus current and MIX output voltage as MIX enable command is issued (all loads are ON except outgas) - REDUNDANT SIDE



5V) VOLTAGE/DIV: 5V
5A) CURRENT/DIV: 2A
20mS) SWEEP RATE: 20ms

- 5.10.18.2 Photograph of input bus current and MIX output voltage as parasitic enable command is issued (all loads are ON except outgas) - REDUNDANT SIDE



(5v) Volts/Div: 5V
(5A) Current/Div: 2A
(20mS) Sweep Rate: 20ms

75

ORIGINAL PAGE IS
OF POOR QUALITY

TS 16603
Rev B

~~TS 16603~~
~~Rev B~~
~~Feb 2 1982~~

10.4 Performance test (continued)

FEB 03 1982

TEST
523

REF. PARA.	DESCRIPTION	DOWN SWITCH POSITIONS	LIMITS	MEASUREMENT	
				PRIMARY	REDUNDANT
5.10.18.4	Undervoltage Trip Point (ON/OFF)	S26-1, S27-1 (S27-3 for RDT)	18.0 ± 1.30V	<u>18.07V</u>	<u>18.01</u>
5.10.18.5	UIT stays OFF			<u>✓</u>	<u>✓</u>
5.10.18.6	Undervoltage Trip Point (OFF/ON)	S26-1, S27-1 (S27-3 for RDT)	19.0 ± 1.50V	<u>18.92</u>	<u>18.88</u>
5.10.18.7	Overvoltage Trip Point	S26-1, S27-1 (S27-3 for RDT)	38.0 ± 2V	<u>38.09</u>	<u>39.14</u> ^{SCU} / ₂
5.10.18.8	UIT stays OFF			<u>✓</u>	<u>✓</u>
5.10.18.9	UIT turns ON			<u>✓</u>	<u>✓</u>

23-82

DATE

R. Ellers & Randy Coleman
TESTER(S)

ORIGINAL PAGE IS
OF POOR QUALITY

Appendix C - Part 3
Power Supply Performance Data
Long Form Test Data

ORIGINAL PAGE IS
OF POOR QUALITY



TS 16603
Rev B
18 December 1980

10.4 Performance test - Long Form

PROTOFLIGHT DNA OR FLIGHT S/N 004 TEMPERATURE: +32°F
 IN-PROCESS DNA QUAL DNA OR ACCEPTANCE
 TESTING PHASE FINAL COLD CYCLE LINE VOLTAGE: +35.0 VOLTS

REF. PARA.	DESCRIPTION	DVM SWITCH POSITIONS	LIMITS	MEASUREMENT	
				PRIMARY	REDUNDANT
5.10.1.1	Calibrate cmd gen	--	--	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
5.10.2.1	Input bus current	S26-1, S27-2 (S27-4 for redundant)		<u>238 mV</u>	<u>228 mV</u>
5.10.2.2	MUX output voltage	S26-3, S27-1	30.0 ±0.90V	<u>29.83V</u>	<u>30.09V</u>
5.10.2.3	MUX load current	S26-3, S27-12	3.55 ±0.40A	<u>32.46 mV</u>	<u>33.15 mV</u>

The rest of Section 5.10.2 requires only checking voltage - indicate by checkmarks.

REF. PARA.	DESCRIPTION	DVM SWITCH POSITIONS	MEASUREMENT PRIMARY	MEASUREMENT REDUNDANT
5.10.2.4.1	B1 + output voltage	S26-1, S27-5	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
5.10.2.4.2	B1 -	S27-6	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
5.10.2.4.3	B1 -	S27-5	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
5.10.2.4.4	B1 +	S27-7	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
5.10.2.5.1	B2 +	S27-7	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
5.10.2.5.2	B2 -	S27-8	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
5.10.2.5.3	B2 -	S27-8	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
5.10.2.5.4	B2 +	S27-7	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
5.10.2.6.1	B3 +	S27-9	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
5.10.2.6.2	B3 -	S27-10	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
5.10.2.6.3	B3 -	S27-10	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
5.10.2.6.4	B3 +	S27-9	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
5.10.2.7.1	B4 +	S27-11	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
5.10.2.7.2	B4 -	S27-12	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
5.10.2.7.3	B4 -	S27-12	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
5.10.2.7.4	B4 +	S26-1, S27-11	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
5.10.2.8.1	B5,7+	S26-2, S27-1	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
5.10.2.8.2	B5,7-	S27-2	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
5.10.2.8.3	B5,7-	S27-2	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
5.10.2.8.4	B5,7+	S27-1	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
5.10.2.9.1	B6 +	S27-3	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
5.10.2.9.2	B6 - output voltage	S26-2, S27-4	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>

REVIEWED
PAGES 66-153

ORIGINAL PAGE IS
OF POOR QUALITY

TS 16603
Rev B
~~20 DECEMBER 1990~~
SPW-1 1/22/81

10.4 Performance test (continued)

REF	PARA	DESCRIPTION	DVM SWITCH POSITIONS	LIMITS	MEASUREMENT	
					PRIMARY	REDUNDANT
5.10.2.9.3		B6 - output voltage	S26-2, S27-4		✓	✓
5.10.2.9.4		S6 + output voltage	S26-2, S27-3		✓	✓
5.10.2.10.1		SMA HIR + output voltage	S27-5		✓	✓
5.10.2.10.2		-	S27-6		✓	✓
5.10.2.10.3		-	S27-6		✓	✓
5.10.2.10.4		+	S27-5		✓	✓
5.10.2.11.1		+7V	S26-2, S27-7		✓	✓
5.10.2.11.2		+7V	(S27-3 for RDT)		✓	✓
5.10.2.12.1		+29V	S26-2, S27-9 (S27-11 for RDT)		✓	✓
5.10.2.12.2		-29V	S26-2, S27-10 (S27-12 for RDT)		✓	✓
5.10.2.12.3		-29V	S26-2, S27-10		✓	✓
5.10.2.12.4		SMA HIR +29V	S26-2, S27-9		✓	✓
5.10.2.13.1		Radiometer	S26-3, S27-2		✓	✓
5.10.2.13.2		Radiometer	S27-2		✓	✓
5.10.2.14.1		CDVU	S27-3		✓	✓
5.10.2.14.2		CDVU	S27-3		✓	✓
5.10.2.15.1		Analog +	S27-4		✓	✓
5.10.2.15.2		Analog -	S27-5		✓	✓
5.10.2.15.3		Analog -	S27-5		✓	✓
5.10.2.15.4		Analog +	S27-4		✓	✓
5.10.2.16.1		Electromach.	S27-6		✓	✓
5.10.2.16.2		Electromach.	S27-6		✓	✓
5.10.2.17.1		Outgas output voltage	S26-3, S27-7		✓	✓
5.10.3.1		Bus voltage	S26-1, S27-1 (S27-3 for RDT)		✓	✓
5.10.3.2		MUX load current	S26-3, S27-12	4.130 ± 0.025A	35.03 (49) 35.02 41.28 mV	41.45 mV
5.10.3.3		Bus current	S26-1, S27-2 (S27-4 for RDT)		104.38 (50) 107.39	
5.10.3.3.2		BPS Voltage	S26-1, S27-1 (S27-3)		35.01V	34.99V
5.10.3.3.3		BPS Current	S26-1, S27-2 (S27-4)		104.46	107.35
5.10.3.3.4		MUX Current	S26-3, S27-12		41.27	41.45

ORIGINAL PAGE IS
OF POOR QUALITY



TS 16603
Rev B
18 December 1980

10.4 Performance test (continued)

REF. PARA.	DESCRIPTION	DVM SWITCH POSITIONS	LIMITS	MEASUREMENT	
				PRIMARY	REDUND
5.10.3.4.1	B1 + output voltage	S26-1, S27-5	20.50 \pm 2.50V	<u>20.45</u> (1)	<u>20.76</u>
5.10.3.4.2	B1 + output ripple	Look on Scope	<600 mV pk-pk	<u>20</u>	<u>30</u>
5.10.3.4.3	B1 - output voltage	S26-1, S27-6	-20.50 \pm 2.50V	<u>-20.46</u> (2)	<u>-20.71</u>
5.10.3.4.4	B1 - output ripple	Look on Scope	<600 mV pk-pk	<u>20</u>	<u>30</u>
5.10.3.5.1	B2 + output voltage	S26-1, S27-7	20.50 \pm 2.50V	<u>20.24</u> (3)	<u>20.58</u>
5.10.3.5.2	B2 + output ripple	Look on Scope	<600 mV pk-pk	<u>20</u>	<u>30</u>
5.10.3.5.3	B2 - output voltage	S26-1, S27-8	-20.50 \pm 2.50V	<u>-20.27</u> (4)	<u>-20.51</u>
5.10.3.5.4	B2 - output ripple	Seen on Scope	<600 mV pk-pk	<u>20</u>	<u>30</u>
5.10.3.6.1	B3 + output voltage	S26-1, S27-9	20.50 \pm 2.50V	<u>20.28</u> (5)	<u>20.48</u>
5.10.3.6.2	B3 + output ripple	Seen on Scope	<600 mV pk-pk	<u>20</u>	<u>30</u>
5.10.3.6.3	B3 - output voltage	S26-1, S27-10	-20.50 \pm 2.50V	<u>-20.24</u> (6)	<u>-20.53</u>
5.10.3.6.4	B3 - output ripple	Seen on Scope	<600 mV pk-pk	<u>20</u>	<u>30</u>
5.10.3.7.1	B4 + output voltage	S26-1, S27-11	20.50 \pm 2.50V	<u>20.42</u> (7)	<u>20.76</u>
5.10.3.7.2	B4 + output ripple	Seen on Scope	<600 mV pk-pk	<u>20</u>	<u>30</u>
5.10.3.7.3	B4 - output voltage	S26-1, S27-12	-20.50 \pm 2.50V	<u>-20.45</u> (8)	<u>-20.71</u>
5.10.3.7.4	B4 - output ripple	Seen on Scope	<600 mV pk-pk	<u>20</u>	<u>30</u>
5.10.3.8.1	B5,7 + voltage	S26-2, S27-1	20.50 \pm 2.50V	<u>20.00</u> (9)	<u>20.12</u>
5.10.3.8.2	B5,7 + ripple	Seen on Scope	<600 mV pk-pk	<u>20</u>	<u>30</u>
5.10.3.8.3	B5,7 - voltage	S26-3, S27-2	-20.50 \pm 2.50V	<u>-20.99</u> (10)	<u>-20.15</u>
5.10.3.8.4	B5,7 - ripple	Seen on Scope	<600 mV pk-pk	<u>20</u>	<u>30</u>
5.10.3.9.1	B6 + voltage	S26-2, S27-3	20.50 \pm 2.50V	<u>20.22</u> (11)	<u>20.47</u>
5.10.3.9.2	B6 + ripple	Seen on Scope	<600 mV pk-pk	<u>20</u>	<u>30</u>
5.10.3.9.3	B6 - voltage	S26-2, S27-4	-20.50 \pm 2.50V	<u>-20.23</u> (12)	<u>-20.51</u>
5.10.3.9.4	B6 - ripple	Seen on Scope	<600 mV pk-pk	<u>40</u>	<u>50</u>
5.10.3.10.1	SMA Htr + voltage	S26-2, S27-5	21.20 \pm 2.12V	<u>22.05</u> (13)	<u>22.39</u>
5.10.3.10.2	SMA Htr + ripple	Seen on Scope	<630 mV pk-pk	<u>20</u>	<u>20</u>
5.10.3.10.3	SMA Htr - voltage	S26-2, S27-6	-21.20 \pm 2.12V	<u>-22.57</u> (14)	<u>-22.91</u>
5.10.3.10.4	SMA Htr - ripple	Seen on Scope	<630 mV pk-pk	<u>20</u>	<u>30</u>
5.10.3.11.1	SMA +7V ∇ voltage	S26-2, S27-7 (S27-8 for RDT)	7.10 \pm 0.80V	<u>7.67</u> (15)	<u>7.819</u>
5.10.3.11.2	SMA +7V output ripple	Seen on Scope	<210 mV pk-pk	<u>30</u>	<u>30</u>

ORIGINAL PAGE IS
OF POOR QUALITY



Is 16603
Rev B
18 December 1980

RE 032

10.4 Performance test (continued)

REF. PARA.	DESCRIPTION	TVM SWITCH POSITIONS	LIMITS	MEASUREMENT	
				PRIMARY	REDUNDANT
5.10.3.12.1	SMA +29V output voltage	S26-2, S27-9 (S27-11 for RDT)	29.50 ±1.50V	<u>30.21</u> (16)	<u>30.66</u>
5.10.3.12.2	SMA +29V ripple	Seen on Scope	<870 mV, pk-pk	<u>50</u>	<u>80</u>
5.10.3.12.3	SMA -29V voltage	S26-2, S27-10 (S27-12 for RDT)	-29.50 ±1.50V	<u>-30.20</u> (17)	<u>30.67</u>
5.10.3.12.4	SMA -29V ripple	Seen on Scope	<870 mV pk-pk	<u>60</u>	<u>70</u>
5.10.3.13.1	MTX voltage	S26-3, S27-1	30.00 ±0.90V	<u>29.68</u> (13)	<u>30.26</u>
5.10.3.13.2	MTX ripple	Seen on Scope	<900 mV, pk-pk	<u>100</u>	<u>90</u>
5.10.3.14.1	Radiometer voltage	S26-3, S27-2	8.50 ±0.85V	<u>8.342</u> (14)	<u>8.426</u>
5.10.3.14.2	Radiometer ripple	Seen on Scope	<250 mV pk-pk	<u>20</u>	<u>30</u>
5.10.3.15.1	CDVU voltage	S26-3, S27-3	8.00 ±0.80V	<u>7.459</u> (20)	<u>7.651</u>
5.10.3.15.2	CDVU ripple	Seen on Scope	<60 mV pk-pk	<u>20</u>	<u>30</u>
5.10.3.16.1	Analog + voltage	S26-3, S27-4	21.20 ±2.12V	<u>22.12</u> (21)	<u>22.39</u>
5.10.3.16.2	Analog + ripple	Seen on Scope	<630 mV pk-pk	<u>50</u>	<u>50</u>
5.10.3.16.3	Analog - voltage	S26-3, S27-5	-21.20 ±2.12V	<u>-22.19</u> (22)	<u>-22.46</u>
10.3.16.4	Analog - ripple	Seen on Scope	<630 mV pk-pk	<u>20</u>	<u>30</u>
5.10.3.17.1	Electromech. voltage	S26-3, S27-6	33.40 ±3.34V	<u>32.87</u> (23)	<u>33.42</u>
5.10.3.17.2	Electromech. ripple	Seen on Scope	<1.0V pk-pk	<u>40</u>	<u>60</u>
5.10.3.18.1	Outgas voltage	S26-3, S27-7	100.0 ±12.0V	<u>104.82 V</u>	<u>105.22 V</u>
5.10.3.18.2	Outgas output ripple	Seen on Scope	<3.0V pk-pk	<u>200 mV</u>	<u>250 mV</u>
5.10.4.1	Input current telemetry	S26-4, S28-2 (S28-4 for RDT)		<u>2.923</u>	<u>2.945</u>
5.10.4.2.1	Band 1 + volt. telemetry	S26-4, S28-5		<u>3.737</u>	<u>3.798</u>
5.10.4.2.2	Band 1 -	S28-6		<u>3.726</u>	<u>3.780</u>
5.10.4.3.1	Band 2+	S28-7		<u>3.685</u>	<u>3.748</u>
5.10.4.3.2	Band 2-	S28-8		<u>3.676</u>	<u>3.730</u>
5.10.4.4.1	Band 3+	S28-9		<u>3.692</u>	<u>3.730</u>
5.10.4.4.2	Band 3-	S28-10		<u>3.695</u>	<u>3.749</u>
5.10.4.5.1	Band 4+	S28-11		<u>3.711</u>	<u>3.773</u>
5.10.4.5.2	Band 4-	S26-4, S28-12		<u>3.722</u>	<u>3.779</u>
5.10.4.6.1	Band 5, 7+	S26-5, S28-1		<u>3.646</u>	<u>3.699</u>
5.10.4.6.2	Band 5, 7- volt. telemetry	S26-5, S28-2		<u>3.646</u>	<u>3.667</u>

ORIGINAL PAGE IS
OF POOR QUALITY



TS 16603
Rev B
18 December 1980

10.4 Performance test (continued)

REF. PARA.	DESCRIPTION	DVM SWITCH POSITIONS	LIMITS	MEASUREMENT	
				PRIMARY	REDUNDANT
5.10.4.7.1	Band 6 + volt. telemetry	S26-5, S28-3		<u>3.662</u>	<u>-2.710</u>
5.10.4.7.2	Band 6 -	S28-4		<u>3.695</u>	<u>3.743</u>
5.10.4.8.1	SMA Htr +	S28-5		<u>4.030</u>	<u>4.093</u>
5.10.4.8.2	SMA Htr -	S28-6		<u>4.095</u>	<u>4.155</u>
5.10.4.9	SMA +7V	S26-5, S27-7 (S27-8 for RDT)		<u>4.977</u>	<u>4.968</u>
5.10.4.10.1	SMA +29V	S26-5, S28-9 (S27-11 for RDT)		<u>4.143</u>	<u>4.230</u>
5.10.4.10.2	SMA -29V	S26-5, S28-10 (S27-12 for RDT)		<u>3.553</u>	<u>3.655</u>
5.10.4.11	MUX	S26-6, S28-1		<u>4.252</u>	<u>4.285</u>
5.10.4.12	Radiometer	S26-6, S28-2		<u>4.574</u>	<u>4.619</u>
5.10.4.13	CDVU	S26-6, S28-3		<u>4.188</u>	<u>4.292</u>
5.10.4.14.1	Analog + volt. telemetry	S26-6, S28-4		<u>3.953</u>	<u>4.003</u>
5.10.4.14.2	Analog -	S26-6, S28-5		<u>3.908</u>	<u>3.941</u>
5.10.4.15	Electromech.	S28-6		<u>4.036</u>	<u>4.103</u>
5.10.4.16	Outgas volt. telemetry	S26-6, S28-7		<u>5.24</u>	<u>5.159</u>
5.10.5.1.1	Analog + load current	S26-3, S27-11	mV ÷ 10 = Amps	<u>15.046</u>	<u>15.65</u>
5.10.5.1.2	MUX	S26-3, S27-12	mV ÷ 10 = Amps	<u>41.28</u>	<u>41.45</u>
5.10.5.1.3	Band 1 +	S26-7, S34-1	mV ÷ 0.5 = mA	<u>90.87</u>	<u>92.21</u>
5.10.5.1.4	Band 1 -	S34-2		<u>-91.11</u>	<u>-92.4</u>
5.10.5.1.5	2 +	S34-3		<u>89.83</u>	<u>91.20</u>
5.10.5.1.6	2 -	S34-4		<u>-90.65</u>	<u>-92.52</u>
5.10.5.1.7	3 +	S34-5		<u>90.41</u>	<u>91.25</u>
5.10.5.1.8	3 -	S34-6		<u>-90.25</u>	<u>-91.62</u>
5.10.5.1.9	4 +	S34-7		<u>90.86</u>	<u>92.30</u>
5.10.5.1.10	4 -	S34-8		<u>-90.53</u>	<u>-91.9</u>
5.10.5.1.11	5,7 +	S34-9		<u>89.99</u>	<u>90.5</u>
5.10.5.1.12	5,7 -	S34-10		<u>-89.13</u>	<u>-91.8</u>
5.10.5.1.13	6 +	S34-11		<u>46.99</u>	<u>47.57</u>
5.10.5.1.14	Band 6 -	S26-7, S34-12		<u>-46.71</u>	<u>-47.4</u>
5.10.5.1.15	SMA Htr +	S26-8, S34-1	mV ÷ 0.5 = mA	<u>47.51</u>	<u>48.2</u>
5.10.5.1.16	SMA Htr - load current	S26-8, S34-2	mV = mA	<u>-8.911</u>	<u>-9.04</u>

C-2

81

ORIGINAL PAGE IS
OF POOR QUALITY



TS 16603
Rev B
1980
GEN-2 7-6-81
SCN-3 4/3/81

10.4 Performance test (continued)

REF. PARA.	DESCRIPTION	DWH SWITCH POSITIONS	LIMITS	MEASUREMENT	
				PRIMARY	REDUNDA
5.10.5.1.17	SMA +29V load current	S26-8, S34-3	mV ÷ 0.402 = mA	50.39 (40)	51.11
5.10.5.1.18	SMA -29V	S34-4	mV ÷ 0.402 = mA	-50.14 (41)	-50.9
5.10.5.1.19	SMA +7V	S34-5	V ÷ 0.1 = Amps	280.8 (42)	266.
5.10.5.1.20	Analog -	S34-6	mV ÷ 0.402 = mA	-265.7 (43)	-261
5.10.5.1.21	Radiometer	S34-9	mV ÷ 0.5 = mA	149.45 (44)	150.9
5.10.5.1.22	CDVU	S34-10	mV ÷ 0.5 = mA	267.1 (45)	274
5.10.5.1.23	Electromech. load current	S26-8, S34-11	mV ÷ 0.402 = mA	209.2 (46)	212.
5.10.5.2.1	Bus power supply voltage	S26-1, S27-1 (S27-3 for RDT)		35.00 (47)	35.0
5.10.5.2.2	Bus input current	S26-1, S27-2 (S27-4 for RDT)	mV ÷ 10 = Amps	102.35 (48)	107.1
5.10.5.2.3	P _{IN} (Section 5.10.5)			365.225	375.
5.10.5.2.4	P _{IN} (Section 5.10.3)			365.643	376.0
5.10.5.2.5	P _{IN} (avg)			365.434	375.5
5.10.5.2.9	Input current at current limit		26-1, 27-2 (26-1 27-4 Rdt)	119.57	126.
	Input voltage at current limit		27-1 (27-3 Rdt)	34.83	34.8
	MUX voltage at current limit		26-3, 27-1	30.07V	30.11
	MUX current at current limit		27-12	50.35 _{AVG}	54.0
5.10.5.3.1	P _{OUT}			267.602	274.6
5.10.5.3.2	Efficiency		> 70%	73.72	73.4

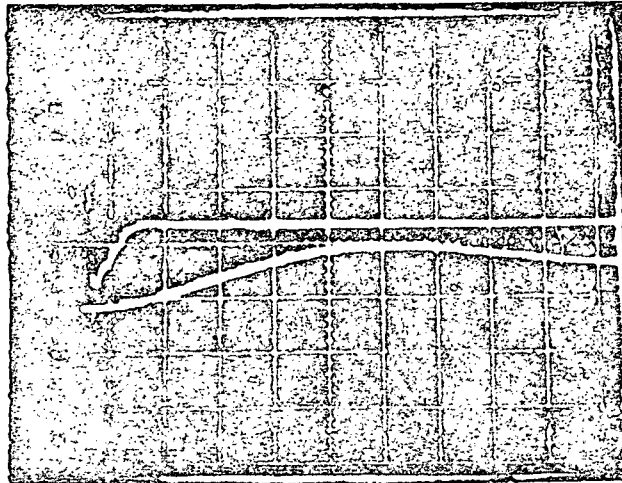
ORIGINAL PAGE IS
OF POOR QUALITY



TS 16603
Rev B
18 December 1980

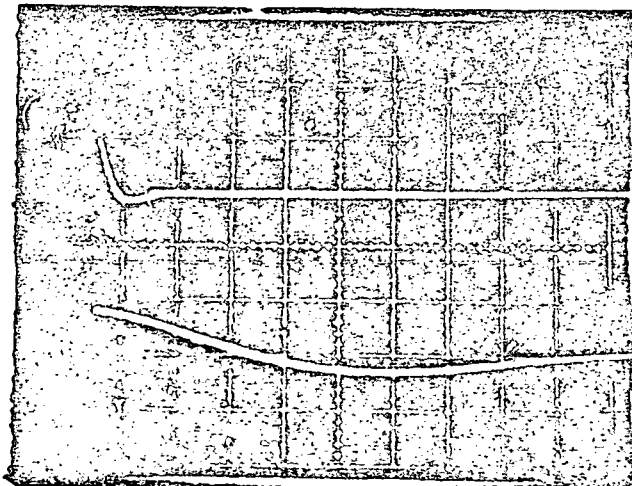
10.4 Performance test (continued)

REF. PARA.	DESCRIPTION	DVM SWITCH POSITIONS	LIMITS	MEASUREMENT	
				PRIMARY	REDUND
5.10.6.1	+7V output pulsed	S26-2, S27-7 (S27-8 for RDT)	7.10 \pm 0.80V	<u>7.037</u>	<u>7.19</u>
5.10.6.2	Photograph of transients induced on input bus current and SMA +7V output voltage as SMA +7V output is being pulse-loaded-PRIMARY SIDE				



(0.2A) CURRENT/DIV: Same A
(1V) VOLTAGE/DIV: "
(200uS) SWEEP RATE: "

5.10.6.2 Photograph of transients induced on input bus current and SMA +7V output voltage as pulse-load on SMA +7V outputs is being removed - PRIMARY SIDE



(0.2A) CURRENT/DIV: Same A
(1V) VOLTAGE/DIV: "
(200uS) SWEEP RATE: "

ORIGINAL PAGE IS
OF POOR QUALITY



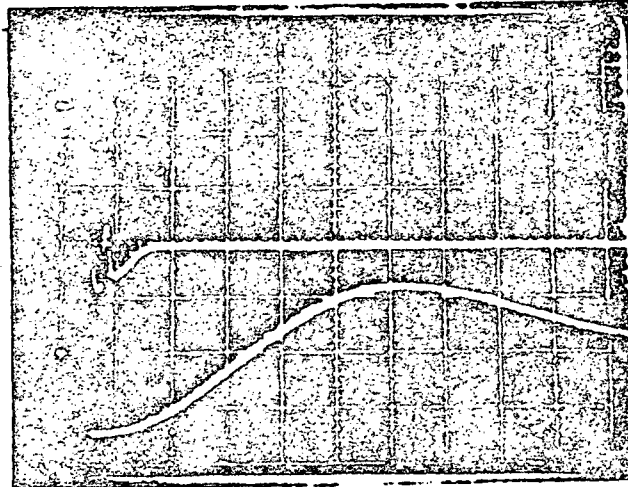
TS 16603
Rev B
18 December 1980

AS: JZ

10.4 Performance test (continued)

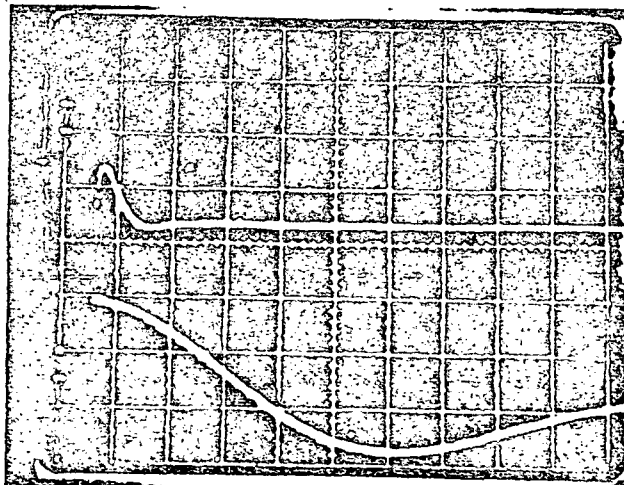
REF. PARA. _____ DESCRIPTION _____

5.10.6.2 Photograph of transients induced on input bus current and SMA +7V output voltage as SMA +7V output is being pulse-loaded-REDUNDANT SIDE



(0.2A) CURRENT/DIV: 0.2A
(1V) VOLTAGE/DIV: 2V
(200 μ S) SWEEP RATE: 200 μ S

5.10.6.2 Photograph of transients induced on input bus current and SMA +7V output voltage as pulse-load is being removed-REDUNDANT SIDE



(0.2A) CURRENT/DIV: 0.2A
(1V) VOLTAGE/DIV: 2V
(200 μ S) SWEEP RATE: 200 μ S

84

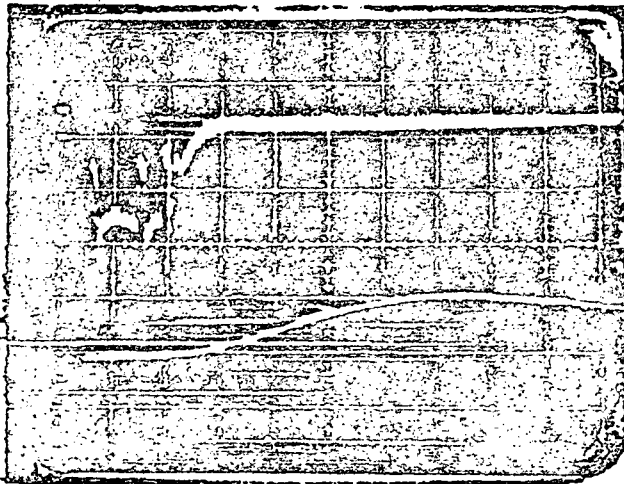
ORIGINAL PAGE IS
OF POOR QUALITY

HAC
TEST
930
R3032

TS 16603
- Rev B
~~20 December 1980~~
Sub 2 P-81

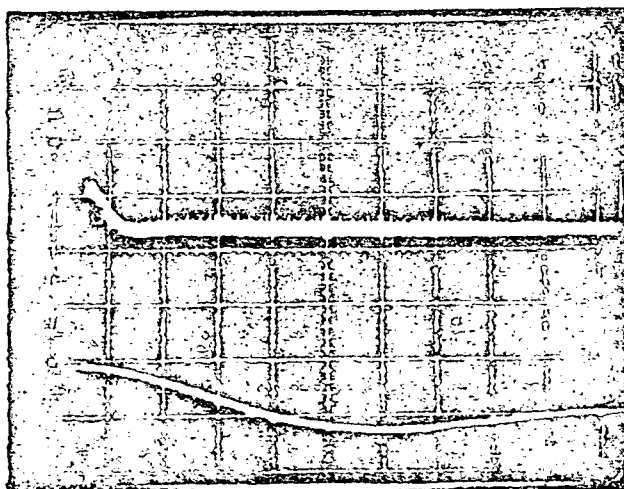
10.4 Performance test (continued)

REF. PARA.	DESCRIPTION	DVM SWITCH POSITIONS	LIMITS	MEASUREMENT	
				PRIMARY	REDUNDA
5.10.6.3	Input bus current	S26-1, S27-2 (S27-4 for RDT)		109.07	111.82
5.10.6.4	SMA +7V IM- pulsed	S26-5, S28-7 (S28-8 for RDT)		4.551	4.695
5.10.6.5	SMA +7V load current- pulsed	(S26-8, S34-5)		472.2 μ V	483.8
5.10.6.6	Photograph of transients induced on input bus current and SMA +7V load current as SMA +7V output is being pulse-loaded-PRIMARY SIDE				



(1A) SMA CURRENT/DIV: .1V
 (1A) BUS CURRENT/DIV: 200 μ V
 (200ns) SWEEP RATE: 200 μ s
 * Using 0.1 μ A shunt and
 100 μ V/Div on scope

5. Photograph of transients induced on input bus current and SMA +7V load current as pulse-load is being removed-PRIMARY SIDE



(1A) SMA CURRENT/DIV: .1V
 (1A) BUS CURRENT/DIV: 200 μ V
 (200ns) SWEEP RATE: 200 μ s
 * Using 0.1 μ A shunt and
 100 μ V/Div on Scope

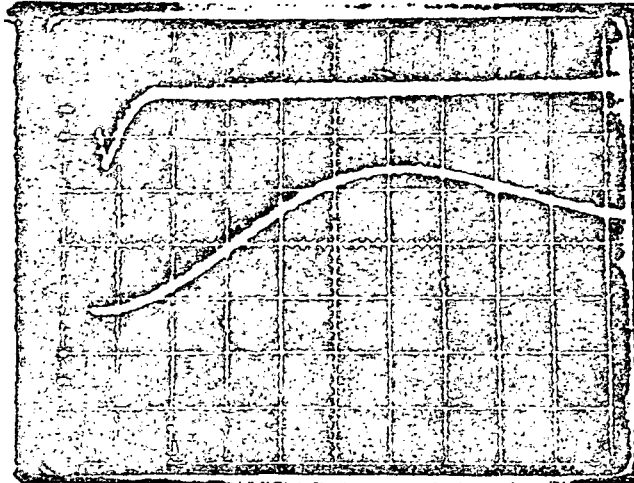
ORIGINAL PAGE IS
OF POOR QUALITY

HAC
TEST
S30
RE: 372

TS 16603
Rev B
~~18 December 1980~~
Feb-8 7-6-81

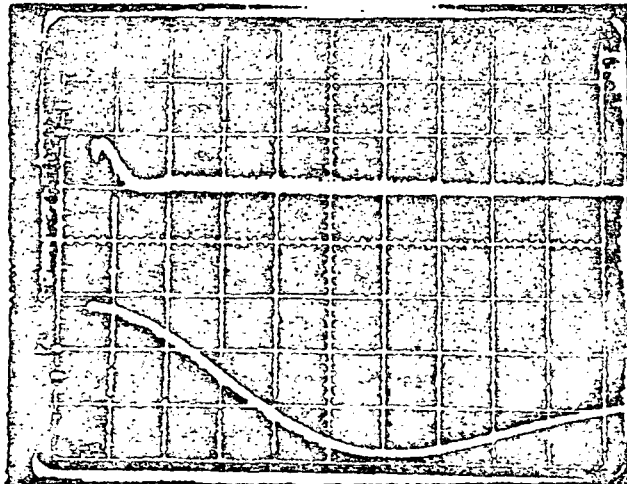
10.4 Performance test (continued)

REF. PARA.	DESCRIPTION
5.10.6.6	Photograph of transients induced on input bus current and SMA + 7V load current as SMA + 7V output is being pulse loaded - REDUNDANT SIDE



(1A)* SMA CURRENT/DIV: $100\text{mA}/\text{Div}$
(2A) BUS CURRENT/DIV: $2\text{A}/\text{Div}$
(200 μs) SWEEP RATE: $200\mu\text{s}/\text{Div}$
Using 0.1 Ω shunt and 100 mA/Div on scope.

5.10.6.6 Photograph of transients induced on input bus current and SMA + 7V load current as pulse-load is removed - REDUNDANT SIDE



(1A)* SMA CURRENT/DIV: $100\text{mA}/\text{Div}$
(2A) BUS CURRENT/DIV: $2\text{A}/\text{Div}$
(200 μs) SWEEP RATE: $200\mu\text{s}/\text{Div}$
Using 0.1 Ω shunt and 100 mA/Div on scope.

86

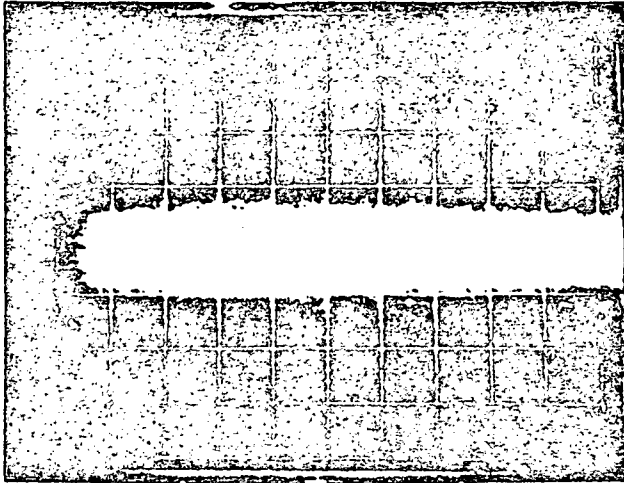
ORIGINAL PAGE IS
OF POOR QUALITY



TS 1603
Rev B
18 December 1980

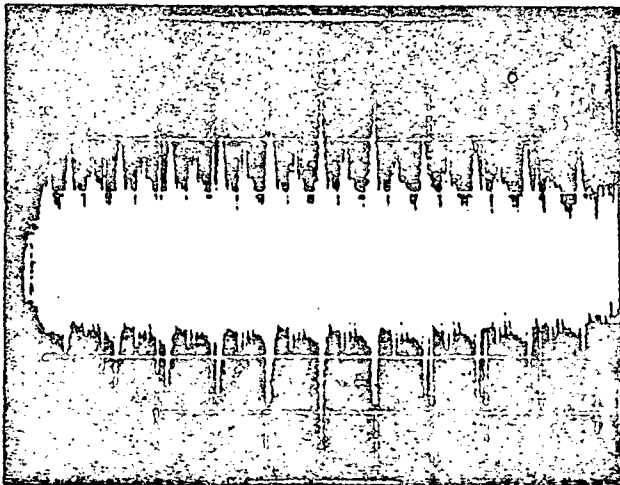
10.4 Performance test (continued)

REF. PARA.	DESCRIPTION
5.10.7.1	Photograph of reflected input current ripple - PRIMARY SIDE



(1mA) CURRENT/DIV: 1mA A.C.
(10uS) SWEEP RATE: 10uS/div

5.10.7.1 Photograph of reflected input current ripple - REDUNDANT SIDE



(1mA) CURRENT/DIV: 2mA A.C.
(10uS) SWEEP RATE: 10uS/div

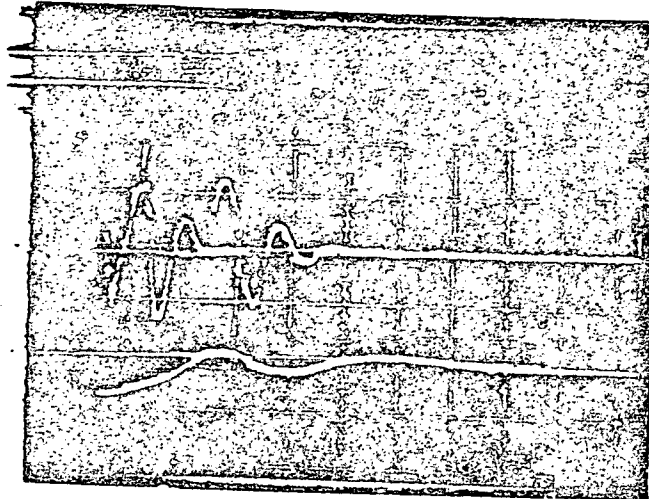
5.10.8.1.1 Input current - full load S26-1, S27-2
(S27-4 for RDT)

5.10.8.1.2 Input current w/o analog load Same

5.10.8.1.3 Photograph of transients induced on input bus current and analog + voltage ; analog output is enabled - PRIMARY SIDE

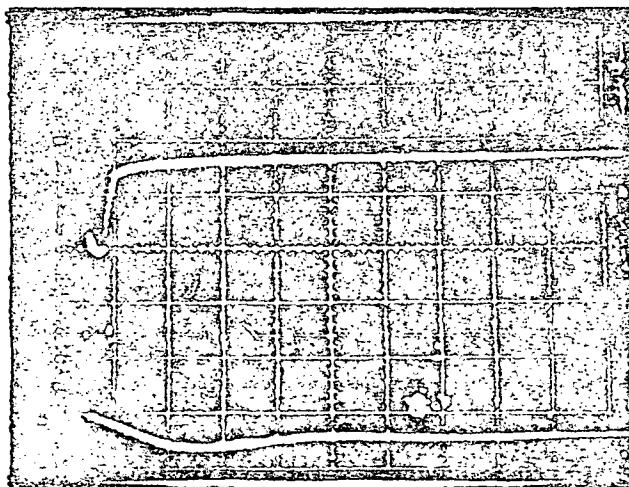


109.26 106
83.97 86



(2V) VOLTAGE/DIV: Same
(1A) CURRENT/DIV: 11
(500ns) SWEEP RATE: 11

5.10.8.1.3 Photograph of transients induced on input bus current and analog + voltage as analog output is disabled - PRIMARY SIDE



(5V) VOLTAGE/DIV: 10
(1A) CURRENT/DIV: 11
(1ms) SWEEP RATE: 11

ORIGINAL PAGE IS
OF POOR QUALITY

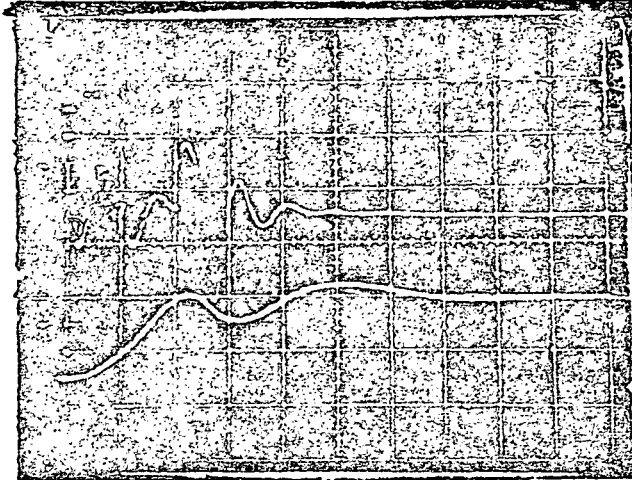
ORIGINAL PAGE IS
OF POOR QUALITY



T5 16603
Rev B
18 December 1980

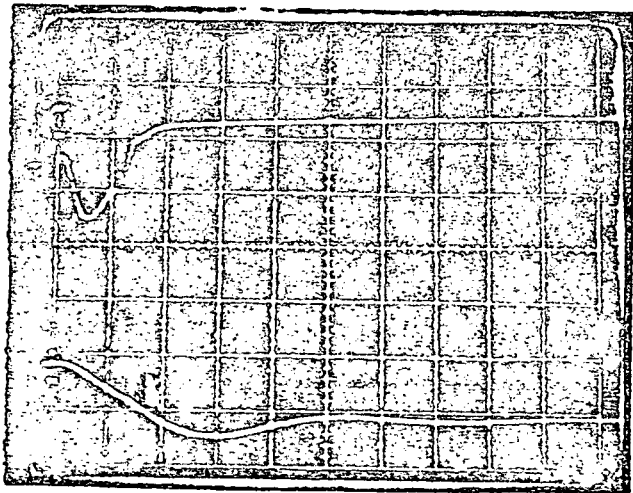
10.4 Performance test: (continued)

REF. PARA.	DESCRIPTION
5.10.8.1.3	Photograph of transients induced on input bus current and analog + output voltage as analog output is enabled - REDUNDANT SIDE.



ANALOG OUTPUT
BUS I
(2V) VOLTAGE/DIV: 2V/DIV
(1A) CURRENT/DIV: 1A/DIV
(500us) SWEEP RATE: 500us/div

5.10.8.1.3	Photograph of transients induced on input bus current and analog - output voltage as analog output is disabled - REDUNDANT SIDE.
------------	--



ANALOG OUTPUT
BUS I
(5V) VOLTAGE/DIV: 2V/DIV
(1A) CURRENT/DIV: 1A/DIV
(1ms) SWEEP RATE: 500us/div

ORIGINAL PAGE IS
OF POOR QUALITY

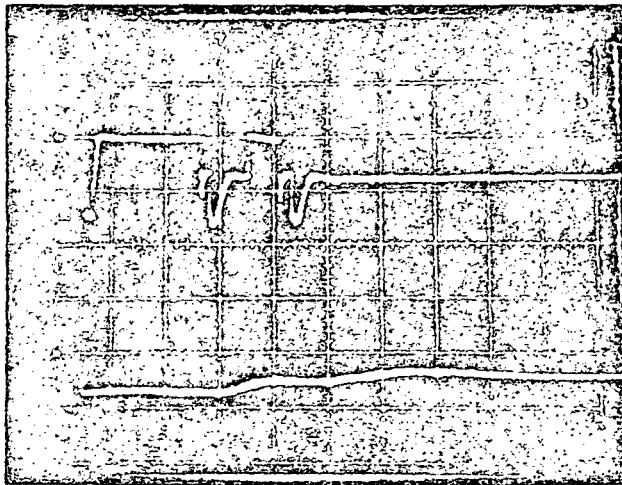


FEB 2 1982

TS 16603
Rev B
18 December 1980

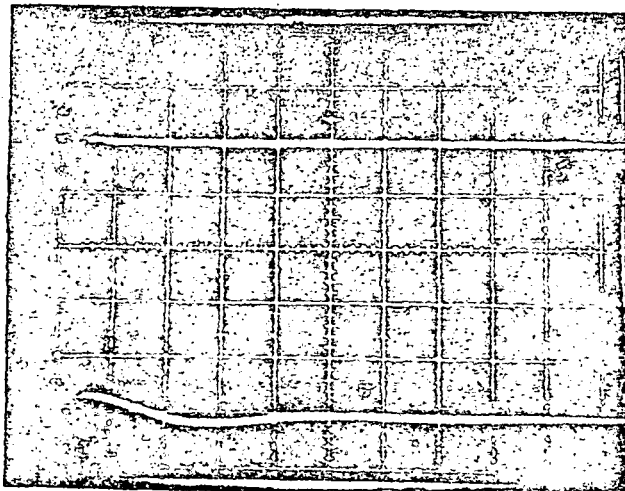
10.4 Performance test (continued)

EF. PARA.	DESCRIPTION	DVM SWITCH POSITIONS	LIMITS	MEASUREMENT	
				PRIMARY	REDUNDA
5.10.8.2.1	Input bus current w/o SMA +7V load	S26-1, S27-2 (S27-4 for RDT)		95.06	97.1
5.10.8.2.2	Photograph of transients induced on input bus current and SMA +7V output voltage as SMA +7V is enabled - PRIMARY SIDE.				



(5V) VOLTAGE/DIV: 5V
(1A) CURRENT/DIV: 1A
(200ns) SWEEP RATE: 500ns

5.10.8.2.2 Photograph of transients induced on input bus current and SMA +7V output voltage as SMA +7V is disabled - PRIMARY SIDE.



(2V) VOLTAGE/DIV: 5V
(1A) CURRENT/DIV: 1A
(2ns) SWEEP RATE: 500ns

90

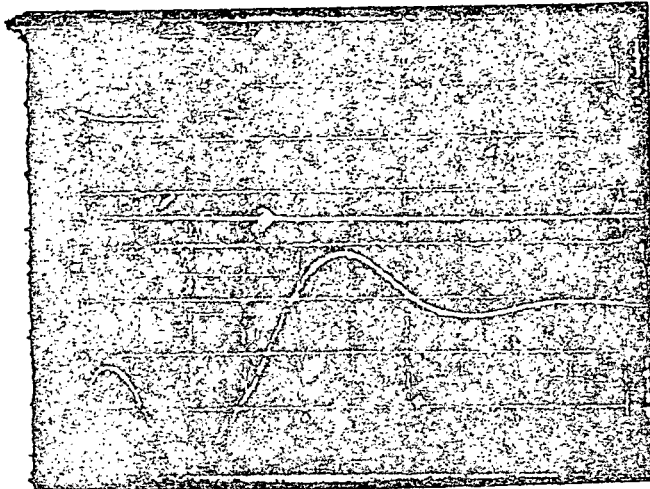
ORIGINAL PAGE IS
OF POOR QUALITY

WAC
TEST
S30
FEB 0 3 '82

TS 16603
Rev B
18 December 198

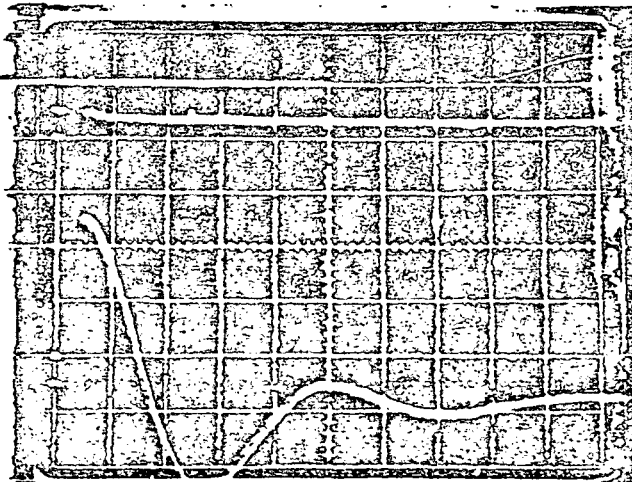
10.4 Performance test (continued)

REF. PARA.	DESCRIPTION
5.10.8.2.2	Photograph of transients induced on input bus current and SMA +7 output voltage as SMA +7V is enabled - REDUNDANT SIDE



(5V) VOLTAGE/DIV: 2V/DIV
(1A) CURRENT/DIV: 0.2A/DIV
(200 μ S) SWEEP RATE: 500 μ S

5.10.8.2.2 Photograph of transients induced on input bus current and SMA +7V output voltage as SMA +7V is disabled - REDUNDANT SIDE



(2V) VOLTAGE/DIV: 2V/DIV
(1A) CURRENT/DIV: 0.2A/DIV
(200 μ S) SWEEP RATE: 500 μ S

91

ORIGINAL PAGE IS
OF POOR QUALITY

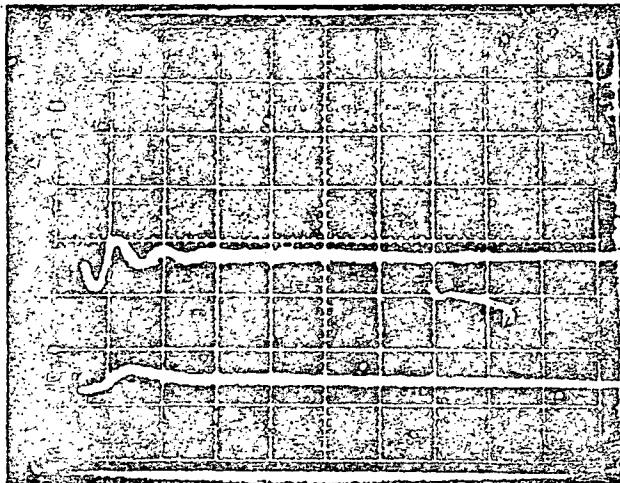


TS 16603
Rev B
18 December 19

10.4 Performance test (continued)

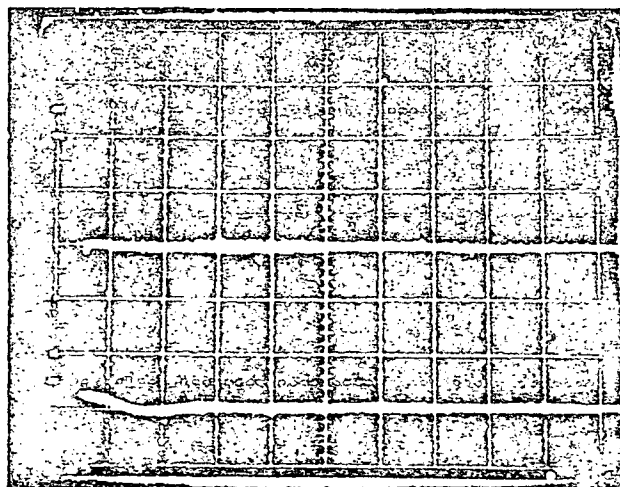
10-352

REF. PARA.	DESCRIPTION	DVM SWITCH POSITIONS	LIMITS	MEASUREMENT	
				PRIMARY	REDUND
5.10.8.2.3	Input bus current w/o SMA +29V load	S26-1, S27-2 (S27-4 for RDT)		101.18	103
5.10.8.2.4	Photograph of transients induced on input bus current and SMA +29V output voltage as SMA +29V is enabled - PRIMARY SIDE				



(2V) VOLTAGE/DIV: 5V
(0.5A) CURRENT/DIV: 0.5
(1mS) SWEEP RATE: 1msec

5.10.8.2.4 Photograph of transients induced on input bus current and SMA +29V output voltage as SMA +29V is disabled - PRIMARY SIDE



(2V) VOLTAGE/DIV: 5V
(0.5A) CURRENT/DIV: 0.5
(1mS) SWEEP RATE: 1msec

92

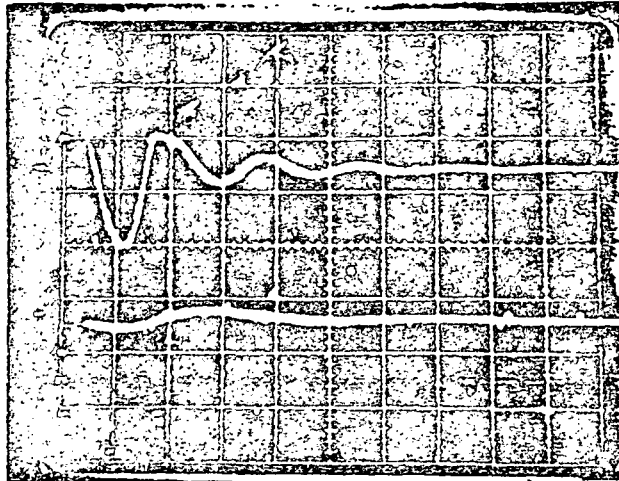
ORIGINAL PAGE IS
OF POOR QUALITY



TS 16603
Rev B
18 December 1980

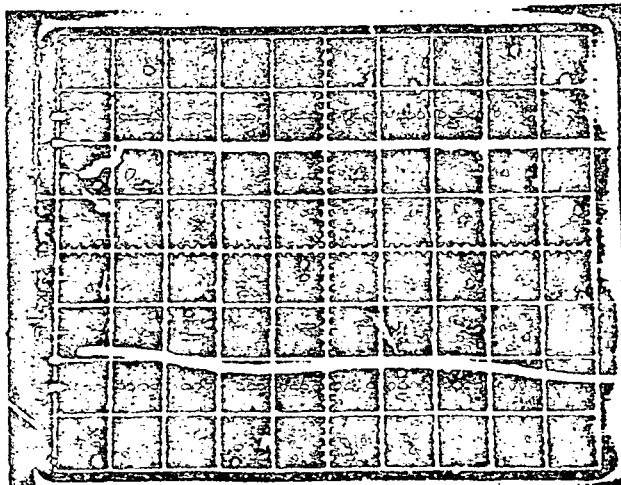
10.4 Performance test (continued)

CF. PARA.	DESCRIPTION
5.10.8.2.4	Photograph of transients induced on input bus current and SMA +29V output voltage as SMA +29V is enabled - REDUNDANT SIDE



(2V) VOLTAGE/DIV: 2V/DIV
(0.5A) CURRENT/DIV: 0.5A
(1mS) SWEEP RATE: 500ns

5.10.8.2.4 Photograph of transients induced on input bus current and SMA +29V output voltage as +29V is disabled - REDUNDANT SIDE



(2V) VOLTAGE/DIV: 2V
(0.5) CURRENT/DIV: 0.5A
(1mS) SWEEP RATE: 500ns

ORIGINAL PAGE IS
OF POOR QUALITY

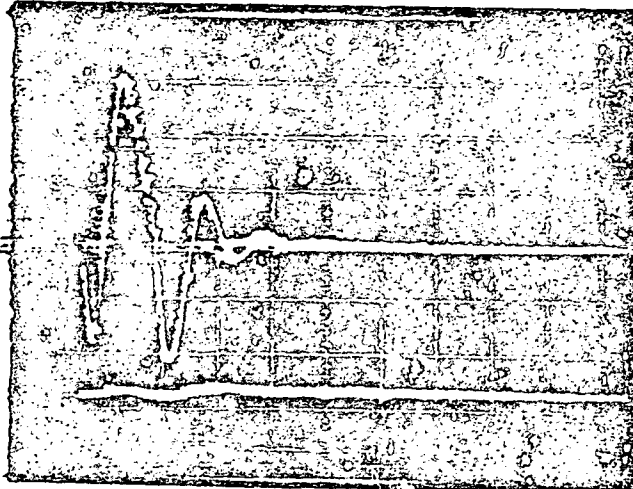


TS 16603
Rev B
18 December 1981

10.4 Performance test (continued)

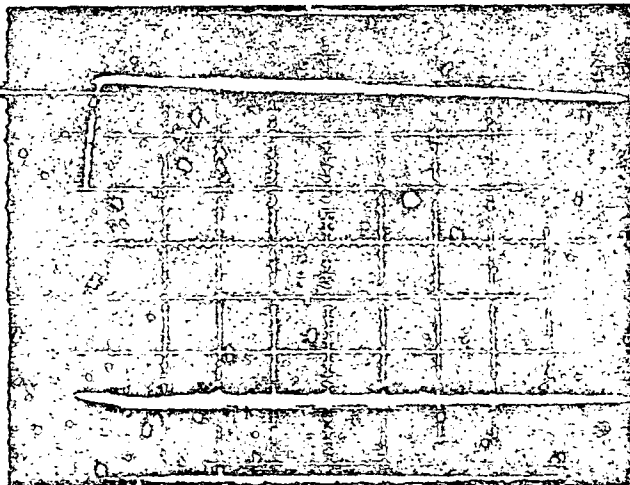
RES 0392

TEST PARA.	DESCRIPTION	DVM SWITCH POSITIONS	LIMITS	MEASUREMENT	
				PRIMARY	REDUNDA
5.10.8.3.1	Input bus current w/o CDVU load	S26-1, S27-2 (S27-4 for RDT)		102.73	104.91
5.10.8.3.2	Photograph of transients induced on input bus current and CDVU output				



Same
(2V) VOLTAGE/DIV: _____
(0.5A) CURRENT/DIV: 11
(1ms) SWEEP RATE: 11

10.8.3.2 Photograph of transients induced on input bus current and CDVU output voltage as CDVU is disabled - PRIMARY SIDE



(2V) VOLTAGE/DIV: SAME
(0.5A) CURRENT/DIV: "
(1ms) SWEEP RATE: "

94

ORIGINAL PAGE IS
OF POOR QUALITY

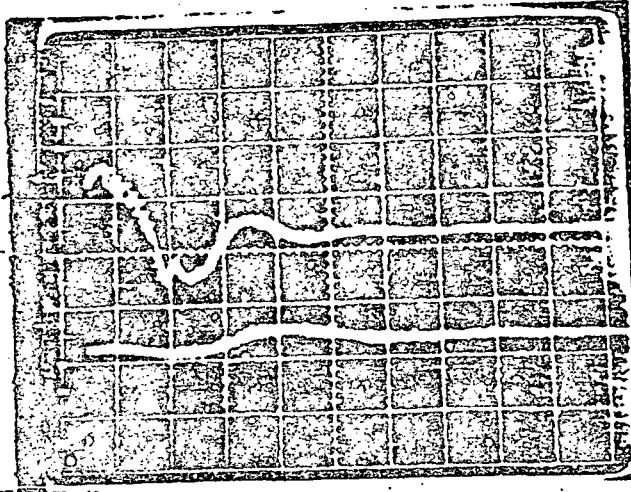


FEB 9 1982

TS 16603
Rev B
18 December 1980

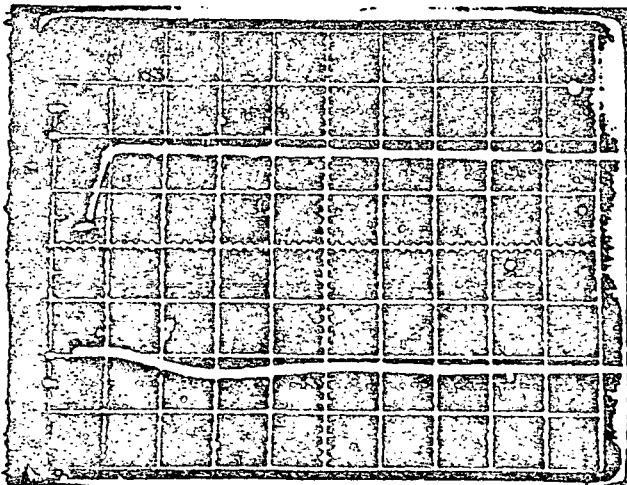
10.4 Performance test (continued)

LP. PARA.	DESCRIPTION
5.10.8.3.2	Photograph of transients induced on input bus current and CDVU output voltage as CDVU is enabled - REDUNDANT SIDE



(2V) VOLTAGE/DIV: 2V
(0.5A) CURRENT/DIV: 0.5A
(1μS) SWEEP RATE: 500μS/DIV.

5.10.8.3.2 Photograph as transients induced on input bus current and CDVU output voltage as CDVU is disabled - REDUNDANT SIDE



(2V) VOLTAGE/DIV: 2V
(0.5A) CURRENT/DIV: 0.5A
(1μS) SWEEP RATE: 500μS/DIV.

ORIGINAL PAGE IS
OF POOR QUALITY



TS 16603
Rev B
18 December 1980

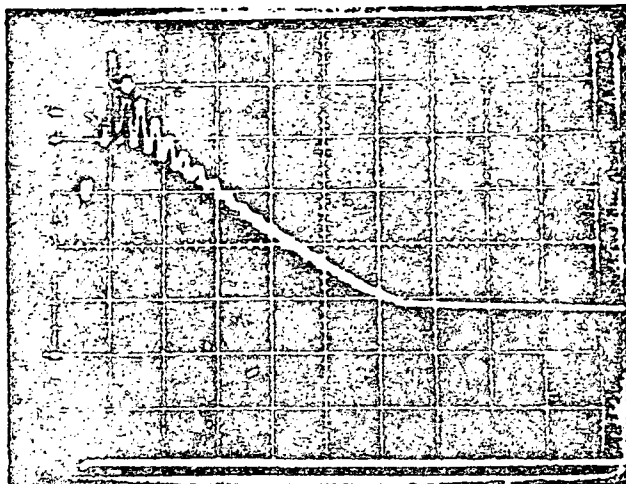
10.4 Performance test (continued)

FEB 2 1982

REF. PARA.

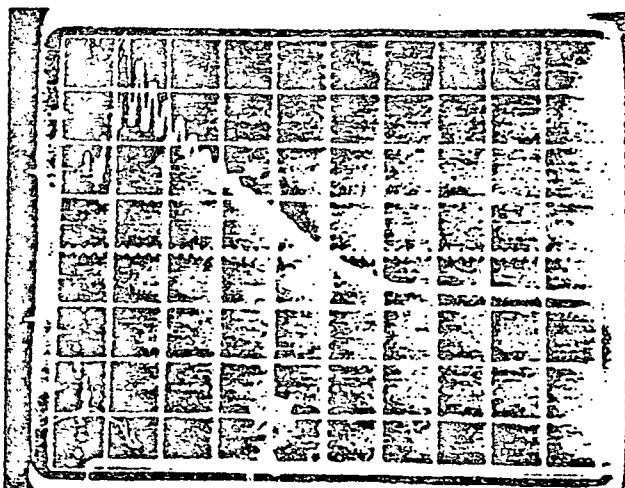
DESCRIPTION

5.10.9.1 Photograph of turn-off transient of input bus voltage and input bus current as bus voltage is removed - PRIMARY SIDE



Same
(5V) VOLTAGE/DIV: 1"
(5A) CURRENT/DIV: 1"
(500ns) SWEEP RATE: 1"

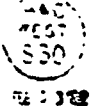
Photograph of turn-off transient of input bus voltage and input bus current as bus voltage is removed - REDUNDANT SIDE



(5V) VOLTAGE/DIV: 5V
(5A) CURRENT/DIV: 5A
(500ns) SWEEP RATE: 500ns

96

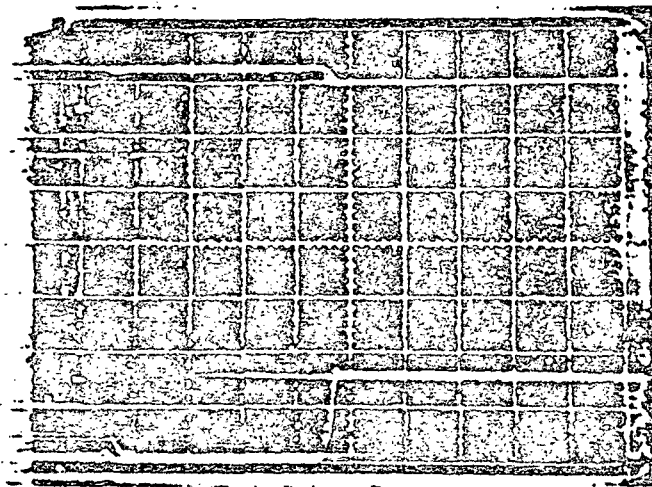
ORIGINAL PAGE IS
OF POOR QUALITY



TS 16603
Rev B
18 December 1980

10.4 Performance test (continued)

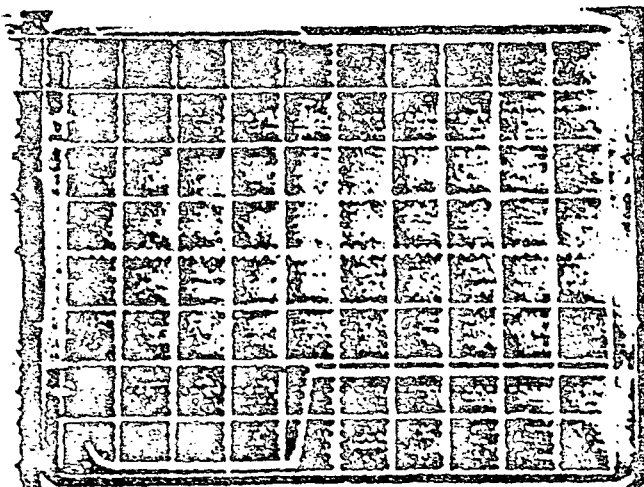
REF. PARA.	DESCRIPTION	DVM SWITCH POSITIONS	LIMITS	MEASUREMENT	
				PRIMARY	REDUNDANT
5.10.9.2	UUT stays off when bus is reapplied.	S1-ON (S2-ON for RDT)	-	✓	✓
5.10.9.3	Photograph of turn-on transient of bus voltage and current as ON command is issued - PRIMARY SIDE				



Same

(5V) VOLTAGE/DIV: 11
 (5A) CURRENT/DIV: 11
 (100ms) SWEEP RATE: 11

5.10.9.3 Photograph of turn-on transient of bus voltage and current as ON command is issued - REDUNDANT SIDE



(5V) VOLTAGE/DIV: 5V
 (5A) CURRENT/DIV: 5A
 (100ms) SWEEP RATE: 10ms

97

ORIGINAL PAGE IS
OF POOR QUALITY

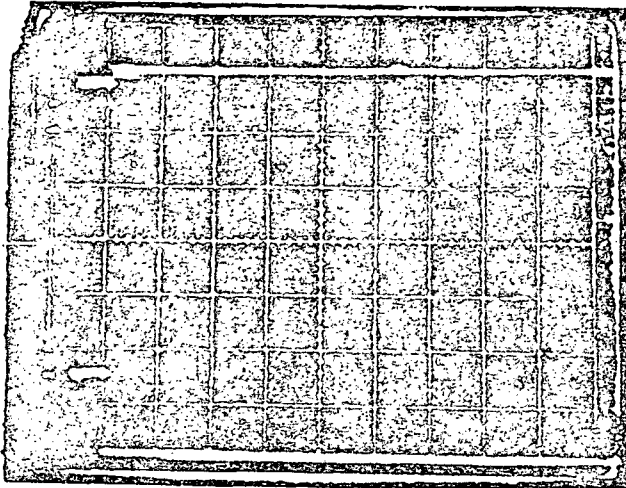


TS 16603
Rev B
18 December 1980

10.4 Performance test (continued)

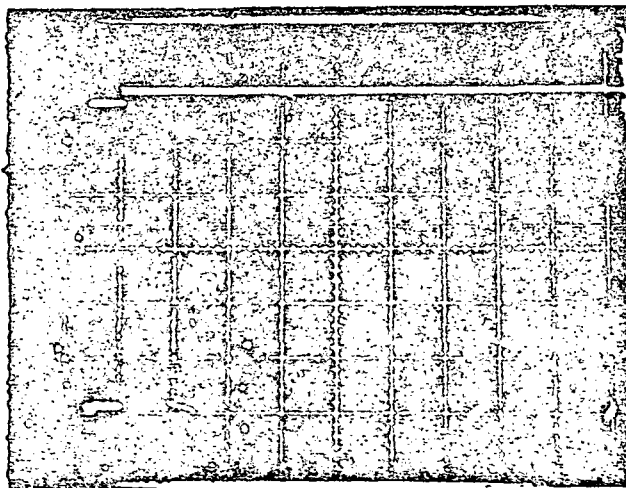
EF. PARA. DESCRIPTION

5.10.9.4 Photograph of turn-off transient of input bus voltage and current as OFF command is issued - PRIMARY SIDE



Same
(5V) VOLTAGE/DIV: 11
(5A) CURRENT/DIV: 11
(10ms) SWEEP RATE: 11

5.10.9.4 Photograph of turn-off transient of input bus voltage and current as OFF command is issued - REDUNDANT SIDE



(5V) VOLTAGE/DIV: 5V
(5A) CURRENT/DIV: 5A
(10ms) SWEEP RATE: 10ms/Sec

98

ORIGINAL PAGE IS
OF POOR QUALITY



TS.16603
Rev B
18 December 198

10.4 Performance test (continued)

REF. PARA.	DESCRIPTION	DVM SWITCH POSITIONS	LIMITS	PRIMARY	REDUND
5.10.9.5	Record	S27-2 (S27-4)		<u>107.08</u>	<u>107.1</u>
5.10.9.6	Record	(S27-4 (S27-2)		<u>87.35</u>	<u>87.4</u>
	Record	S27-2 (S27-4)		<u>26.29</u>	<u>26.6</u>
5.10.9.7	Record that UUT turns on.	(Checkmark)		<u>✓</u>	<u>✓</u>
5.10.10.1	Input bus current AFTER it reads ~ 17A AND input bus voltage reads ~ 21V.	S26-1, S27-2 (S27-4 for RDT)		<u>120.50</u>	<u>120.3</u>
5.10.10.2	Input bus voltage with 17.0A load	S26-1, S27-1 (S27-3 for RDT)		<u>35.03</u>	<u>34.9</u>
5.10.10.3	Input current telemetry output	S26-4, S28-2 (S28-4 for RDT)		<u>3356</u>	<u>3379</u>
5.10.10.4	Input current telemetry output	S26-4, S28-2 (S28-4 for RDT)		<u>DNA</u>	<u>DNA</u>
	Input bus voltage	S26-1, S27-1 (S27-3 for RDT)		<u>DNA</u>	<u>DNA</u>
	Input bus current	S26-1, S27-2 (S27-4 for RDT)		<u>DNA</u>	<u>DNA</u>
5.10.10.5	Input current telemetry output	S26-4, S28-2 (S28-4 for RDT)		<u>3.012</u>	<u>3.04</u>
	Input bus voltage	S26-1, S27-1 (S27-3 for RDT)		<u>35.05</u>	<u>35.0</u>
	Input bus current	S26-1, S27-2 (S27-4 for RDT)		<u>108.97</u>	<u>110.0</u>
5.10.10.6	Input current telemetry output	S26-4, S28-2 (S28-4 for RDT)		<u>2.526</u>	<u>2.54</u>
	Input bus voltage	S26-1, S27-1 (S27-3 for RDT)		<u>35.07</u>	<u>35.0</u>
	Input bus current	S26-1, S27-2 (S27-4 for RDT)		<u>94.72</u>	<u>96.0</u>
5.10.10.7	Input current telemetry output	S26-4, S28-2 (S28-4 for RDT)		<u>2.010</u>	<u>2.0</u>
	Input bus voltage	S26-1, S27-1 (S27-3 for RDT)		<u>34.96</u>	<u>35.1</u>
	Input bus current	S26-1, S27-2 (S27-4 for RDT)		<u>83.26</u>	<u>77.1</u>

ORIGINAL PAGE IS
OF POOR QUALITY



TS 16603
Rev B
18 December 1980

10.4 Performance test (continued)

TS 1372

REF. PARA.	DESCRIPTION	DVM SWITCH POSITIONS	LIMITS	MEASUREMENT	
				PRIMARY	REDUNDANT
5.10.10.8	Input current telemetry output	S26-4, S28-2 (S28-4 for RDT)		<u>1.497</u>	<u>1.4865</u>
	Input bus voltage	S26-1, S27-1 (S27-3 for RDT)		<u>35.01</u>	<u>35.02</u>
	Input bus current	S26-1, S27-2 (S27-4 for RDT)		<u>63.24mV</u>	<u>59.88</u>
5.10.10.9	Input current telemetry output	S26-4, S28-2 (S28-4 for RDT)		<u>1.0092</u>	<u>0.9392</u>
	Input bus voltage	S26-1, S27-1 (S27-3 for RDT)		<u>35.00</u>	<u>35.02</u>
	Input bus current	S26-1, S27-2 (S27-4 for RDT)		<u>41.22mV</u>	<u>42.46</u>
5.10.10.10	Input current telemetry output	S26-4, S28-2 (S28-4 for RDT)		<u>5986V</u>	<u>0.4824</u>
	Input bus voltage	S26-1, S27-1 (S27-3 for RDT)		<u>34.99V</u>	<u>35.00</u>
	Input bus current	S26-1, S27-2 (S27-4 for RDT)		<u>32.06mV</u>	<u>27.95mV</u>
5.10.10.11	Input current telemetry output	S26-4, S28-2 (S28-4 for RDT)		<u>0.2215</u>	<u>0.2360</u>
	Input bus voltage	S26-1, S27-1 (S27-3 for RDT)		<u>34.99</u>	<u>35.02</u>
	Input bus current	S26-1, S27-2 (S27-4 for RDT)		<u>25.31</u>	<u>25.88mV</u>
5.10.10.12	Input current telemetry output	S26-4, S28-2 (S28-4 for RDT)		<u>-220.7mV</u>	<u>-242.2</u>
	Input bus voltage	S26-1, S27-1 (S27-3 for RDT)		<u>35.03</u>	<u>35.03</u>
	Input bus current	S26-1, S27-2 (S27-4 for RDT)		<u>13.588mV</u>	<u>11.095mV</u>
5.10.11.1	Band 1+ output voltage	S26-1, S27-5		<u>24.13</u>	<u>24.76</u>
5.10.11.2	Band 1- output voltage	S27-6		<u>-24.33</u>	<u>-24.15</u>
5.10.11.3	2+	S27-7		<u>24.40</u>	<u>23.80</u>
5.10.11.4	2-	S27-8		<u>-24.40</u>	<u>-24.30</u>
5.10.11.5	3+	S27-9		<u>25.91</u>	<u>24.31</u>
5.10.11.6	3-	S27-10		<u>-23.36</u>	<u>-23.98</u>
5.10.11.7	Band 4+ output voltage	S26-1, S27-11		<u>24.75</u>	<u>24.63</u>

ORIGINAL PAGE IS
OF POOR QUALITY



TS 16603
Rev B
~~18 December 1986~~
Rev. 2 8-6-81

10.4 Performance test (continued)

FB 3 '82

REF. PARA.	DESCRIPTION	DVM SWITCH POSITIONS	LIMITS	MEASUREMENT	
				PRIMARY	REDUNDANT
5.10.11.8	Band 4- output voltage	S26-1, S27-12		<u>-24.28</u>	<u>-24.25</u>
5.10.11.9	5,7+	S26-2, S27-1		<u>23.35</u>	<u>23.92</u>
5.10.11.10	5,7-	S27-2		<u>-23.30</u>	<u>-23.68</u>
5.10.11.11	6+	S27-3		<u>22.90</u>	<u>23.57</u>
5.10.11.12	Band 6-	S27-4		<u>-23.56</u>	<u>-23.87</u>
5.10.11.13	SMA Htr +	S27-5		<u>24.60</u>	<u>25.03</u>
5.10.11.14	Htr -	S27-6		<u>-24.60</u>	<u>-24.90</u>
5.10.11.15	+7V	S27-7		<u>11.206V</u>	N/A
5.10.11	+7V	(S27-8 For RDT)		N/A	<u>11.432V</u>
5.10.11	+29V	S27-9		<u>31.24V</u>	N/A
5.10.11	+29V	(S27-11 For RDT)		N/A	<u>31.42V</u>
5.10.11	▽ -29V	S27-10		<u>-31.50</u>	N/A
	SMA -29V	S26-2, (S27-12 for RDT)		N/A	<u>-31.28V</u>
5.10.11.18	Radiometer	S26-3, S27-2		<u>9.442</u>	<u>9.313</u>
5.10.11.19	CDVU	S27-3		<u>9.647</u>	<u>9.547</u>
5.10.11.20	Analog +	S27-4		<u>26.38</u>	<u>26.66</u>
5.10.11.21	Analog -	S27-5		<u>-24.97</u>	<u>-24.72</u>
5.10.11.22	Electromech.	S27-6		<u>44.55</u>	<u>44.02</u>
5.10.11.23	Outgas	S27-7		<u>103.08V</u>	<u>101.31</u>
5.10.11.24	Parasitic	S27-9		<u>30.87V</u>	N/A
	Parasitic output voltage	S26-3, (S27-10 for RDT)		N/A	<u>31.64V</u>
5.10.11.25	Band 1+ IM output	S26-4, S28-5		<u>4.202</u>	<u>4.527</u>
5.10.11.26	1-	S28-6		<u>4.429</u>	<u>4.395</u>
5.10.11.27	2+	S28-7		<u>4.436</u>	<u>4.336</u>
5.10.11.28	2-	S28-8		<u>4.420</u>	<u>4.399</u>
5.10.11.29	3+	S28-9		<u>4.676</u>	<u>4.410</u>
5.10.11.30	3-	S28-10		<u>4.256</u>	<u>4.377</u>
5.10.11.31	4+	S28-11		<u>4.492</u>	<u>4.475</u>
5.10.11.32	4-	S26-4, S28-12		<u>4.415</u>	<u>4.414</u>
5.10.11.33	Band 5,7+ IM output	S26-5, S28-1		<u>4.262</u>	<u>4.380</u>

ORIGINAL PAGE IS
OF POOR QUALITY



TS 16603
Rev B

~~344-2~~ 8-8-81

10.4 Performance test (continued)

REF. PARA.	DESCRIPTION	DVM SWITCH POSITIONS	LIMITS	MEASUREMENT	
				PRIMARY	REPEREDA
5.10.11.34	Band 5,7- TM output	S26-5, S28-2		<u>4.247</u>	<u>4.314</u>
5.10.11.35	6+	S28-3		<u>4.442</u>	<u>4.273</u>
5.10.11.36	Band 6-	S28-4		<u>4.302</u>	<u>4.260</u>
5.10.11.37	SMA Htr +	S28-5		<u>4.476</u>	<u>4.562</u>
5.10.11.38	Htr -	S28-6		<u>4.442</u>	<u>4.503</u>
5.10.11.39	+7V	S28-7 (S28-8 for RDT)		<u>6.902</u>	<u>7.084</u>
5.10.11.40	+29V	S28-9 (S28-11 for RDT)		<u>4.258</u>	<u>4.312</u>
5.10.11.41	SMA -29V	S26-5, S28-10 (S28-12 for RDT)		<u>3.822</u>	<u>3.780</u>
5.10.11.42	Radiometer	S26-6, S28-2		<u>5.114</u>	<u>5.264</u>
5.10.11.43	CDVU	S28-3		<u>5.223</u>	<u>5.227</u>
5.10.11.44	Analog +	S28-4		<u>4.577</u>	<u>4.723</u>
5.10.11.45	Analog -	S28-5		<u>4.456</u>	<u>4.310</u>
5.10.11.46	Electromech.	S28-6		<u>5.226</u>	<u>5.237</u>
5.10.11.47	Outgas - TM output	S26-6, S28-7		<u>5.229</u>	<u>5.041</u>
5.10.12.1	Bus voltage	S26-1, S27-1 (S27-3 for RDT)		<u>35.02</u>	<u>35.03</u>
5.10.12.2	Input bus current	S26-1, S27-2 (S27-4 for RDT)		<u>39.07mV</u>	<u>36.13</u>
5.10.12.3	SMA Htr + output voltage	S26-2, S27-5		<u>21.29</u>	<u>21.23</u>
5.10.12.4	Htr + ripple	Seen on Scope	<30 mV pk-pk	<u>30</u>	<u>30</u>
5.10.12.5	Htr - voltage	S26-2, S27-6		<u>-22.02</u>	<u>-22.57</u>
5.10.12.6	SMA Htr - ripple	Seen on Scope	<30 mV pk-pk	<u>20</u>	<u>20</u>
5.10.12.7	CDVU voltage	S26-3, S27-3		<u>7.425</u>	<u>7.630</u>
5.10.12.8	CDVU ripple	Seen on Scope	<40 mV pk-pk	<u>30</u>	<u>30</u>
5.10.12.9	Outgas - output voltage	S26-3, S27-7		<u>86.43</u>	<u>87.54</u>
5.10.12.10	Outgas - output ripple	Seen on Scope	2.50V pk-pk	<u>300mV</u>	<u>350mV</u>
5.10.12.11	Parasitic output voltage	S26-3, S27-9 (S27-10 for RDT)		<u>29.85V</u>	<u>30.44V</u>
5.10.12.12	Parasitic output ripple	Seen on Scope	<900 mV pk-pk	<u>100mV</u>	<u>140mV</u>

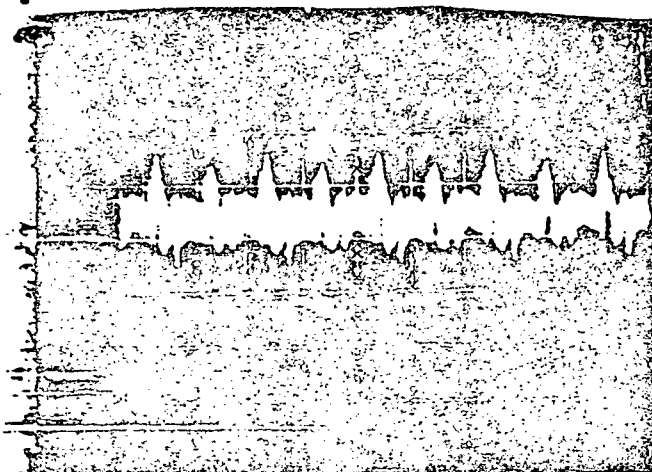
ORIGINAL PAGE IS
OF POOR QUALITY



TS 16603
Rev B
18 December 1962

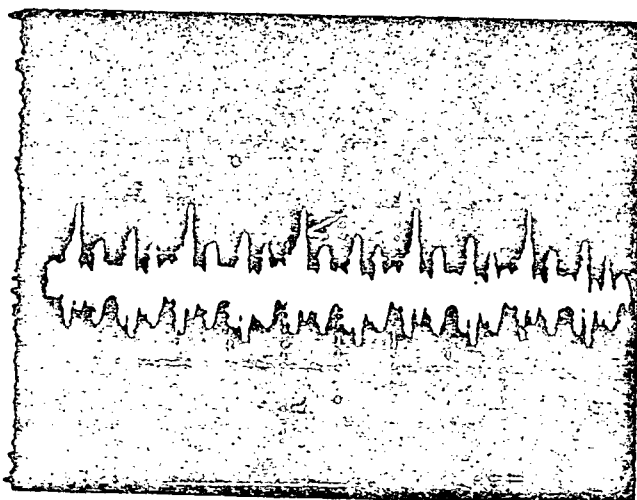
10.4 Performance test (continued)

REF. PARA.	DESCRIPTION	DVM SWITCH POSITIONS	LIMITS	MEASUREMENT	
				PRIMARY	REDUNDANT
5.10.13.1	Input current telemetry	S26-4, S28-2 (S28-4 for RDT)		682.5 mV	707.
5.10.13.2	SMA Htr + output	S26-5, S28-5		3.888	3.99
5.10.13.3	SMA Htr -	S26-5, S28-6		3.992	4.10
5.10.13.4	CDVU	S26-6, S28-3		4.166	4.27
5.10.13.5	Outgas output telemetry	S26-6, S28-7		4.313	4.39
5.10.14.1	Photograph of reflected input current ripple in outgas mode - PRIMARY SIDE				



(2mA) CURRENT/DIV: 5 mA A.C.
(10μS) SWEEP RATE: 5 μsec

5.10.14.1 Photograph of reflected input current ripple in outgas mode - REDUNDANT SIDE



(2mA) CURRENT/DIV: 5 mA A.C.
(10μS) SWEEP RATE: 5 μsec

103

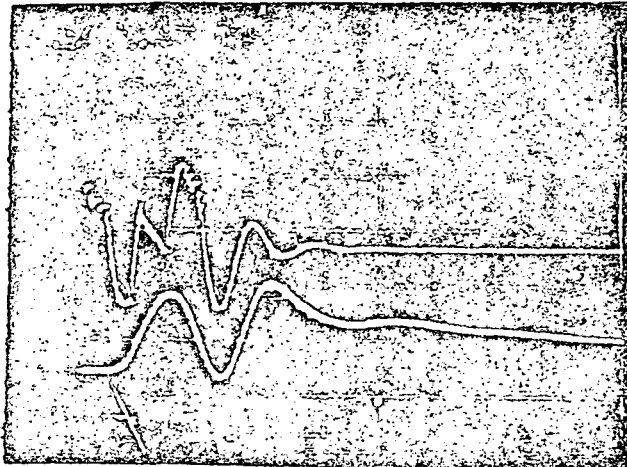
ORIGINAL PAGE IS
OF POOR QUALITY



TS 16603
Rev B
18 December 1980

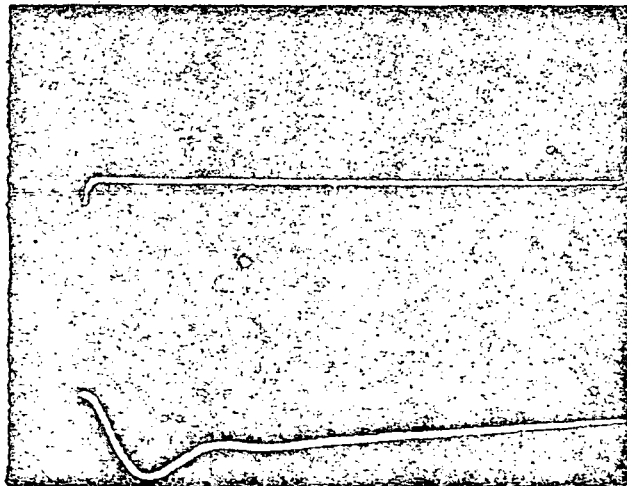
10.4 Performance test (continued)

REF. PARA.	DESCRIPTION	DVM SWITCH POSITIONS	LIMITS	MEASUREMENT	
				PRIMARY	REDUNDA
5.10.15.1.1	Input current with CDVU off.	S26-1, S27-2 (S27-4 for RDT)		36.33 mv.	34.25
5.10.15.1.2	Photograph of input bus current and CDVU output voltage as CDVU load is enabled - PRIMARY SIDE				



(2V) VOLTAGE/DIV: 2V/DIV
(200mA) CURRENT/DIV: 10mA/DIV
(1μS) SWEEP RATE: 1μS/DIV

5.10.15.1.2 Photograph of input bus current and CDVU output voltage as CDVU load is disabled - PRIMARY SIDE



(2V) VOLTAGE/DIV: 2V/DIV
(200mA) CURRENT/DIV: 10mA/DIV
(2μS) SWEEP RATE: 1μS/DIV

ORIGINAL PAGE IS
OF POOR QUALITY

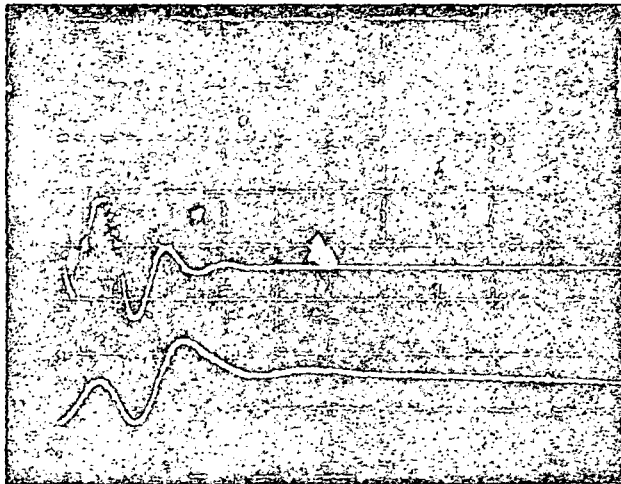
TS 16603
Rev B
18 December 1981



RB 0312

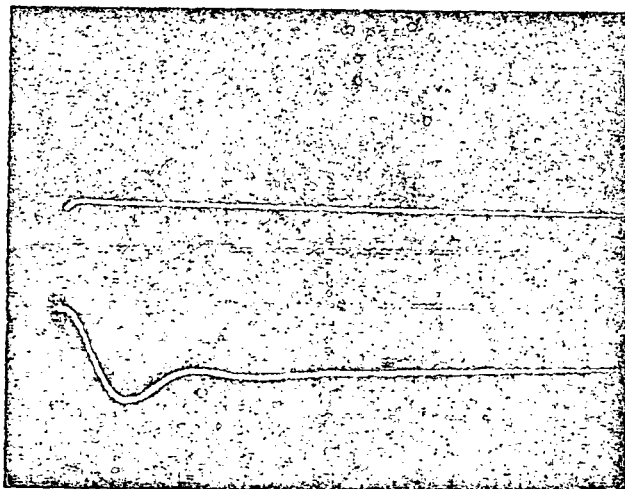
10.4 Performance test (continued)

EF. PARA.	DESCRIPTION
5.10.15.1.2	Photograph of input bus current and CDVU output voltage as CDVU load is enabled - REDUNDANT SIDE



(2V) VOLTAGE/DIV: 2V/div
(200mA) CURRENT/DIV: 100mA
(1ms) SWEEP RATE: 1ms

5.10.15.1.2	Photograph of input bus current and CDVU output voltage as CDVU load is disabled - REDUNDANT SIDE
-------------	---



(2V) VOLTAGE/DIV: 2V/div
(200mA) CURRENT/DIV: 100mA
(2ms) SWEEP RATE: 1ms

105

ORIGINAL PAGE IS
OF POOR QUALITY

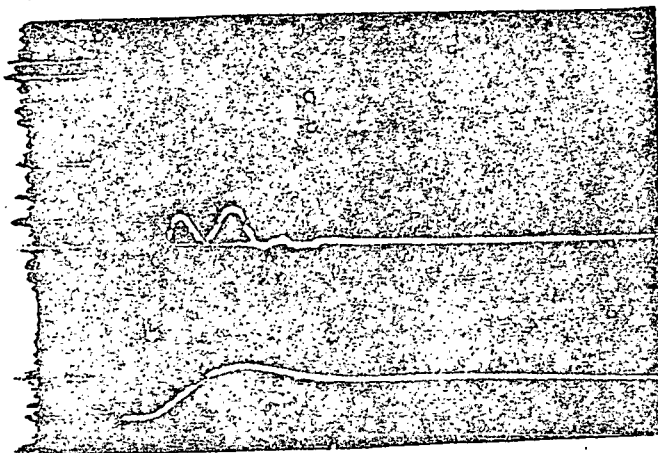


78 : 372

TS 16603
Rev B
18 December 1980

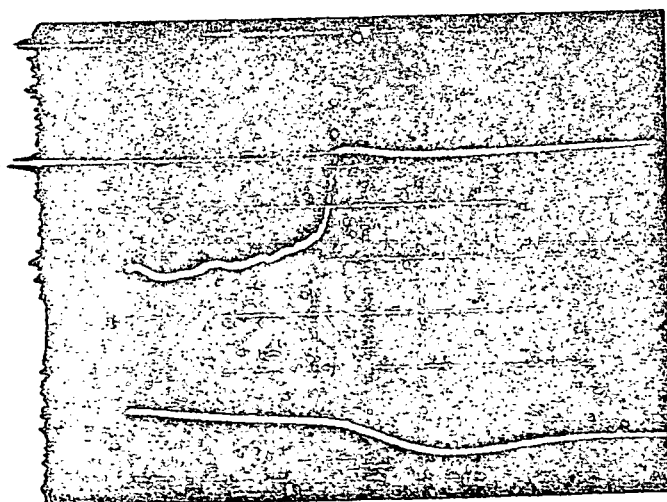
10.4 Performance test (continued)

REF. PARA.	DESCRIPTION	DVM SWITCH POSITIONS	LIMITS	MEASUREMENT	
				PRIMARY	REDUNDANT
5.10.15.2.1	Input bus current with outgas disabled	S26-1, S27-2 (S27-4 for EDT)		12.919mV	13.407
5.10.15.2.2	Photograph of input bus current and outgas voltage as outgas load is enabled - PRIMARY SIDE				



(5V) VOLTAGE/DIV: 5V/DIV.
(2A) CURRENT/DIV: 2A/DIV.
(1ms) SWEEP RATE: 500 μs/div

5.10.15.2.2 Photograph of input bus current and outgas voltage as outgas load is disabled - PRIMARY SIDE



(5V) VOLTAGE/DIV: 5V/DIV.
(2A) CURRENT/DIV: 2A/DIV.
(2ms) SWEEP RATE: 20 μs/div

106

ORIGINAL PAGE IS
OF POOR QUALITY



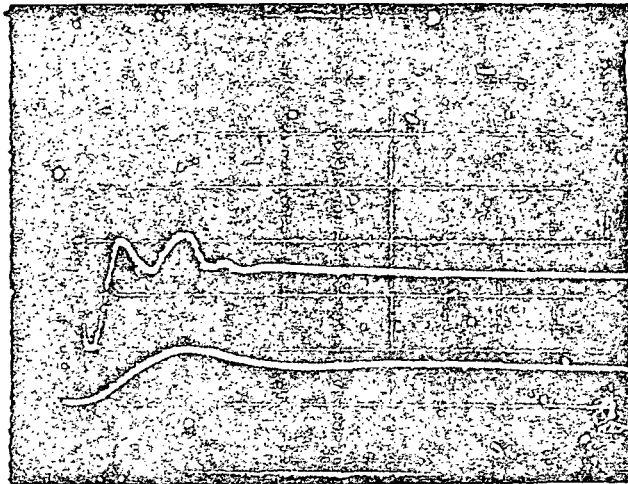
TS 16603
Rev B
18 December 1980

10.4 Performance test (continued)

FEB 0 1982

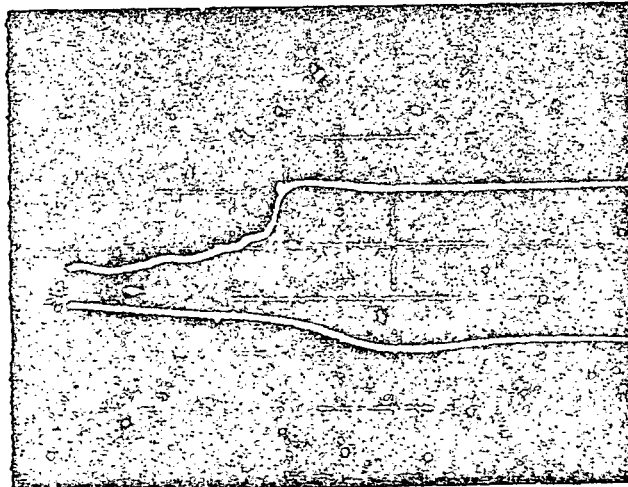
TEST PARA. DESCRIPTION

5.10.15.2.2 Photograph of input bus current and outgas voltage as outgas load is enabled - REDUNDANT SIDE



(5V) VOLTAGE/DIV: 5V
(2A) CURRENT/DIV: 2A
(500us) SWEEP RATE: 500µs

5.10.15.2.2 Photograph of input bus current and outgas voltage as outgas load is disabled - REDUNDANT SIDE



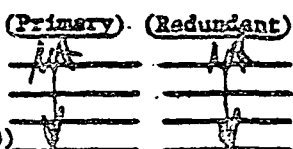
(5V) VOLTAGE/DIV: 5V
(2A) CURRENT/DIV: 2A
(1mS) SWEEP RATE: 500µs

ORIGINAL PAGE IS
OF POOR QUALITY

TS 16603
Rev B

~~TS 16603~~
~~Rev B~~

10.4 Performance test (continued)

REF. PARA.	DESCRIPTION	DVM SWITCH POSITION	LIMITS	MEASUREMENT	
				PRIMARY	REDUNDANT
5.10.16.1	BPS voltage	S26-1, S27-1 (S27-3 for RDT)		35.03V ₍₁₁₎	35.0
5.10.16.2	BPS current	S26-1, S27-2 (S27-4 for RDT)		15.240V ₍₅₀₎	15.77
5.10.16.3	SMA Htr +output voltage	S26-2, S27-5		21.62V ₍₁₁₎	22.04
5.10.16.4	SMA Htr +load current	S26-8, S34-1		46.62V ₍₇₉₎	47.5
5.10.16.5	SMA Htr -output voltage	S26-2, S27-6		-22.01 ₍₁₀₎	-22.4
5.10.16.6	SMA Htr -load current	S26-8, S34-2		-8.690 ₍₇₉₎	-8.869
5.10.16.7	DVU output voltage	S26-3, S27-3		7.421 ₍₁₀₎	7.628
5.10.16.8	DVU load current	S26-8, S34-10		265.7 ₍₁₁₎	273.0
5.10.16.9	Parasitic output voltage	S26-3, S27-9 (S27-10)		30.54V ₍₁₁₎	31.19
5.10.16.10	Parasitic load current	S26-8, S34-7		142.34 ₍₆₆₎	145.36
5.10.16.11	Input power (5.10.16.1 x 5.10.16.2)			53.386	55.32
5.10.16.12	Output power (5.10.16.3 x 5.10.16.4) + (5.10.16.5 x 5.10.16.6) + (5.10.15.7 x 5.10.16.8) + (5.10.16.9 x 5.10.16.10)	(Primary) (Redundant) 		16.965	17.737
5.10.16.13	Efficiency ((5.10.16.12) ÷ (5.10.16.11)) x 100%			31.8%	32.1%

108

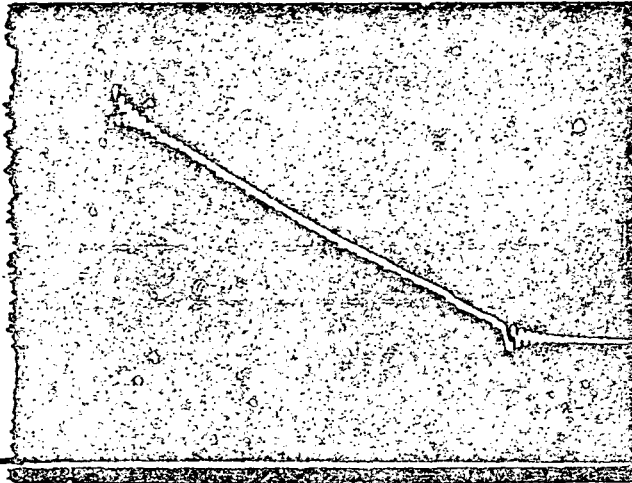
ORIGINAL PAGE IS
OF POOR QUALITY



TS 16603
Rev B
18 December 1980

10.4 Performance test (continued)

5.10.17.1 Photograph of input bus current and input bus voltage
as is disabled - PRIMARY SIDE

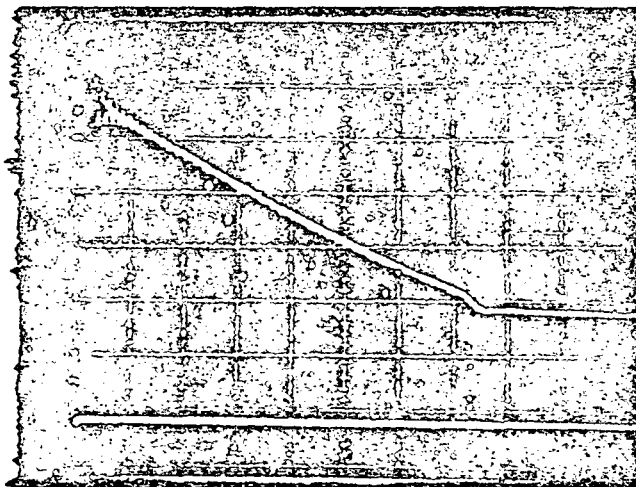


BUS VOLTAGE

(5V) VOLTAGE/DIV: 5V/DIV.
(2A) CURRENT/DIV: 2A/DIV
(1ms) SWEEP RATE: 1ms/DIV.

BUS I.

5.10.17.1 Photograph of input bus current and input bus voltage
as is disabled - REDUNDANT SIDE



(5V) VOLTAGE/DIV: 5V
(2A) CURRENT/DIV: 2A
(1ms) SWEEP RATE: 1ms

ORIGINAL PAGE IS
OF POOR QUALITY

530
RE 372

TS 16603
Rev B
18 December 1980

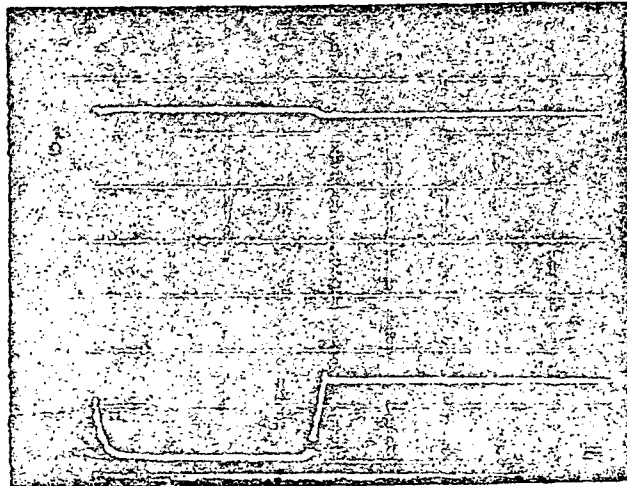
10.4 Performance test (continued)

5.10.17.2 Unit stays off (check)

Primary

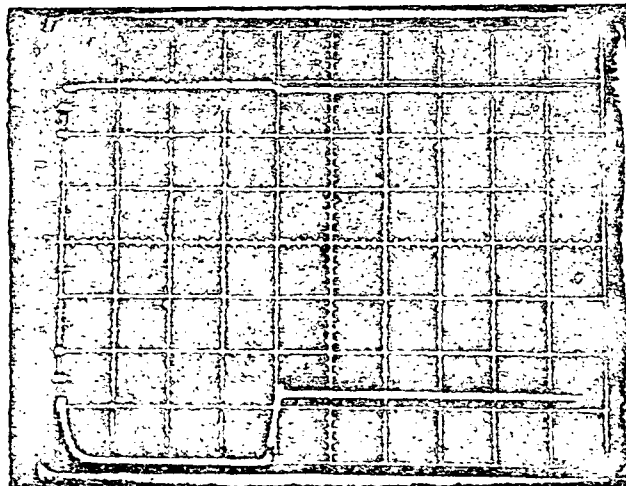
Redundant

5.10.17.3 Photograph of input bus current and input bus voltage as is enabled - PRIMARY SIDE



(2V) VOLTAGE/DIV: 5.0V/div.
(2A) CURRENT/DIV: 2.0A/div.
(100mS) SWEEP RATE: 100mSec.

5.10.17.3 Photograph of input bus current and input bus voltage as is enabled - REDUNDANT SIDE



(2V) VOLTAGE/DIV: 5.0V
(2A) CURRENT/DIV: 2A
(100mS) SWEEP RATE: 100mS

ORIGINAL PAGE IS
OF POOR QUALITY

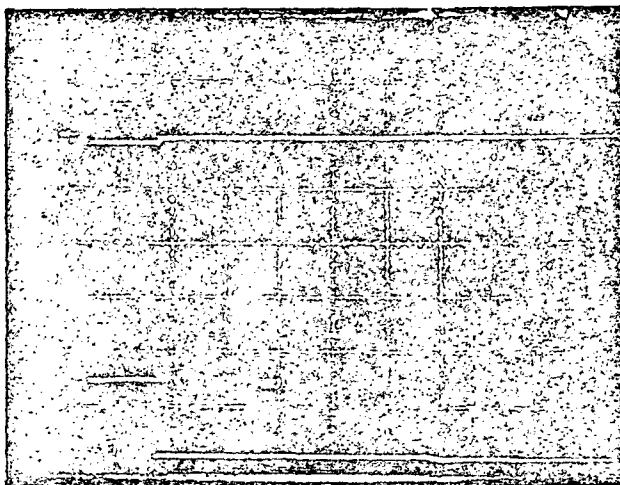


TS 16603
Rev B
18 December 198

FEB 2 1982

10.4 Performance test (continued)

5.10.17.4 Photograph of input bus current and input bus voltage
as is disabled - PRIMARY SIDE

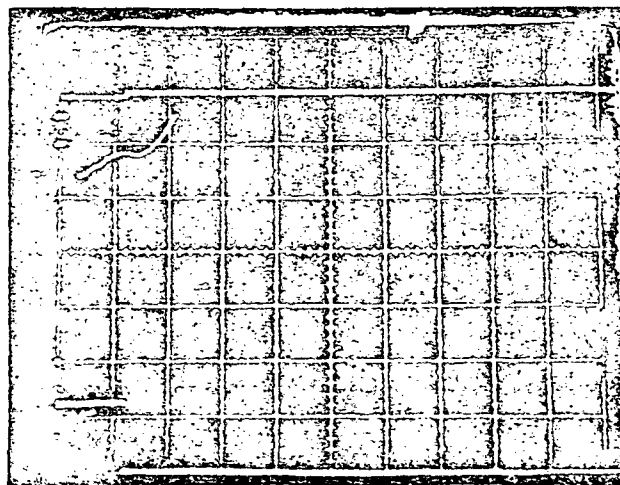


BUS V

(2V) VOLTAGE/DIV: 5V/DIV
(2A) CURRENT/DIV: 2A/DIV
(10ms) SWEEP RATE: 5ms/DIV

BUS I

5.10.17.4 Photograph of input bus current and input bus voltage
as is disabled - REDUNDANT SIDE



(2V) VOLTAGE/DIV: 5V
(2A) CURRENT/DIV: 2A
(10ms) SWEEP RATE: 5ms

111

ORIGINAL PAGE IS
OF POOR QUALITY



TS 16603
Rev B
18 December 1980

10.4 Performance test (continued)

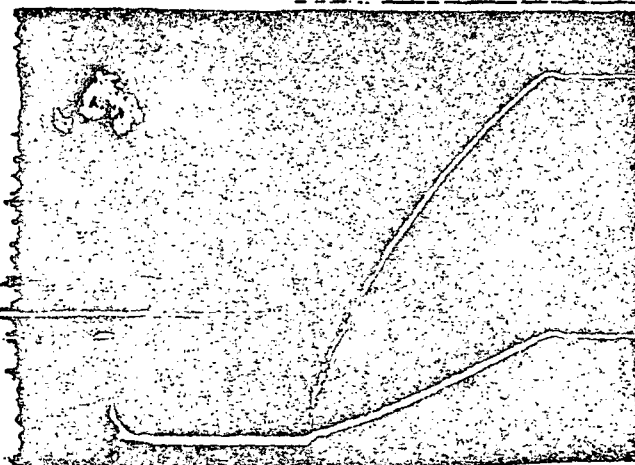
F. PARA.	DESCRIPTION	DVM SWITCH POSITIONS	LIMITS	MEASUREMENT	
				PRIMARY	REDUNDANT

5.10.17.5 Record that UUT operates correctly.

(checkmark)

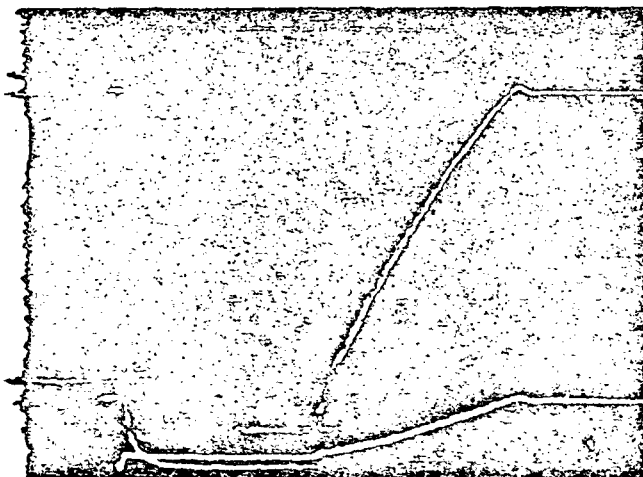


5.10.18.1 Photograph of input bus current and MIX output voltage as MIX enable command is issued (all loads are ON except outgas) - PRIMARY SIDE



(5V) VOLTAGE/DIV: 5V/DIV
(5A) CURRENT/DIV: 5A/DIV
(20ms) SWEEP RATE: 20ms/DIV

5.10.18.2 Photograph of input bus current and parasitic output voltage as parasitic enable command is issued (all loads are ON except outgas) - PRIMARY SIDE



(5V) VOLTAGE/DIV: 5V/DIV
(5A) CURRENT/DIV: 5A/DIV
(20ms) SWEEP RATE: 20ms/DIV

ORIGINAL PAGE IS
OF POOR QUALITY

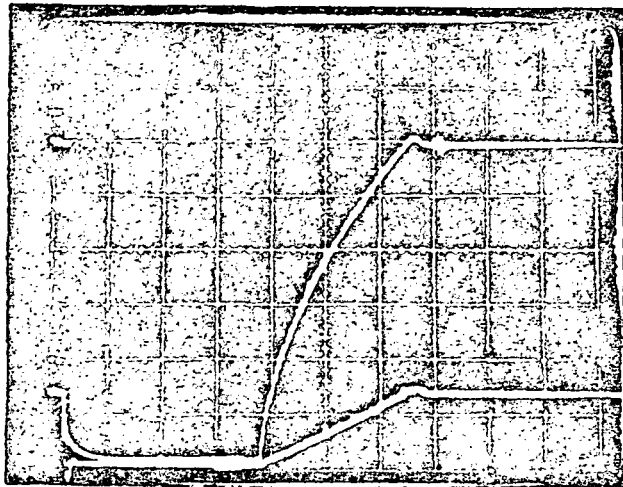


TS 16603
Rev 3
18 December 1980

RP: 372

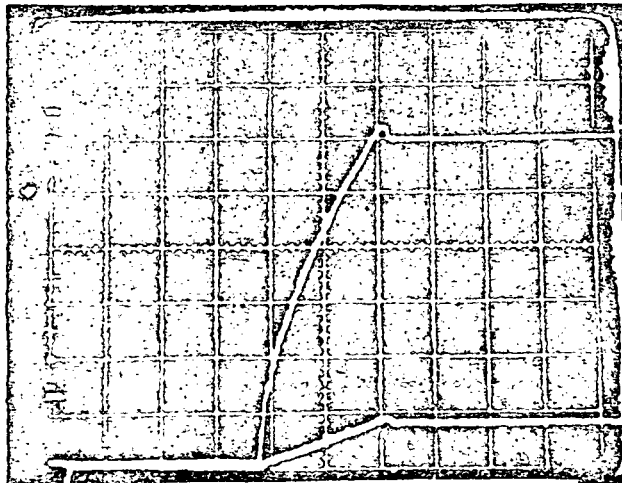
10.4 Performance test (continued)

10.18.1 Photograph of input bus current and MUX output voltage as MUX enable command is issued (all loads are ON except outgas) - REDUNDANT SIDE



(5V) VOLTAGE/DIV: 5V
(5A) CURRENT/DIV: 5A
(20mS) SWEEP RATE: 10ms

10.18.2 Photograph of input bus current and MUX output voltage as parasitic enable command is issued (all loads are ON except outgas) - REDUNDANT SIDE



(5V) Volts/Div: 5V
(5A) Current/Div: 5A
(20mS) Sweep Rate: 10ms

113

ORIGINAL PAGE IS
OF POOR QUALITY



TS 16603
Rev B
~~50-2-76-81~~

10.4 Performance test (continued)

REF. PARA.	DESCRIPTION	SWITCH POSITIONS	LIMITS	MEASUREMENT	
				PRIMARY	SECONDARY
5.10.18.4	Undervoltage Trip Point (ON/OFF)	S26-1, S27-1 (S27-3 for RDT)	18.0 ± 1.50V	18.074V	18.02V
5.10.18.5	UUT stays OFF			✓	✓
5.10.18.6	Undervoltage Trip Point (OFF/ON)	S26-1, S27-1 (S27-3 for RDT)	19.0 ± 1.50V	18.911V	18.875V
5.10.18.7	Overvoltage Trip Point	S26-1, S27-1 (S27-3 for RDT)	38.0 ± 2V	38.54V	37.00V ²
5.10.18.8	UUT stays OFF			✓	✓
5.10.18.9	UUT turns ON			✓	✓

2/3/82
DATE

ECCLES / GIGMAN
TESTER(S)

114

ORIGINAL PAGE IS
OF POOR QUALITY



TS 16603
Rev B
18 December 1980

10.4 Performance test - Long Form

PROTOFLIGHT NA OR FLIGHT S/N 004 TEMPERATURE: +131°F
 IN-PROCESS NA QUAL NA OR ACCEPTANCE
 TESTING PHASE FINAL HOT - LONG FORM LINE VOLTAGE: 23.0 VOLTS

REF. PARA.	DESCRIPTION	DVM SWITCH POSITIONS	LIMITS	MEASUREMENT	
				PRIMARY	REDUNDANT
5.10.1.1	Calibrate cmd gen	--	--	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
5.10.2.1	Input bus current	S26-1, S27-2 (S27-4 for redundant)		<u>0.220mV</u>	<u>0.217mV</u>
5.10.2.2	MUX output voltage	S26-3, S27-1	30.0 ±0.90V	<u>30.40V</u>	<u>30.01V</u>
5.10.2.3	MUX load current	S26-3, S27-12	3.55 ±0.40A	<u>33.02mV</u>	<u>32.65mV</u>

The rest of Section 5.10.2 requires only checking voltage - indicate by checkmarks.

5.10.2.4.1	B1 + output voltage	S26-1, S27-5		<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
5.10.2.4.2	B1 -	S27-6		<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
5.10.2.4.3	B1 -	S27-5		<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
5.10.2.4.4	B1 +	S27-7		<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
5.10.2.5.1	B2 +	S27-7		<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
5.10.2.5.2	B2 -	S27-8		<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
5.10.2.5.3	B2 -	S27-8		<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
5.10.2.5.4	B2 +	S27-7		<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
5.10.2.6.1	B3 +	S27-9		<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
5.10.2.6.2	B3 -	S27-10		<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
5.10.2.6.3	B3 -	S27-10		<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
5.10.2.6.4	B3 +	S27-9		<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
5.10.2.7.1	B4 +	S27-11		<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
5.10.2.7.2	B4 -	S27-12		<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
5.10.2.7.3	B4 -	S27-12		<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
5.10.2.7.4	B4 +	S26-1, S27-11		<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
5.10.2.8.1	B5,7+	S26-2, S27-1		<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
5.10.2.8.2	B5,7-	S27-2		<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
5.10.2.8.3	B5,7-	S27-2		<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
5.10.2.8.4	B5,7+	S27-1		<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
5.10.2.9.1	B6 +	S27-3		<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
5.10.2.9.2	B6 - output voltage	S26-2, S27-4		<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>

REVIEWED
11/29/80
600151/9700

(115)



TS 16603
Rev B

19-000000-000
SCN-1 1/24/81

ORIGINAL PAGE IS
OF POOR QUALITY

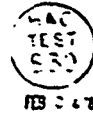
FD 3472

10.4 Performance test (continued)

REF. PARA.	DESCRIPTION	DVM SWITCH POSITIONS	LIMITS	MEASUREMENT	
				PRIMARY	REDUNDA
5.10.2.9.3	B6 - output voltage	S26-2, S27-4		✓	✓
5.10.2.9.4	B6 + output voltage	S26-2, S27-3		✓	✓
5.10.2.10.1	SMA HTR + output voltage	S27-5		✓	✓
5.10.2.10.2	-	S27-6		✓	✓
5.10.2.10.3	-	S27-6		✓	✓
5.10.2.10.4	-	S27-5		✓	✓
5.10.2.11.1	-7V	S26-2, S27-7		✓	✓
5.10.2.11.2	-7V	(S27-8 for RDT)		✓	✓
5.10.2.12.1	-29V	S26-2, S27-9		✓	✓
5.10.2.12.2	-29V	(S27-11 for RDT)		✓	✓
5.10.2.12.3	-29V	S26-2, S27-10		✓	✓
5.10.2.12.4	SMA HTR -29V	S26-2, S27-9		✓	✓
5.10.2.13.1	Radiometer	S26-3, S27-2		✓	✓
5.10.2.13.2	Radiometer	S27-2		✓	✓
5.10.2.14.1	CDVU	S27-3		✓	✓
5.10.2.14.2	CDVU	S27-3		✓	✓
5.10.2.15.1	Analog +	S27-4		✓	✓
5.10.2.15.2	Analog -	S27-5		✓	✓
5.10.2.15.3	Analog -	S27-5		✓	✓
5.10.2.15.4	Analog +	S27-4		✓	✓
5.10.2.16.1	Electromech.	S27-5		✓	✓
5.10.2.16.2	Electromech.	S27-6		✓	✓
5.10.2.17.1	Outgas output voltage	S26-3, S27-7		✓	✓
5.10.3.1	Bus voltage	S26-1, S27-1 (S27-3 for RDT)		23.03	23.0
5.10.3.2	MUX load current	S26-3, S27-12	4.130 ± 0.025A	41.30	41.
5.10.3.3	Bus current	S26-1, S27-2 (S27-4 for RDT)		161.98	159
5.10.3.3.1	BPS Voltage	S26-1, S27-1 S27-3)		23.04	23.04
5.10.3.3.2	BPS Current	S26-1, S27-2 (S27-4)		143.05	159.48
5.10.3.3.4	MUX Current	S26-3, S27-12		41.29	41.31

23.03 (49) 23.0
 4.130 ± 0.025A 41.30 V 41.
 6.825A 161.98
 143.05 (50) 159
 23.04 23.04
 143.05 159.48
 41.29 41.31

ORIGINAL PAGE IS
OF POOR QUALITY



TS 16603
Rev B
18 December 1980

10.4 Performance test (continued)

REF. PARA.	DESCRIPTION	DVM SWITCH POSITIONS	LIMITS	MEASUREMENT	
				PRIMARY	REDUND
5.10.3.4.1	B1 + output voltage	S26-1, S27-5	20.50 \pm 2.50V	<u>20.97</u>	(1) <u>20.1</u>
5.10.3.4.2	B1 + output ripple	Look on Scope	<600 mV pk-pk	<u>40</u>	<u>40m</u>
5.10.3.4.3	B1 - output voltage	S26-1, S27-6	-20.50 \pm 2.50V	<u>-20.93</u>	(2) <u>-20.6</u>
5.10.3.4.4	B1 - output ripple	Look on Scope	<600 mV pk-pk	<u>40</u>	<u>20m</u>
5.10.3.5.1	B2 + output voltage	S26-1, S27-7	20.50 \pm 2.50V	<u>20.91</u>	(3) <u>20.5</u>
5.10.3.5.2	B2 + output ripple	Look on Scope	<600 mV pk-pk	<u>30</u>	<u>20</u>
5.10.3.5.3	B2 - output voltage	S26-1, S27-8	-20.50 \pm 2.50V	<u>-20.95</u>	(4) <u>-20</u>
5.10.3.5.4	B2 - output ripple	Seen on Scope	<600 mV pk-pk	<u>40</u>	<u>15</u>
5.10.3.6.1	B3 + output voltage	S26-1, S27-9	20.50 \pm 2.50V	<u>21.02</u>	(5) <u>20.5</u>
5.10.3.6.2	B3 + output ripple	Seen on Scope	<600 mV pk-pk	<u>30</u>	<u>20m</u>
5.10.3.6.3	B3 - output voltage	S26-1, S27-10	-20.50 \pm 2.50V	<u>-20.95</u>	(6) <u>-20.5</u>
5.10.3.6.4	B3 - output ripple	Seen on Scope	<600 mV pk-pk	<u>30</u>	<u>20m</u>
5.10.3.7.1	B4 + output voltage	S26-1, S27-11	20.50 \pm 2.50V	<u>20.91</u>	(7) <u>20.5</u>
5.10.3.7.2	B4 + output ripple	Seen on Scope	<600 mV pk-pk	<u>30</u>	<u>20m</u>
5.10.3.7.3	B4 - output voltage	S26-1, S27-12	-20.50 \pm 2.50V	<u>-20.94</u>	(8) <u>-20.1</u>
5.10.3.7.4	B4 - output ripple	Seen on Scope	<600 mV pk-pk	<u>30</u>	<u>20m</u>
5.10.3.8.1	B5,7 + voltage	S26-2, S27-1	20.50 \pm 2.50V	<u>20.32</u>	(9) <u>20.14</u>
5.10.3.8.2	B5,7 + ripple	Seen on Scope	<600 mV pk-pk	<u>40</u>	<u>30</u>
5.10.3.8.3	B5,7 - voltage	S26-3, S27-2	-20.50 \pm 2.50V	<u>-20.31</u>	(10) <u>-20</u>
5.10.3.8.4	B5,7 - ripple	Seen on Scope	<600 mV pk-pk	<u>40</u>	<u>30</u>
5.10.3.9.1	B6 + voltage	S26-2, S27-3	20.50 \pm 2.50V	<u>20.50</u>	(11) <u>20.50</u>
5.10.3.9.2	B6 + ripple	Seen on Scope	<600 mV pk-pk	<u>30</u>	<u>15m</u>
5.10.3.9.3	B6 - voltage	S26-2, S27-4	-20.50 \pm 2.50V	<u>-20.50</u>	(12) <u>-20.5</u>
5.10.3.9.4	B6 - ripple	Seen on Scope	<600 mV pk-pk	<u>30</u>	<u>15m</u>
5.10.3.10.1	SMA Htr + voltage	S26-2, S27-5	21.20 \pm 2.12V	<u>22.33</u>	(13) <u>22.4</u>
5.10.3.10.2	SMA Htr + ripple	Seen on Scope	<630 mV pk-pk	<u>30</u>	<u>15m</u>
5.10.3.10.3	SMA Htr - voltage	S26-2, S27-6	-21.20 \pm 2.12V	<u>-22.73</u>	(14) <u>-22.5</u>
5.10.3.10.4	SMA Htr - ripple	Seen on Scope	<630 mV pk-pk	<u>30</u>	<u>15m</u>
5.10.3.11.1	SMA +7V voltage	S26-2, S27-7 (S27-8 for RDT)	7.10 \pm 0.30V	<u>7.680</u>	(15) <u>7.73</u>
5.10.3.11.2	SMA +7V output ripple	Seen on Scope	<10 mV pk-pk	<u>30</u>	<u>25m</u>

ORIGINAL PAGE IS
OF POOR QUALITY



TS 16603
Rev B
18 December 1980

FD 042

10.4 Performance test (continued)

REF. PARA.	DESCRIPTION	DVM SWITCH POSITIONS	LIMITS	MEASUREMENT	
				PRIMARY	REDUNDANT
5.10.3.12.1	SMA +29V output voltage	S26-2, S27-9 (S27-11 for RDT)	29.50 ±1.50V	30.54 (16)	30.50V.
5.10.3.12.2	SMA +29V ripple	Seen on Scope	<870 mV, pk-pk	45	35 mV.
5.10.3.12.3	SMA -29V voltage	S26-2, S27-10 (S27-12 for RDT)	-29.50 ±1.50V	-30.53 (17)	-30.52V
5.10.3.12.4	SMA -29V ripple	Seen on Scope	<870 mV pk-pk	40	35 mV
5.10.3.13.1	MDX voltage	S26-3, S27-1	30.00 ±0.90V	30.34 (18)	30.26 V.
5.10.3.13.2	MDX ripple	Seen on Scope	<900 mV, pk-pk	40	35 mV.
5.10.3.14.1	Radiometer voltage	S26-3, S27-2	8.50 ±0.85V	8.747 (19)	8.656 V.
5.10.3.14.2	Radiometer ripple	Seen on Scope	<250 mV pk-pk	30	25 mV
5.10.3.15.1	CDVU voltage	S26-3, S27-3	8.00 ±0.80V	7.666 (20)	7.768 V.
5.10.3.15.2	CDVU ripple	Seen on Scope	<240 mV pk-pk	30	25 mV.
5.10.3.16.1	Analog + voltage	S26-3, S27-4	21.20 ±2.12V	22.59 (21)	22.51 V.
5.10.3.16.2	Analog + ripple	Seen on Scope	<630 mV pk-pk	30	25 mV.
5.10.3.16.3	Analog - voltage	S26-3, S27-5	-21.20 ±2.12V	-22.66 (22)	-22.57 V.
5.10.3.16.4	Analog - ripple	Seen on Scope	<630 mV pk-pk	30	25 mV.
5.10.3.17.1	Electromech. voltage	S26-3, S27-6	33.40 ±3.34V	33.18 (23)	33.37 V.
5.10.3.17.2	Electromech. ripple	Seen on Scope	<1.0V pk-pk	30	30 mV.
5.10.3.18.1	Outgas voltage	S26-3, S27-7	100.0 ±12.0V	103.53	103.01 V.
5.10.3.18.2	Outgas output ripple	Seen on Scope	<3.0V pk-pk	90 mV	70 mV
5.10.4.1	Input current telemetry	S26-4, S28-2 (S28-4 for RDT)		4.696	4.780 V.
5.10.4.2.1	Band 1 + volt. telemetry	S26-4, S28-5		3.765	3.765V.
5.10.4.2.2	Band 1 -	S28-6		3.754	3.750V.
5.10.4.3.1	Band 2+	S28-7		3.725	3.730V.
5.10.4.3.2	Band 2-	S28-8		3.715	3.709V.
5.10.4.4.1	Band 3+	S28-9		3.748	3.715 V.
5.10.4.4.2	Band 3-	S28-10		3.744	3.736 V.
5.10.4.5.1	Band 4+	S28-11		3.739	3.744V.
5.10.4.5.2	Band 4-	S26-4, S28-12		3.749	3.746V.
5.10.4.6.1	Band 5,7+	S26-5, S28-1		3.732	3.687V.
5.10.4.6.2	Band 5,7- volt. telemetry	S26-5, S28-2		3.717	3.673V.

ORIGINAL PAGE IS
OF POOR QUALITY



TS 16603
Rev B
18 December 1980

10.4 Performance test (continued)

FB 2482

REF. PARA.	DESCRIPTION	DVM SWITCH POSITIONS	LIMITS	MEASUREMENT	
				PRIMARY	REDUNDA
5.10.4.7.1	Band 6 + volt. telemetry	S26-5, S26-3		<u>-3.723</u>	<u>3.715</u>
5.10.4.7.2	Band 6 -	S28-4		<u>3.758</u>	<u>3.747</u>
5.10.4.8.1	SMA Htr +	S28-5		<u>4.098</u>	<u>4.103</u>
5.10.4.8.2	SMA Htr -	S28-6		<u>4.146</u>	<u>4.146</u>
5.10.4.9	SMA +7V	S26-5, S27-7 (S27-8 for RDT)		<u>4.919</u>	<u>4.965</u>
5.10.4.10.1	SMA +29V	S26-5, S28-9 (S27-11 for RDT)		<u>4.190</u>	<u>4.20</u>
5.10.4.10.2	SMA -29V	S26-5, S28-10 (S27-12 for RDT)		<u>3.994</u>	<u>3.986</u>
5.10.4.11	MUX	S26-6, S28-1		<u>4.316</u>	<u>4.271</u>
5.10.4.12	Radiometer	S26-6, S28-2		<u>4.802</u>	<u>4.751</u>
5.10.4.13	CDVU	S26-6, S28-3		<u>4.312</u>	<u>4.366</u>
5.10.4.14.1	Analog + volt. telemetry	S26-6, S28-4		<u>4.040</u>	<u>4.023</u>
5.10.4.14.2	Analog -	S26-6, S28-5		<u>3.973</u>	<u>3.956</u>
5.10.4.15	Electromech.	S28-6		<u>4.076</u>	<u>4.071</u>
5.10.4.16	Outgas volt. telemetry	S26-6, S28-7		<u>5.176</u>	<u>5.141</u>
5.10.5.1.1	Analog + load current	S26-3, S27-11 mV ÷ 10 = Amps		<u>15.768</u>	(24) <u>15.70</u>
5.10.5.1.2	MUX	S26-3, S27-12 mV ÷ 10 = Amps		<u>41.38</u>	(25) <u>41.33</u>
5.10.5.1.3	Band 1 +	S26-7, S34-1 mV ÷ 0.5 = mA		<u>91.70</u>	(26) <u>91.52</u>
5.10.5.1.4	Band 1 -	S34-2		<u>-91.87</u>	(27) <u>-91.74</u>
5.10.5.1.5	2 +	S34-3		<u>90.83</u>	(28) <u>90.71</u>
5.10.5.1.6	2 -	S34-4		<u>-91.70</u>	(29) <u>-91.55</u>
5.10.5.1.7	3 +	S34-5		<u>91.79</u>	(30) <u>90.93</u>
5.10.5.1.8	3 -	S34-6		<u>-91.54</u>	(31) <u>-91.35</u>
5.10.5.1.9	4 +	S34-7		<u>91.55</u>	(32) <u>91.55</u>
5.10.5.1.10	4 -	S34-8		<u>-91.27</u>	(33) <u>-91.17</u>
5.10.5.1.11	5,7 +	S34-9		<u>91.83</u>	(34) <u>90.58</u>
5.10.5.1.12	5,7 -	S34-10		<u>-90.98</u>	(35) <u>-89.96</u>
5.10.5.1.13	6 +	S34-11		<u>47.84</u>	(36) <u>47.65</u>
5.10.5.1.14	Band 6 -	S26-7, S34-12		<u>-47.68</u>	(37) <u>-47.54</u>
5.10.5.1.15	SMA Htr +	S26-8, S34-1 mV ÷ 0.5 = mA		<u>48.36</u>	(38) <u>48.34</u>
5.10.5.1.16	SMA Htr - load current	S26-8, S34-2 mV = mA		<u>-4.037</u>	(39) <u>-4.04</u>

ORIGINAL PAGE IS
OF POOR QUALITY

IS 16603
Rev B

HAC
TEST
530

SCN-2 7-6-81
SCA-3 4/3/81

10.4 Performance test (continued)

REV 3.4.82

REF. PARA.	DESCRIPTION	DVM SWITCH POSITIONS	LIMITS	MEASUREMENT	
				PRIMARY	REDUND
5.10.5.1.17	SMA +29V load current	S26-8, S34-3	mV ÷ 0.402 = mA	<u>50.97</u> (40)	<u>50.9</u>
5.10.5.1.18	SMA -29V	S34-4	mV ÷ 0.402 = mA	<u>-50.70</u> (41)	<u>-50.68</u>
5.10.5.1.19	SMA +7V	S34-5	V ÷ 0.1 = Amps	<u>272.4</u> (42)	<u>0.27</u>
5.10.5.1.20	Analog -	S34-6	mV ÷ 0.402 = mA	<u>-271.8</u> (43)	<u>0.27</u>
5.10.5.1.21	Radiometer	S34-9	mV ÷ 0.5 = mA	<u>156.44</u> (44)	<u>154</u>
5.10.5.1.22	CDVU	S34-10	mV ÷ 0.5 = mA	<u>273.5</u> (45)	<u>0.271</u>
5.10.5.1.23	Electromech. load current	S26-8, S34-11	mV ÷ 0.402 = mA	<u>211.1</u> (46)	<u>211</u>
5.10.5.2.1	Bus power supply voltage	S26-1, S27-1 (S27-3 for RDT)		<u>22.95</u> (47)	<u>23.0</u>
5.10.5.2.2	Bus input current	S26-1, S27-2 (S27-4 for RDT)	mV ÷ 10 = Amps	<u>162.41</u> (48)	<u>160</u>
5.10.5.2.3	P _{IN} (Section 5.10.5)			<u>372.73</u>	<u>369.</u>
5.10.5.2.4	P _{IN} (Section 5.10.3)			<u>373.039</u>	<u>368.4</u>
5.10.5.2.5	P _{IN} (avg)			<u>372.885</u>	<u>368.7</u>
5.10.5.2.9	Input current at current limit		26-1, 27-2 (26-1 27-4 Rdt)	<u>189.63</u>	<u>209.0</u>
	Input voltage at current limit		27-1 (27-3 Rdt)	<u>22.70</u>	<u>22.5</u>
	MUX voltage at current limit		26-3, 27-1	<u>28.71</u>	<u>26.5</u>
	MUX current at current limit		27-12	<u>38.81</u>	<u>52.5</u>
5.10.5.3.1	P _{OUT}			<u>274.287</u>	<u>272.4</u>
5.10.5.3.2	Efficiency		> 70%	<u>74.05</u>	<u>74.3</u>

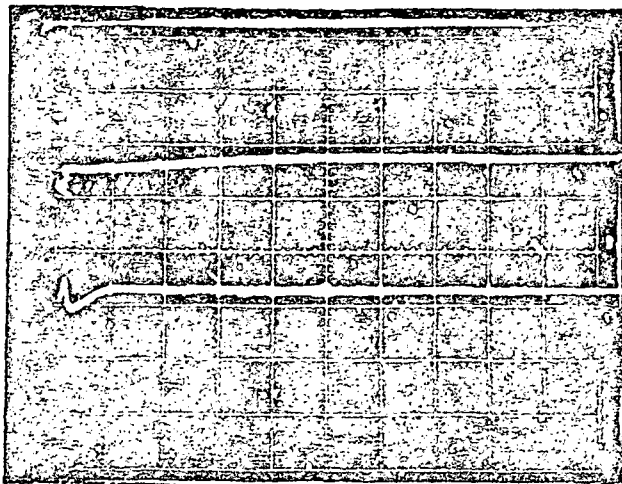
ORIGINAL PAGE IS
OF POOR QUALITY



TS 16603
Rev B
12 December 1960

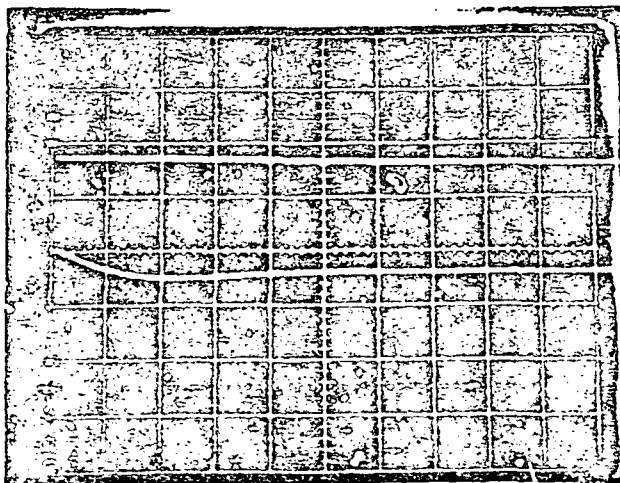
10.4 Performance test (continued)

REF. PARA.	DESCRIPTION	DVM SWITCH POSITIONS	LIMITS	MEASUREMENT	
				PRIMARY	REDUNDA
5.10.6.1	+7V output pulsed	S26-2, S27-7 (S27-8 for RDT)	7.10 \pm 0.80V	<u>6.970</u>	<u>7.051</u>
5.10.6.2	Photograph of transients induced on input bus current and SMA +7V output voltage as SMA +7V output is being pulse-loaded-PRIMARY SIDE				



(0.2A) CURRENT/DIV: 2 A/div
(1V) VOLTAGE/DIV: 2 V/div
(200uS) SWEEP RATE: 200 uS/div

5.10.6.2 Photograph of transients induced on input bus current and SMA +7V output voltage as pulse-load on SMA +7V outputs is being removed - PRIMARY SIDE



(0.2A) CURRENT/DIV: 2 A/div
(1V) VOLTAGE/DIV: 2 V/div
(200uS) SWEEP RATE: 50 uS/div

← zero volts

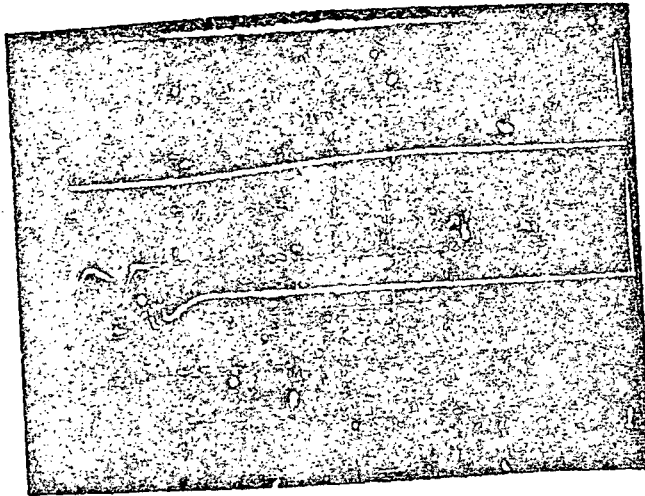
ORIGINAL PAGE IS
OF POOR QUALITY



TS 16603
Rev B
18 December 1980

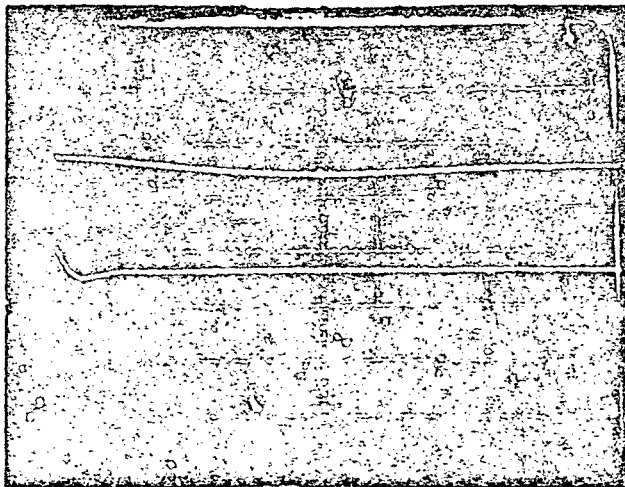
10.4 Performance test (continued)

REF. PARA.	DESCRIPTION
S.10.6.2	Photograph of transients induced on input bus current and SMA +7V output voltage as SMA +7V output is being pulse-loaded-REDUNDANT SIDE



(0.2A) CURRENT/DIV: 2A, A.C.
(1V) VOLTAGE/DIV: 2V.
(200us) SWEEP RATE: 200 μ sec.

S.10.6.2 Photograph of transients induced on input bus current and SMA +7V output voltage as pulse-load is being removed-REDUNDANT SIDE



(0.2A) CURRENT/DIV: 2A, A.C.
(1V) VOLTAGE/DIV: 2V.
(200us) SWEEP RATE: 200 μ sec.

122

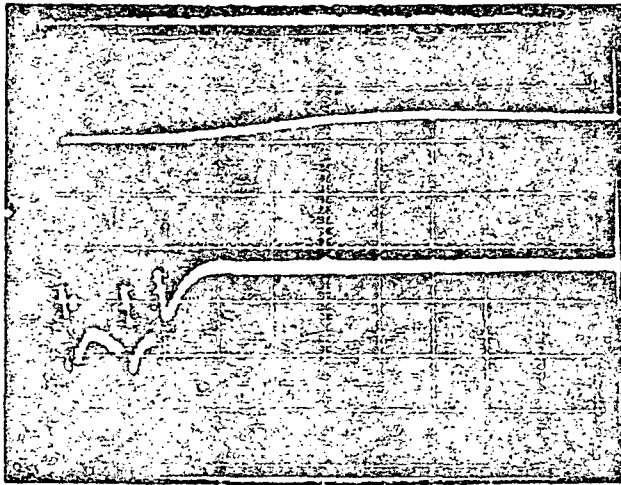
ORIGINAL PAGE IS
OF POOR QUALITY



TS 16603
Rev B
~~10-December-1980~~
Scat 2 9-6-81

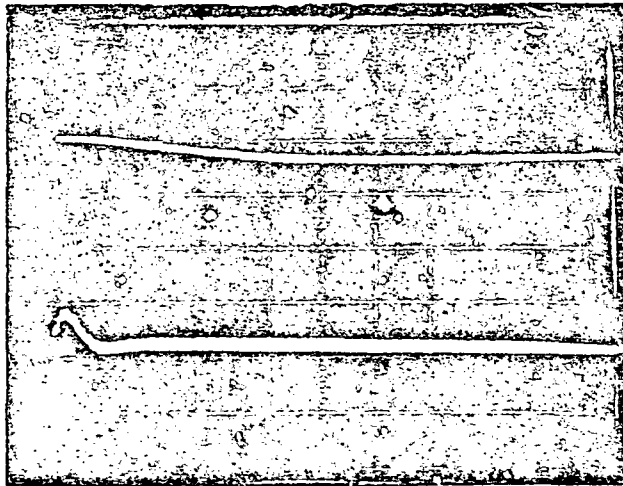
10.4 Performance test (continued)

REF. PARA.	DESCRIPTION	DVM SWITCH POSITIONS	LIMITS	MEASUREMENT	
				PRIMARY	REDUNDANT
5.10.6.3	Input bus current	S26-1, S27-2 (S27-4 for RDT)		<u>168.42V</u>	<u>167.47V</u>
5.10.6.4	SMA +7V Th- pulsed	S26-5, S28-7 (S28-8 for RDT)		<u>4.552V</u>	<u>4.642V</u>
5.10.6.5	SMA +7V load current-pulsed	(S26-8, S34-5)		<u>753.1V</u>	<u>755.5V</u>
5.10.6.6	Photograph of transients induced on input bus current and SMA +7V load current as SMA +7V output is being pulse-loaded-PRIMARY SIDE				



(1A) * SMA CURRENT/DIV: 100 mV
 (NA) BUS CURRENT/DIV: 1 amp A.C.
 (200us) SWEEP RATE: 200 us
 * Using 0.1 μ shunt and 100 mV/Div on scope

5.10.6.6 Photograph of transients induced on input bus current and SMA +7V load current as pulse-load is being removed-PRIMARY SIDE



(1A) * SMA CURRENT/DIV: 100 mV
 (NA) BUS CURRENT/DIV: 1 amp A.C.
 (200us) SWEEP RATE: 200 us
 * Using 0.1 μ shunt and 100mV/Div on Scope

123

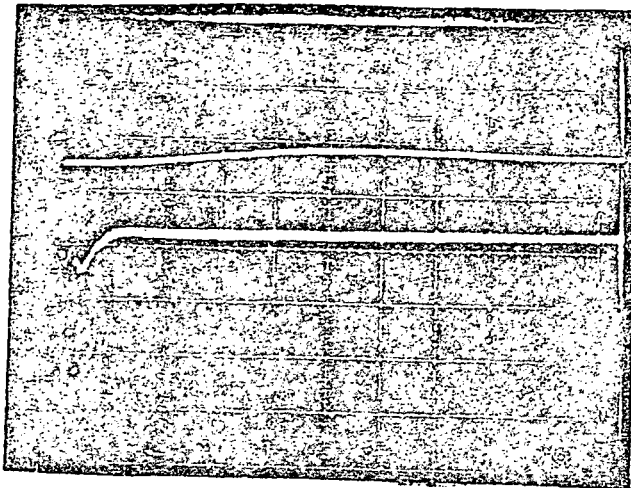
ORIGINAL PAGE IS
OF POOR QUALITY



TS 16603
Rev B
~~18 December 1980~~
SCN-2 9-6-81

10.4 Performance test (continued)

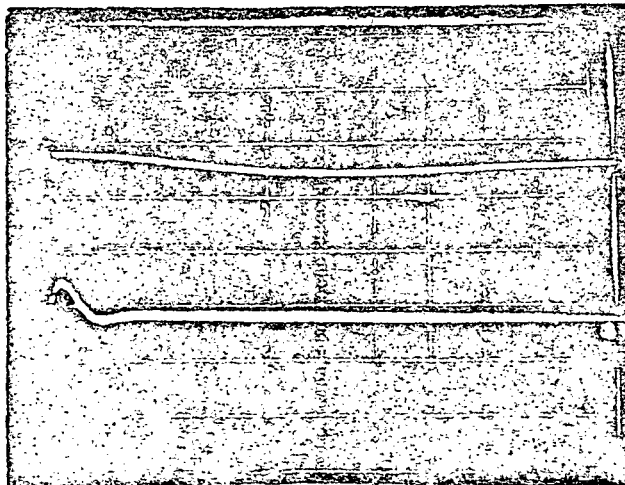
REF. PARA.	DESCRIPTION
5.10.6.6	Photograph of transients induced on input bus current and SMA + 7V load current as SMA + 7V output is being pulse loaded - REDUNDANT SIDE



(1A)* SMA CURRENT/DIV: 100 V.
(2A) BUS CURRENT/DIV: 2 A
(200us) SWEEP RATE: 200 uscc.

*Using 0.1 Ω shunt and
100 mV/Div on scope.

5.10.6.6	Photograph of transients induced on input bus current and SMA + 7V load current as pulse-load is removed - REDUNDANT SIDE
----------	---



(1A)* SMA CURRENT/DIV: 100 V.
(2A) BUS CURRENT/DIV: 2 A.
(200us) SWEEP RATE: 200 uscc.

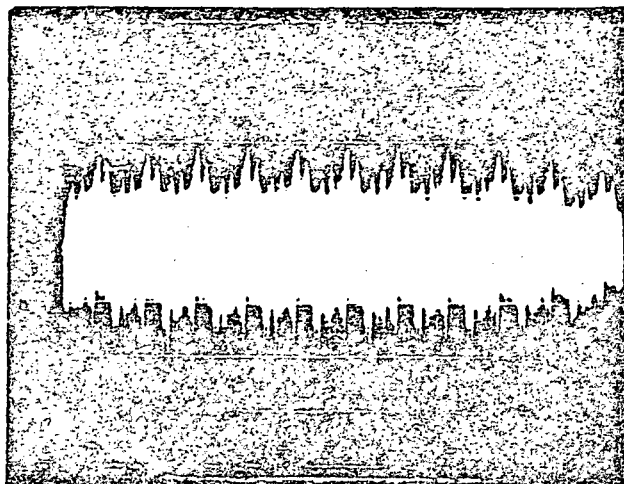
*Using 0.1 Ω shunt and
100mV/Div on scope.

124



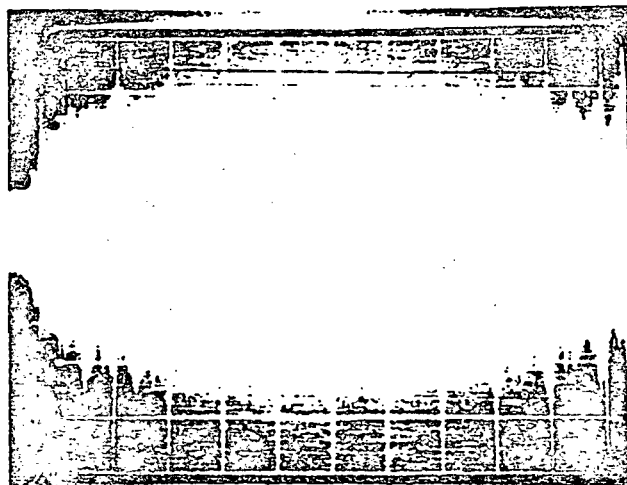
10.4 Performance test (continued)

REF. PARA.	DESCRIPTION
5.10.7.1	Photograph of reflected input current ripple - PRIMARY SIDE



(1mA) CURRENT/DIV: 2mA/div. A.
(10 μ S) SWEEP RATE: 10 μ sec.

5.10.7.1	Photograph of reflected input current ripple - REDUNDANT SIDE
----------	---



(1mA) CURRENT/DIV: 2mA A.
(10 μ S) SWEEP RATE: 10 μ sec

125

1.1 Input current - full load S26-1, S27-2
(S27-4 for RDT)

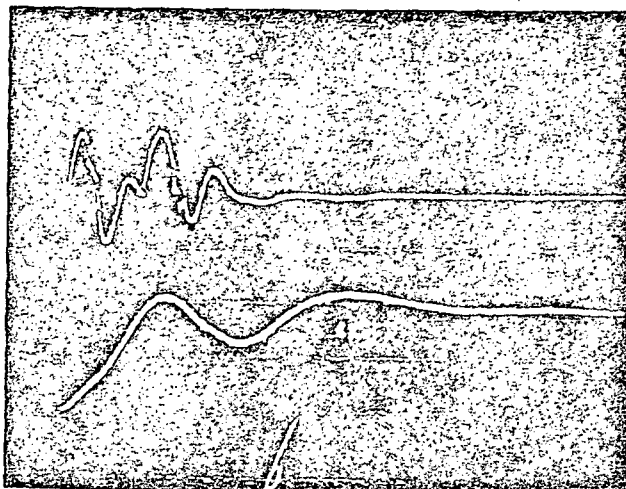


162.32 V 160.05
129.30 V 128.39

8.1.2 Input current w/o analog Same
load

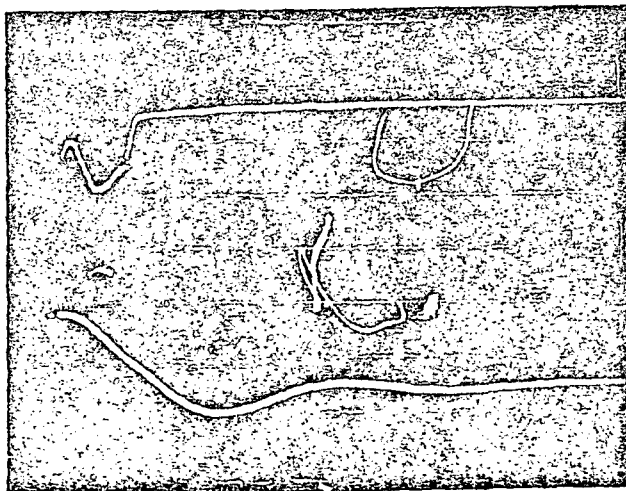
RE: 108

10.8.1.3 Photograph of transients induced on input bus current and analog + voltage as analog output is enabled - PRIMARY SIDE



(2V) VOLTAGE/DIV: 2 volt/div
(1A) CURRENT/DIV: i_{amp}/Div
(500us) SWEEP RATE: 500 μsec

5.10.8.1.3 Photograph of transients induced on input bus current and analog + voltage as analog output is disabled - PRIMARY SIDE



(5V) VOLTAGE/DIV: 2V/div
(1A) CURRENT/DIV: i_{amp}/Div
(1ms) SWEEP RATE: 500 μsec

ORIGINAL PAGE IS
OF POOR QUALITY

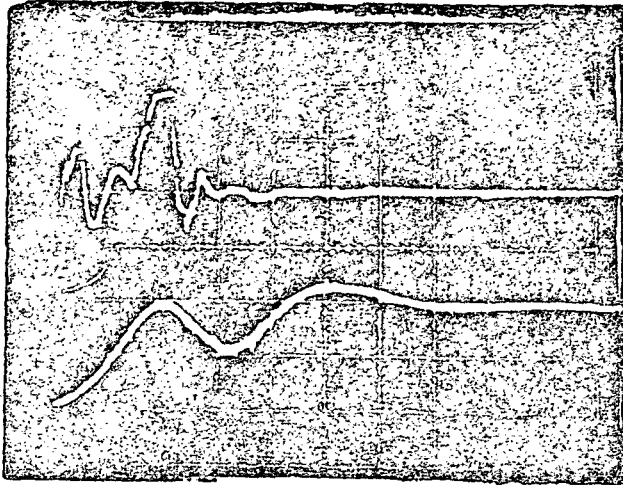
ORIGINAL PAGE IS
OF POOR QUALITY



TS 16603
Rev 3
18 December 1980

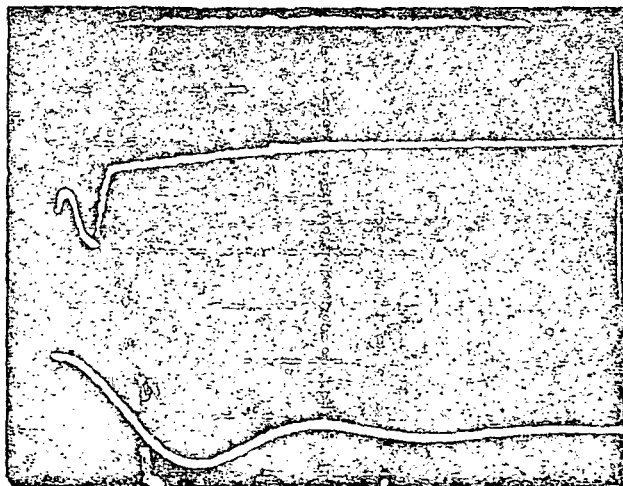
10.4 Performance test (continued)

REF. PARA.	DESCRIPTION
5.10.9.1.3	Photograph of transients induced on input bus current and analog - output voltage as analog output is enabled - REDUNDANT SIDE.



(2V) VOLTAGE/DIV: 2V.
(1A) CURRENT/DIV: 1A.
(500μS) SWEEP RATE: 500 μs/div.

5.10.9.1.3	Photograph of transients induced on input bus current and analog - output voltage as analog output is disabled - REDUNDANT SIDE.
------------	--



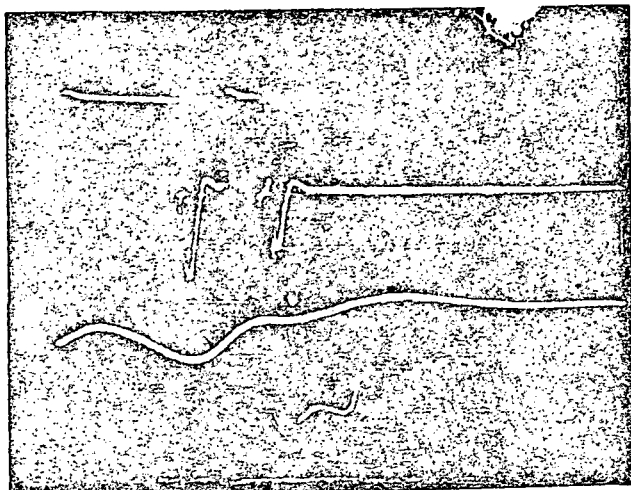
(5V) VOLTAGE/DIV: 2V.
(1A) CURRENT/DIV: 1A.
(1μS) SWEEP RATE: 500 μs/div.

127



10.4 Performance test (continued)

CF. PARA.	DESCRIPTION	DVM SWITCH POSITIONS	LIMITS	MEASUREMENT	
				PRIMARY	REDUNDANT
5.10.8.2.1	Input bus current w/o SMA +7V load.	S26-1, S27-2 (S27-4 for RDT)		147.62 mV	147.50 mV
5.10.8.2.2	Photograph of transients induced on input bus current and SMA +7V output voltage as SMA +7V is enabled - PRIMARY SIDE.				



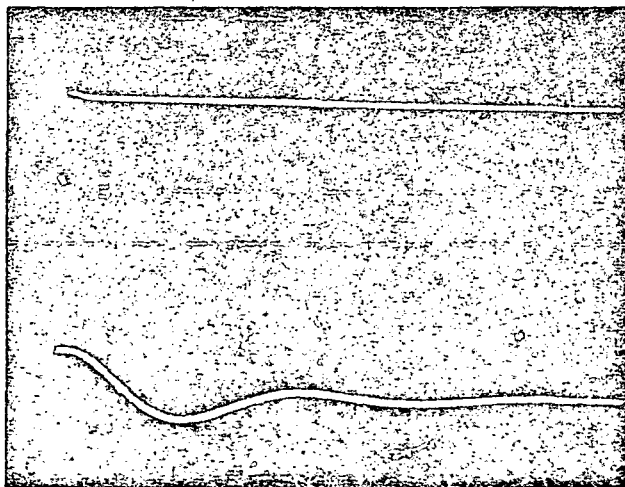
No load 9.575 V
Loaded 7.689 V

(5V) VOLTAGE/DIV: 2V/DIV.
(1A) CURRENT/DIV: 1Amp/DIV.
(200us) SWEEP RATE: 500 μ sec/DIV.

Output Voltage 7.689V

Bus Current

5.10.8.2.2 Photograph of transients induced on input bus current and SMA +7V output voltage as SMA +7V is disabled - PRIMARY SIDE.



Output Voltage 9.575

(2V) VOLTAGE/DIV: 2V/DIV.
(1A) CURRENT/DIV: 1Amp/DIV.
(2ms) SWEEP RATE: 50 μ sec/DIV.

Bus Current

128

ORIGINAL PAGE IS
OF POOR QUALITY

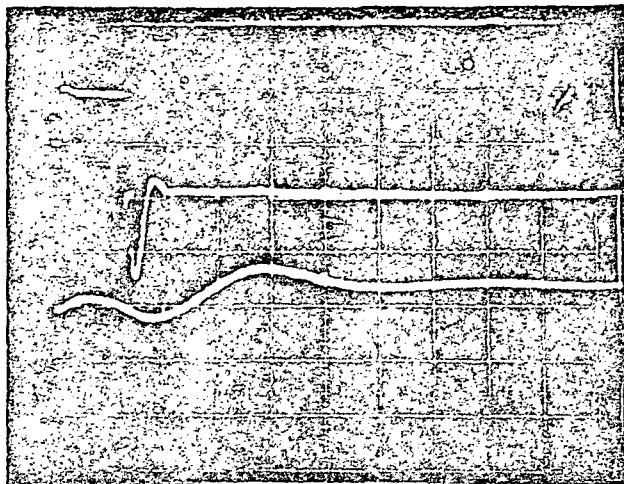


TS 16603
Rev B
18 December 1980

10.4 Performance test (continued)

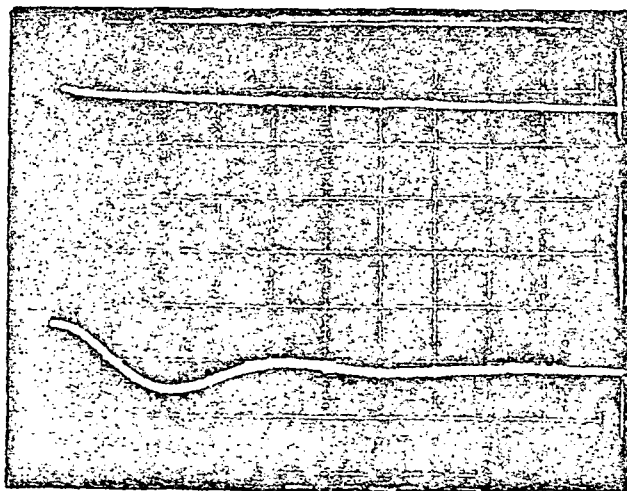
FB:42

EF. PARA.	DESCRIPTION
5.10.8.2.2	Photograph of transients induced on input bus current and SMA +7 output voltage as SMA +7V is enabled - REDUNDANT SIDE



(5V) VOLTAGE/DIV: 2V
(1A) CURRENT/DIV: 1A
(200uS) SWEEP RATE: 500 μ sec

5.10.8.2.2	Photograph of transients induced on input bus current and SMA +7V output voltage as SMA +7V is disabled - REDUNDANT SIDE
------------	--



(2V) VOLTAGE/DIV: 2V
(1A) CURRENT/DIV: 1A
(2mS) SWEEP RATE: 500 μ sec

129

ORIGINAL PAGE IS
OF POOR QUALITY

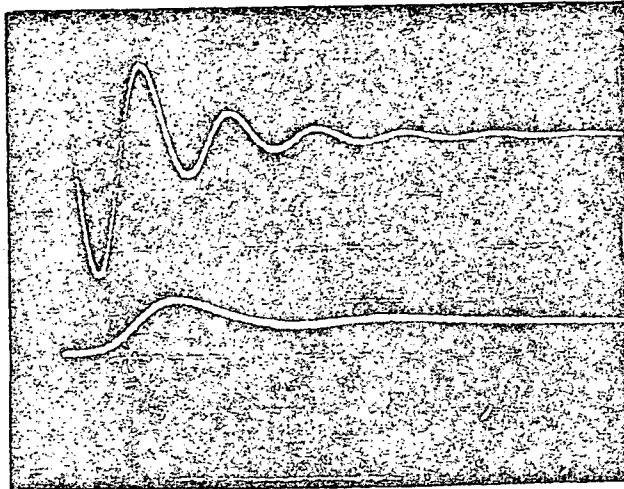


TS 16603
Rev B
18 December 1980

10.4 Performance test (continued)

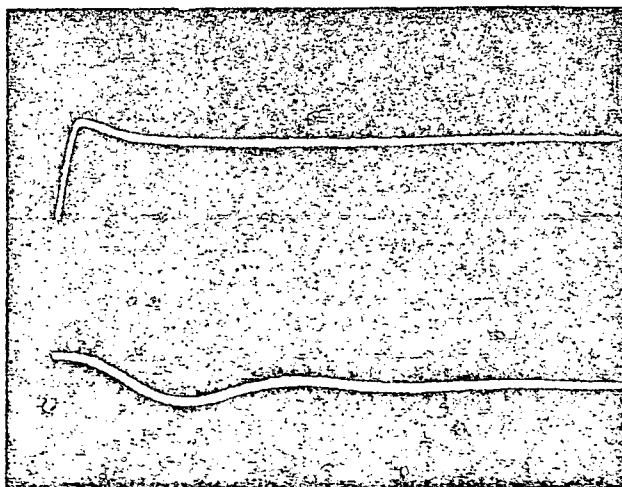
TR 0472

REF. PARA.	DESCRIPTION	DVM SWITCH POSITIONS	LIMITS	MEASUREMENT	
				PRIMARY	REDUNDAI
5.10.8.2.3	Input bus current w/o SMA +29V load	S26-1, S27-2 (S27-4 for RDT)		157.37 mV	155.6
5.10.8.2.4	Photograph of transients induced on input bus current and SMA +29V output voltage as SMA +29V is enabled - PRIMARY SIDE				



(2V) VOLTAGE/DIV: 1.0 V/DIV
(0.5V) CURRENT/DIV: 0.5 A/DIV
(1mS) SWEEP RATE: 500 μsec.

5.10.8.2.4 Photograph of transients induced on input bus current and SMA +29V output voltage as SMA +29V is disabled - PRIMARY SIDE



(2V) VOLTAGE/DIV: 1.0 V/DIV
(0.5A) CURRENT/DIV: 0.5 A/DIV
(1mS) SWEEP RATE: 500 μsec/DIV

130

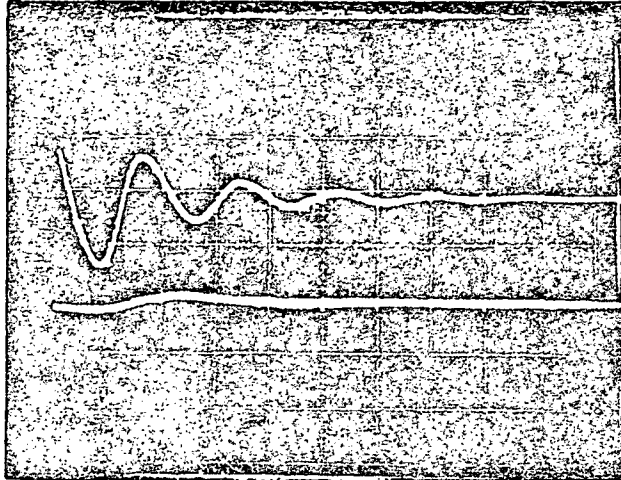
ORIGINAL PAGE IS
OF POOR QUALITY



TS 16603
Rev B
18 December 1980

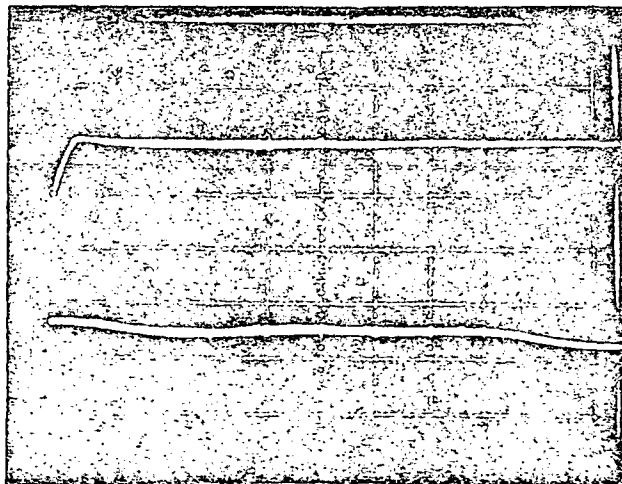
10.4 Performance test (continued)

EF. PARA.	DESCRIPTION
5.10.8.2.4	Photograph of transients induced on input bus current and SMA +29V output voltage as SMA +29V is enabled - REDUNDANT SIDE



(2V) VOLTAGE/DIV: 1V
(0.5A) CURRENT/DIV: 0.5A
(1mS) SWEEP RATE: 500ns

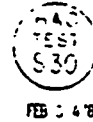
5.10.8.2.4	Photograph of transients induced on input bus current and SMA +29V output voltage as +29V is disabled - REDUNDANT SIDE
------------	--



(2V) VOLTAGE/DIV: 1V
(0.5) CURRENT/DIV: 0.5A
(1mS) SWEEP RATE: 500ns

131

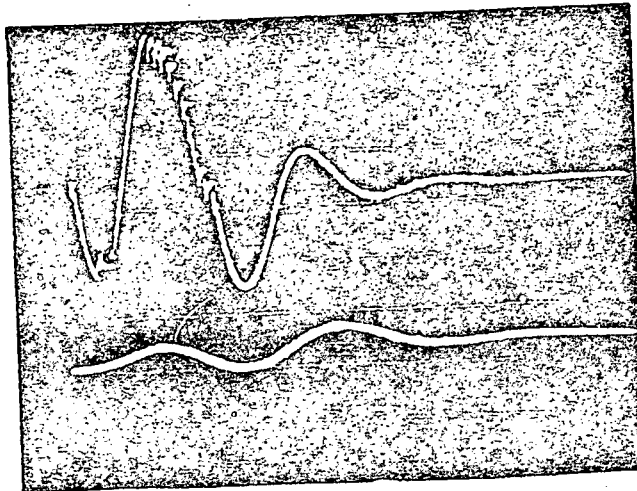
ORIGINAL PAGE IS
OF POOR QUALITY



TS 16603
Rev B
18 December 1980

10.4 Performance test (continued)

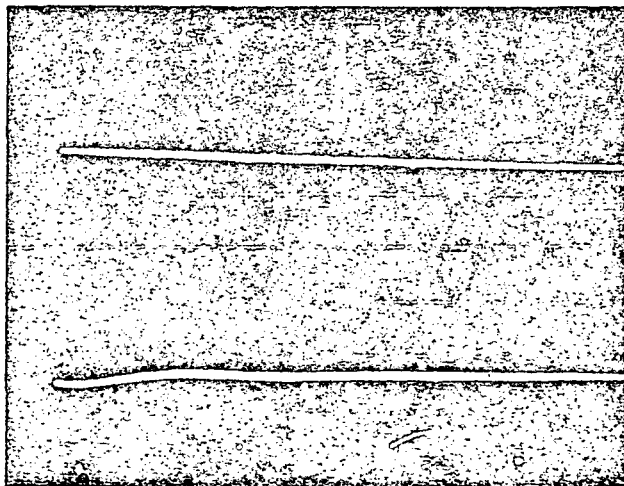
REF. PARA.	DESCRIPTION	DVM SWITCH POSITIONS	LIMITS	MEASUREMENT	
				PRIMARY	REDUNDANT
5.10.8.3.1	Input bus current w/o CDVU load	S26-1, S27-2 (S27-4 for RDT)		159.03 V	156.61
5.10.8.3.2	Photograph of transients induced on input bus current and CDVU output voltage as CDVU is enabled - PRIMARY SIDE				



Loaded 7.649 V
Unloaded 7.541 V

(2V) VOLTAGE/DIV: 1.0V/DIV
(0.5A) CURRENT/DIV: 0.5A/DIV
(1mS) SWEEP RATE: 500µsec/DIV

5.10.8.3.2 Photograph of transients induced on input bus current and CDVU output voltage as CDVU is disabled - PRIMARY SIDE



(2V) VOLTAGE/DIV: 1.0V/DIV
(0.5V) CURRENT/DIV: 0.5Amps/DIV
(1mS) SWEEP RATE: 500µsec/DIV

132

ORIGINAL PAGE IS
OF POOR QUALITY



TS 16603
Rev B
18 December 1980

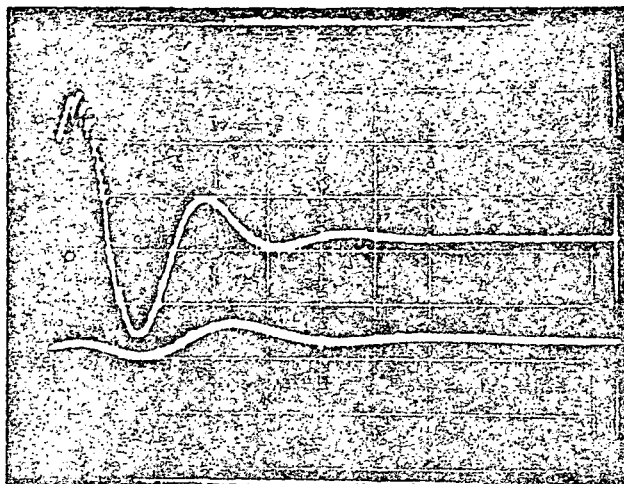
10.4 Performance test (continued)

REV 482

EF. PARA.

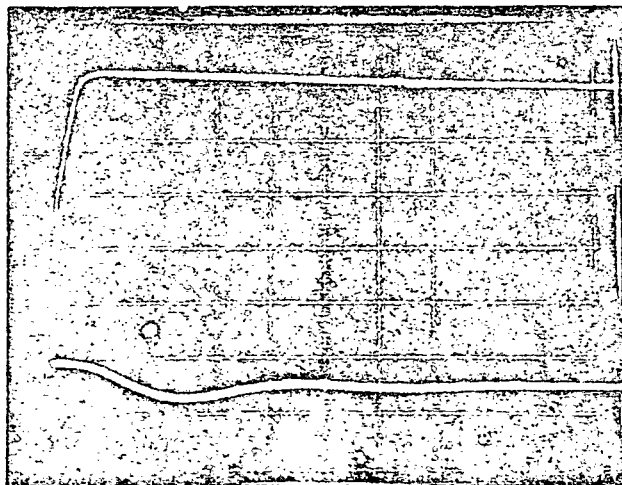
DESCRIPTION

5.10.8.3.2 Photograph of transients induced on input bus current and CDVU output voltage as CDVU is enabled - REDUNDANT SIDE



(2V) VOLTAGE/DIV: 1V
(0.5A) CURRENT/DIV: 0.5A
(1mS) SWEEP RATE: 500μsec.

5.10.8.3.2 Photograph as transients induced on input bus current and CDVU output voltage as CDVU is disabled - REDUNDANT SIDE



(2V) VOLTAGE/DIV: 1V
(0.5A) CURRENT/DIV: 0.5A
(1mS) SWEEP RATE: 500μsec.

133

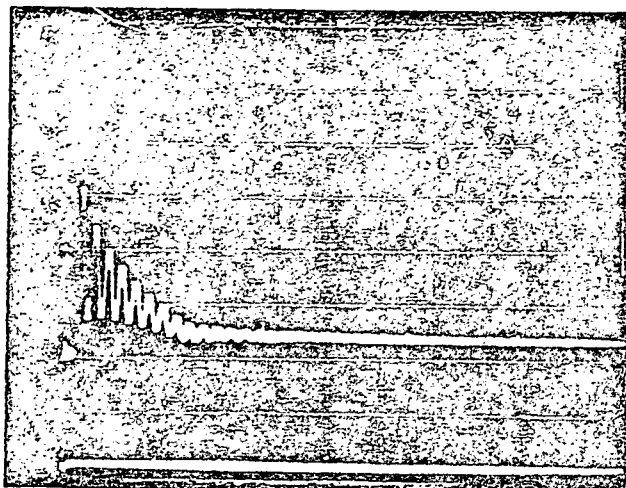
ORIGINAL PAGE IS
OF POOR QUALITY



TS 16603
Rev B
18 December 1980

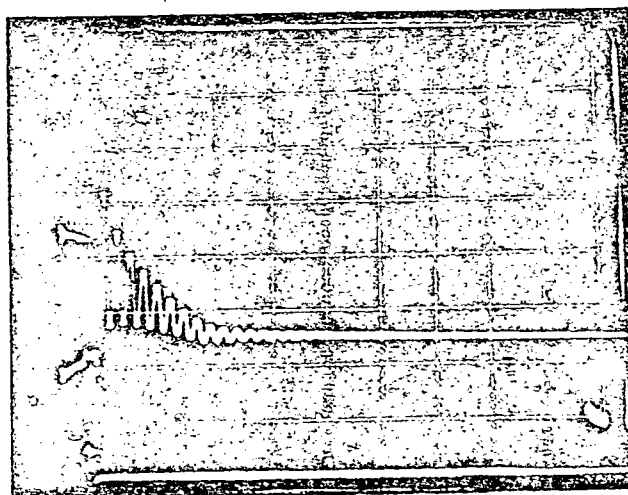
10.4 Performance test (continued)

REF. PARA.	DESCRIPTION
5.10.9.1	Photograph of turn-off transient of input bus voltage and input bus current as bus voltage is removed - PRIMARY SIDE



(5V) VOLTAGE/DIV: 5V/DIV.
(5A) CURRENT/DIV: 5 Amps./DIV.
(500us) SWEEP RATE: 500 μsec/

Photograph of turn-off transient of input bus voltage and input bus current as bus voltage is removed - REDUNDANT SIDE



(5V) VOLTAGE/DIV: 5V.
(5A) CURRENT/DIV: 5A.
(500us) SWEEP RATE: 500 μsec

→ V_i Bus

→ I_i Bus

134

ORIGINAL PAGE IS
OF POOR QUALITY

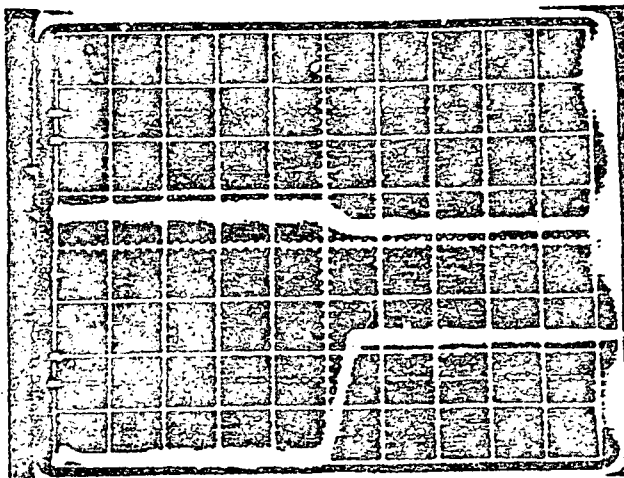


TS 16603
Rev 3
18 December 1980

FIG. 1.4.2

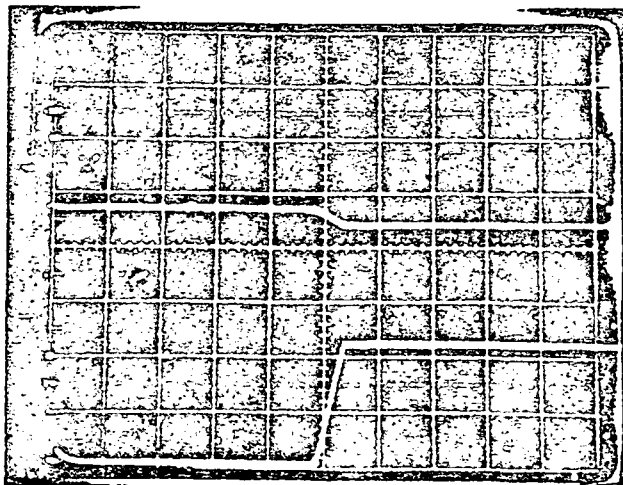
10.4 Performance test (continued)

REF. PARA.	DESCRIPTION	DVM SWITCH POSITIONS	LIMITS	MEASUREMENT	
				PRIMARY	REDUNDANT
5.10.9.2	UUT stays off when bus is reapplied.	S1-ON (S2-ON for RDT)	--	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
5.10.9.3	Photograph of turn-on transient of bus voltage and current as ON command is issued - PRIMARY SIDE				



(5V) VOLTAGE/DIV: 5V/div.
(5A) CURRENT/DIV: 5amps/div
(100mS) SWEEP RATE: 100m sec./div

5.10.9.3 Photograph of turn-on transient of bus voltage and current as ON command is issued - REDUNDANT SIDE



(5V) VOLTAGE/DIV: 5V
(5A) CURRENT/DIV: 5A
(100mS) SWEEP RATE: 100m sec.

135

ORIGINAL PAGE IS
OF POOR QUALITY



TS 16603
Rev B
18 December 1980

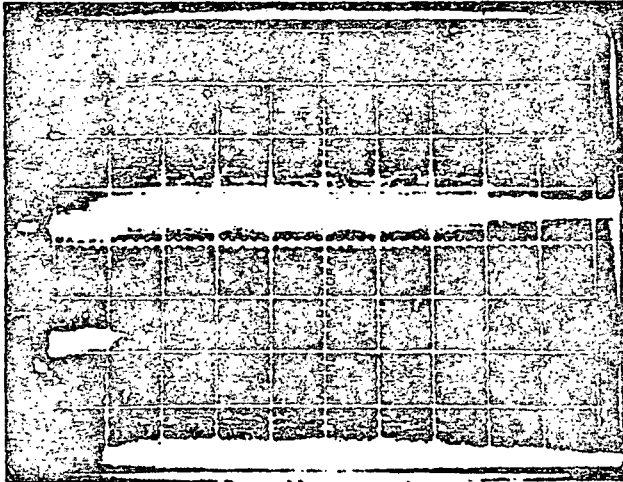
10.4 Performance test (continued)

TP 482

REF. PARA.

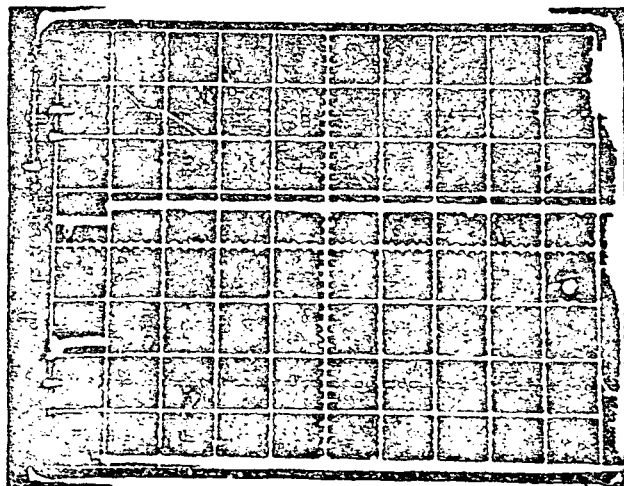
DESCRIPTION

5.10.9.4 Photograph of turn-off transient of input bus voltage and current as OFF command is issued - PRIMARY SIDE



Input Current
←
(5V) VOLTAGE/DIV: 5V/div.
(5A) CURRENT/DIV: 5Amps/div
(10MS) SWEEP RATE: 10ms/div.
← Bus Voltage

5.10.9.4 Photograph of turn-off transient of input bus voltage and current as OFF command is issued - REDUNDANT SIDE



(5V) VOLTAGE/DIV: 5V
(5A) CURRENT/DIV: 5A
(10MS) SWEEP RATE: 10msec.

136

ORIGINAL PAGE IS
OF POOR QUALITY



TS 16603
Rev B
18 December 1980

10.4 Performance test (continued)

REF. PARA.	DESCRIPTION	DVM SWITCH POSITIONS	LIMITS	PRIMARY	REDUNDANT
5.10.9.5	Record	S27-2 (S27-4)		<u>156.84 mV</u>	<u>159.67 mV</u>
5.10.9.6	Record	(S27-4 (S27-2)		<u>2.762 mV</u>	<u>2.574 mV</u>
	Record	S27-2 (S27-4)			
				<u>155.36 mV</u>	<u>151.41 mV</u>
5.10.9.7	Record that UUT turns on. (Checkmark)			<u>✓</u>	<u>✓</u>
5.10.10.1	Input bus current AFTER it reads ~ 17A AND input bus voltage reads ~ 21V.	S26-1, S27-2 (S27-4 for RDT)		<u>1.5072 mV</u>	<u>1.52.04 mV</u>
5.10.10.2	Input bus voltage with 17.0A load	S26-1, S27-1 (S27-3 for RDT)		<u>23.00V</u>	<u>23.02 V</u>
5.10.10.3	Input current telemetry output	S26-4, S28-2 (S28-4 for RDT)		<u>4.570V</u>	<u>4.481 V</u>
5.10.10.4	Input current telemetry output	S26-4, S28-2 (S28-4 for RDT)		<u>3.505V</u>	<u>3.506 V</u>
	Input bus voltage	S26-1, S27-1 (S27-3 for RDT)		<u>23.07V</u>	<u>23.01 V</u>
	Input bus current	S26-1, S27-2 (S27-4 for RDT)		<u>118.14 mV</u>	<u>121.34 mV</u>
5.10.10.5	Input current telemetry output	S26-4, S28-2 (S28-4 for RDT)		<u>3.023V</u>	<u>3.004 V</u>
	Input bus voltage	S26-1, S27-1 (S27-3 for RDT)		<u>23.03V</u>	<u>23.01 V</u>
	Input bus current	S26-1, S27-2 (S27-4 for RDT)		<u>102.45 mV</u>	<u>104.91 mV</u>
5.10.10.6	Input current telemetry output	S26-4, S28-2 (S28-4 for RDT)		<u>2.501V</u>	<u>2.501 V</u>
	Input bus voltage	S26-1, S27-1 (S27-3 for RDT)		<u>23.02V</u>	<u>23.00</u>
	Input bus current	S26-1, S27-2 (S27-4 for RDT)		<u>97.72 mV</u>	<u>98.89</u>
5.10.10.7	Input current telemetry output	S26-4, S28-2 (S28-4 for RDT)		<u>2.022V</u>	<u>2.004</u>
	Input bus voltage	S26-1, S27-1 (S27-3 for RDT)		<u>23.00V</u>	<u>23.00</u>
	Input bus current	S26-1, S27-2 (S27-4 for RDT)		<u>73.66 mV</u>	<u>73.7</u>

ORIGINAL PAGE IS
OF POOR QUALITY



TS 16603
Rev B
18 December 1980

10.4 Performance test: (continued)

RD 048

REF. PARA.	DESCRIPTION	DVM SWITCH POSITIONS	MEASUREMENT	
			PRIMARY	REUNDANT
5.10.10.8	Input current telemetry output	S26-4, S28-2 (S28-4 for RDT)	<u>1.5041V.</u>	<u>1.5140V.</u>
	Input bus voltage	S26-1, S27-1 (S27-3 for RDT)	<u>23.00V.</u>	<u>23.02V.</u>
	Input bus current	S26-1, S27-4 (S27-4 for RDT)	<u>57.62mA.</u>	<u>59.92mA.</u>
5.10.10.9	Input current telemetry output	S26-4, S28-2 (S28-4 for RDT)	<u>.4497V.</u>	<u>1.0539V.</u>
	Input bus voltage	S26-1, S27-1 (S27-3 for RDT)	<u>23.05V.</u>	<u>23.01V.</u>
	Input bus current	S26-1, S27-2 (S27-4 for RDT)	<u>-2.48mA.</u>	<u>-2.92mA.</u>
5.10.10.10	Input current telemetry output	S26-4, S28-2 (S28-4 for RDT)	<u>2.5274V.</u>	<u>0.5153V.</u>
	Input bus voltage	S26-1, S27-1 (S27-3 for RDT)	<u>23.02V.</u>	<u>23.02V.</u>
	Input bus current	S26-1, S27-2 (S27-4 for RDT)	<u>30.15mA.</u>	<u>27.38mA.</u>
5.10.10.11	Input current telemetry output	S26-4, S28-2 (S28-4 for RDT)	<u>.2119V.</u>	<u>.2066V.</u>
	Input bus voltage	S26-1, S27-1 (S27-3 for RDT)	<u>23.03V.</u>	<u>23.05V.</u>
	Input bus current	S26-1, S27-2 (S27-4 for RDT)	<u>21.01mA.</u>	<u>20.68mA.</u>
5.10.10.12	Input current telemetry output	S26-4, S28-2 (S28-4 for RDT)	<u>61.80mA.</u>	<u>51.54mA.</u>
	Input bus voltage	S26-1, S27-1 (S27-3 for RDT)	<u>23.05V.</u>	<u>23.00V.</u>
	Input bus current	S26-1, S27-2 (S27-4 for RDT)	<u>13.171mA.</u>	<u>11.21mA.</u>
5.10.11.1	Band 1+ output voltage	S26-1, S27-5	<u>22.49V.</u>	<u>23.00V.</u>
5.10.11.2	Band 1- output voltage	S27-6	<u>-23.08V.</u>	<u>-22.85V.</u>
5.10.11.3	2+	S27-7	<u>23.21V.</u>	<u>22.74V.</u>
5.10.11.4	2-	S27-8	<u>-23.22V.</u>	<u>-22.80V.</u>
5.10.11.5	3+	S27-9	<u>23.14V.</u>	<u>22.82V.</u>
5.10.11.6	3-	S27-10	<u>-22.71V.</u>	<u>-22.87V.</u>
5.10.11.7	Band 4+ output voltage	S26-1, S27-11	<u>23.24V.</u>	<u>23.00V.</u>

5.

ORIGINAL PAGE IS
OF POOR QUALITY



TS 16603
Rev B
~~10 December 1980~~
Rev. 2 8-6-81

10.4 Performance test (continued)

RF 042

REF. PARA.	DESCRIPTION	DVM SWITCH POSITIONS	LIMITS	MEASUREMENT	
				PRIMARY	REDUNDANT
5.10.11.8	Band 4- output voltage	S26-1, S27-12		-23.06V	-22.94V
5.10.11.9	5,7+	S26-2, S27-1		22.67V	22.72
5.10.11.10	5,7-	S27-2		-22.62V	-22.67V
5.10.11.11	6+	S27-3		22.51V	22.56V
5.10.11.12	Band 6-	S27-4		-22.78V	-22.72
5.10.11.13	SMA Htr +	S27-5		24.29V	24.57
5.10.11.14	Htr -	S27-6		-24.77V	-24.67V
5.10.11.15	+7V	S27-7		9.106V	N/A
5.10.11	+7V	(S27-8 For RDT)		N/A	9.187V
5.10.11	+29V	S27-9		32.36V	N/A
5.10.11	+29V	(S27-11 For RDT)		N/A	32.74V
5.10.11	-29V	S27-10		-32.86V	N/A
	SMA -29V	S26-2, (S27-12 for RDT)		N/A	-32.48V
5.10.11.18	Radiometer	S26-3, S27-2		7.712V	7.813V
5.10.11.19	CDVU	S27-3		7.381V	7.486V
5.10.11.20	Analog +	S27-4		26.51V	27.02V
5.10.11.21	Analog -	S27-5		-23.94V	-23.77
5.10.11.22	Electromech.	S27-6		38.34V	38.03V
5.10.11.23	Outgas	S27-7		102.82V	101.76V
5.10.11.24	Parasitic	S27-9		31.02V	N/A
	Parasitic output voltage	S26-3, (S27-10 for RDT)		N/A	31.1V
5.10.11.25	Band 1+ IM output	S26-4, S28-5		4.192V	4.217
5.10.11.26	1-	S28-6		4.190V	4.216
5.10.11.27	2+	S28-7		4.220V	4.236
5.10.11.28	2-	S28-8		4.197V	4.255
5.10.11.29	3+	S28-9		4.320V	4.384
5.10.11.30	3-	S28-10		4.148V	4.252
5.10.11.31	4+	S28-11		4.214V	4.252
5.10.11.32	4-	S26-4, S28-12		4.183V	4.262
5.10.11.33	Band 5,7+ IM output	S26-5, S28-1		4.336V	4.343

ORIGINAL PAGE IS
OF POOR QUALITY



TS 16603
Rev B

~~Rev A~~
Rev 2 7-5-81

10.4 Performance test (continued)

PC 1482

REF. PARA.	DESCRIPTION	DVM SWITCH POSITIONS	LIMITS	MEASUREMENT	
				PRIMARY	REDUNDANT
5.10.11.34	Band 5,7- TM output	S26-5, S28-2		4.108 V.	4.113
5.10.11.35	6+	S28-3		4.067 V.	4.080
5.10.11.36	Band 6-	S28-4		+1.150 V.	4.138
5.10.11.37	SMA Htr +	S28-5		4.429 V.	4.484
5.10.11.38	Htr -	S28-6		4.483 V.	4.465
5.10.11.39	+7V	S28-7 (S28-8 for RDT)		5.613 V.	5.656
5.10.11.40	+29V	S28-9 (S28-11 for RDT)		4.414 V.	4.490
5.10.11.41	SMA -29V	S26-5, S28-10 (S28-12 for RDT)		4.192 V.	4.161
5.10.11.42	Radiometer	S26-6, S28-2		5.264 V.	5.319
5.10.11.43	CDVU	S28-3		5.146 V.	5.259
5.10.11.44	Analog +	S28-4		4.708 V.	4.799
5.10.11.45	Analog -	S28-5		3.964 V.	3.990
5.10.11.46	Electromech.	S28-6		4.677 V.	4.640
5.10.11.47	Outgas - TM output	S26-6, S28-7		5.119 V.	5.086
5.10.12.1	Bus voltage	S26-1, S27-1 (S27-3 for RDT)		23.64 V.	23.00 V
5.10.12.2	Input bus current	S26-1, S27-2 (S27-4 for RDT)		50.43 mA.	50.78 mA.
5.10.12.3	SMA Htr + output voltage	S26-2, S27-5		21.69 V.	21.80 V.
5.10.12.4	Htr + ripple	Seen on Scope	< 30 mV pk-pk	20 mV	30 mV
5.10.12.5	Htr - voltage	S26-2, S27-6		-22.18 V.	-22.31 V.
5.10.12.6	SMA Htr - ripple	Seen on Scope	< 30 mV pk-pk	70 mV.	30 mV.
5.10.12.7	CDVU voltage	S26-3, S27-3		7.632 V.	7.752 V.
5.10.12.8	CDVU ripple	Seen on Scope	< 40 mV pk-pk	40 mV.	30 mV
5.10.12.9	Outgas - output voltage	S26-3, S27-7		86.57 V.	85.76 V.
5.10.12.10	Outgas - output ripple	Seen on Scope	2.50V pk-pk	200 mV.	200 mV
5.10.12.11	Parasitic output voltage	S26-3, S27-9 (S27-10 for RDT)		30.45 V.	30.34 V.
5.10.12.12	Parasitic output ripple	Seen on Scope	< 900 mV pk-pk	80 mV.	30 mV

140

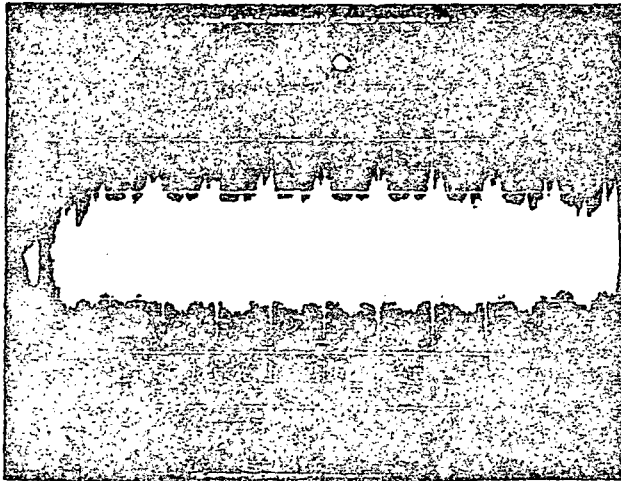
ORIGINAL PAGE IS
OF POOR QUALITY

LAC
TEST
S30

TS 16603
Rev B
18 December 1980

10.4 Performance test (continued)

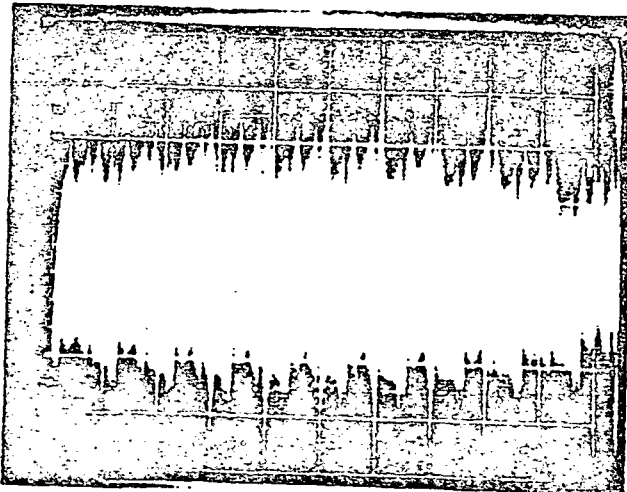
REF. PARA.	DESCRIPTION	DVM SWITCH POSITIONS	LIMITS	MEASUREMENT	
				PRIMARY	REDUNDANT
5.10.13.1	Input current telemetry	S26-4, S28-2 (S28-4 for RDT)		<u>1.2953V.</u>	<u>1.3421V.</u>
5.10.13.2	SMA Htr + output	S26-5, S28-5		<u>3.962V.</u>	<u>3.980V.</u>
5.10.13.3	SMA Htr -	S26-5, S28-6		<u>4.014V.</u>	<u>4.013V.</u>
5.10.13.4	CDVU	S26-6, S28-3		<u>4.292V.</u>	<u>4.356V.</u>
5.10.13.5	Outgas output telemetry	S26-6, S28-7		<u>4.321V.</u>	<u>4.308V.</u>
5.10.14.1	Photograph of reflected input current ripple in outgas mode - PRIMARY SIDE				



(2mA) CURRENT/DIV: 2mA A.C.

(10μS) SWEEP RATE: 10μsec.

5.10.14.1 Photograph of reflected input current ripple in outgas mode - REDUNDANT SIDE



(2mA) CURRENT/DIV: 2mA A.C.

(10μS) SWEEP RATE: 10μsec.

ORIGINAL PAGE IS
OF POOR QUALITY

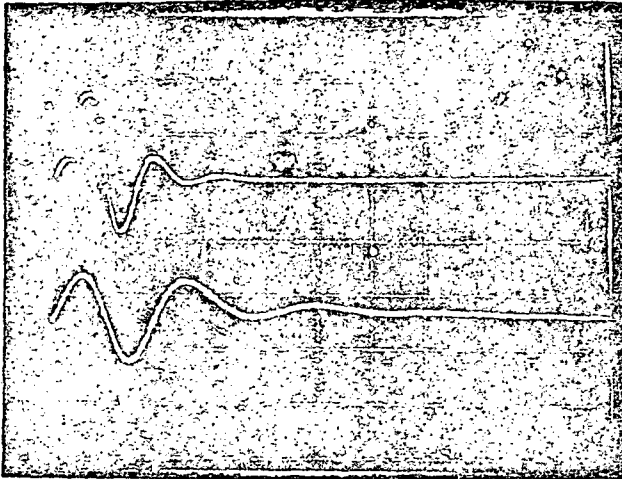


TS 16603
Rev B
18 December 1980

10.4 Performance test (continued)

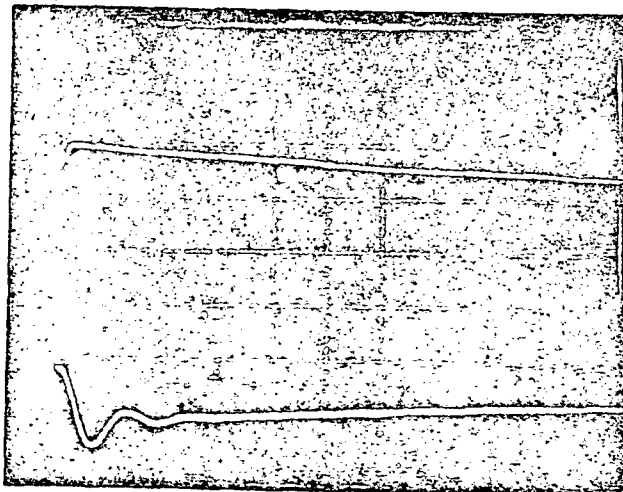
RP 1-82

REF. PARA.	DESCRIPTION	DVM SWITCH POSITIONS	LIMITS	MEASUREMENT	
				PRIMARY	REDUNDANT
5.10.15.1.1	Input current with CDVU off.	S26-1, S27-2 (S27-4 for RDT)		<u>48.03mV</u>	<u>47.73mV</u>
5.10.15.1.2	Photograph of input bus current and CDVU output voltage as CDVU load is enabled - PRIMARY SIDE				



(2V) VOLTAGE/DIV: 2V
(200mA) CURRENT/DIV: 200mA
(1mS) SWEEP RATE: 1.0msec

5.10.15.1.2 Photograph of input bus current and CDVU output voltage as CDVU load is disabled - PRIMARY SIDE



(2V) VOLTAGE/DIV: 2V
(200mA) CURRENT/DIV: 200mA
(2mS) SWEEP RATE: 2msec

142

ORIGINAL PAGE IS
OF POOR QUALITY

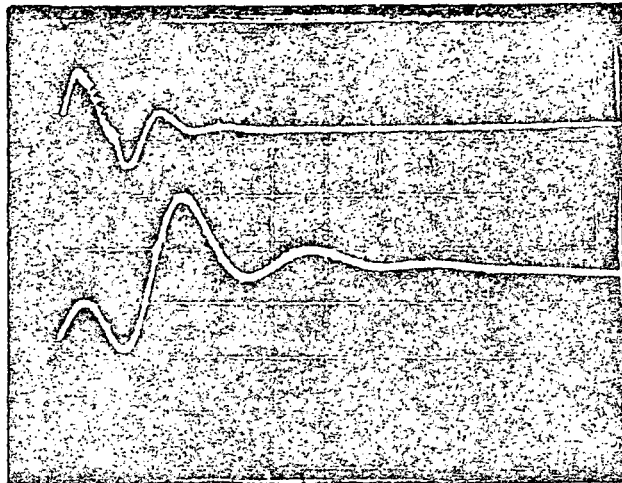


TS 16603
Rev B
18 December 1980

10.4 Performance test (continued)

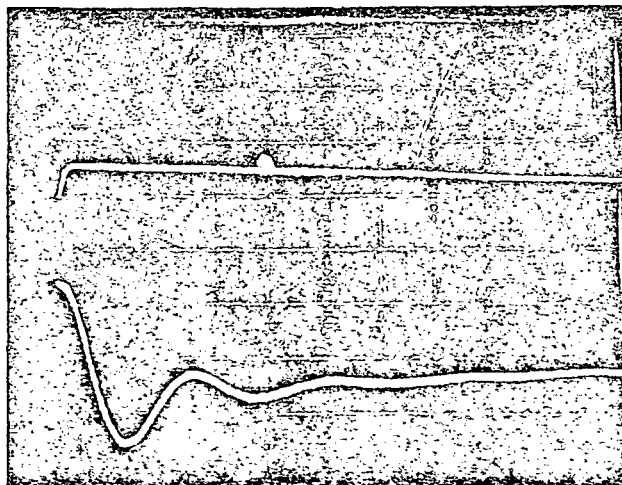
FIG 3482

REF. PARA.	DESCRIPTION
5.10.15.1.2	Photograph of input bus current and CDVU output voltage as CDVU load is enabled - REDUNDANT SIDE



(2V) VOLTAGE/DIV: 2V
(200mA) CURRENT/DIV: 200mA
(1ms) SWEEP RATE: 1.5sec.

5.10.15.1.2	Photograph of input bus current and CDVU output voltage as CDVU load is disabled - REDUNDANT SIDE
-------------	---



(2V) VOLTAGE/DIV: 2V
(200mA) CURRENT/DIV: 200mA
(2ms) SWEEP RATE: _____

143

ORIGINAL PAGE IS
OF POOR QUALITY

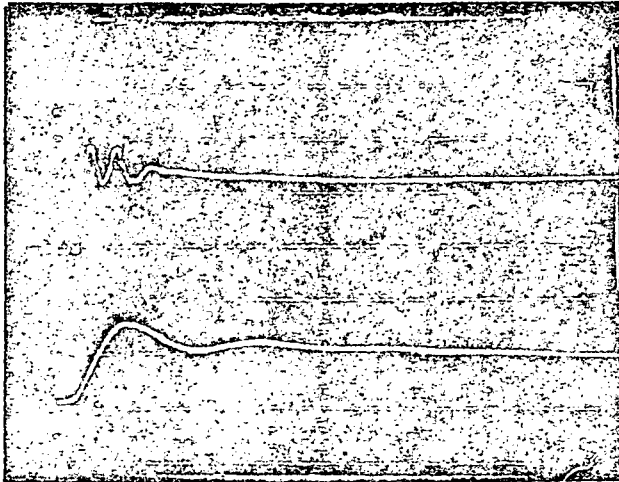


TS 16603
Rev B
18 December 1980

FE: 42

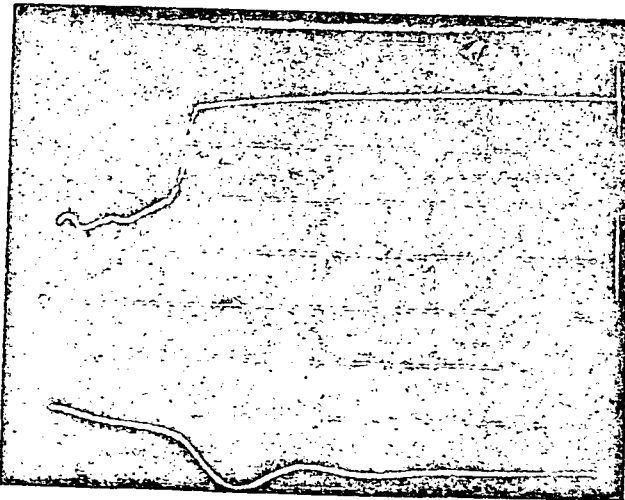
10.4 Performance test (continued)

REF. PARA.	DESCRIPTION	DVM SWITCH POSITIONS	LIMITS	MEASUREMENT	
				PRIMARY	REDUNDANT
5.10.15.2.1	Input bus current with outgas disabled	S26-1, S27-2 (S27-4 for RDT)		<u>16.938 mV</u>	<u>17.30</u>
5.10.15.2.2	Photograph of input bus current and outgas voltage as outgas load is enabled - PRIMARY SIDE				



(5V) VOLTAGE/DIV: 5V
(2A) CURRENT/DIV: 2A
(1ms) SWEEP RATE: 1 msec.

5.10.15.2.2 Photograph of input bus current and outgas voltage as outgas load is disabled - PRIMARY SIDE



(5V) VOLTAGE/DIV: 5V
(2A) CURRENT/DIV: 2A
(2ms) SWEEP RATE: 1 msec.

144

ORIGINAL PAGE IS
OF POOR QUALITY

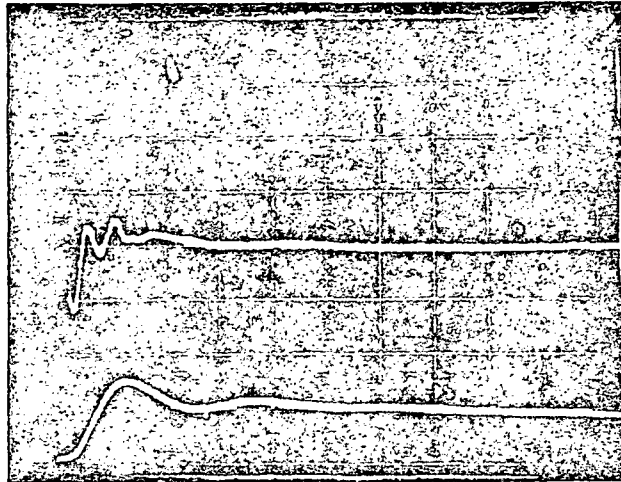


TS 16603
Rev B
18 December 1980

10.4 Performance test (continued)

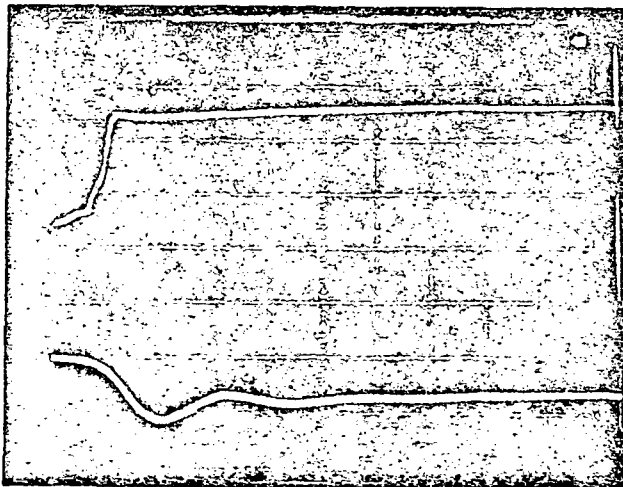
CF. PARA. DESCRIPTION

5.10.15.2.2 Photograph of input bus current and outgas voltage as outgas load is enabled - REDUNDANT SIDE



(5V) VOLTAGE/DIV: 5V
(2A) CURRENT/DIV: 2A
(500 μ S) SWEEP RATE: 1 μ sec.

5.10.15.2.2 Photograph of input bus current and outgas voltage as outgas load is disabled - REDUNDANT SIDE



(5V) VOLTAGE/DIV: 5V
(2A) CURRENT/DIV: 2A
(1mS) SWEEP RATE: 1m

ORIGINAL PAGE IS
OF POOR QUALITY



TS 16603
Rev B
~~20 December 1980~~
BCA-2 7-6-81

10.4 Performance test (continued)

REF. PARA.	DESCRIPTION	DVM SWITCH POSITION	LIMITS	MEASUREMENT	
				PRIMARY	REDUNDANT
5.10.16.1	BPS voltage	S26-1, S27-1 (S27-3 for RDT)		<u>23.04V</u> (49)	<u>23.80V</u>
5.10.16.2	BPS current	S26-1, S27-2 (S27-4 for RDT)		<u>20.41V</u> (50)	<u>21.0V</u>
5.10.16.3	SMA Htr +output voltage	S26-2, S27-5		<u>21.73V</u> (13)	<u>21.11</u>
5.10.16.4	SMA Htr +load current	S26-8, S34-1		<u>46.83mV</u> (73)	<u>47.23m</u>
5.10.16.5	SMA Htr -output voltage	S26-2, S27-6		<u>-22.13 V</u> (14)	<u>-22.10</u>
5.10.16.6	SMA Htr -load current	S26-8, S34-2		<u>-8.736mV</u> (37)	<u>-8.42</u>
5.10.16.7	CDVU output voltage	S26-3, S27-3		<u>7.631V</u> (20)	<u>7.747</u>
5.10.16.8	CDVU load current	S26-8, S34-10		<u>.2722V</u> (45)	<u>.2763</u>
5.10.16.9	Parasitic output voltage	S26-3, S27-9 (S27-10)		<u>30.66V</u> (17)	<u>30.94V</u>
5.10.16.10	Parasitic load current	S26-8, S34-7		<u>142.82mV</u> (42)	<u>144.3</u>
5.10.16.11	Input power (5.10.16.1 x 5.10.16.2)			<u>47.825</u>	<u>48.50</u>
5.10.16.12	Output power	(Primary) (Redundant)		<u>17.275</u>	<u>17.67</u>
	((5.10.16.3 x 5.10.16.4)	<u>1.114</u>	<u>1.114</u>		
	+ (5.10.16.5 x 5.10.16.6)	<u>1</u>	<u>1</u>		
	+ (5.10.15.7 x 5.10.16.8)	<u>1</u>	<u>1</u>		
	+ (5.10.16.9 x 5.10.16.10)	<u>1</u>	<u>1</u>		
5.10.16.13	Efficiency ((5.10.16.12) ÷ (5.10.16.11)) x 100%			<u>36.7%</u>	<u>36.4%</u>

146

ORIGINAL PAGE IS
OF POOR QUALITY

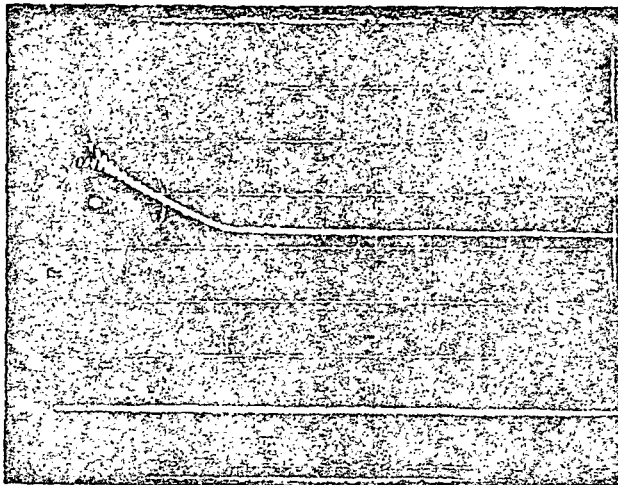


FEB 4 1982

TS 16603
Rev B
18 December 1980

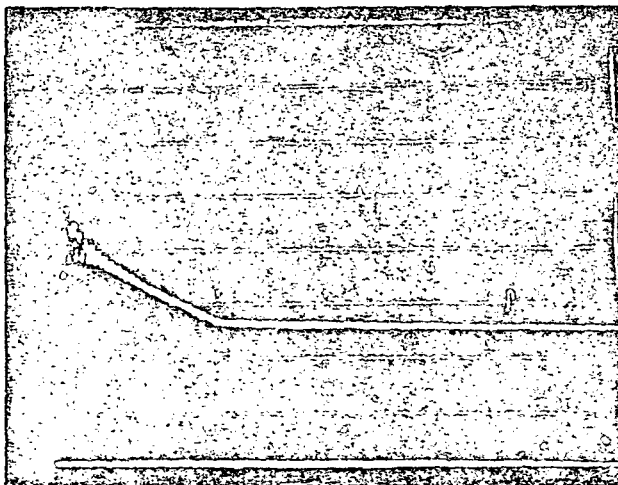
10.4 Performance test (continued)

5.10.17.1 Photograph of input bus current and input bus voltage
as is disable - PRIMARY SIDE



(5V) VOLTAGE/DIV: 5V.
(2A) CURRENT/DIV: 2A.
(1mS) SWEEP RATE: 1msec.

5.10.17.1 Photograph of input bus current and input bus voltage
as is disabled - REDUNDANT SIDE



(5V) VOLTAGE/DIV: 5V
(2A) CURRENT/DIV: 2A
(1mS) SWEEP RATE: 1msec.

ORIGINAL PAGE IS
OF POOR QUALITY



TS 16603
Rev B
18 December 1980

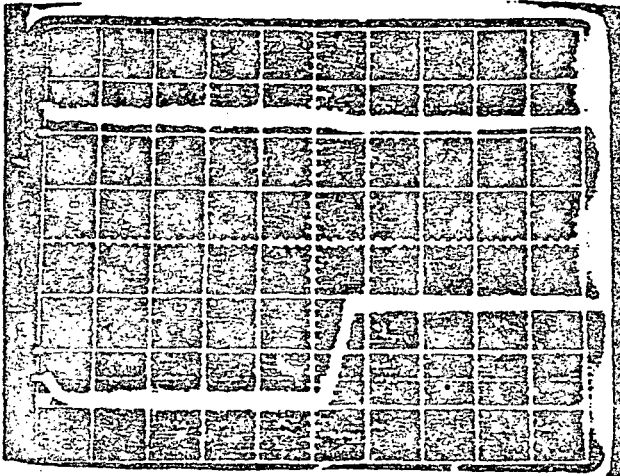
10.4 Performance test (continued)

5.10.17.2 Unit stays off (check)

Primary

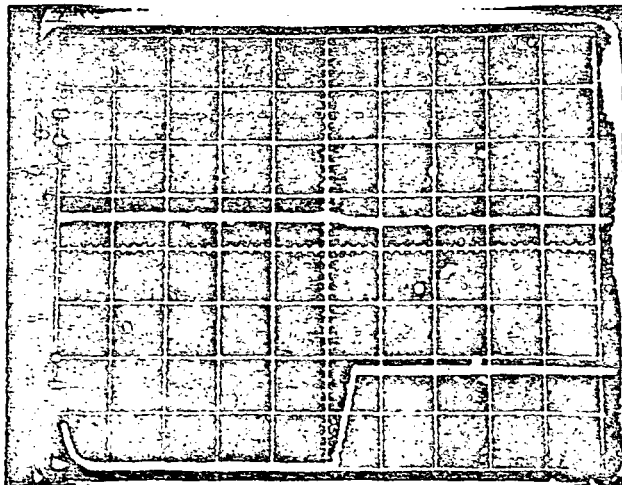
Redundant

5.10.17.3 Photograph of input bus current and input bus voltage
as is enabled - PRIMARY SIDE



(2V) VOLTAGE/DIV: 5V
(2A) CURRENT/DIV: 2A
(100ms) SWEEP RATE: 100ms

5.10.17.3 Photograph of input bus current and input bus voltage as
as is enabled - REDUNDANT SIDE



(2V) VOLTAGE/DIV: 5V
(2A) CURRENT/DIV: 2A
(100ms) SWEEP RATE: 100ms

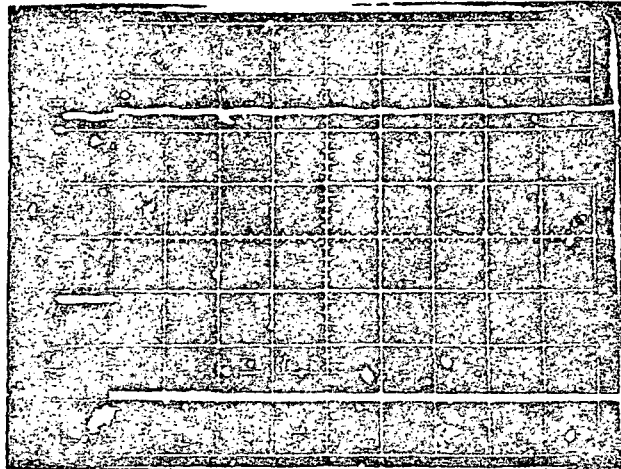
ORIGINAL PAGE IS
OF POOR QUALITY



TS 16603
Rev B
18 December 19

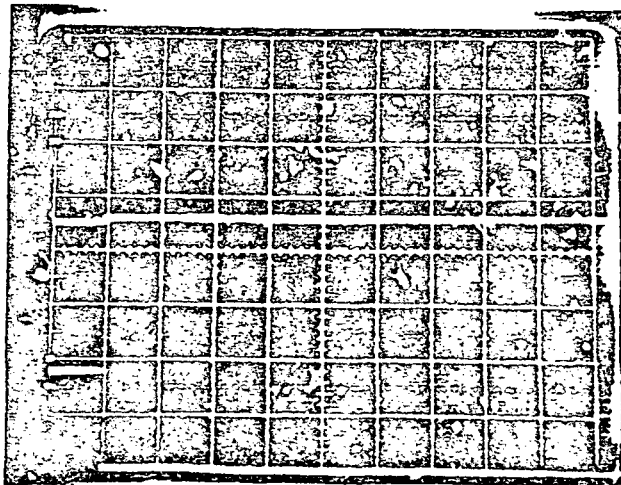
10.4 Performance test (continued)

5.10.17.4 Photograph of input bus current and input bus voltage
as is disabled - PRIMARY SIDE



(2V) VOLTAGE/DIV: 5V
(2A) CURRENT/DIV: 2A
(10mS) SWEEP RATE: 10ms/div

5.10.17.4 Photograph of input bus current and input bus voltage
as is disabled - REDUNDANT SIDE



(2V) VOLTAGE/DIV: 5
(2A) CURRENT/DIV: 2
(10mS) SWEEP RATE: 10ms/div

ORIGINAL PAGE IS
OF POOR QUALITY

HAC
TEST
530

TS 16603
Rev B
18 December 1980

10.4 Performance test (continued)

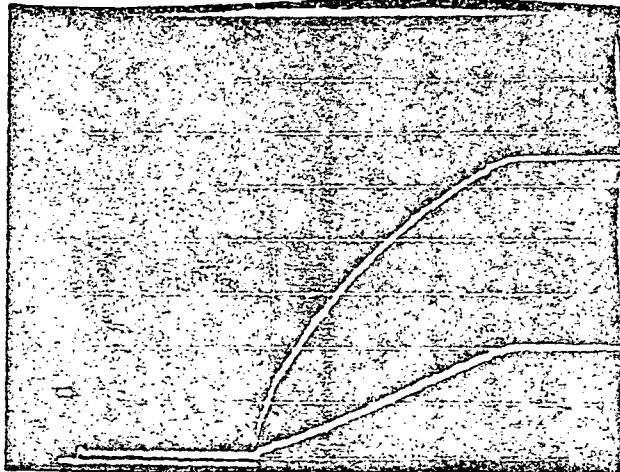
FR 3482

F. PARA.	DESCRIPTION	DVM SWITCH POSITIONS	LIMITS	MEASUREMENT	
				PRIMARY	REDUNDANT

5.10.17.5 Record that UUT operates correctly.

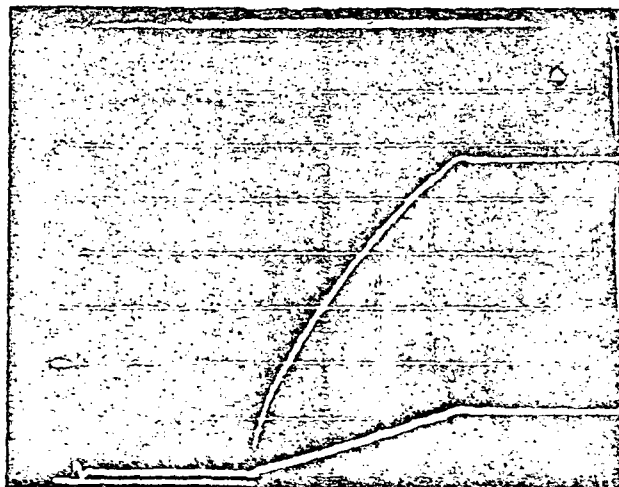
(checkmark)

5.10.13.1 Photograph of input bus current and MUX output voltage as MUX enable command is issued (all loads are ON except outgas) - PRIMARY SIDE



(5V) VOLTAGE/DIV: 5V
(5A) CURRENT/DIV: 5A
(20ms) SWEEP RATE: 10ms

5.10.18.2 Photograph of input bus current and parasitic output voltage as parasitic enable command is issued (all loads are ON except outgas) - PRIMARY SIDE



(5V) VOLTAGE/DIV: 5V
(5A) CURRENT/DIV: 5A
(20ms) SWEEP RATE: 10ms

ORIGINAL PAGE IS
OF POOR QUALITY



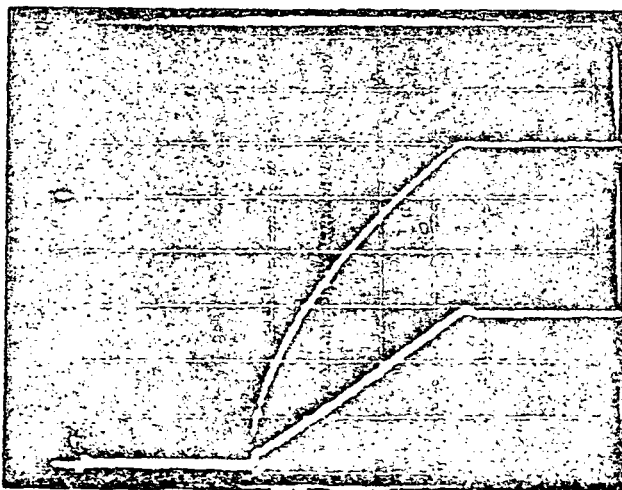
10.4 Performance test (continued)

10.18.1 Photograph of input bus current and MUX output voltage as MUX enable command is issued (all loads are ON except outgas) - REDUNDANT SIDE



(5V) VOLTAGE/DIV: 5V
(5A) CURRENT/DIV: 5A
(20mS) SWEEP RATE: 10ms

5.10.18.2 Photograph of input bus current and MUX output voltage as parasitic enable command is issued (all loads are ON except outgas) - REDUNDANT SIDE



(5v) Volts/Div: 5V
(5A) Current/Div: 5A
(20mS) Sweep Rate: 10ms

ORIGINAL PAGE IS
OF POOR QUALITY

HAZ
TEST
530

TS 16603
Rev B
~~20 December 1980~~
Feb 2 7-8-81

10.4 Performance test (continued)

FB 242

REF. PARA.	DESCRIPTION	DVM SWITCH POSITIONS	LIMITS	MEASUREMENT	
				PRIMARY	REDUNDANT
5.10.18.4	Undervoltage Trip Point (ON/OFF)	S26-1, S27-1 (S27-3 for RDT)	18.0 ± 1.50V	18.00 V ✓	18.03 V ✓
5.10.18.5	UUT stays OFF			✓	✓
5.10.18.6	Undervoltage Trip Point (OFF/ON)	S26-1, S27-1 (S27-3 for RDT)	19.0 ± 1.50V	18.4 V ✓	18.9 V ✓
5.10.18.7	Overvoltage Trip Point	S26-1, S27-1 (S27-3 for RDT)	38.0 ± 2V	38.3 V ✓	38.5 V ✓
5.10.18.8	UUT stays OFF			✓	✓
5.10.18.9	UUT turns ON			✓	✓

DATE Feb. 4, 1982
Thurs. Morning

Michael R. Brown
W. W. Crawford
TESTER(S)

152

ORIGINAL PAGE IS
OF POOR QUALITY



TS 16603
Rev B
18 December 1980

10.4 Performance test - Long Form

PROTOFLIGHT NA, OR FLIGHT ✓, S/N 004 TEMPERATURE: 131°F
 IN-PROCESS NA, QUAL ✓ A, OR ACCEPTANCE ✓
 TESTING PHASE Final Hot Form LINE VOLTAGE: 230 VOLTS

REF. PARA.	DESCRIPTION	DVM SWITCH POSITIONS	LIMITS	MEASUREMENT	
				PRIMARY	REDUNDANT
5.10.1.1	Calibrate cmd gen	--	--	<u>✓</u>	<u>✓</u>
5.10.2.1	Input bus current	S26-1, S27-2 (S27-4 for redundant)		<u>0.220A</u>	<u>0.222MV</u>
5.10.2.2	MUX output voltage	S26-3, S27-1	30.0 ±0.90V	<u>29.83V</u>	<u>30.31V</u>
5.10.2.3	MUX load current	S26-3, S27-12	3.55 ±0.40A	<u>32.43V</u>	<u>41.39MV</u>

The rest of Section 5.10.2 requires only checking voltage - indicate by checkmarks.

5.10.2.4.1	B1 + output voltage	S26-1, S27-5		<u>4.229V</u>	<u>✓</u>
5.10.2.4.2	B1 -	S27-6		<u>✓</u>	<u>✓</u>
5.10.2.4.3	B1 -	S27-5		<u>✓</u>	<u>✓</u>
5.10.2.4.4	B1 +	S27-7		<u>✓</u>	<u>✓</u>
5.10.2.5.1	B2 +	S27-7		<u>✓</u>	<u>✓</u>
5.10.2.5.2	B2 -	S27-8		<u>✓</u>	<u>✓</u>
5.10.2.5.3	B2 -	S27-8		<u>✓</u>	<u>✓</u>
5.10.2.5.4	B2 +	S27-7		<u>✓</u>	<u>✓</u>
5.10.2.6.1	B3 +	S27-9		<u>✓</u>	<u>✓</u>
5.10.2.6.2	B3 -	S27-10		<u>✓</u>	<u>✓</u>
5.10.2.6.3	B3 -	S27-10		<u>✓</u>	<u>✓</u>
5.10.2.6.4	B3 +	S27-9		<u>✓</u>	<u>✓</u>
5.10.2.7.1	B4 +	S27-11		<u>✓</u>	<u>✓</u>
5.10.2.7.2	B4 -	S27-12		<u>✓</u>	<u>✓</u>
5.10.2.7.3	B4 -	S27-12		<u>✓</u>	<u>✓</u>
5.10.2.7.4	B4 +	S26-1, S27-11		<u>✓</u>	<u>✓</u>
5.10.2.8.1	B5,7+	S26-2, S27-1		<u>✓</u>	<u>✓</u>
5.10.2.8.2	B5,7-	S27-2		<u>✓</u>	<u>✓</u>
5.10.2.8.3	B5,7-	S27-2		<u>✓</u>	<u>✓</u>
5.10.2.8.4	B5,7+	S27-1		<u>✓</u>	<u>✓</u>
5.10.2.9.1	B6 +	S27-3		<u>✓</u>	<u>✓</u>
5.10.2.9.2	B6 - output voltage	S26-2, S27-4		<u>✓</u>	<u>✓</u>

REVIEWED
PAGE 3-103
2/5/80

153

ORIGINAL PAGE IS
OF POOR QUALITY



TS 15603
Rev B
10 Dec 1980
SPU-1 1/24/81

10.4 Performance test (continued)

PTC PARA.	DESCRIPTION	DVM SWITCH POSITIONS	LIMITS	MEASUREMENT	
				PRIMARY	REDUNDANT
5.10.2.9.3	26 - output voltage	S26-2, S27-4		✓	✓
5.10.2.9.4	26 + output voltage	S26-2, S27-3		✓	✓
5.10.2.10.1	SMA HTR + output voltage	S27-5		✓	✓
5.10.2.10.2	-	S27-6		✓	✓
5.10.2.10.3	-	S27-6		✓	✓
5.10.2.10.4	-	S27-5		✓	✓
5.10.2.11.1	-7V	S26-2, S27-7		✓	✓
5.10.2.11.2	-7V	(S27-8 for RDT)		✓	✓
5.10.2.12.1	+29V	S26-2, S27-9		✓	✓
		(S27-11 for RDT)		✓	✓
5.10.2.12.2	-29V	S26-2, S27-10		✓	✓
		(S27-12 for RDT)		✓	✓
5.10.2.12.3	-29V	S26-2, S27-10		✓	✓
5.10.2.12.4	SMA HTR +29V	S26-2, S27-9		✓	✓
5.10.2.13.1	Radiometer	S26-3, S27-2		✓	✓
5.10.2.13.2	Radiometer	S27-2		✓	✓
5.10.2.14.1	CDVU	S27-3		✓	✓
5.10.2.14.2	CDVU	S27-3		✓	✓
5.10.2.15.1	Analog +	S27-4		✓	✓
5.10.2.15.2	Analog -	S27-5		✓	✓
5.10.2.15.3	Analog -	S27-5		✓	✓
5.10.2.15.4	Analog +	S27-4		✓	✓
5.10.2.16.1	Electromech.	S27-6		✓	✓
5.10.2.16.2	Electromech.	S27-6		✓	✓
5.10.2.17.1	Outgas output voltage	S26-3, S27-7		✓	✓
5.10.3.1	Bus voltage	S26-1, S27-1 (S27-3 for RDT)			
				28.0V (49)	25.02
5.10.3.2	MDX load current	S26-3, S27-12	4.130 ± 0.025A	4.125V	4.131V
5.10.3.3	Bus current	S26-1, S27-2 (S27-4 for RDT)		132.0V	(50) 132.491V
5.10.3.3.2	BPS Voltage	S26-1, S27-1 (S27-3)		28.07V	28.02
5.10.3.3.3	BPS Current	S26-1, S27-2 (S27-4)		132.04V	132.291V
5.10.3.3.4	MDX Current	S26-3, S27-12		4.132V	4.121V

ORIGINAL PAGE IS
OF POOR QUALITY



TS 16603
Rev B
18 December 1980

10.4 Performance test (continued)

3:42

REF. PARA.	DESCRIPTION	DVM SWITCH POSITIONS	LIMITS	MEASUREMENT	
				PRIMARY	REDUNDANT
5.10.3.4.1	B1 + output voltage	S26-1, S27-5	20.50 ±2.50V	20.65 V (1)	20.72 V
5.10.3.4.2	B1 + output ripple	Look on Scope	<600 mV pk-pk	20 mV	20 mV
5.10.3.4.3	B1 - output voltage	S26-1, S27-6	-20.50 ±2.50V	20.66 V (2)	20.75 V
5.10.3.4.4	B1 - output ripple	Look on Scope	<600 mV pk-pk	30 mV	20 mV
5.10.3.5.1	B2 + output voltage	S26-1, S27-7	20.50 ±2.50V	20.44 V (3)	20.55 V
5.10.3.5.2	B2 + output ripple	Look on Scope	<600 mV pk-pk	25 mV	20 mV
5.10.3.5.3	B2 - output voltage	S26-1, S27-8	-20.50 ±2.50V	20.44 V (4)	20.57 V
5.10.3.5.4	B2 - output ripple	Seen on Scope	<600 mV pk-pk	20 mV	20
5.10.3.6.1	B3 + output voltage	S26-1, S27-9	20.50 ±2.50V	20.55 V (5)	20.48 V
5.10.3.6.2	B3 + output ripple	Seen on Scope	<600 mV pk-pk	20 mV	20
5.10.3.6.3	B3 - output voltage	S26-1, S27-10	-20.50 ±2.50V	20.44 V (6)	20.58 V
5.10.3.6.4	B3 - output ripple	Seen on Scope	<600 mV pk-pk	20 mV	20
5.10.3.7.1	B4 + output voltage	S26-1, S27-11	20.50 ±2.50V	20.60 V (7)	20.72 V
5.10.3.7.2	B4 + output ripple	Seen on Scope	<600 mV pk-pk	20 mV	20
5.10.3.7.3	B4 - output voltage	S26-1, S27-12	-20.50 ±2.50V	20.63 V (8)	20.73 V
5.10.3.7.4	B4 - output ripple	Seen on Scope	<600 mV pk-pk	20 mV	20
5.10.3.8.1	B5,7 + voltage	S26-2, S27-1	20.50 ±2.50V	20.55 V (9)	20.22 V
5.10.3.8.2	B5,7 + ripple	Seen on Scope	<600 mV pk-pk	30 mV	30
5.10.3.8.3	B5,7 - voltage	S26-3, S27-2	-20.50 ±2.50V	20.44 V (10)	20.25 V
5.10.3.8.4	B5,7 - ripple	Seen on Scope	<600 mV pk-pk	35 mV	40
5.10.3.9.1	B6 + voltage	S26-2, S27-3	20.50 ±2.50V	20.53 V (11)	20.58 V
5.10.3.9.2	B6 + ripple	Seen on Scope	<600 mV pk-pk	20 mV	20
5.10.3.9.3	B6 - voltage	S26-2, S27-4	-20.50 ±2.50V	20.53 V (12)	20.60 V
5.10.3.9.4	B6 - ripple	Seen on Scope	<600 mV pk-pk	20 mV	20
5.10.3.10.1	SMA Htr + voltage	S26-2, S27-5	21.20 ±2.12V	22.38 V (13)	22.48 V
5.10.3.10.2	SMA Htr + ripple	Seen on Scope	<630 mV pk-pk	20 mV	20
5.10.3.10.3	SMA Htr - voltage	S26-2, S27-6	-21.20 ±2.12V	22.14 V (14)	22.96 V
5.10.3.10.4	SMA Htr - ripple	Seen on Scope	<630 mV pk-pk	20 mV	20
5.10.3.11.1	SMA +7V voltage	S26-2, S27-7 (S27-8 for RDT)	7.10 ±0.80V	7.70 V (15)	7.78 V
5.10.3.11.2	SMA +7V output ripple	Seen on Scope	<10 mV pk-pk	20 mV	30

ORIGINAL PAGE IS
OF POOR QUALITY



Ts 16603
Rev B
18 December 1980

TS : 472

10.4 Performance test (continued)

REF. PARA.	DESCRIPTION	DVM SWITCH POSITIONS	LIMITS	MEASUREMENT	
				PRIMARY	REDUNDANT
5.10.3.12.1	SMA +29V output voltage	S26-2, S27-9 (S27-11 for RDT)	29.50 \pm 1.50V	30.50V (16)	30.62
5.10.3.12.2	SMA +29V ripple	Seen on Scope	<870 mV, pk-pk	40 mV	50
5.10.3.12.3	SMA -29V voltage	S26-2, S27-10 (S27-12 for RDT)	-29.50 \pm 1.50V	30.48V (17)	-30.64
5.10.3.12.4	SMA -29V ripple	Seen on Scope	<870 mV pk-pk	50 mV	50
5.10.3.13.1	MIX voltage	S26-3, S27-1	30.00 \pm 0.90V	30.18V (18)	30.32
5.10.3.13.2	MIX ripple	Seen on Scope	<900 mV, pk-pk	45 mV	50
5.10.3.14.1	Radiometer voltage	S26-3, S27-2	8.50 \pm 0.85V	7.707V (19)	9.669
5.10.3.14.2	Radiometer ripple	Seen on Scope	<50 mV pk-pk	30 mV	40
5.10.3.15.1	CDVU voltage	S26-3, S27-3	8.00 \pm 0.80V	7.66V (20)	7.769
5.10.3.15.2	CDVU ripple	Seen on Scope	<40 mV pk-pk	20 mV	20
5.10.3.16.1	Analog + voltage	S26-3, S27-4	21.20 \pm 2.12V	22.51V (21)	22.55
5.10.3.16.2	Analog + ripple	Seen on Scope	<530 mV pk-pk	30 mV	20
10.3.16.3	Analog - voltage	S26-3, S27-5	-21.20 \pm 2.12V	-22.54V (22)	-22.61
10.3.16.4	Analog - ripple	Seen on Scope	<530 mV pk-pk	20 mV	20
5.10.3.17.1	Electromech. voltage	S26-3, S27-6	33.40 \pm 3.34V	33.14V (23)	33.32
5.10.3.17.2	Electromech. ripple	Seen on Scope	<1.0V pk-pk	30 mV	50
5.10.3.18.1	Outgas voltage	S26-3, S27-7	100.0 \pm 12.0V	105.42V	104.40
5.10.3.18.2	Outgas output ripple	Seen on Scope	<1.0V pk-pk	150 mV	150
5.10.4.1	Input current telemetry	S26-4, S28-2 (S28-4 for RDT)		3.924V	3.936
5.10.4.2.1	Band 1 + volt. telemetry	S26-4, S28-5		3.772V	3.793
5.10.4.2.2	Band 1 -	S28-6		3.761V	3.775
5.10.4.3.1	Band 2+	S28-7		3.724V	3.750
5.10.4.3.2	Band 2-	S28-8		3.712V	3.725
5.10.4.4.1	Band 3+	S28-9		3.742V	3.773
5.10.4.4.2	Band 3-	S28-10		3.737V	3.750
5.10.4.5.1	Band 4+	S28-11		3.743V	3.768
5.10.4.5.2	Band 4-	S26-4, S28-12		3.753V	3.770
5.10.4.6.1	Band 5,7+	S26-5, S28-1	3.717	3.767V	3.710
5.10.4.6.2	Band 5,7- volt. telemetry	S26-5, S28-2		3.707V	3.689

ORIGINAL PAGE IS
OF POOR QUALITY



TS 16603
Rev B
18 December 1980

10.4 Performance test (continued)

FB 048

REF. PARA.	DESCRIPTION	DVM SWITCH POSITIONS	LIMITS	MEASUREMENT	
				PRIMARY	REDUNDANT
5.10.4.7.1	Band 6 + volt. telemetry	S26-5, S28-3		<u>3.714 V.</u>	<u>3.726</u>
5.10.4.7.2	Band 6 -	S28-4		<u>3.750 V.</u>	<u>3.761</u>
5.10.4.8.1	SMA Htr +	S28-5		<u>4.089 V.</u>	<u>4.114</u>
5.10.4.8.2	SMA Htr -	S28-6		<u>4.141 V.</u>	<u>4.160</u>
5.10.4.9	SMA +7V	S26-5, S28-7 (S27-8 for RDT)		<u>4.927 V.</u>	<u>4.998</u>
5.10.4.10.1	SMA +29V	S26-5, S28-9 (S27-11 for RDT)		<u>4.141 V.</u>	<u>4.223</u>
5.10.4.10.2	SMA -29V	S26-5, S28-10 (S27-12 for RDT)		<u>3.798 V.</u>	<u>3.852</u>
5.10.4.11	MUX	S26-6, S28-1		<u>4.311 V.</u>	<u>4.288</u>
5.10.4.12	Radiometer	S26-6, S28-2		<u>4.782 V.</u>	<u>4.759</u>
5.10.4.13	CDVU	S26-6, S28-3		<u>4.310 V.</u>	<u>4.365</u>
5.10.4.14.1	Analog + volt. telemetry	S26-6, S28-4		<u>4.023 V.</u>	<u>4.030</u>
5.10.4.14.2	Analog -	S26-6, S28-5		<u>3.957 V.</u>	<u>3.857</u>
5.10.4.15	Electromech.	S28-6		<u>4.068 V.</u>	<u>4.092</u>
5.10.4.16	Outgas volt. telemetry	S26-6, S28-7		<u>5.298 V.</u>	<u>5.220</u>
5.10.5.1.1	Analog + load current	S26-3, S27-11 mV ÷ 10 = Amps	15.685	<u>15.685</u>	<u>15.720</u>
5.10.5.1.2	MUX	S26-3, S27-12 mV ÷ 10 = Amps	41.56	<u>41.56</u>	<u>41.23</u>
5.10.5.1.3	Band 1 +	S26-7, S34-1 mV ÷ 0.5 = mA	92.77	<u>92.77</u>	<u>92.14</u>
5.10.5.1.4	Band 1 -	S34-2	-91.44	<u>-91.44</u>	<u>92.37</u>
5.10.5.1.5	2 +	S34-3	90.66	<u>90.66</u>	<u>91.17</u>
5.10.5.1.6	2 -	S34-4	-91.52	<u>-91.52</u>	<u>91.96</u>
5.10.5.1.7	3 +	S34-5	91.50	<u>91.50</u>	<u>91.28</u>
5.10.5.1.8	3 -	S34-6	-91.27	<u>-91.27</u>	<u>91.71</u>
5.10.5.1.9	4 +	S34-7	91.60	<u>91.60</u>	<u>92.15</u>
5.10.5.1.10	4 -	S34-8	-91.28	<u>-91.28</u>	<u>91.77</u>
5.10.5.1.11	5, 7 +	S34-9	91.52	<u>91.52</u>	<u>91.93</u>
5.10.5.1.12	5, 7 -	S34-10	-90.65	<u>-90.65</u>	<u>91.27</u>
5.10.5.1.13	6 +	S34-11	47.72	<u>47.72</u>	<u>47.93</u>
5.10.5.1.14	Band 6 -	S26-7, S34-12	47.55	<u>47.55</u>	<u>47.72</u>
5.10.5.1.15	SMA Htr +	S26-8, S34-1 mV ÷ 0.5 = mA	48.24	<u>48.24</u>	<u>49.46</u>
5.10.5.1.16	SMA Htr - load current	S26-8, S34-2 mV = mA	-7.022	<u>-7.022</u>	<u>9.70</u>

ORIGINAL PAGE IS
OF POOR QUALITY



TS 16603
Rev B

7-6-81
SCA-3 11/3/81

10.4 Performance test (continued)

REF. PARA.	DESCRIPTION	DVM SWITCH POSITIONS	LIMITS	MEASUREMENT	
				PRIMARY	REDUNDANT
5.10.5.1.17	SMA +29V load current	S26-8, S34-3	mV ÷ 0.402 = mA	50.95 V (40)	51.13
5.10.5.1.18	SMA -29V	S34-4	mV ÷ 0.402 = mA	-50.62 V (41)	50.92
5.10.5.1.19	SMA +7V	S34-5	V ÷ 0.1 = Amps	2.777 V (42)	2.90 V
5.10.5.1.20	Analog -	S34-6	mV ÷ 0.402 = mA	2.706 V (43)	2.71 V
5.10.5.1.21	Radiometer	S34-9	mV ÷ 0.5 = mA	155.72 V (44)	155.00
5.10.5.1.22	CDVU	S34-10	mV ÷ 0.5 = mA	2.734 V (45)	2.77 V
5.10.5.1.23	Electromech. load current	S26-8, S34-11	mV ÷ 0.402 = mA	2.107 V (46)	2.12 V
5.10.5.2.1	Bus power supply voltage	S26-1, S27-1 (S27-3 for RDT)		28.09 V (47)	28.03 V
5.10.5.2.2	Bus input current	S26-1, S27-2 (S27-4 for RDT)	mV ÷ 10 = Amps	132.78 V (48)	132.55
5.10.5.2.3	P _{IN} (Section 5.10.5)			372.979	371.62
5.10.5.2.4	P _{IN} (Section 5.10.3)			370.44	371.236
5.10.5.2.5	P _{IN} (avg)			371.71	371.429
5.10.5.2.9	Input current at current limit		26-1, 27-2 (26-1 27-4 Rdt)	27.76 V	198.63 27.54 V
	Input voltage at current limit		27-1 (27-3 Rdt)	30.28 V	30.71 mV
	MUX voltage at current limit		26-3, 27-1	54.87 V	46.75 mV
	MUX current at current limit		27-12	162.45 V	46.75 mV
5.10.5.3.1	P _{OUT}			272.896	273.81
5.10.5.3.2	Efficiency		> 70%	73.91	74.21

INPUT POWER #1 = 372.97901
 INPUT POWER #1 = 370.44
 AVE INPUT POWER = 371.71
 OUTPUT POWER = 272.896
 EFFICIENCY = 73.91
 INPUT POWER #2 = 371.62174
 INPUT POWER #1 = 371.23698
 AVE INPUT POWER = 371.429
 OUTPUT POWER = 273.81
 EFFICIENCY = 74.21

G. Pearson
2/1/82

ORIGINAL PAGE IS
OF POOR QUALITY

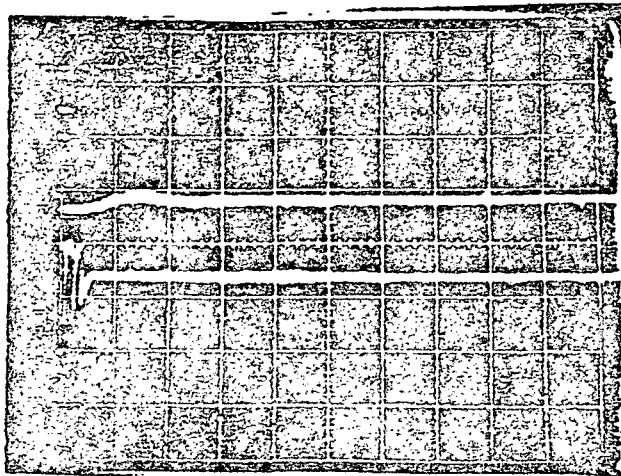


TS 16603
Rev B
18 December 1980

10.4 Performance test (continued)

8242

REF. PARA.	DESCRIPTION	DVM SWITCH POSITIONS	LIMITS	MEASUREMENT	
				PRIMARY	REDUNDANT
5.10.6.1	+7V output pulsed	S26-2, S27-7 (S27-8 for RDT)	7.10 \pm 0.80V	<u>7.001 V.</u>	<u>7.1134</u>
5.10.6.2	Photograph of transients induced on input bus current and SMA +7V output voltage as SMA +7V output is being pulse-loaded-PRIMARY SIDE				



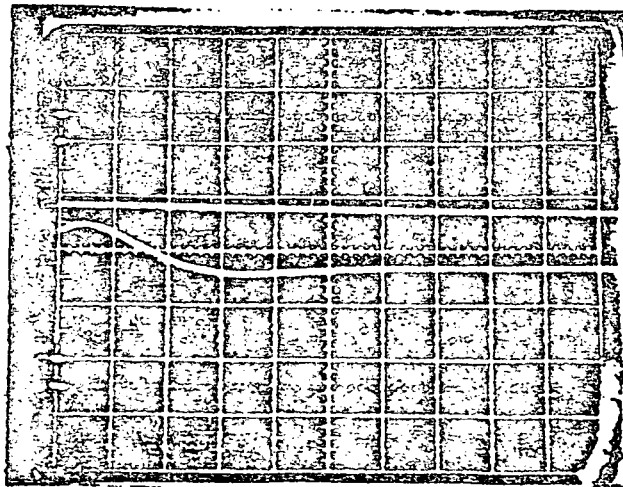
7.696 V Hi.

7.000 V Lo.

(0.2A) CURRENT/DIV: 2 Amps. D.C.
(1V) VOLTAGE/DIV: 2 V
(200uS) SWEEP RATE: 200uSec.

zero volts

5.10.6.2 Photograph of transients induced on input bus current and SMA +7V output voltage as pulse-load on SMA +7V outputs is being removed - PRIMARY SIDE



(0.2A) CURRENT/DIV: 2 Amps. D.C.
(1V) VOLTAGE/DIV: 2V/DIV.
(200uS) SWEEP RATE: 50uSec.

159

ORIGINAL PAGE IS
OF POOR QUALITY



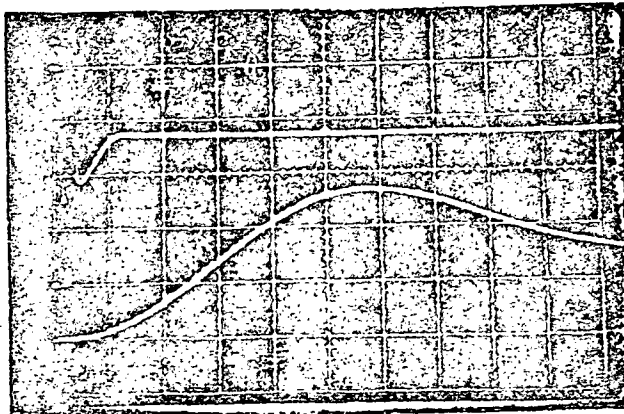
TS 16603
Rev B
18 December 1980

S 112

10.4 Performance test (continued)

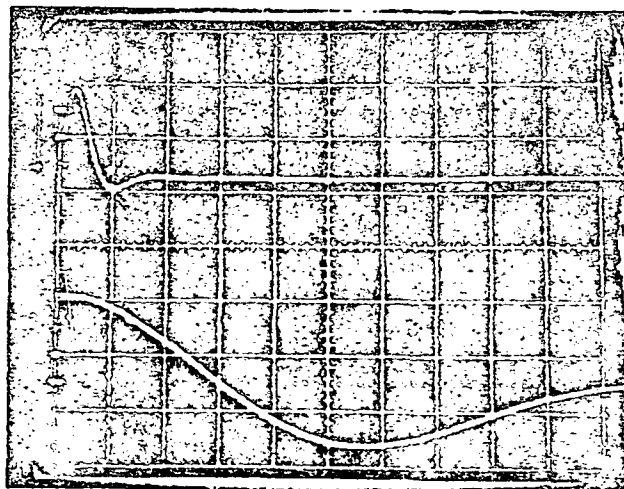
REF. PARA. DESCRIPTION

5.10.6.2 Photograph of transients induced on input bus current and SMA +7V output voltage as SMA +7V output is being pulse-loaded-REDUNDANT SIDE



(0.2A) CURRENT/DIV: 2A A.C.
(1V) VOLTAGE/DIV: 1V
(200uS) SWEEP RATE: 200uS

5.10.6.2 Photograph of transients induced on input bus current and SMA +7V output voltage as pulse-load is being removed-REDUNDANT SIDE



(0.2A) CURRENT/DIV: 2A A.C.
(1V) VOLTAGE/DIV: 1V
(200uS) SWEEP RATE: 200uS

160

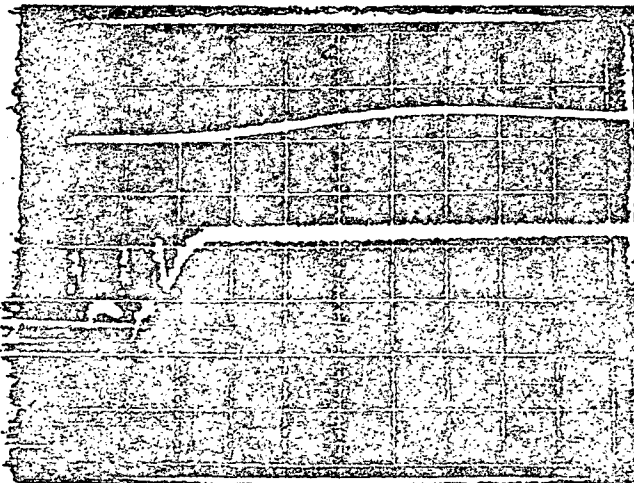
ORIGINAL PAGE IS
OF POOR QUALITY

HAC
TEST
S30

TS 16603
Rev B
~~18 December 1980~~
Set 2 9-6-81

10.4 Performance test (continued)

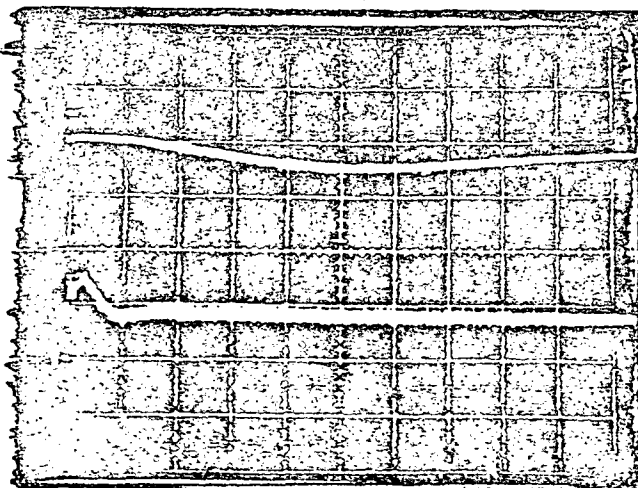
REF. PARA.	DESCRIPTION	DVM SWITCH POSITIONS	LIMITS	MEASUREMENT	
				PRIMARY	REDUNDANT
5.10.6.3	Input bus current	S26-1, S27-2 (S27-4 for RDT)		137.87 mV	138.25 mV
5.10.6.4	SMA +7V TM- pulsed	S26-5, S28-7 (S28-8 for RDT)	4.570V	4.109 mV	4.687 V
5.10.6.5	SMA +7V load current-pulsed	(S26-8, S34-5)	4.560 V		4.621 V
5.10.6.6	Photograph of transients induced on input bus current and SMA +7V load current as SMA +7V output is being pulse-loaded-PRIMARY SIDE				



(1A)* SMA CURRENT/DIV: 100 mV.
(NA) BUS CURRENT/DIV: 1 Amp. A.C.
(200uS) SWEEP RATE: 200 μsec.

* Using 0.1 Ω shunt and 100 mV/Div on scope

5.10.6.6 Photograph of transients induced on input bus current and SMA +7V load current as pulse-load is being removed-PRIMARY SIDE



(1A)* SMA CURRENT/DIV: 100 mV
(NA) BUS CURRENT/DIV: 1 amp
(200uS) SWEEP RATE: 200 μsec.

* Using 0.1 Ω shunt and 100mV/Div on Scope

(161)

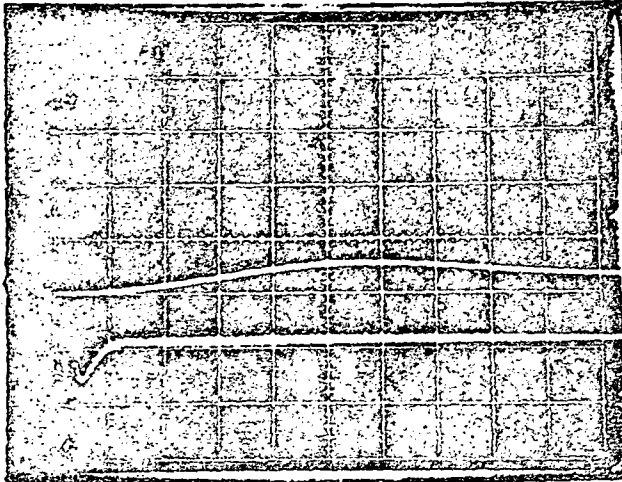
ORIGINAL PAGE IS
OF POOR QUALITY



TS 16603
Rev B
~~18 December 1980~~
SCA-2 76-81

10.4 Performance test (continued)

REF. PARA.	DESCRIPTION
5.10.6.6	Photograph of transients induced on input bus current and SMA + 7V load current as SMA + 7V output is being pulse loaded - REDUNDANT SIDE

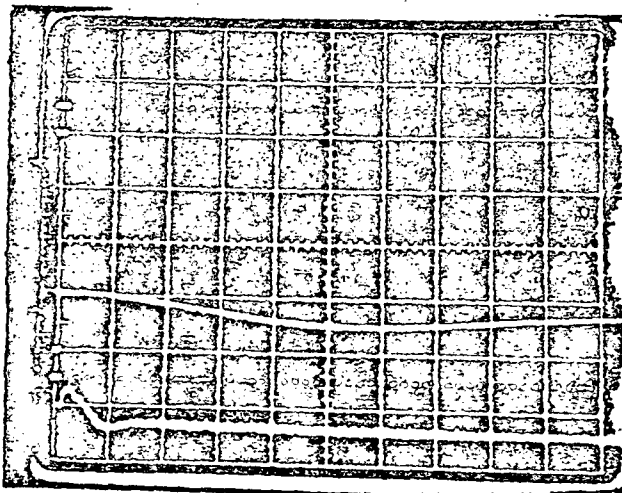


(1A)* SMA CURRENT/DIV: 100mV
(2A) BUS CURRENT/DIV: 1A
(200uS) SWEEP RATE: 200uS

*Using 0.1 shunt and
100 mV/Div on scope.

2

5.10.6.6	Photograph of transients induced on input bus current and SMA + 7V load current as pulse-load is removed - REDUNDANT SIDE
----------	---



(1A)* SMA CURRENT/DIV: 100mV
(2A) BUS CURRENT/DIV: 1A
(200uS) SWEEP RATE: 200uS

*Using 0.1 shunt and
100mV/Div on scope.

2

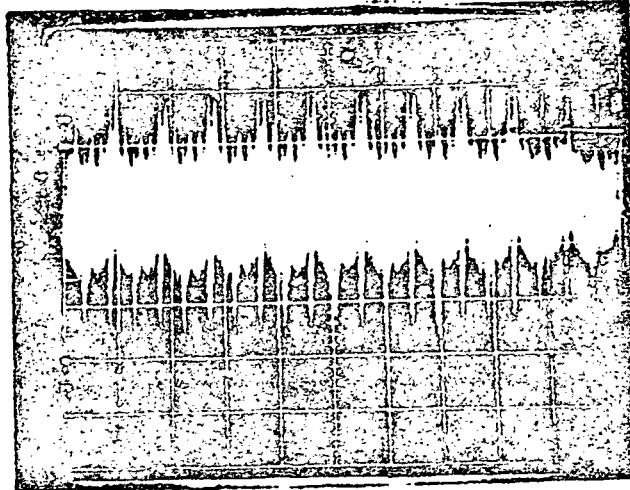
ORIGINAL PAGE IS
OF POOR QUALITY

MAC
TEST
530

TS 16603
Rev B
18 December 1980

10.4 Performance test (continued)

REF. PARA.	DESCRIPTION
5.10.7.1	Photograph of reflected input current ripple - PRIMARY SIDE



(1mA) CURRENT/DIV: 2 mA
(10uS) SWEEP RATE: 10 μ sec

5.10.7.1 Photograph of reflected input current ripple - REDUNDANT SIDE



(1mA) CURRENT/DIV: 2 mA
(10uS) SWEEP RATE: 10 μ sec

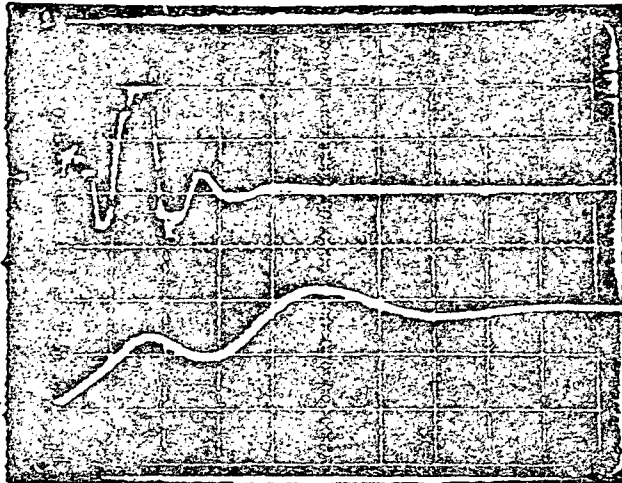
5.10.8.1.1 Input current - full load S26-1, S27-2
(S27-4 for RDT)



132.73 mV
104.09 106.76 mV

5.10.8.1.2 Input current w/o analog Sema
load

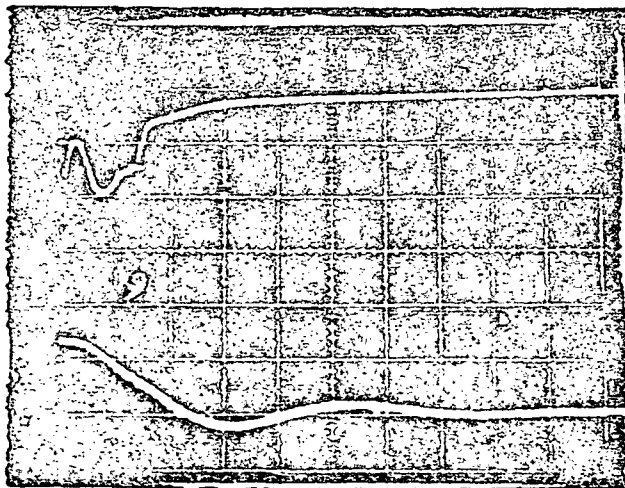
5.10.8.1.3 Photograph of transients induced on input bus current and analog + voltage as analog output is enabled - PRIMARY SIDE



Output Voltage - Loaded
→ 22.50

(2V) VOLTAGE/DIV: $\frac{2V}{Div.}$
(1A) CURRENT/DIV: $\frac{1A}{Div.}$
(500us) SWEEP RATE: $\frac{500 \mu sec.}{Div.}$

5.10.8.1.3 Photograph of transients induced on input bus current and analog + voltage as analog output is disabled - PRIMARY SIDE



Open Circuit Voltage
→ 26.79 V

(5V) VOLTAGE/DIV: $\frac{2V}{Div.}$
(1A) CURRENT/DIV: $\frac{1 Amp.}{Div.}$
(1ms) SWEEP RATE: $\frac{500 \mu sec.}{Div.}$

→ Bus Current

ORIGINAL PAGE IS
OF POOR QUALITY

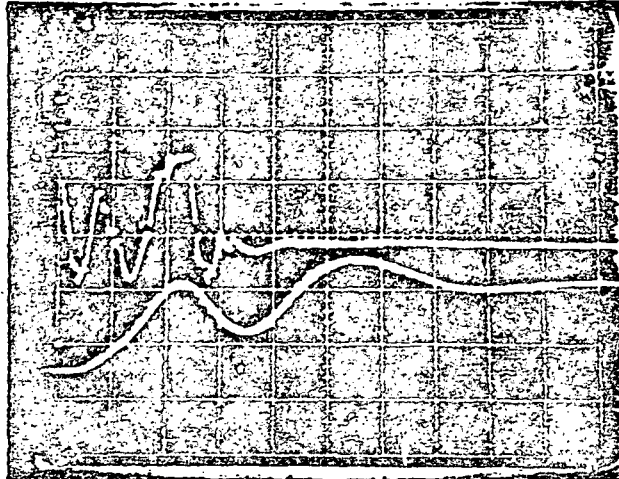
ORIGINAL PAGE IS
OF POOR QUALITY



TS 16603
Rev B
18 December 1980

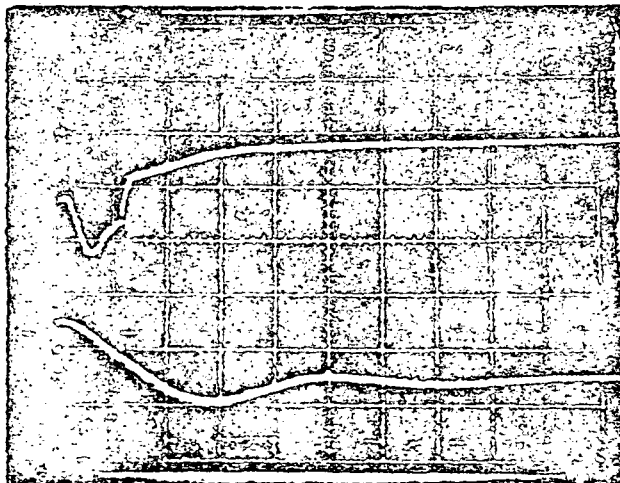
10.4 Performance test (continued)

REF. PARA.	DESCRIPTION
5.10.8.1.3	Photograph of transients induced on input bus current and analog + output voltage as analog output is enabled - REDUNDANT SIDE.



(2V) VOLTAGE/DIV: 2V
(1A) CURRENT/DIV: 1A
(500US) SWEEP RATE: 500US

5.10.8.1.3	Photograph of transients induced on input bus current and analog + output voltage as analog output is disabled - REDUNDANT SIDE.
------------	--



(5V) VOLTAGE/DIV: 2V
(1A) CURRENT/DIV: 1A
(1MS) SWEEP RATE: 500US

165

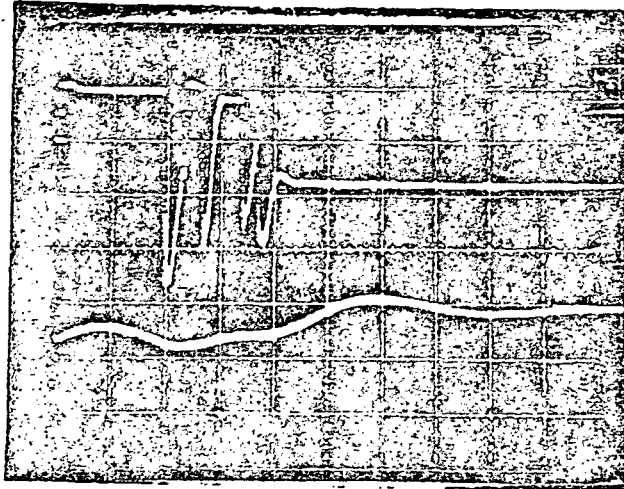
ORIGINAL PAGE IS
OF POOR QUALITY

TS 16603
Rev B
18 December 1980



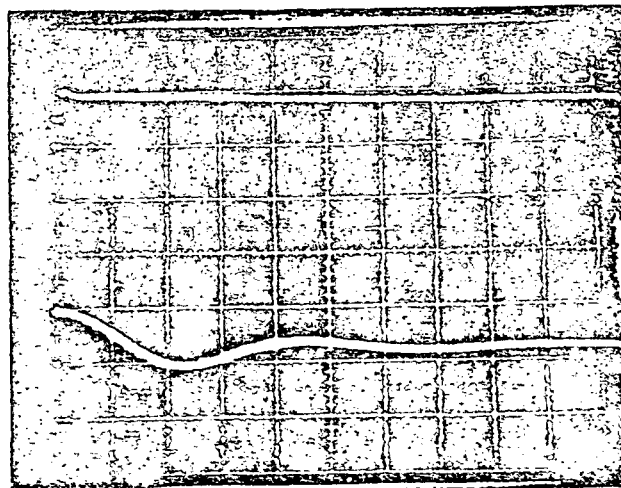
10.4 Performance test (continued)

TEST PARA.	DESCRIPTION	DVM SWITCH POSITIONS	LIMITS	MEASUREMENT	
				PRIMARY	REDUNDANT
5.10.8.2.1	Input bus current w/o SMA +7V load	S26-1, S27-2 (S27-4 for RDT)	M.R. Iron 22.34V	22.34V	21.91V
5.10.8.2.2	Photograph of transients induced on input bus current and SMA +7V output voltage as SMA +7V is enabled - PRIMARY SIDE.				



No load 9.624V.
Loaded 7.712V.
Output Voltage 7.712V.
(5V) VOLTAGE/DIV: 2V/div.
(1A) CURRENT/DIV: 1Amp./div.
(200NS) SLEEP RATE: 500µsec./div.
Bus Current

5.10.8.2.2 Photograph of transients induced on input bus current and SMA +7V output voltage as SMA +7V is disabled - PRIMARY SIDE.



Output Voltage 9.624V.
(2V) VOLTAGE/DIV: 2V/div.
(1A) CURRENT/DIV: 1Amp./div.
(2mS) SLEEP RATE: 500µsec./div.
Bus Current

166

ORIGINAL PAGE IS
OF POOR QUALITY

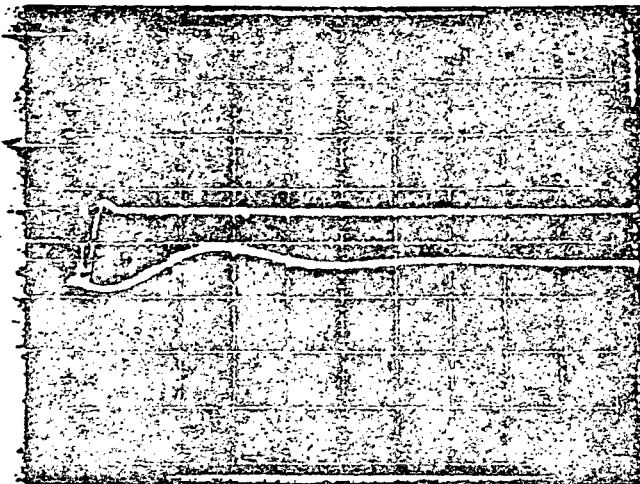
TS 16603
Rev B
18 December 1980



FBI 1472

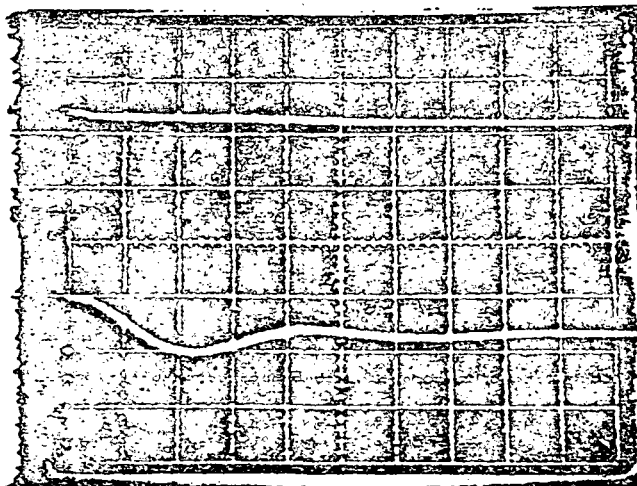
10.4 Performance test (continued)

REF. PARA.	DESCRIPTION
5.10.8.2.2	Photograph of transients induced on input bus current and SMA +7V output voltage as SMA +7V is enabled - REDUNDANT SIDE



(5V) VOLTAGE/DIV: 2V
(1A) CURRENT/DIV: 1A
(200uS) SWEEP RATE: 500 uS

5.10.8.2.2	Photograph of transients induced on input bus current and SMA +7V output voltage as SMA +7V is disabled - REDUNDANT SIDE
------------	--



(2V) VOLTAGE/DIV: 2V
(1A) CURRENT/DIV: 1A
(2mS) SWEEP RATE: 500 uS

167

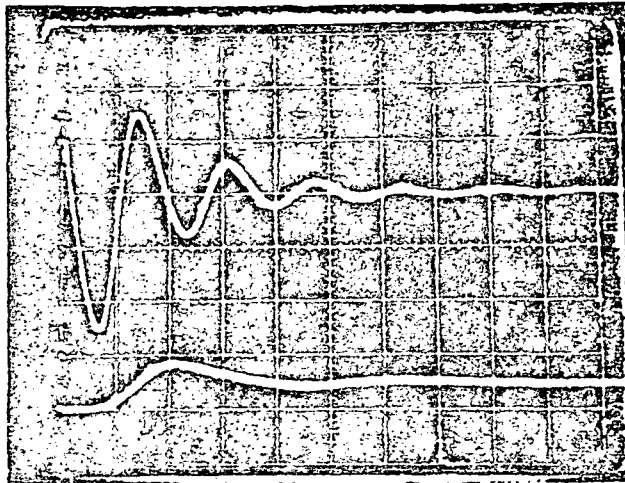
ORIGINAL PAGE IS
OF POOR QUALITY

TS 16603
Rev B
18 December 1980



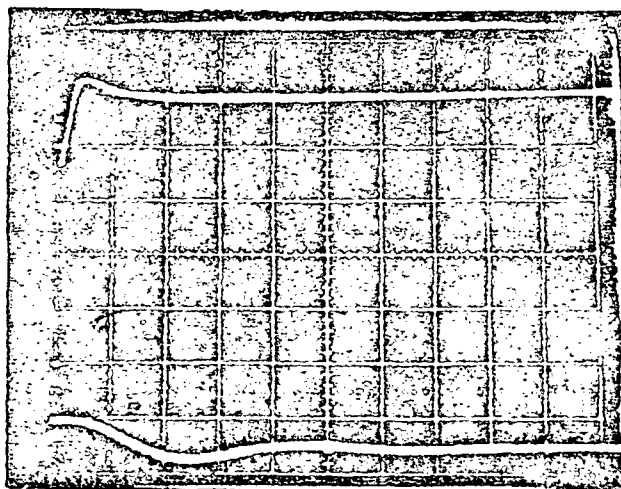
10.4 Performance test (continued)

EF. PARA.	DESCRIPTION	DVM SWITCH POSITIONS	LIMITS	MEASUREMENT	
				PRIMARY	REDUNDANT
5.10.8.2.3	Input bus current w/o SMA +29V load	S26-1, S27-2 (S27-4 for EDT)		129.93 mV	129.96 mV
5.10.8.2.4	Photograph of transients induced on input bus current and SMA +29V output voltage as SMA +29V is enabled - PRIMARY SIDE				



(2V) VOLTAGE/DIV: 1.0V/div.
(0.5V) CURRENT/DIV: 0.5A_{avg}/div.
(1ms) SWEEP RATE: 500 μ sec/div.

5.10.8.2.4 Photograph of transients induced on input bus current and SMA +29V output voltage as SMA +29V is disabled - PRIMARY SIDE



(2V) VOLTAGE/DIV: 1.0V/div.
(0.5A) CURRENT/DIV: 0.5A_{avg}/div.
(1ms) SWEEP RATE: 500 μ sec/div.

168

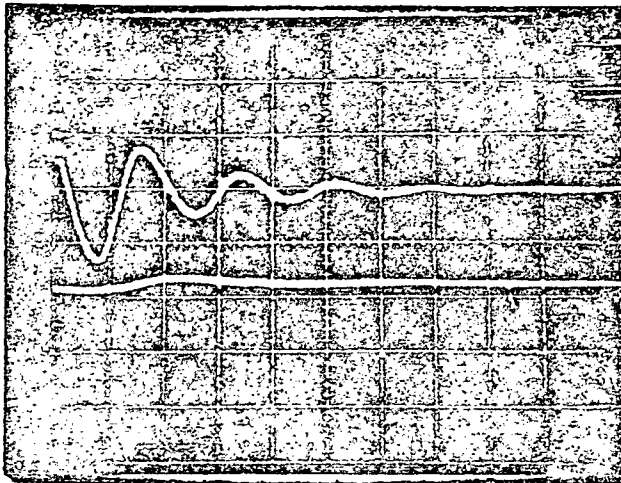
ORIGINAL PAGE IS
OF POOR QUALITY



TS 16603
Rev B
18 December 1980

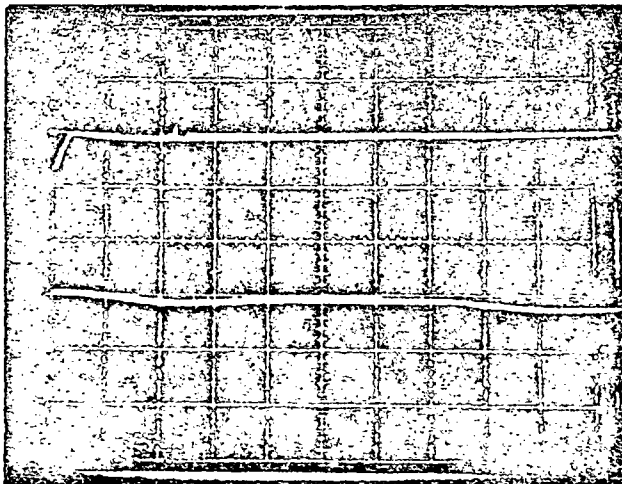
10.4 Performance test (continued)

EF. PARA.	DESCRIPTION
5.10.8.2.4	Photograph of transients induced on input bus current and SMA +29V output voltage as SMA +29V is enabled - REDUNDANT SIDE



(2V) VOLTAGE/DIV: 2V
(0.5A) CURRENT/DIV: 1A
(1ms) SWEEP RATE: 500ns

5.10.8.2.4	Photograph of transients induced on input bus current and SMA +29V output voltage as +29V is disabled - REDUNDANT SIDE
------------	--



(2V) VOLTAGE/DIV: 2V
(0.5) CURRENT/DIV: 1A
(1ms) SWEEP RATE: 500ns

169

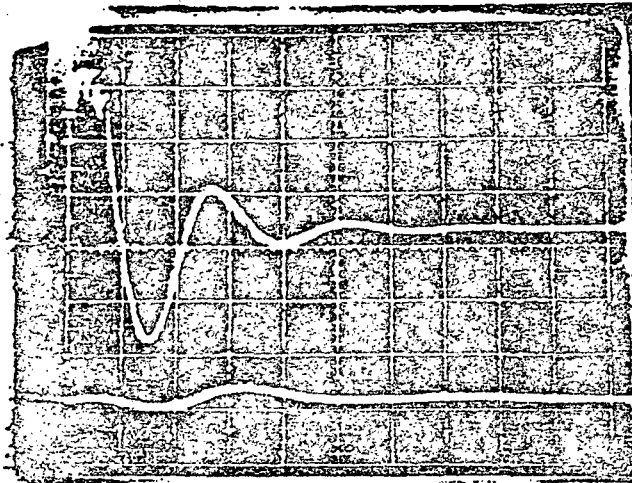
ORIGINAL PAGE IS
OF POOR QUALITY



TS 16603
Rev B
18 December 1980

10.4 Performance test (continued)

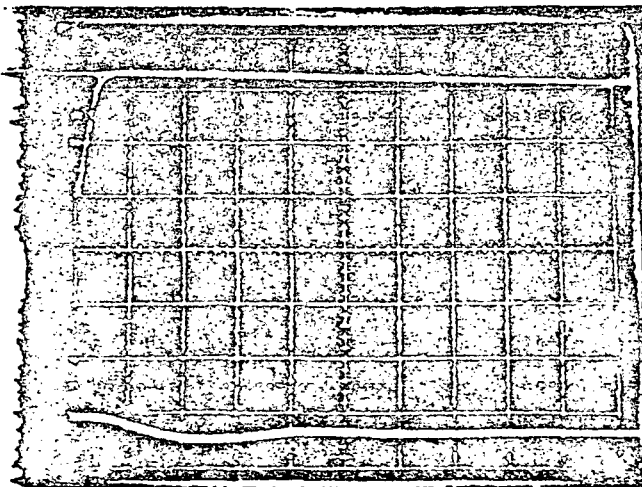
EE. PARA.	DESCRIPTION	DVM SWITCH POSITIONS	LIMITS	MEASUREMENT	
				PRIMARY	REDUNDANT
5.10.8.3.1	Input bus current w/o CDVU load	S26-1, S27-2 (S27-4 for RDT)		131.03 V.	130.70 mV
5.10.8.3.2	Photograph of transients induced on input bus current and CDVU output voltage as CDVU is enabled - PRIMARY SIDE				



Loaded 7.647V.
Unloaded 9.460V.

(2V) VOLTAGE/DIV: 1.0 V/Div.
(0.5A) CURRENT/DIV: 0.5 Amps/Div.
(1ms) SWEEP RATE: 500 μ s/Div.

5.10.8.3.2 Photograph of transients induced on input bus current and CDVU output voltage as CDVU is disabled - PRIMARY SIDE



(2V) VOLTAGE/DIV: 1.0 V/Div.
(0.5V) CURRENT/DIV: 0.5 Amp/Div.
(1ms) SWEEP RATE: 500 μ s/Div.

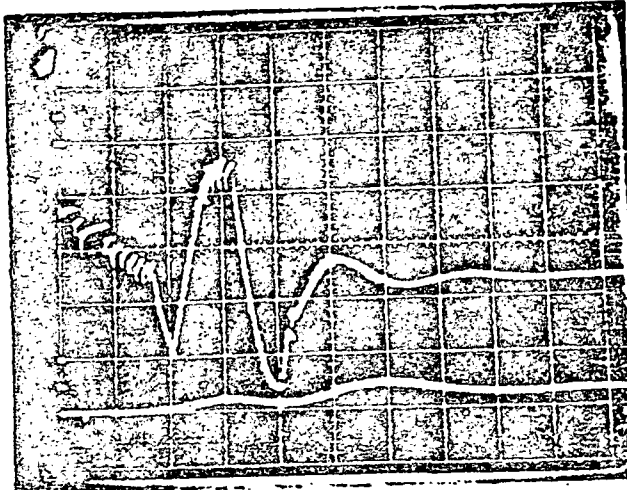
170



10.4 Performance test (continued)

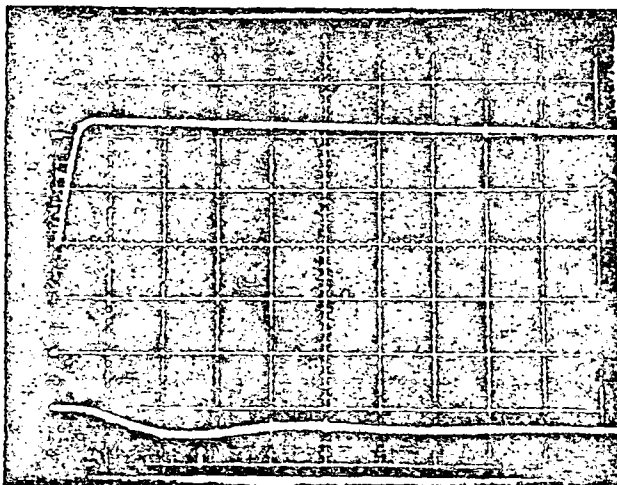
FB:48

REF. PARA.	DESCRIPTION
5.10.8.3.2	Photograph of transients induced on input bus current and CDVU output voltage as CDVU is enabled - REDUNDANT SIDE



(2V) VOLTAGE/DIV: 1V
(0.5A) CURRENT/DIV: 1.5A
(1ms) SWEEP RATE: 500ns

5.10.8.3.2	Photograph as transients induced on input bus current and CDVU output voltage as CDVU is disabled - REDUNDANT SIDE
------------	--



(2V) VOLTAGE/DIV: 1V
(0.5A) CURRENT/DIV: 1.5A
(1ms) SWEEP RATE: 500ns

171

ORIGINAL PAGE IS
OF POOR QUALITY

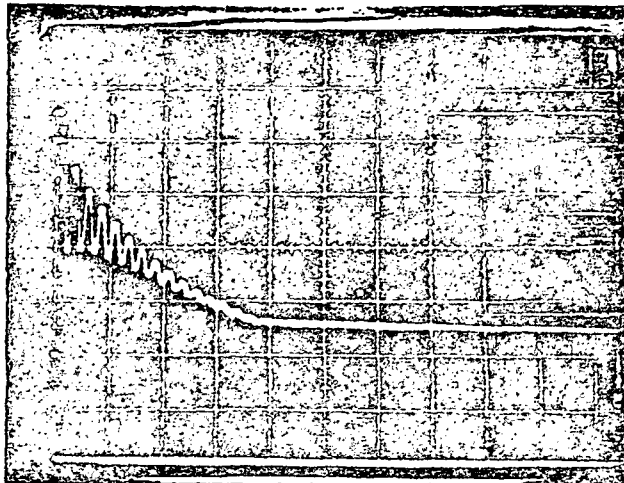


TS 16603
Rev B
18 December 1980

10.4 Performance test (continued)

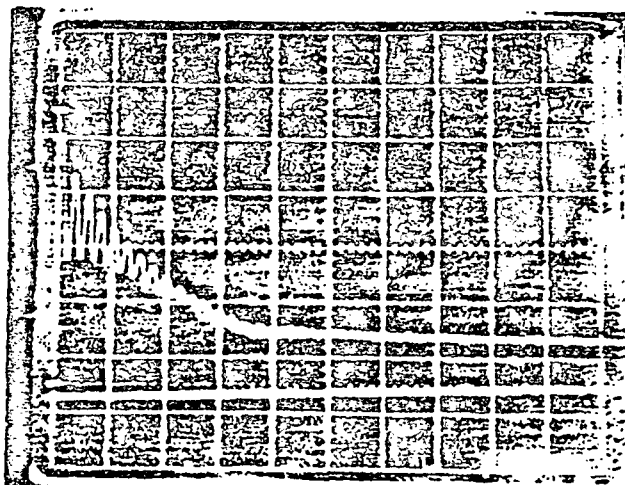
3482

REF. PARA.	DESCRIPTION
5.10.9.1	Photograph of turn-off transient of input bus voltage and input bus current as bus voltage is removed - PRIMARY SIDE



(5V) VOLTAGE/DIV: 5V/Div.
(5A) CURRENT/DIV: 5Amp/Div.
(500us) SWEEP RATE: 500µsec./Div.

Photograph of turn-off transient of input bus voltage and input bus current as bus voltage is removed - REDUNDANT SIDE



(5V) VOLTAGE/DIV: 5V/Div.
(5A) CURRENT/DIV: 5Amp/Div.
(500us) SWEEP RATE: 500µsec./Div.

172

ORIGINAL PAGE IS
OF POOR QUALITY

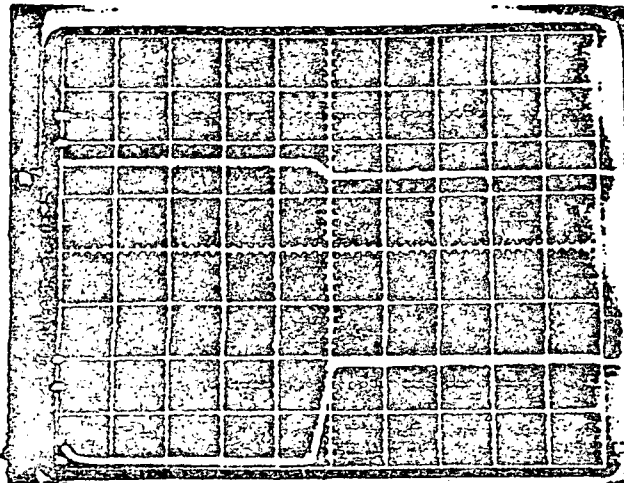


TS 16603
Rev B
18 December 1980

FEB 1 1982

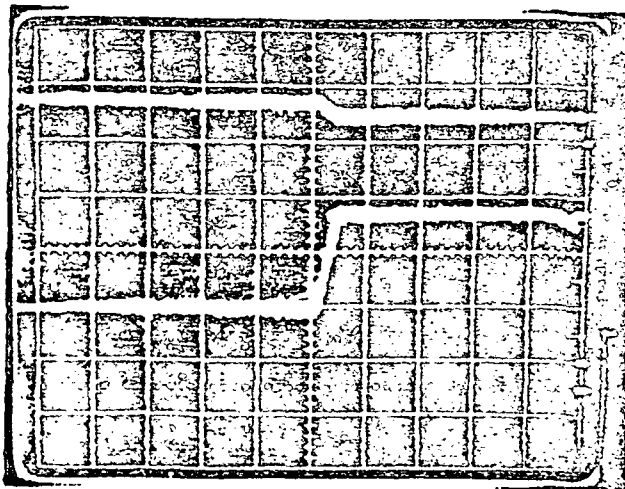
10.4 Performance test (continued)

REF. PARA.	DESCRIPTION	DVM SWITCH POSITIONS	LIMITS	MEASUREMENT	
				PRIMARY	REDUNDANT
5.10.9.2	UIT stays off when bus is reapplied.	S1-ON (S2-ON for RDT)	--	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
5.10.9.3	Photograph of turn-on transient of bus voltage and current as ON command is issued - REDUNDANT SIDE				



(5V) VOLTAGE/DIV: 5V/DIV
 (5A) CURRENT/DIV: 5Amps/DIV
 (100ms) SWEEP RATE: 100ms

5.10.9.3 Photograph of turn-on transient of bus voltage and current as ON command is issued - REDUNDANT SIDE



(5V) VOLTAGE/DIV: 5V
 (5A) CURRENT/DIV: 5A
 (100ms) SWEEP RATE: 100ms

173

ORIGINAL PAGE IS
OF POOR QUALITY



TS 16603
Rev B
18 December 1980

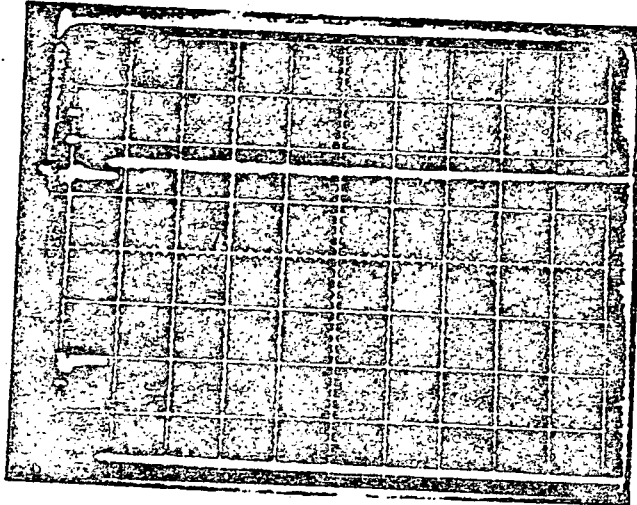
RE 042

10.4 Performance test (continued)

EF. PARA.

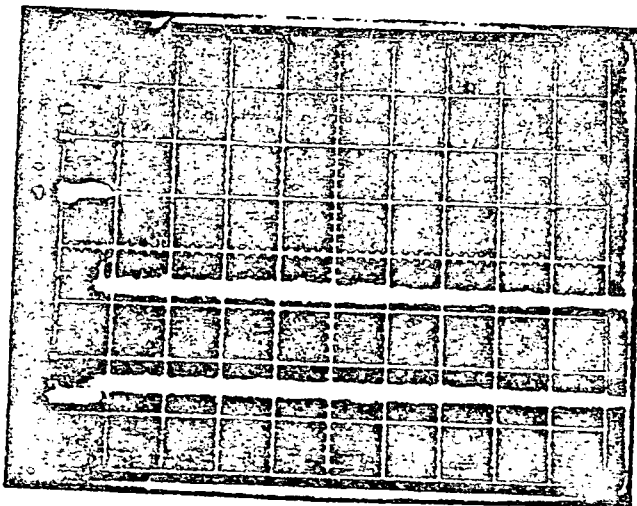
DESCRIPTION

5.10.9.4 Photograph of turn-off transient of input bus voltage and current as OFF command is issued - PRIMARY SIDE



(5V) VOLTAGE/DIV: 5V
(5A) CURRENT/DIV: 5A
(10ms) SWEEP RATE: 10ms

5.10.9.4 Photograph of turn-off transient of input bus voltage and current as OFF command is issued - REDUNDANT SIDE



(5V) VOLTAGE/DIV: 5V
(5A) CURRENT/DIV: 5A
(10ms) SWEEP RATE: 10ms

174

ORIGINAL PAGE IS
OF POOR QUALITY



TS 16603
Rev B
18 December 1980

TE 2482

10.4 Performance test (continued)

REF. PARA.	DESCRIPTION	DVM SWITCH POSITIONS	LIMITS	PRIMARY	REDUNDANT
5.10.9.5	Record	S27-2 (S27-4)		<u>132.54</u>	<u>129.99mV</u>
5.10.9.6	Record	(S27-4 (S27-2)		<u>2466</u>	<u>2219mV</u>
	Record	S27-2 (S27-4)			
				<u>127.63</u>	<u>106.07mV</u>
5.10.9.7	Record that UUT turns on.	(Checkmark)		<u>✓</u>	<u>✓</u>
5.10.10.1	Input bus current AFTER it reads ~ 17A AND input bus voltage reads ~ 21V.	S26-1, S27-2 (S27-4 for RDT)		<u>150.96</u>	<u>150.14mV</u>
5.10.10.2	Input bus voltage with 17.0A load	S26-1, S27-1 (S27-3 for RDT)		<u>28.00</u>	<u>28.02</u>
5.10.10.3	Input current telemetry output	S26-4, S28-2 (S28-4 for RDT)		<u>4324</u>	<u>4487</u>
5.10.10.4	Input current telemetry output	S26-4, S28-2 (S28-4 for RDT)		<u>355</u>	<u>3543</u>
	Input bus voltage	S26-1, S27-1 (S27-3 for RDT)		<u>28.00</u>	<u>28.02</u>
	Input bus current	S26-1, S27-2 (S27-4 for RDT)		<u>12635</u>	<u>124.15mV</u>
5.10.10.5	Input current telemetry output	S26-4, S28-2 (S28-4 for RDT)		<u>3.054</u>	<u>3.076</u>
	Input bus voltage	S26-1, S27-1 (S27-3 for RDT)		<u>28.00</u>	<u>28.00</u>
	Input bus current	S26-1, S27-2 (S27-4 for RDT)		<u>108.40</u>	<u>109.31mV</u>
5.10.10.6	Input current telemetry output	S26-4, S28-2 (S28-4 for RDT)		<u>2.537</u>	<u>2.520</u>
	Input bus voltage	S26-1, S27-1 (S27-3 for RDT)		<u>28.00</u>	<u>28.07</u>
	Input bus current	S26-1, S27-2 (S27-4 for RDT)		<u>92.18</u>	<u>93.79mV</u>
5.10.10.7	Input current telemetry output	S26-4, S28-2 (S28-4 for RDT)		<u>2.072</u>	<u>2.015</u>
	Input bus voltage	S26-1, S27-1 (S27-3 for RDT)		<u>28.08</u>	<u>28.00</u>
	Input bus current	S26-1, S27-2 (S27-4 for RDT)		<u>90.15</u>	<u>79.47mV</u>

ORIGINAL PAGE IS
OF POOR QUALITY



TS 16603
Rev B
18 December 1980

10.4 Performance test (continued)

RE 0472

REF. PARA.	DESCRIPTION	DVM SWITCH POSITIONS	LIMITS	MEASUREMENT	
				PRIMARY	REDUNDANT
5.10.10.8	Input current telemetry output	S26-4, S28-2 (S28-4 for RDT)		<u>1.532</u>	<u>1.527</u>
	Input bus voltage	S26-1, S27-1 (S27-3 for RDT)		<u>28.02</u>	<u>28.01</u>
	Input bus current	S26-1, S27-2 (S27-4 for RDT)		<u>63.62mA</u>	<u>61.56mA</u>
5.10.10.9	Input current telemetry output	S26-4, S28-2 (S28-4 for RDT)		<u>1.016</u>	<u>1.025</u>
	Input bus voltage	S26-1, S27-1 (S27-3 for RDT)		<u>28.00</u>	<u>28.03</u>
	Input bus current	S26-1, S27-2 (S27-4 for RDT)		<u>43.39mA</u>	<u>41.93mA</u>
5.10.10.10	Input current telemetry output	S26-4, S28-2 (S28-4 for RDT)		<u>1.561V</u>	<u>1.474V</u>
	Input bus voltage	S26-1, S27-1 (S27-3 for RDT)		<u>28.00</u>	<u>28.00</u>
	Input bus current	S26-1, S27-2 (S27-4 for RDT)		<u>31.66mA</u>	<u>29.49mA</u>
5.10.10.11	Input current telemetry output	S26-4, S28-2 (S28-4 for RDT)		<u>1.2036V</u>	<u>1.2046V</u>
	Input bus voltage	S26-1, S27-1 (S27-3 for RDT)		<u>28.00</u>	<u>28.00</u>
	Input bus current	S26-1, S27-2 (S27-4 for RDT)		<u>25.12mA</u>	<u>21.79mA</u>
5.10.10.12	Input current telemetry output	S26-4, S28-2 (S28-4 for RDT)		<u>-136.28</u>	<u>90.61</u>
	Input bus voltage	S26-1, S27-1 (S27-3 for RDT)		<u>28.06</u>	<u>28.00</u>
	Input bus current	S26-1, S27-2 (S27-4 for RDT)		<u>11.724</u>	<u>12.00mA</u>
5.10.11.1	Band 1+ output voltage	S26-1, S27-5		<u>23.47</u>	<u>23.91</u>
5.10.11.2	Band 1- output voltage	S27-6		<u>-23.54</u>	<u>-23.42</u>
5.10.11.3	2+	S27-7		<u>23.44</u>	<u>23.29</u>
5.10.11.4	2-	S27-8		<u>-23.95</u>	<u>-23.73</u>
5.10.11.5	3+	S27-9		<u>23.30</u>	<u>23.80</u>
5.10.11.6	3-	S27-10		<u>-23.19</u>	<u>-23.46</u>
5.10.11.7	Band 4+ output voltage	S26-1, S27-11		<u>23.99</u>	<u>23.84</u>

176

ORIGINAL PAGE IS
OF POOR QUALITY



TS 16603
Rev B
~~18 December 1986~~
SEN. 2 7-8-87

10.4 Performance test (continued)

REF 0472

REF. PARA.	DESCRIPTION	DWH SWITCH POSITIONS	LIMITS	MEASUREMENT	
				PRIMARY	REDUNDANT
5.10.11.8	Band 4- output voltage	S26-1, S27-12		- 23.54	23.59
5.10.11.9	5,7+	S26-2, S27-1		23.12	23.40
5.10.11.10	5,7-	S27-2		- 23.06	- 23.25
5.10.11.11	6+	S27-3		22.79	23.11
5.10.11.12	Band 6-	S27-4		- 23.30	- 23.36
5.10.11.13	SMA Htr +	S27-5		24.51	25.24
5.10.11.14	Htr -	S27-6		- 25.33	- 25.39
5.10.11.15	+7V	S27-7		9.227	N/A
5.10.11	+7V	(S27-8 For RDT)		N/A	9.324
5.10.11	+29V	S27-9		32.39	N/A
5.10.11	+29V	(S27-11 For RDT)		N/A	22.72
5.10.11	-29V	S27-10		- 32.84	N/A
	SMA -29V	S26-2, (S27-12 for RDT)		N/A	- 22.51
5.10.11.18	Radiometer	S26-3, S27-2		9.768	9.942
5.10.11.19	CDVU	S27-3		9.555	9.596
5.10.11.20	Analog +	S27-4		27.07	27.50
5.10.11.21	Analog -	S27-5		- 25.59	- 25.87
5.10.11.22	Electromech.	S27-6		41.55	41.23
5.10.11.23	Outgas	S27-7		103.95	102.63
5.10.11.24	Parasitic	S27-9		31.07	N/A
	Parasitic output voltage	S26-3, (S27-10 for RDT)		N/A	31.66
5.10.11.25	Band 1+ TM output	S26-4, S28-5		4.269	4.369
5.10.11.26	1-	S28-6		4.279	4.256
5.10.11.27	2+	S28-7		4.357	4.240
5.10.11.28	2-	S28-8		4.333	4.294
5.10.11.29	3+	S28-9		4.603	4.330
5.10.11.30	3-	S28-10		4.223	4.271
5.10.11.31	4+	S28-11		4.337	4.328
5.10.11.32	4-	S26-4, S28-12		4.275	4.254
5.10.11.33	Band 5,7+ TM output	S26-5, S28-1		4.215	4.276

C-3

ORIGINAL PAGE IS
OF POOR QUALITY



TS 16603
Rev B
~~3-2-81~~ 7-6-81

10.4 Performance test (continued)

TS: 178

REF. PARA.	DESCRIPTION	EVM SWITCH POSITIONS	LIMITS	MEASUREMENT	
				PRIMARY	REDUNDANT
5.10.11.34	Band 5,7- IM output	S26-5, S28-2		4.195	4.230
5.10.11.35	6+	S28-3		4.120	4.150
5.10.11.36	Band 6-	S28-4		4.249	4.259
5.10.11.37	SMA Htr +	S28-5		4.472	4.608
5.10.11.38	Htr -	S28-6		4.590	4.600
5.10.11.39	+7V	S28-7 (S28-8 for RDT)		5.657	5.740
5.10.11.40	+29V	S28-9 (S28-11 for RDT)		4.417	4.457
5.10.11.41	SMA -29V	S26-5, S28-10 (S28-12 for RDT)		4.036	4.027
5.10.11.42	Radiometer	S26-6, S28-2		5.293	5.389
5.10.11.43	CDVU	S28-3		5.293	5.311
5.10.11.44	Analog +	S28-4		4.805	4.885
5.10.11.45	Analog -	S28-3		4.145	4.241
5.10.11.46	Electromech.	S28-6		5.077	5.037
5.10.11.47	Outgas - IM output	S26-6, S28-7		5.175	5.110
5.10.12.1	Bus voltage	S26-1, S27-1 (S27-3 for RDT)		28.03	28.02
5.10.12.2	Input bus current	S26-1, S27-2 (S27-4 for RDT)		43.06 mV	42.83 mV
5.10.12.3	SMA Htr + output voltage	S26-2, S27-5		21.70	21.88
5.10.12.4	Htr + ripple	Seen on Scope	<30 mV pk-pk	40	40
5.10.12.5	Htr - voltage	S26-2, S27-6		-22.23	-22.43
5.10.12.6	SMA Htr - ripple	Seen on Scope	<30 mV pk-pk	40	40
5.10.12.7	CDVU voltage	S26-3, S27-3		7.615	7.754
5.10.12.8	CDVU ripple	Seen on Scope	<40 mV pk-pk	40	40
5.10.12.9	Outgas - output voltage	S26-3, S27-7		96.59	96.37
5.10.12.10	Outgas - output ripple	Seen on Scope	2.50V pk-pk	270 mV	250 mV
5.10.12.11	Parasitic output voltage	S26-3, S27-9 (S27-10 for RDT)		30.39	30.44
5.10.12.12	Parasitic output ripple	Seen on Scope	<900 mV pk-pk	80	130

178

C-3

ORIGINAL PAGE IS
OF POOR QUALITY

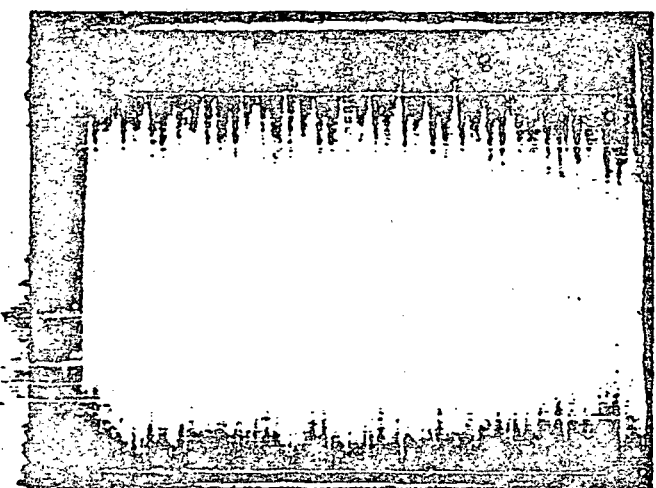


TS 16603
Rev B
18 December 1980

10.4 Performance test (continued)

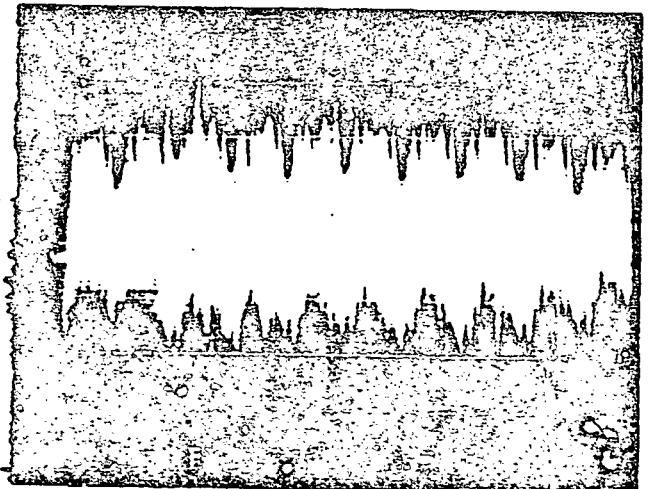
FB 2482

EF. PARA.	DESCRIPTION	DVM SWITCH POSITIONS	LIMITS	MEASUREMENT	
				PRIMARY	REDUNDANT
5.10.13.1	Input current telemetry	S26-4, S28-2 (S28-4 for RDT)		<u>1.969</u>	<u>1.058</u>
5.10.13.2	SMA Htr + output	S26-5, S28-5		<u>3.964</u>	<u>4.60</u>
5.10.13.3	SMA Htr -	S26-5, S28-6		<u>4.631</u>	<u>4.667</u>
5.10.13.4	CDVU	S26-6, S28-3		<u>4.252</u>	<u>4.356</u>
5.10.13.5	Outgas output telemetry	S26-6, S28-7		<u>4.338</u>	<u>4.337</u>
5.10.14.1	Photograph of reflected input current ripple in outgas mode - PRIMARY SIDE				



(2mA) CURRENT/DIV: 2 mA/A.C.
(10uS) SWEEP RATE: 10 uS

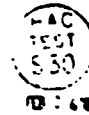
5.10.14.1 Photograph of reflected input current ripple in outgas mode - REDUNDANT SIDE



(2mA) CURRENT/DIV: 2 mA A.C.
(10uS) SWEEP RATE: 10 uS

179

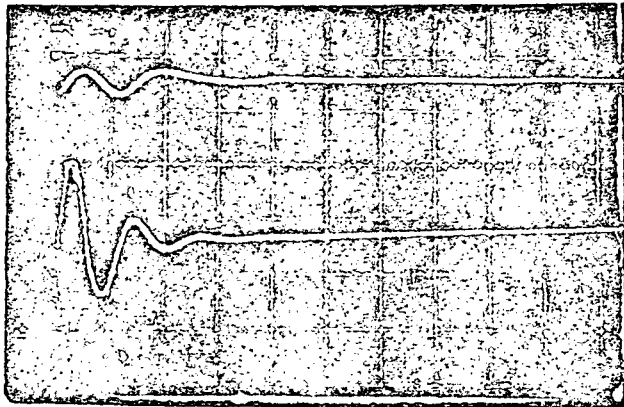
ORIGINAL PAGE IS
OF POOR QUALITY



TS 16603
Rev B
18 December 1980

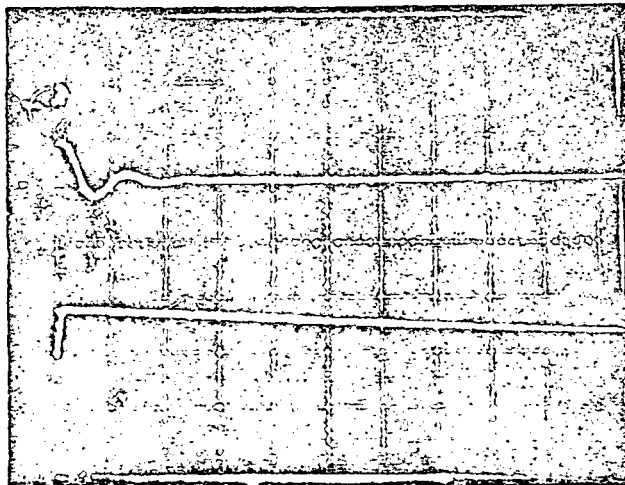
10.4 Performance test (continued)

REF. PARA.	DESCRIPTION	DVM SWITCH POSITIONS	LIMITS	MEASUREMENT	
				PRIMARY	REDUNDANT
5.10.15.1.1	Input current with CDVU off.	S26-1, S27-2 (S27-4 for RDT)		40.90 mA	40.73 mA
5.10.15.1.2	Photograph of input bus current and CDVU output voltage as CDVU load is enabled - PRIMARY SIDE				



(2V) VOLTAGE/DIV: 2V
(200mA) CURRENT/DIV: 200mA
(1ms) SWEEP RATE: 1ms

5.10.15.1.2 Photograph of input bus current and CDVU output voltage as CDVU load is disabled - PRIMARY SIDE



(2V) VOLTAGE/DIV: 2V
(200mA) CURRENT/DIV: 200mA
(2ms) SWEEP RATE: 2ms

180

ORIGINAL PAGE IS
OF POOR QUALITY

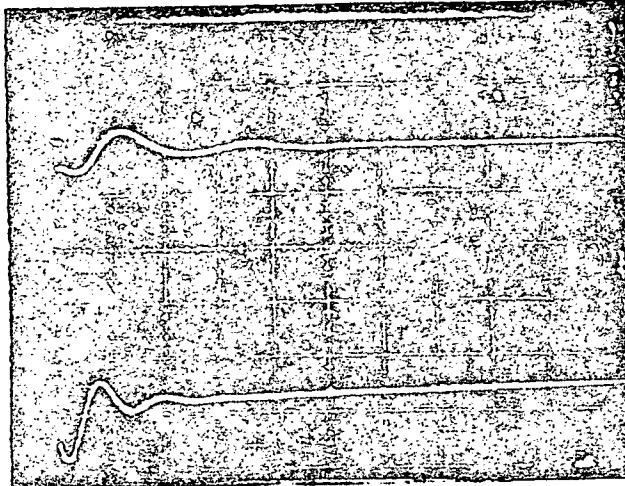


TS 16603
Rev B
18 December 1980

10.4 Performance test (continued)

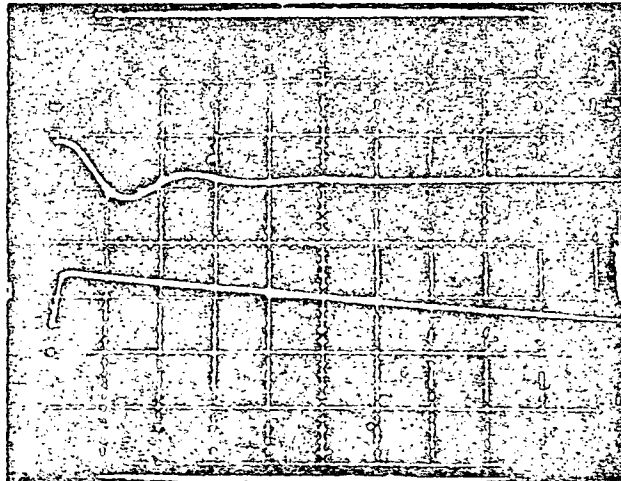
2042

EF. PARA.	DESCRIPTION
5.10.15.1.2	Photograph of input bus current and CDVU output voltage as CDVU load is enabled - REDUNDANT SIDE



(2V) VOLTAGE/DIV: 2V
(200mA) CURRENT/DIV: 200mA
(1mS) SWEEP RATE: 1mS

5.10.15.1.2	Photograph of input bus current and CDVU output voltage as CDVU load is disabled - REDUNDANT SIDE
-------------	---



(V) VOLTAGE/DIV: 2V
(200mA) CURRENT/DIV: 200mA
(mS) SWEEP RATE: 1mS

181

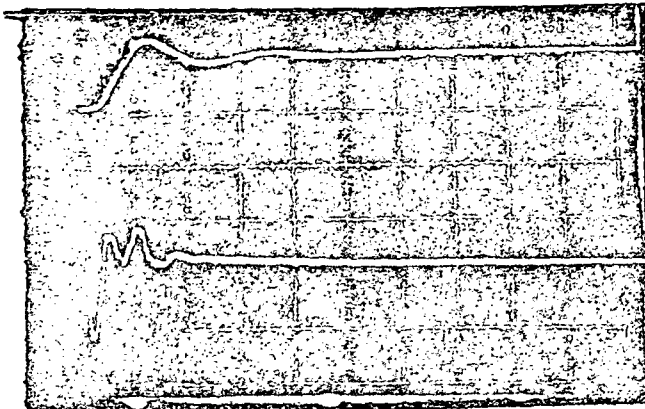


ORIGINAL PAGE IS
 OF POOR QUALITY

10.4 Performance test (continued)

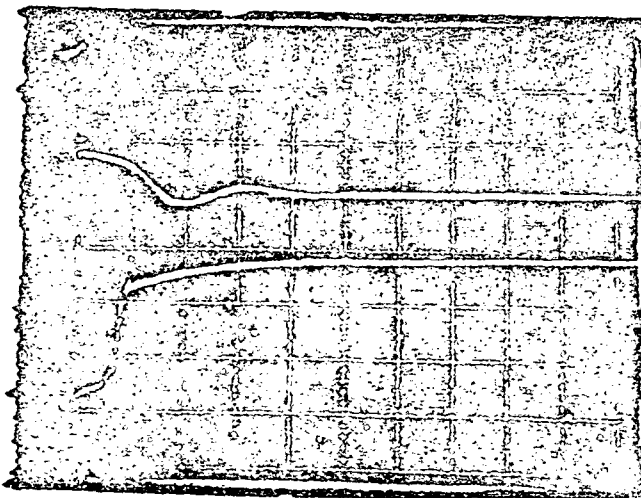
AS 2-82

REF. PARA.	DESCRIPTION	DVM SWITCH POSITIONS	LIMITS	MEASUREMENT	
				PRIMARY	REDUNDANT
5.10.15.2.1	Input bus current with outgas disabled	S26-1, S27-2 (S27-4 for RDT)		14.71mV	15.27mV
5.10.15.2.2	Photograph of input bus current and outgas voltage as outgas load is enabled - PRIMARY SIDE				



(5V) VOLTAGE/DIV: 5V
 (2A) CURRENT/DIV: 2A
 (1mS) SWEEP RATE: 1MS

5.10.15.2.2 Photograph of input bus current and outgas voltage as outgas load is disabled - PRIMARY SIDE



(5V) VOLTAGE/DIV: 5V
 (2A) CURRENT/DIV: 2A
 (2mS) SWEEP RATE: 1MS

182

ORIGINAL PAGE IS
OF POOR QUALITY

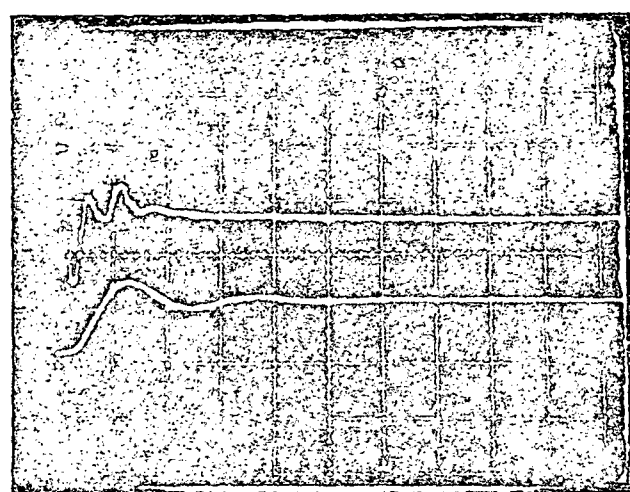


TS 16603
Rev B
18 December 1980

10.4 Performance test (continued)

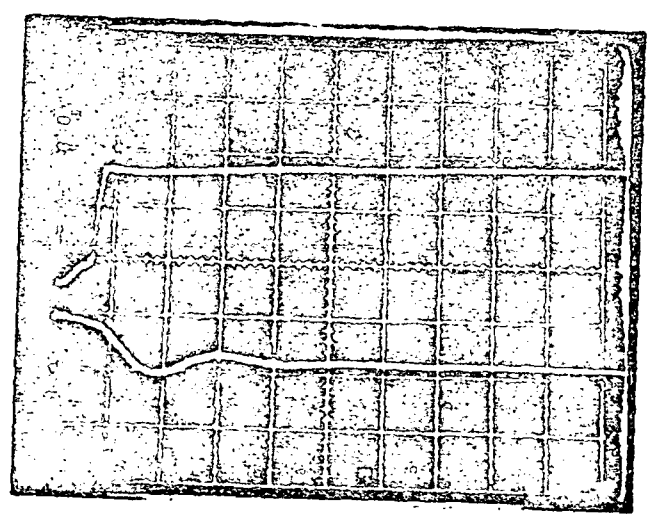
CF. PARA. DESCRIPTION

5.10.15.2.2 Photograph of input bus current and outgas voltage as outgas load is enabled - REDUNDANT SIDE



V) VOLTAGE/DIV: 5V
A) CURRENT/DIV: 2A
00uS) SWEEP RATE: 1ms

5.10.15.2.2 Photograph of input bus current and outgas voltage as outgas load is disabled - REDUNDANT SIDE



(5V) VOLTAGE/DIV: 5V
(2A) CURRENT/DIV: 2A
(1ms) SWEEP RATE: 1ms

183

ORIGINAL PAGE IS
OF POOR QUALITY



TS 16603
Rev B

~~TS 16603~~
~~Rev B~~

10.4 Performance test (continued)

FE: 482

REF. PARA.	DESCRIPTION	EVM SWITCH POSITION	LIMITS	MEASUREMENT	
				PRIMARY	REDUNDANT
5.10.16.1	BPS voltage	S26-1, S27-1 (S27-3 for RDT)		29.00 (-9)	29.00
5.10.16.2	BPS current	S26-1, S27-2 (S27-4 for RDT)		17.664 mA (50)	18.14 mA
5.10.16.3	SMA Htr +output voltage	S26-2, S27-5		21.76 (13)	22.01
5.10.16.4	SMA Htr +load current	S26-8, S34-1		46.92 mA (19)	47.45 mA
5.10.16.5	SMA Htr -output voltage	S26-2, S27-6		-22.17 (14)	-22.45
5.10.16.6	SMA Htr -load current	S26-8, S34-2		-8.751 mA (19)	-8.968 mA
5.10.16.7	CDU output voltage	S26-3, S27-3		7.614 (20)	7.752
5.10.16.8	CDU load current	S26-8, S34-10		271.6 V (45)	276 V
5.10.16.9	Parasitic output voltage	S26-3, S27-9 (S27-10)		30.72 (27)	31.10
5.10.16.10	Parasitic load current	S26-8, S34-7		143.21 mA (40)	144.96 mA
5.10.16.11	Input power (5.10.16.1 x 5.10.16.2)			49.959	50.792
5.10.16.12	Output power	(Primary) (Redundant)		17.33	17.77
	((5.10.16.3 x 5.10.16.4)				
	+ (5.10.16.5 x 5.10.16.6)				
	+ (5.10.15.7 x 5.10.16.8)				
	+ (5.10.16.9 x 5.10.16.10)				
5.10.16.13	Efficiency ((5.10.16.12) ÷ (5.10.16.11)) x 100%			35%	35%

```

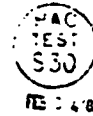
: NO HTR = 2.041
: MA HTR = 194
: NO = 4.136
: PARASITIC = 10.958
: INPUT POWER = 49.959
: OUTPUT POWER = 17.33
: EFFICIENCY = 35 %
: NO HTR = 1.999
: MA HTR = 194
: NO = 4.279
: PARASITIC = 11.21
: INPUT POWER = 50.792
: OUTPUT POWER = 17.777
: EFFICIENCY = 35 %
  
```

28 ✓

184

ORIGINAL PAGE IS
OF POOR QUALITY

TS 16603
Rev B
18 December 1980



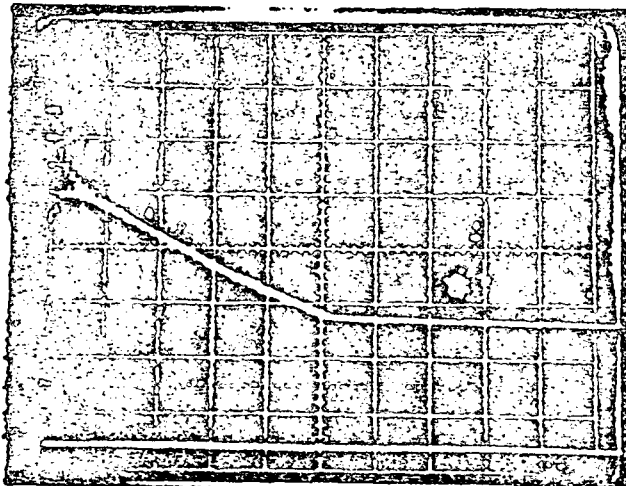
10.4 Performance test (continued)

5.10.17.1 Photograph of input bus current and input bus voltage
as is disable - PRIMARY SIDE



V) VOLTAGE/DIV: 5V
A) CURRENT/DIV: 2A
MS) SWEEP RATE: 1ms

5.10.17.1 Photograph of input bus current and input bus voltage
as is disabled - REDUNDANT SIDE



(5V) VOLTAGE/DIV: 5V
(2A) CURRENT/DIV: 2A
(1ms) SWEEP RATE: 1ms

185

ORIGINAL PAGE IS
OF POOR QUALITY



TS 16603
Rev B
18 December 1980

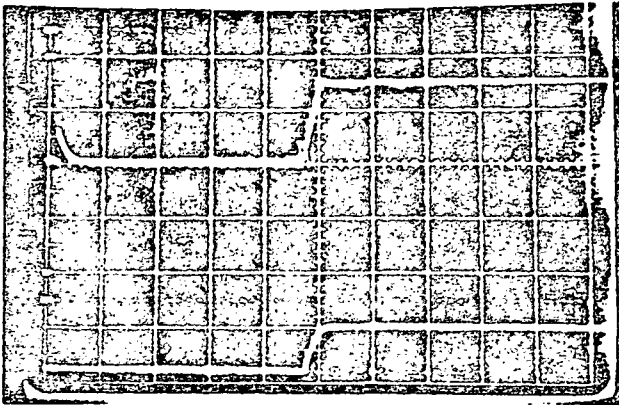
10.4 Performance test (continued)

5.10.17.2 Unit stays off (check)

✓
Primary

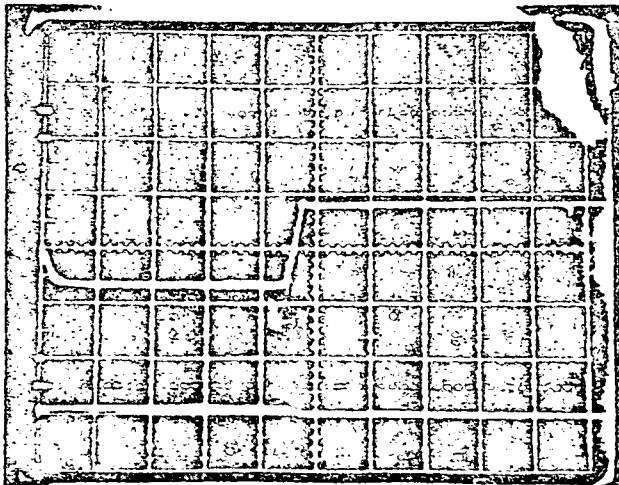
✓
Redundant

5.10.17.3 Photograph of input bus current and input bus voltage
as is enabled - PRIMARY SIDE



(2V) VOLTAGE/DIV: 2V
(2A) CURRENT/DIV: 2A
(100ms) SWEEP RATE: 100ms

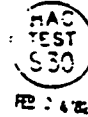
5.10.17.3 Photograph of input bus current and input bus voltage as
as is enabled - REDUNDANT SIDE



(2V) VOLTAGE/DIV: 5V
(2A) CURRENT/DIV: 2A
(100ms) SWEEP RATE: 100ms

186

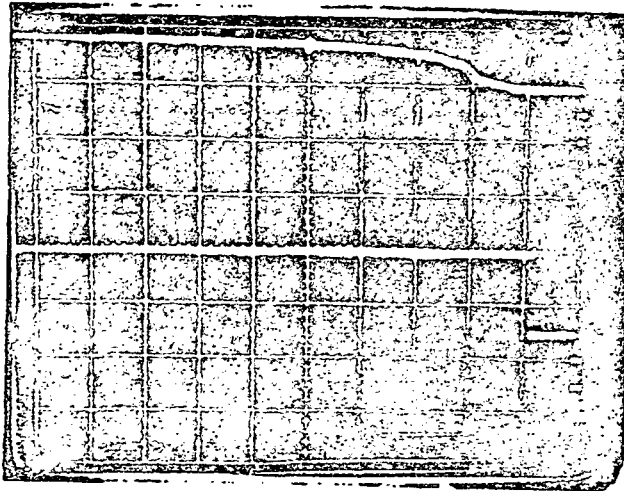
ORIGINAL PAGE IS
OF POOR QUALITY



TS 16603
Rev B
18 December 1980

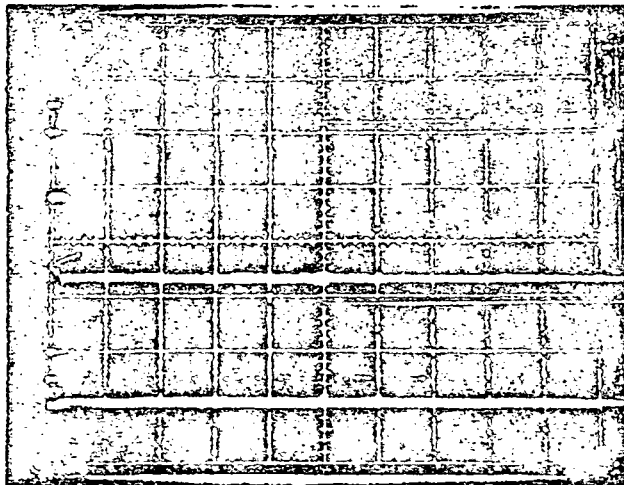
10.4 Performance test (continued)

5.10.17.4 Photograph of input bus current and input bus voltage
as is disabled - PRIMARY SIDE



(2V) VOLTAGE/DIV: 2V
(2A) CURRENT/DIV: 2A
(10ms) SWEEP RATE: 10ms

5.10.17.4 Photograph of input bus current and input bus voltage
as is disabled - REDUNDANT SIDE



(2V) VOLTAGE/DIV: 5V
(2A) CURRENT/DIV: 2A
(10ms) SWEEP RATE: 10ms

187



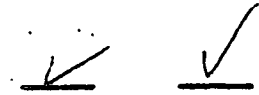
10.4 Performance test (continued)

FEB 1981

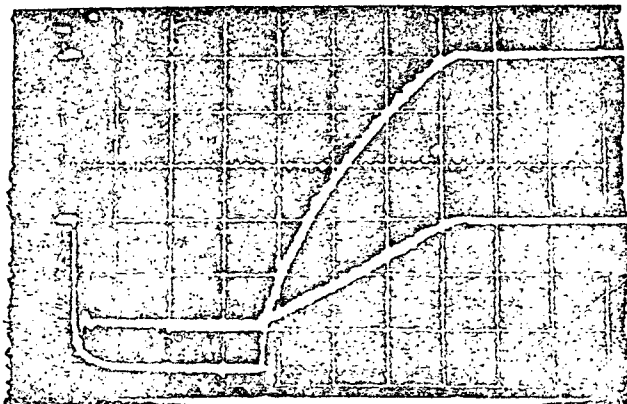
F. PARA.	DESCRIPTION	DVM SWITCH POSITIONS	LIMITS	MEASUREMENT	
				PRIMARY	REDUNDANT

5.10.17.5 Record that UUT operates correctly.

(checkmark)

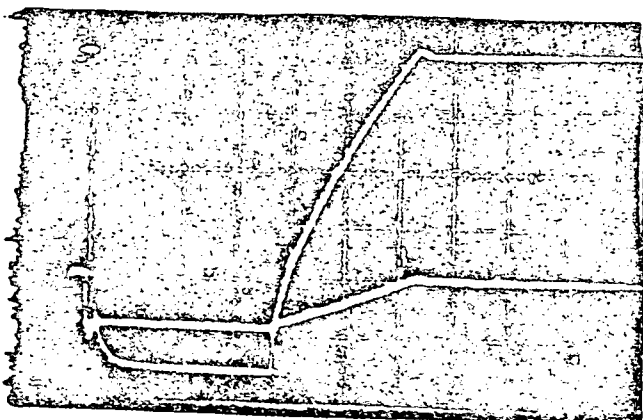


5.10.18.1 Photograph of input bus current and MUX output voltage as MUX enable command is issued (all loads are ON except outgas) - PRIMARY SIDE



(5V) VOLTAGE/DIV: 5V
 (5A) CURRENT/DIV: 5A
 (20ms) SWEEP RATE: 20ms
10ms
10ms

5.10.18.2 Photograph of input bus current and parasitic output voltage as parasitic enable command is issued (all loads are ON except outgas) - PRIMARY SIDE



(5V) VOLTAGE/DIV: 5V
 (5A) CURRENT/DIV: 5A
 (20ms) SWEEP RATE: 10ms

188

ORIGINAL PAGE IS
OF POOR QUALITY

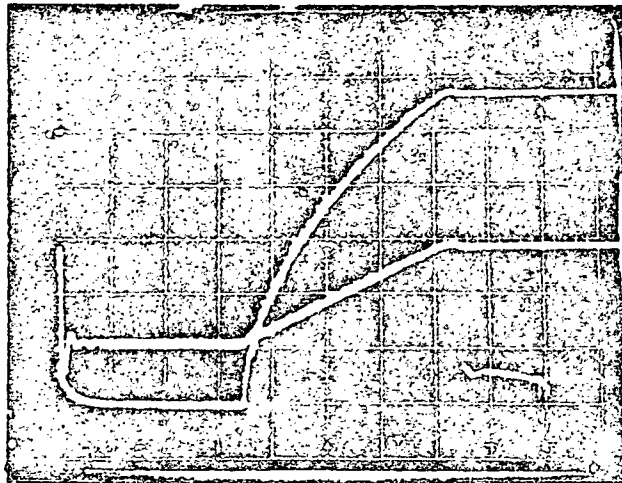


TS 16603
Rev B
18 December 1980

10.4 Performance test (continued)

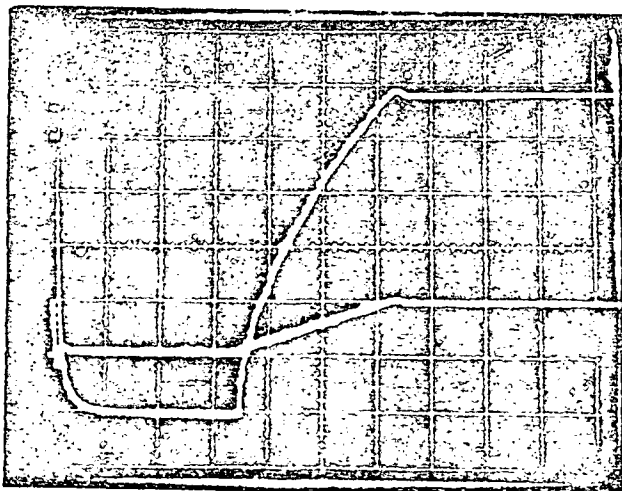
FIG 242

.10.18.1 Photograph of input bus current and MUX output voltage as MUX enable command is issued (all loads are ON except outgas) - REDUNDANT SIDE



(5V) VOLTAGE/DIV: 5V
(5A) CURRENT/DIV: 5A
(20mS) SWEEP RATE: 10mS

5.10.18.2 Photograph of input bus current and MUX output voltage as parasitic enable command is issued (all loads are ON except outgas) - REDUNDANT SIDE



(5v) Volts/Div: 5V
(5A) Current/Div: 5A
(20mS) Sweep Rate: 10mS

ORIGINAL PAGE IS
OF POOR QUALITY



TS 16603
Rev B

~~TS 16603~~
~~Rev B~~

RE 342

10.4 Performance test (continued)

REF. PARA.	DESCRIPTION	VTM SWITCH POSITIONS	LIMITS	MEASUREMENT	
				PRIMARY	REDUNDANT
5.10.18.4	Undervoltage Trip Point (ON/OFF)	S26-1, S27-1 (S27-3 for RDT)	18.0 ± 1.50V	18.08	18.08
5.10.18.5	UUT stays OFF			✓	✓
5.10.18.6	Undervoltage Trip Point (OFF/ON)	S26-1, S27-1 (S27-3 for RDT)	19.0 ± 1.50V	18.87	18.88
5.10.18.7	Overvoltage Trip Point	S26-1, S27-1 (S27-3 for RDT)	38.0 ± 2V	38.25	38.84 ^{SEM} / ₂
5.10.18.8	UUT stays OFF			✓	✓
5.10.18.9	UUT turns ON			✓	✓

2/4/82
DATE

GRAHAM BROWN
TESTER(S)

190

ORIGINAL PAGE IS
OF POOR QUALITY



TS 16603
Rev B
18 December 1980

10.4 Performance test - Long Form

PROTOFLIGHT N/A OR FLIGHT S/N 004 TEMPERATURE: 131°F
 IN-PROCESS N/A QUAL N/A OR ACCEPTANCE
 TESTING PHASE FINAL HIT - LONG FORM LINE VOLTAGE: 35.0 VOLTS

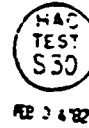
REF. PARA.	DESCRIPTION	DVM SWITCH POSITIONS	LIMITS	MEASUREMENT	
				PRIMARY	REDUNDANT
5.10.1.1	Calibrate cmd gen	--	--	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
5.10.2.1	Input bus current	S26-1, S27-2 (S27-4 for redundant)		<u>218mA</u>	<u>216mA</u>
5.10.2.2	MIX output voltage	S26-3, S27-1	30.0 ±0.90V	<u>30.40</u>	<u>30.26</u>
5.10.2.3	MIX load current	S26-3, S27-12	3.55 ±0.40A	<u>3.30</u>	<u>3.29</u>

The rest of Section 5.10.2 requires only checking voltage - indicate by checkmarks.

5.10.2.4.1	B1 + output voltage	S26-1, S27-5		<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
5.10.2.4.2	B1 -	S27-6		<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
5.10.2.4.3	B1 -	S27-5		<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
5.10.2.4.4	B1 +	S27-7		<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
5.10.2.5.1	B2 +	S27-7		<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
5.10.2.5.2	B2 -	S27-8		<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
5.10.2.5.3	B2 -	S27-8		<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
5.10.2.5.4	B2 +	S27-7		<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
5.10.2.6.1	B3 +	S27-9		<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
5.10.2.6.2	B3 -	S27-10		<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
5.10.2.6.3	B3 -	S27-10		<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
5.10.2.6.4	B3 +	S27-9		<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
5.10.2.7.1	B4 +	S27-11		<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
5.10.2.7.2	B4 -	S27-12		<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
5.10.2.7.3	B4 -	S27-12		<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
5.10.2.7.4	B4 +	S26-1, S27-11		<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
5.10.2.8.1	B5,7+	S26-2, S27-1		<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
5.10.2.8.2	B5,7-	S27-2		<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
5.10.2.8.3	B5,7-	S27-2		<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
5.10.2.8.4	B5,7+	S27-1		<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
5.10.2.9.1	B6 +	S27-3		<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
5.10.2.9.2	B6 - output voltage	S26-2, S27-4		<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>

REMOVED
NOT TO BE USED

ORIGINAL PAGE IS
OF POOR QUALITY



TS 15603
Rev B
~~19 DECEMBER 1980~~
SCN-1 1/22/81

10.4 Performance test (continued)

REF. PARA.	DESCRIPTION	DVM SWITCH POSITIONS	LIMITS	MEASUREMENT	
				PRIMARY	REDUNDANT
5.10.2.9.3	B6 - output voltage	S26-2, S27-4		✓	✓
5.10.2.9.4	B6 + output voltage	S26-2, S27-3		✓	✓
5.10.2.10.1	SMA HR + output voltage	S27-5		✓	✓
5.10.2.10.2	-	S27-6		✓	✓
5.10.2.10.3	-	S27-6		✓	✓
5.10.2.10.4	-	S27-5		✓	✓
5.10.2.11.1	-7V	S26-2, S27-7		✓	✓
5.10.2.11.2	-7V	(S27-8 for RDT)		✓	✓
5.10.2.12.1	+29V	S26-2, S27-9 (S27-11 for RDT)		✓	✓
5.10.2.12.2	-29V	S26-2, S27-10 (S27-12 for RDT)		✓	✓
5.10.2.12.3	-29V	S26-2, S27-10		✓	✓
5.10.2.12.4	SMA HR +29V	S26-2, S27-9		✓	✓
5.10.2.13.1	Radiometer	S26-3, S27-2		✓	✓
5.10.2.13.2	Radiometer	S27-2		✓	✓
5.10.2.14.1	CDVU	S27-3		✓	✓
5.10.2.14.2	CDVU	S27-3		✓	✓
5.10.2.15.1	Analog +	S27-4		✓	✓
5.10.2.15.2	Analog -	S27-5		✓	✓
5.10.2.15.3	Analog -	S27-5		✓	✓
5.10.2.15.4	Analog +	S27-4		✓	✓
5.10.2.16.1	Electromech.	S27-6		✓	✓
5.10.2.16.2	Electromech.	S27-6		✓	✓
5.10.2.17.1	Outgas output voltage	S26-3, S27-7		✓	✓
5.10.3.1	Bus voltage	S26-1, S27-1 (S27-3 for RDT)			
5.10.3.2	MUX load current	S26-3, S27-12	4.130 ±0.025A	35.01 (49) 41.43mV	35.00 41.36mV
5.10.3.3	Bus current	S26-1, S27-2 (S27-4 for RDT)		107.54 (50)	109.57mV
5.10.3.3.2	BPS Voltage	S26-1, S27-1 (S27-3)		35.00	35.00
5.10.3.3.3	BPS Current	S26-1, S27-2 (S27-4)		107.19mV	109.13mV
5.10.3.3.4	MUX Current	S26-3, S27-12		41.37mV	41.31mV

SCN-1

ORIGINAL PAGE IS
OF POOR QUALITY



TS 16603
Rev B
18 December 1980

10.4 Performance test (continued)

REF. PARA.	DESCRIPTION	DVM SWITCH POSITIONS	LIMITS	MEASUREMENT	
				PRIMARY	REDUNDANT
5.10.3.4.1	B1 + output voltage	S26-1, S27-5	20.50 \pm 2.50V	<u>20.62</u> (1)	<u>20.81</u>
5.10.3.4.2	B1 + output ripple	Lock on Scope	<600 mV pk-pk	<u>20</u>	<u>20</u>
5.10.3.4.3	B1 - output voltage	S26-1, S27-6	-20.50 \pm 2.50V	<u>-20.63</u> (2)	<u>20.93</u>
5.10.3.4.4	B1 - output ripple	Look on Scope	<600 mV pk-pk	<u>20</u>	<u>20</u>
5.10.3.5.1	B2 + output voltage	S26-1, S27-7	20.50 \pm 2.50V	<u>20.45</u> (3)	<u>20.67</u>
5.10.3.5.2	B2 + output ripple	Look on Scope	<600 mV pk-pk	<u>20</u>	<u>20</u>
5.10.3.5.3	B2 - output voltage	S26-1, S27-8	-20.50 \pm 2.50V	<u>-20.48</u> (4)	<u>20.69</u>
5.10.3.5.4	B2 - output ripple	Seen on Scope	<600 mV pk-pk	<u>20</u>	<u>20</u>
5.10.3.6.1	B3 + output voltage	S26-1, S27-9	20.50 \pm 2.50V	<u>20.53</u> (5)	<u>20.60</u>
5.10.3.6.2	B3 + output ripple	Seen on Scope	<600 mV pk-pk	<u>20</u>	<u>20</u>
5.10.3.6.3	B3 - output voltage	S26-1, S27-10	-20.50 \pm 2.50V	<u>-20.45</u> (6)	<u>20.69</u>
5.10.3.6.4	B3 - output ripple	Seen on Scope	<600 mV pk-pk	<u>20</u>	<u>20</u>
5.10.3.7.1	B4 + output voltage	S26-1, S27-11	20.50 \pm 2.50V	<u>20.59</u> (7)	<u>20.81</u>
5.10.3.7.2	B4 + output ripple	Seen on Scope	<600 mV pk-pk	<u>20</u>	<u>20</u>
5.10.3.7.3	B4 - output voltage	S26-1, S27-12	-20.50 \pm 2.50V	<u>-20.62</u> (8)	<u>20.82</u>
5.10.3.7.4	B4 - output ripple	Seen on Scope	<600 mV pk-pk	<u>20</u>	<u>20</u>
5.10.3.8.1	B5,7 + voltage	S26-2, S27-1	20.50 \pm 2.50V	<u>20.20</u> (9)	<u>20.20</u>
5.10.3.8.2	B5,7 + ripple	Seen on Scope	<600 mV pk-pk	<u>40</u>	<u>40</u>
5.10.3.8.3	B5,7 - voltage	S26-3, S27-2	-20.50 \pm 2.50V	<u>-20.19</u> (10)	<u>20.23</u>
5.10.3.8.4	B5,7 - ripple	Seen on Scope	<600 mV pk-pk	<u>40</u>	<u>40</u>
5.10.3.9.1	B6 + voltage	S26-2, S27-3	20.50 \pm 2.50V	<u>20.40</u> (11)	<u>20.57</u>
5.10.3.9.2	B6 + ripple	Seen on Scope	<600 mV pk-pk	<u>20</u>	<u>20</u>
5.10.3.9.3	B6 - voltage	S26-2, S27-4	-20.50 \pm 2.50V	<u>-20.41</u> (12)	<u>20.59</u>
5.10.3.9.4	B6 - ripple	Seen on Scope	<600 mV pk-pk	<u>20</u>	<u>20</u>
5.10.3.10.1	SMA Htr + voltage	S26-2, S27-5	21.20 \pm 2.12V	<u>22.23</u> (13)	<u>22.44</u>
5.10.3.10.2	SMA Htr + ripple	Seen on Scope	<630 mV pk-pk	<u>20</u>	<u>20</u>
5.10.3.10.3	SMA Htr - voltage	S26-2, S27-6	-21.20 \pm 2.12V	<u>-22.72</u> (14)	<u>22.96</u>
5.10.3.10.4	SMA Htr - ripple	Seen on Scope	<630 mV pk-pk	<u>20</u>	<u>20</u>
5.10.3.11.1	SMA +7V voltage	S26-2, S27-7 (S27-8 for RDT)	7.10 \pm 0.80V	<u>7.71</u> (15)	<u>7.81</u>
5.10.3.11.2	SMA +7V output ripple	Seen on Scope	<10 mV pk-pk	<u>30</u>	<u>40</u>

ORIGINAL PAGE IS
OF POOR QUALITY



TS 16603
Rev B
18 December 1980

RE: 182

10.4 Performance test (continued)

REF. PARA.	DESCRIPTION	DVM SWITCH POSITIONS	LIMITS	MEASUREMENT	
				PRIMARY	REDUNDANT
5.10.3.12.1	SMA +29V output voltage	S26-2, S27-9 (S27-11 for RDT)	29.50 \pm 1.90V	30.41(16)	30.68
5.10.3.12.2	SMA +29V ripple	Seen on Scope	<870 mV, pk-pk	40	50
5.10.3.12.3	SMA -29V voltage	S26-2, S27-10 (S27-12 for RDT)	-29.50 \pm 1.90V	30.39(17)	30.70
5.10.3.12.4	SMA -29V ripple	Seen on Scope	<870 mV pk-pk	50	50
5.10.3.13.1	MIX voltage	S26-3, S27-1	30.00 \pm 0.90V	31.06(18)	30.25
5.10.3.13.2	MIX ripple	Seen on Scope	<900 mV, pk-pk	60	70
5.10.3.14.1	Radiometer voltage	S26-3, S27-2	8.50 \pm 0.85V	8.621(19)	8.634
5.10.3.14.2	Radiometer ripple	Seen on Scope	<250 mV pk-pk	20	40
5.10.3.15.1	CDVU voltage	S26-3, S27-3	8.00 \pm 0.80V	7.633(20)	7.766
5.10.3.15.2	CDVU ripple	Seen on Scope	<240 mV pk-pk	20	20
5.10.3.16.1	Analog + voltage	S26-3, S27-4	21.20 \pm 2.12V	22.35(21)	22.50
5.10.3.16.2	Analog + ripple	Seen on Scope	<630 mV pk-pk	30	40
5.10.3.16.3	Analog - voltage	S26-3, S27-5	-21.20 \pm 2.12V	22.42(22)	22.56
5.10.3.16.4	Analog - ripple	Seen on Scope	<630 mV pk-pk	20	20
5.10.3.17.1	Electromech. voltage	S26-3, S27-6	33.40 \pm 3.34V	33.07(23)	33.43
5.10.3.17.2	Electromech. ripple	Seen on Scope	<1.0V pk-pk	30	60
5.10.3.18.1	Outgas voltage	S26-3, S27-7	100.0 \pm 12.0V	106.95	105.24
5.10.3.18.2	Outgas output ripple	Seen on Scope	<3.0V pk-pk	225	225
5.10.4.1	Input current telemetry	S26-4, S28-2 (S28-4 for RDT)		2.978	3.073
5.10.4.2.1	Band 1 + volt. telemetry	S26-4, S28-5		3.766	3.811
5.10.4.2.2	Band 1 -	S28-6		3.755	3.790
5.10.4.3.1	Band 2+	S28-7		3.722	3.772
5.10.4.3.2	Band 2-	S28-8		3.710	3.748
5.10.4.4.1	Band 3+	S28-9		3.737	3.754
5.10.4.4.2	Band 3-	S28-10		3.732	3.771
5.10.4.5.1	Band 4+	S28-11		3.740	3.785
5.10.4.5.2	Band 4-	S26-4, S28-12		3.749	3.787
5.10.4.6.1	Band 5,7+	S26-5, S28-1		3.684	3.713
5.10.4.6.2	Band 5,7- volt. telemetry	S26-5, S28-2		3.677	3.681

ORIGINAL PAGE IS
OF POOR QUALITY



TS 16603
Rev B
18 December 1980

10.4 Performance test (continued)

REF. PARA.	DESCRIPTION	DVM SWITCH POSITIONS	LIMITS	MEASUREMENT	
				PRIMARY	REDUNDANT
5.10.4.7.1	Band 6 + volt. telemetry	S26-5, S28-3		3.690	3.725
5.10.4.7.2	Band 6 -	S28-4		3.725	3.760
5.10.4.8.1	SMA Htr +	S28-5		4.059	4.105
5.10.4.8.2	SMA Htr -	S28-6		4.118	4.161
5.10.4.9	SMA +7V	S26-5, S27-7 (S27-8 for RDT)		4.928	5.021
5.10.4.10.1	SMA +29V	S26-5, S28-9 (S27-11 for RDT)		4.166	4.230
5.10.4.10.2	SMA -29V	S26-5, S28-10 (S27-12 for RDT)		3.517	3.623
5.10.4.11	MUX	S26-6, S28-1		4.289	4.293
5.10.4.12	Radiometer	S26-6, S28-2		4.721	4.739
5.10.4.13	CDVU	S26-6, S28-3		4.292	4.362
5.10.4.14.1	Analog + volt. telemetry	S26-6, S28-4		3.945	4.023
5.10.4.14.2	Analog -	S26-6, S28-5		3.930	3.949
5.10.4.15	Electromech.	S28-6		4.060	4.105
5.10.4.16	Outgas volt. telemetry	S26-6, S28-7		5.348	5.261
5.10.5.1.1	Analog + load current	S26-3, S27-11 mV ÷ 10 = Amps		15.55mV(24)	15.70mV
5.10.5.1.2	MUX	S26-3, S27-12 mV ÷ 10 = Amps		41.47mV(25)	41.35mV
5.10.5.1.3	Band 1 +	S26-7, S34-1 mV ÷ 0.5 = mA		91.65mV(26)	92.50mV
5.10.5.1.4	Band 1 -	S34-2		91.55mV(27)	92.74mV
5.10.5.1.5	2 +	S34-3		90.69mV(28)	91.69
5.10.5.1.6	2 -	S34-4		91.55mV(29)	92.50
5.10.5.1.7	3 +	S34-5		91.44mV(30)	91.76
5.10.5.1.8	3 -	S34-6		91.22mV(31)	92.19
5.10.5.1.9	4 +	S34-7		91.55mV(32)	92.55
5.10.5.1.10	4 -	S34-8		91.24mV(33)	92.17
5.10.5.1.11	5,7 +	S34-9		90.92mV(34)	91.35
5.10.5.1.12	5,7 -	S34-10		90.77mV(35)	91.18
5.10.5.1.13	6 +	S34-11		91.44mV(36)	92.81
5.10.5.1.14	Band 6 -	S26-7, S34-12		47.26mV(37)	47.78
5.10.5.1.15	SMA Htr +	S26-8, S34-1 mV ÷ 0.5 = mA		47.42mV(38)	48.36
5.10.5.1.16	SMA Htr - load current	S26-8, S34-2 mV = mA		9.975mV(39)	9.069

ORIGINAL PAGE IS
OF POOR QUALITY

TS 16603
Rev B

AC
TEST
S30

SCN-2 7-6-81
SCN-3 11/3/81

10.4 Performance test (continued)

REF. PARA.	DESCRIPTION	DVM SWITCH POSITIONS	LIMITS	MEASUREMENT	
				PRIMARY	REDUNDANT
5.10.5.1.17	SMA +29V load current	S26-8, S34-3	mV ÷ 0.402 = mA	51.75 (40)	51.25
5.10.5.1.18	SMA -29V	S34-4	mV ÷ 0.402 = mA	50.53 (40)	51.05
5.10.5.1.19	SMA +7V	S34-5	V ÷ 0.1 = Amps	1.273 V (40)	1.281
5.10.5.1.20	Analog -	S34-6	mV ÷ 0.402 = mA	1.265 V (40)	1.270
5.10.5.1.21	Radiometer	S34-9	mV ÷ 0.5 = mA	1541.3 (40)	1541.3
5.10.5.1.22	CDVU	S34-10	mV ÷ 0.5 = mA	1.272 V (45)	1.277
5.10.5.1.23	Electromech. load current	S26-8, S34-11	mV ÷ 0.402 = mA	1.210 V (46)	1.212
5.10.5.2.1	Bus power supply voltage	S26-1, S27-1 (S27-3 for RDT)		35.00 (47)	35.00
5.10.5.2.2	Bus input current	S26-1, S27-2 (S27-4 for RDT)	mV ÷ 10 = Amps	107.67 mV (48)	108.67
5.10.5.2.3	P _{IN} (Section 5.10.5)			376.845	380.345
5.10.5.2.4	P _{IN} (Section 5.10.3)			376.39	379.99
5.10.5.2.5	P _{IN} (avg)			376.618	380.17
5.10.5.2.9	Input current at current limit		26-1, 27-2 (26-1 27-4 Rdt)	125.12 mV	132.34
	Input voltage at current limit		27-1 (27-3 Rdt)	34.81 V	32.75
	MUX voltage at current limit		26-3, 27-1	30.13	30.18
	MUX current at current limit		27-12	51.67 mV	55.93
5.10.5.3.1	P _{OUT}			271.01	274.16
5.10.5.3.2	Efficiency		> 70%	72.45%	72.61%

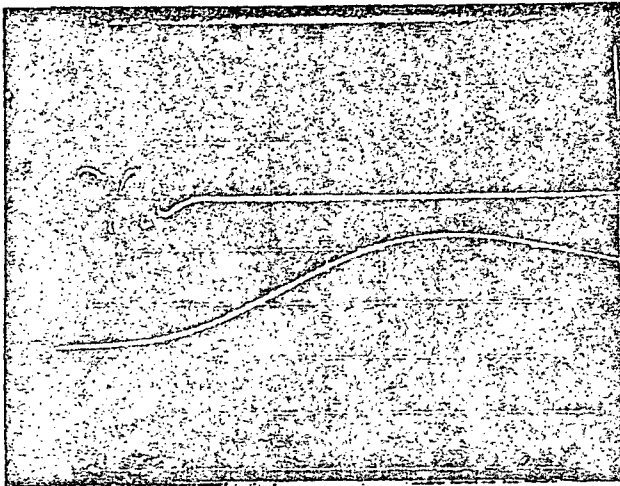
ORIGINAL PAGE IS
OF POOR QUALITY



TS 16603
Rev B
18 December 1980

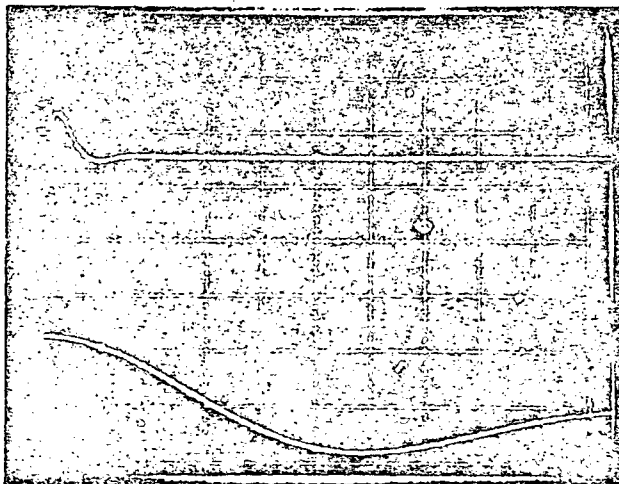
10.4 Performance test (continued)

REF. PARA.	DESCRIPTION	DVM SWITCH POSITIONS	LIMITS	MEASUREMENT	
				PRIMARY	REDUNDANT
5.10.6.1	+7V output pulsed	S26-2, S27-7 (S27-8 for RDT)	7.10 \pm 0.80V	<u>7.02</u>	<u>7.16</u>
5.10.6.2	Photograph of transients induced on input bus current and SMA +7V output voltage as SMA +7V output is being pulse-loaded-PRIMARY SIDE				



(0.2A) CURRENT/DIV: .2A A.C.
(1V) VOLTAGE/DIV: 2V
(200uS) SWEEP RATE: 200uS

5.10.6.2 Photograph of transients induced on input bus current and SMA +7V output voltage as pulse-load on SMA +7V outputs is being removed - PRIMARY SIDE



0.2A) CURRENT/DIV: .2A A.C.
1V) VOLTAGE/DIV: 2V
200uS) SWEEP RATE: 200uS

197

ORIGINAL PAGE IS
OF POOR QUALITY



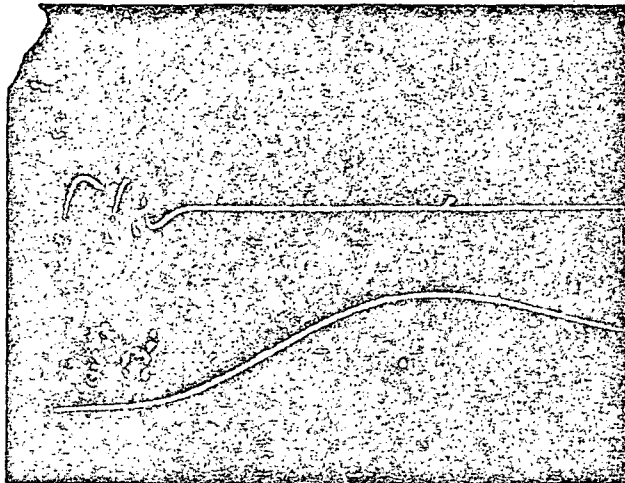
TS 16603
Rev B
18 December 1980

FEB 24 1981

10.4 Performance test (continued)

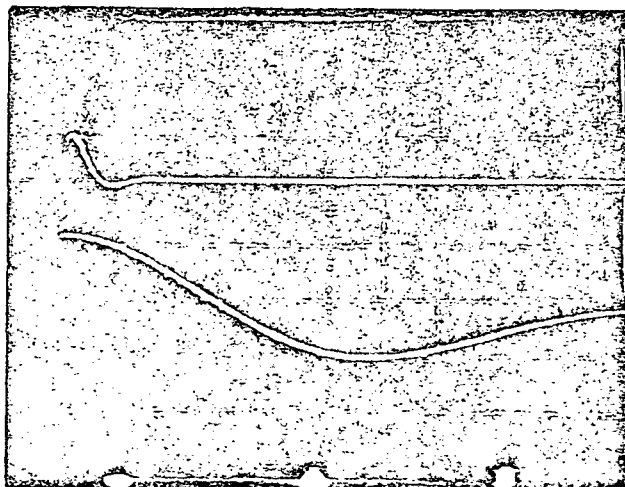
REF. PARA. DESCRIPTION

5.10.6.2 Photograph of transients induced on input bus current and SMA +7V output voltage as SMA +7V output is being pulse-loaded-REDUNDANT SIDE



(0.2A) CURRENT/DIV: 2 A.C.
(1V) VOLTAGE/DIV: 2 V
(200us) SWEEP RATE: 200 us

5.10.6.2 Photograph of transients induced on input bus current and SMA +7V output voltage as pulse-load is being removed-REDUNDANT SIDE



(0.2A) CURRENT/DIV: 2 A.C.
(1V) VOLTAGE/DIV: 2 V
(200us) SWEEP RATE: 200 us

198

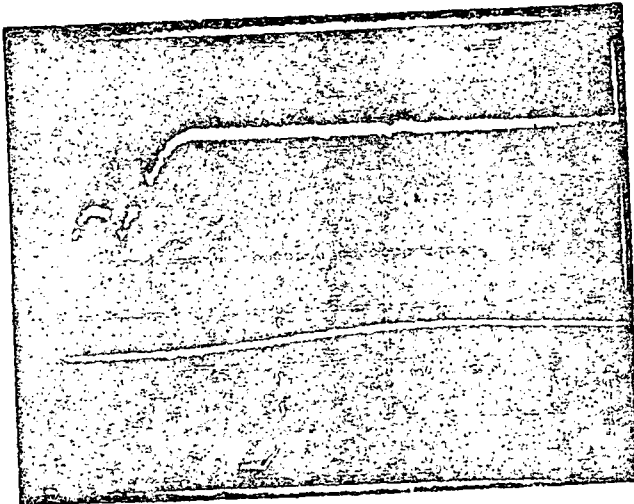
ORIGINAL PAGE IS
OF POOR QUALITY



TS 16603
Rev B
~~10 December 1980~~
SC-2 7-6-81

10.4 Performance test (continued)

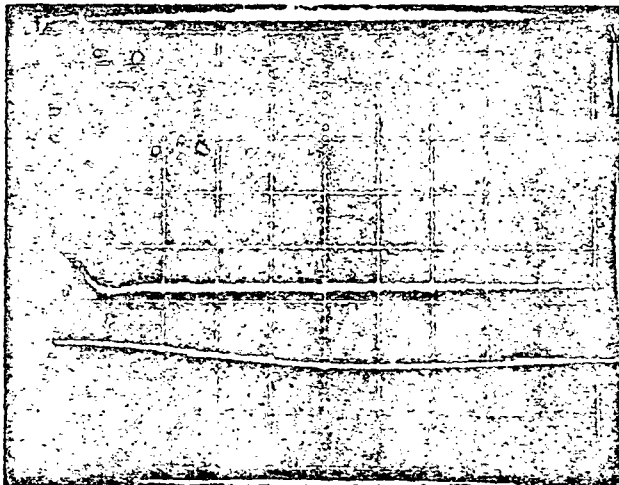
REF. PARA.	DESCRIPTION	DVM SWITCH POSITIONS	LIMITS	MEASUREMENT	
				PRIMARY	REDUNDANT
5.10.6.3	Input bus current	S26-1, S27-2 (S27-4 for RDT)		112.23	113.4
5.10.6.4	SMA +7V IM- pulsed	S26-5, S28-7 (S28-8 for RDT)		4.608	4.74
5.10.6.5	SMA +7V load current-pulsed	(S26-8, S34-5)		4575V	4651
5.10.6.6	Photograph of transients induced on input bus current and SMA +7V load current as SMA +7V output is being pulse-loaded-PRIMARY SIDE				



(1A) * SMA CURRENT/DIV: 100 mA
(1A) BUS CURRENT/DIV: 1A
(200us) SWEEP RATE: 200 us

* Using 0.1 μ shunt and 100 mV/Div on scope

5.10.6.6 Photograph of transients induced on input bus current and SMA +7V load current as pulse-load is being removed-PRIMARY SIDE



(1A) * SMA CURRENT/DIV: 100 mA
(1A) BUS CURRENT/DIV: 1A
(200us) SWEEP RATE: 200 us

* Using 0.1 μ shunt and 100mV/Div on Scope

ORIGINAL PAGE IS
OF POOR QUALITY



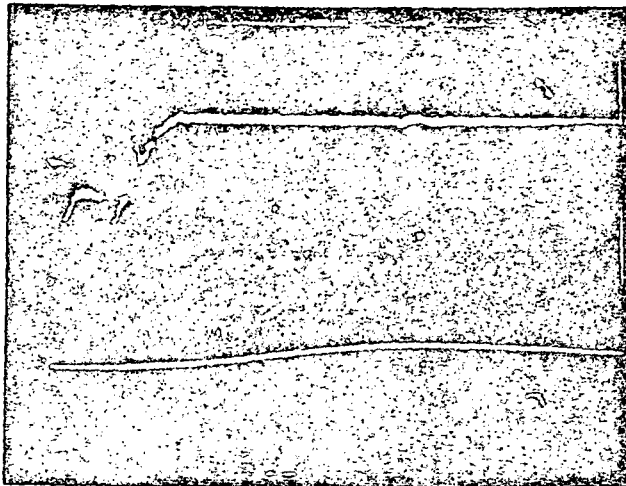
FEB 24 1982

TS 16603
Rev B

~~18 December 1980~~
501-2 7-6-81

10.4 Performance test (continued)

REF. PARA.	DESCRIPTION
5.10.6.6	Photograph of transients induced on input bus current and SMA + 7V load current as SMA + 7V output is being pulse loaded - REDUNDANT SIDE

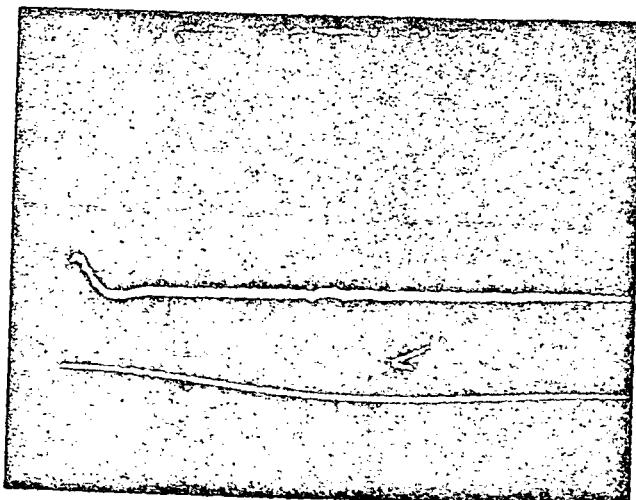


(1A)* SMA CURRENT/DIV: 100mV
(2A) BUS CURRENT/DIV: 1A
(200uS) SWEEP RATE: 200uS

*Using 0.1 shunt and
100 mV/Div on scope.

2

5.10.6.6 Photograph of transients induced on input bus current and SMA + 7V load current as pulse-load is removed - REDUNDANT SIDE



(1A)* SMA CURRENT/DIV: 100mV
(2A) BUS CURRENT/DIV: 1A
(200uS) SWEEP RATE: 200uS

*Using 0.1 shunt and
100mV/Div on scope.

2

ORIGINAL PAGE IS
OF POOR QUALITY



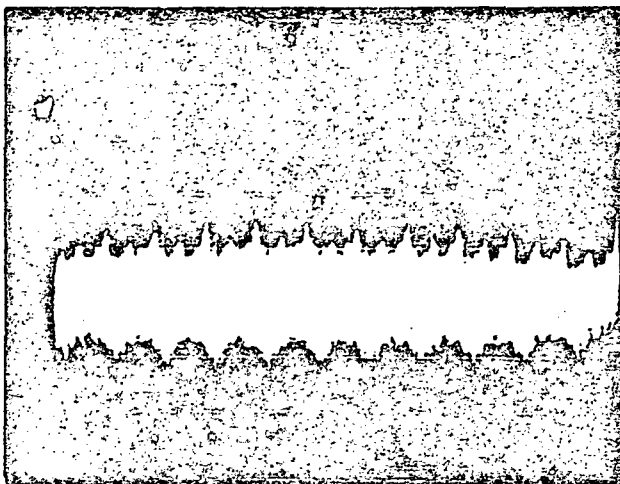
TS 16603
Rev B
18 December 1980

10.4 Performance test (continued)

REF. PARA.

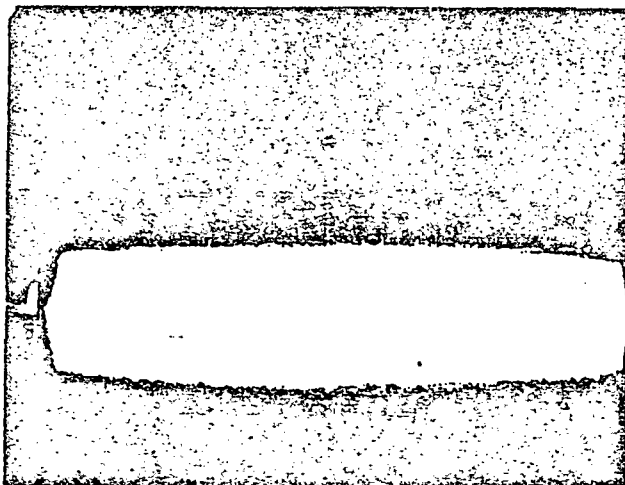
DESCRIPTION

5.10.7.1 Photograph of reflected input current ripple - PRIMARY SIDE



(1mA) CURRENT/DIV: 2mA.C.
(10uS) SWEEP RATE: 10uS

5.10.7.1 Photograph of reflected input current ripple - REDUNDANT SIDE



(1mA) CURRENT/DIV: 2mA.C.
(10uS) SWEEP RATE: 10uS

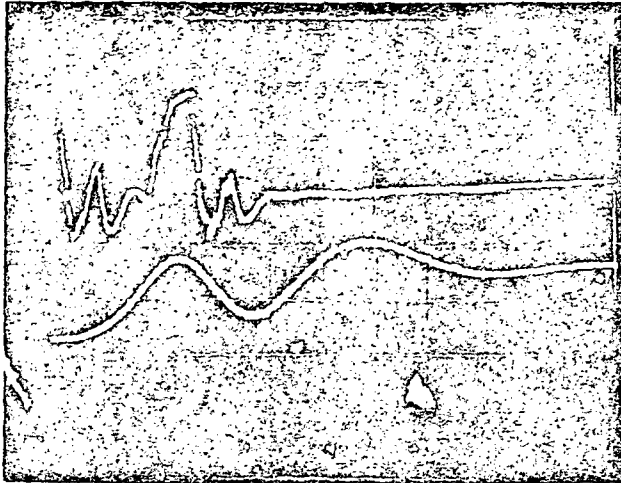
8.1.1 Input current - full load S26-1, S27-2
(S27-4 for RDT)

LAC
TEST
S30
REF: 472

107.57mV 108.76
85.19mV 87.64

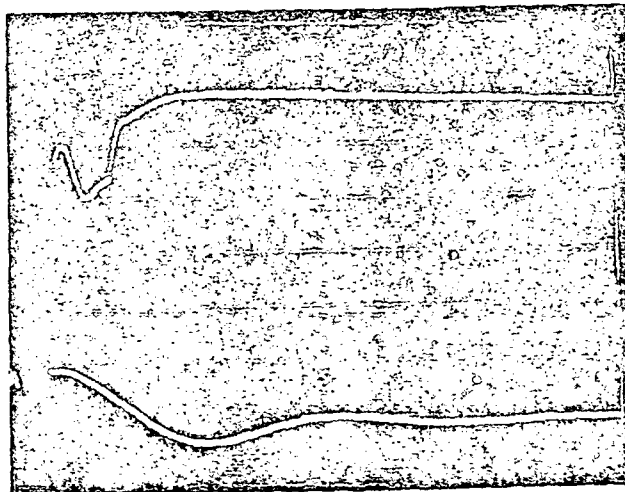
10.8.1.2 Input current w/o analog load Same

5.10.8.1.3 Photograph of transients induced on input bus current and analog + voltage as analog output is enabled - PRIMARY SIDE



(2V) VOLTAGE/DIV: 2V
(1A) CURRENT/DIV: 1A
(500us) SWEEP RATE: 500us

5.10.8.1.3 Photograph of transients induced on input bus current and analog + voltage as analog output is disabled - PRIMARY SIDE



(5V) VOLTAGE/DIV: 2V
(1A) CURRENT/DIV: 1A
(1ms) SWEEP RATE: 500us

ORIGINAL PAGE IS
OF POOR QUALITY

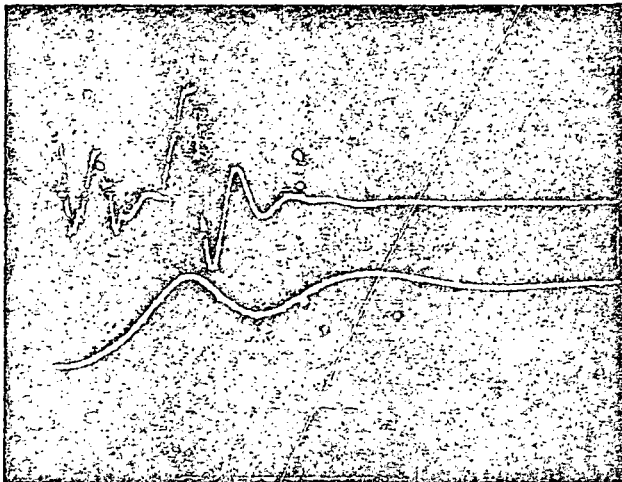


TS 16603
Rev B
18 December 1980

10.4 Performance test (continued)

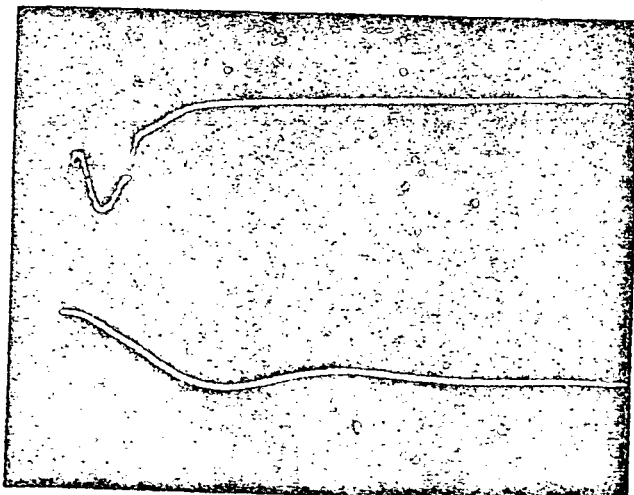
TF 482

REF. PARA.	DESCRIPTION
5.10.8.1.3	Photograph of transients induced on input bus current and analog + output voltage as analog output is enabled - REDUNDANT SIDE.



(2V) VOLTAGE/DIV: 2V
(1A) CURRENT/DIV: 1A
(500us) SWEEP RATE: 500us

5.10.8.1.3	Photograph of transients induced on input bus current and analog + output voltage as analog output is disabled - REDUNDANT SIDE.
------------	--



(5V) VOLTAGE/DIV: 2V
(1A) CURRENT/DIV: 1A
(1ms) SWEEP RATE: 500us

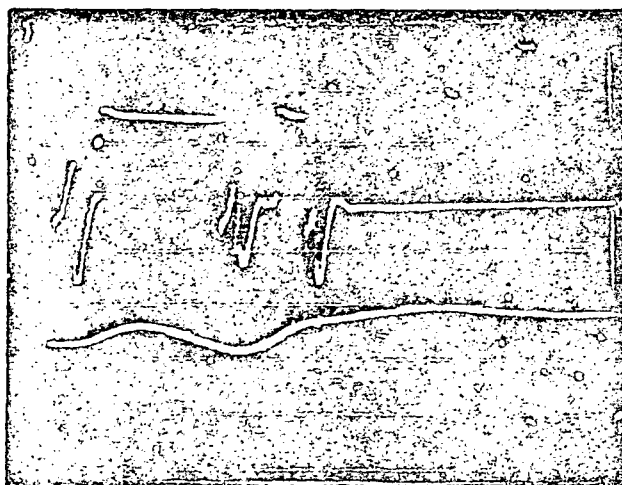
ORIGINAL PAGE IS
OF POOR QUALITY



TS 16603
Rev B
18 December 1980

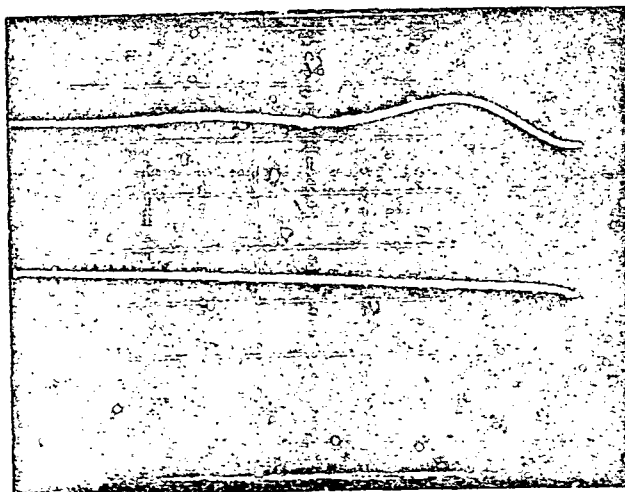
10.4 Performance test (continued)

F. PARA.	DESCRIPTION	DVM SWITCH POSITIONS	LIMITS	MEASUREMENT	
				PRIMARY	REDUNDANT
5.10.8.2.1	Input bus current w/o SMA +7V load	S26-1, S27-2 (S27-4 for RDT)		98.25 mA	99.49
5.10.8.2.2	Photograph of transients induced on input bus current and SMA +7V output voltage as SMA +7V is enabled - PRIMARY SIDE.				



(5V) VOLTAGE/DIV: 2V
(1A) CURRENT/DIV: 1A
(200uS) SWEEP RATE: 500uS

5.10.8.2.2 Photograph of transients induced on input bus current and SMA +7V output voltage as SMA +7V is disabled - PRIMARY SIDE.



(2V) VOLTAGE/DIV: 2V
(1A) CURRENT/DIV: 1A
(2mS) SWEEP RATE: 500uS

204

ORIGINAL PAGE IS
OF POOR QUALITY

TS 16603
Rev B
18 December 1980

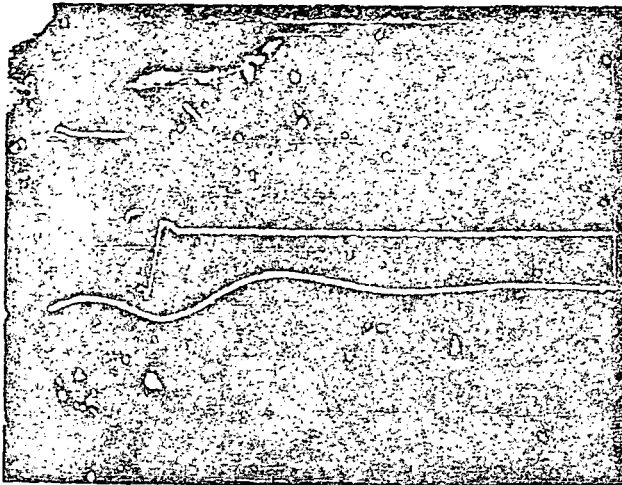


10.4 Performance test (continued)

REF. PARA.

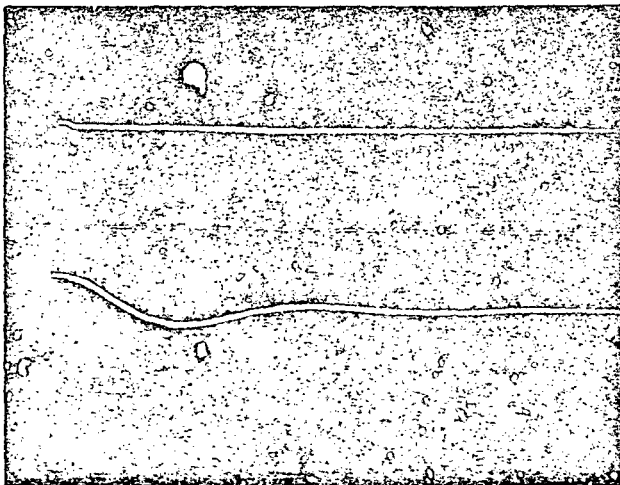
DESCRIPTION

10.8.2.2 Photograph of transients induced on input bus current and SMA +7 output voltage as SMA +7V is enabled - REDUNDANT SIDE



(5V) VOLTAGE/DIV: 2V
(1A) CURRENT/DIV: 1A
(200us) SWEEP RATE: 500us

10.8.2.2 Photograph of transients induced on input bus current and SMA +7V output voltage as SMA +7V is disabled - REDUNDANT SIDE



(2V) VOLTAGE/DIV: 2V
(1A) CURRENT/DIV: 1A
(2us) SWEEP RATE: 500us

205

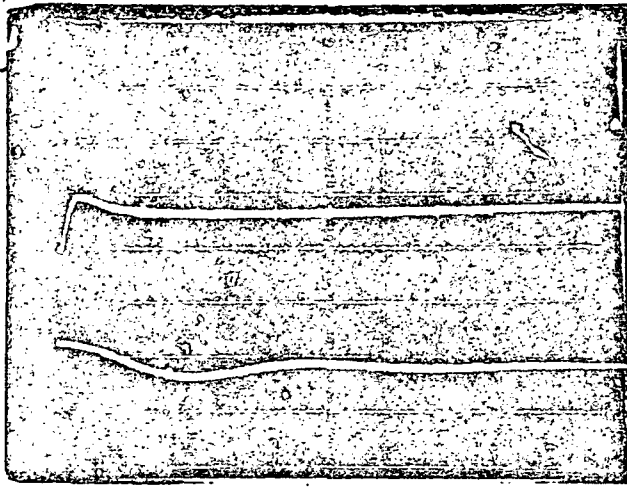
ORIGINAL PAGE IS
OF POOR QUALITY

TEST
530

13 10003
Rev B
18 December 1980

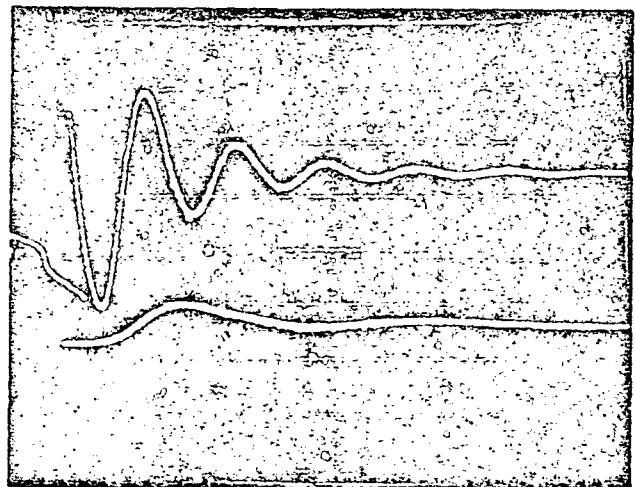
10.4 Performance test (continued)

TF, PARA.	DESCRIPTION	DVM SWITCH POSITIONS	LIMITS	MEASUREMENT	
				PRIMARY	REDUNDANT
5.10.8.2.3	Input bus current w/o SMA +29V load	S26-1, S27-2 (S27-4 for RDT)		104.44 ^{uV}	96.04
5.10.8.2.4	Photograph of transients induced on input bus current and SMA +29V output voltage as SMA +29V is enabled - PRIMARY SIDE				



(2V) VOLTAGE/DIV: 1V
(0.5V) CURRENT/DIV: 0.5A
(1ms) SWEEP RATE: 500 usec

5.10.8.2.4 Photograph of transients induced on input bus current and SMA +29V output voltage as SMA +29V is disabled - PRIMARY SIDE



(2V) VOLTAGE/DIV: 1V
(0.5A) CURRENT/DIV: 5A
(1ms) SWEEP RATE: 500 usec

206

ORIGINAL PAGE IS
OF POOR QUALITY

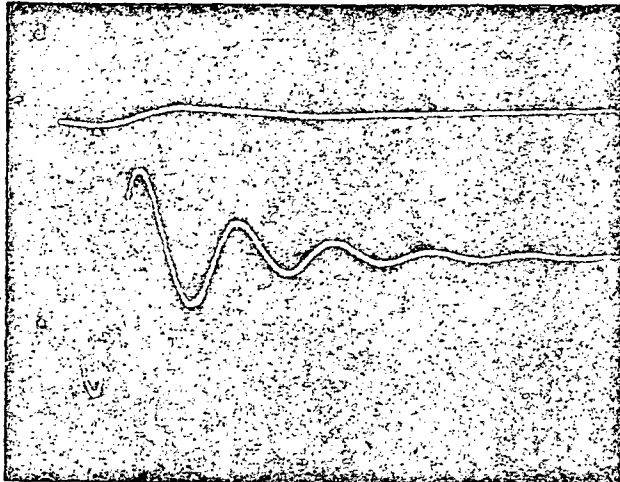


TS 16603
Rev B
18 December 1980

10.4 Performance test (continued)

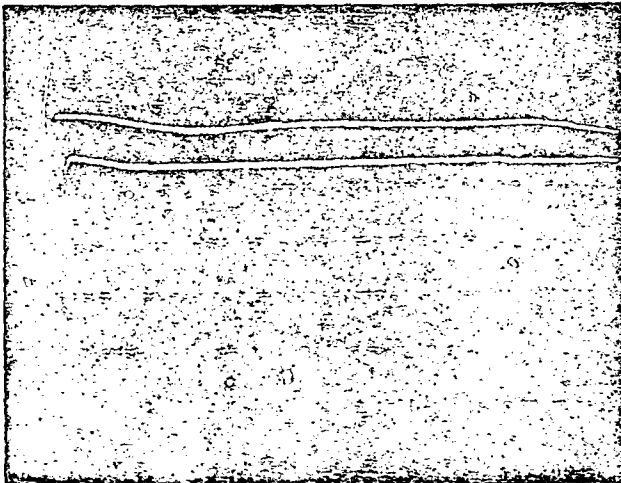
REF 1472

EF. PARA.	DESCRIPTION
5.10.8.2.4	Photograph of transients induced on input bus current and SMA +29V output voltage as SMA +29V is enabled - REDUNDANT SIDE



(2V) VOLTAGE/DIV: 1V
(0.5A) CURRENT/DIV: .5A
(1mS) SWEEP RATE: 500ns

5.10.8.2.4	Photograph of transients induced on input bus current and SMA +29V output voltage as +29V is disabled - REDUNDANT SIDE
------------	--



(2V) VOLTAGE/DIV: 1V
(0.5) CURRENT/DIV: .5A
(1mS) SWEEP RATE: 500ns

ORIGINAL PAGE IS
OF POOR QUALITY



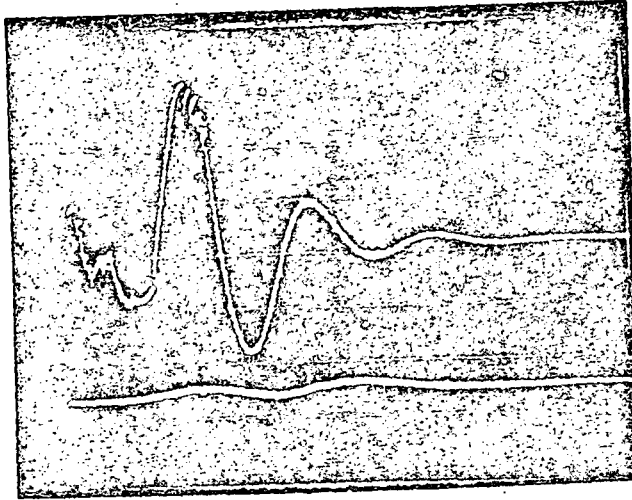
TS 16603
Rev B
18 December 1980

10.4 Performance test (continued)

REV: 4/82

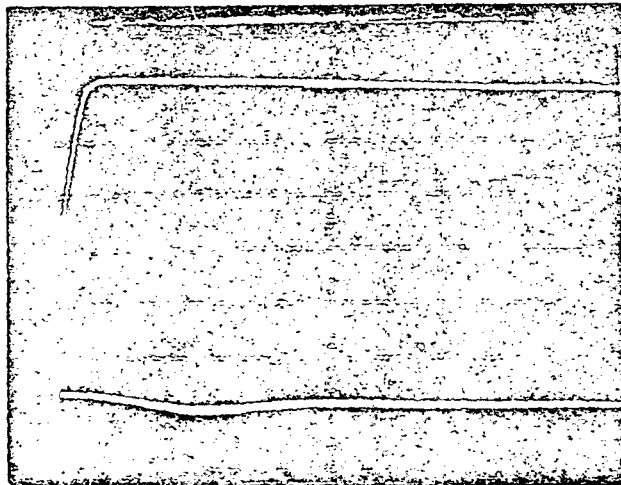
E. PARA.	DESCRIPTION	DVM SWITCH POSITIONS	LIMITS	MEASUREMENT	
				PRIMARY	REDUNDANT
5.10.8.3.1	Input bus current w/o CDVU load	S26-1, S27-2 (S27-4 for RDT)		105.92	97.52
5.10.8.3.2					

current and CDVU output



(V) VOLTAGE/DIV: 1V
(.5A) CURRENT/DIV: .5A
(ms) SWEEP RATE: 500ms

5.10.8.3.2 Photograph of transients induced on input bus current and CDVU output voltage as CDVU is disabled - PRIMARY SIDE



(2V) VOLTAGE/DIV: 1V
(0.5V) CURRENT/DIV: .5A
(ms) SWEEP RATE: 500ms

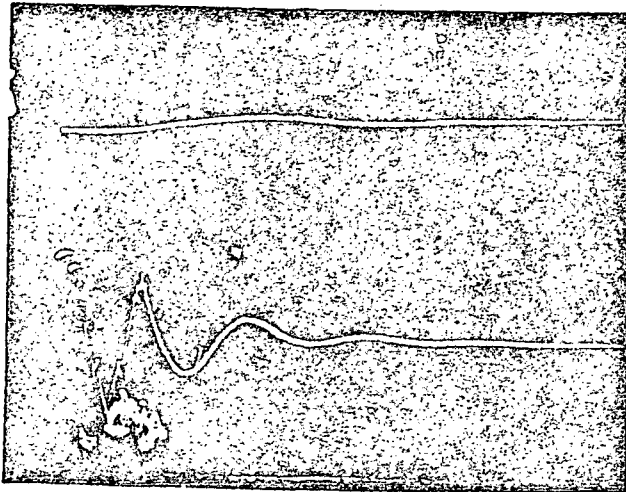
ORIGINAL PAGE IS
OF POOR QUALITY



TS 16603
Rev B
18 December 1980

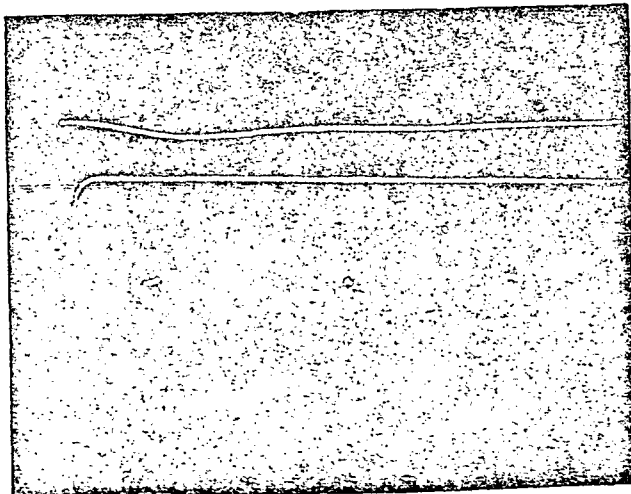
10.4 Performance test (continued)

PARA.	DESCRIPTION
5.10.8.3.2	Photograph of transients induced on input bus current and CDVU output voltage as CDVU is enabled - REDUNDANT SIDE



(2V) VOLTAGE/DIV: 1V
(0.5A) CURRENT/DIV: .5
(1mS) SWEEP RATE: 500ns

5.10.8.3.2	Photograph as transients induced on input bus current and CDVU output voltage as CDVU is disabled - REDUNDANT SIDE
------------	--



(2V) VOLTAGE/DIV: 1V
(0.5A) CURRENT/DIV: .5
(1mS) SWEEP RATE: 500ns

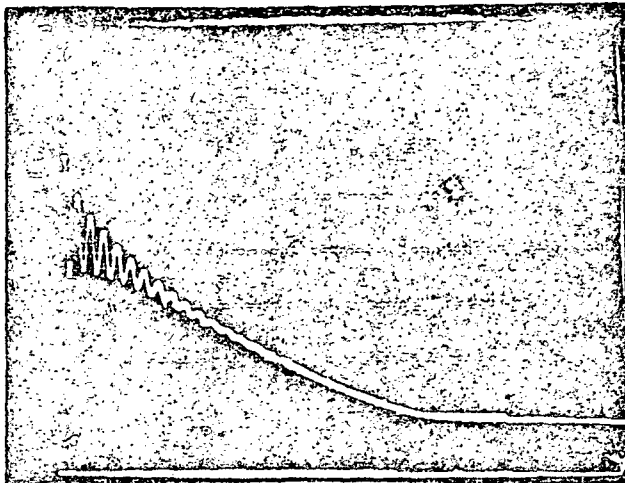


10.4 Performance test (continued)

10:402

TEST PARA. DESCRIPTION

5.10.9.1 Photograph of turn-off transient of input bus voltage and input bus current as bus voltage is removed - PRIMARY SIDE



(5V) VOLTAGE/DIV: 5V

(5A) CURRENT/DIV: 5A

(500 μ S) SWEEP RATE: 500 μ S

Photograph of turn-off transient of input bus voltage and input bus current as bus voltage is removed - REDUNDANT SIDE



(5V) VOLTAGE/DIV: 5V

(5A) CURRENT/DIV: 5A

(500 μ S) SWEEP RATE: 500 μ S

ORIGINAL PAGE IS
OF POOR QUALITY

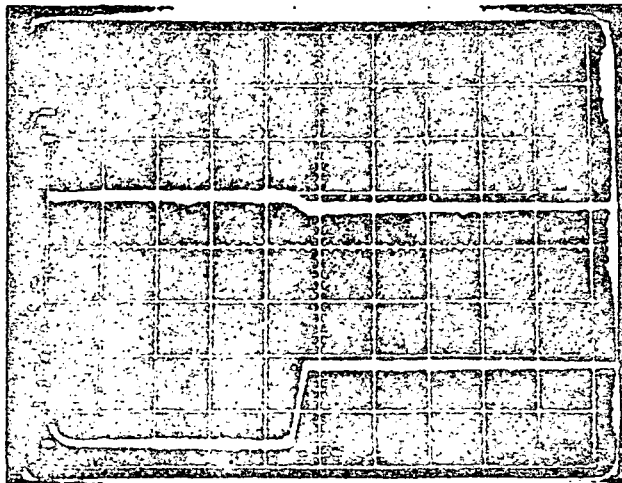


TS 16603
Rev B
18 December 1980

43 2 4 72

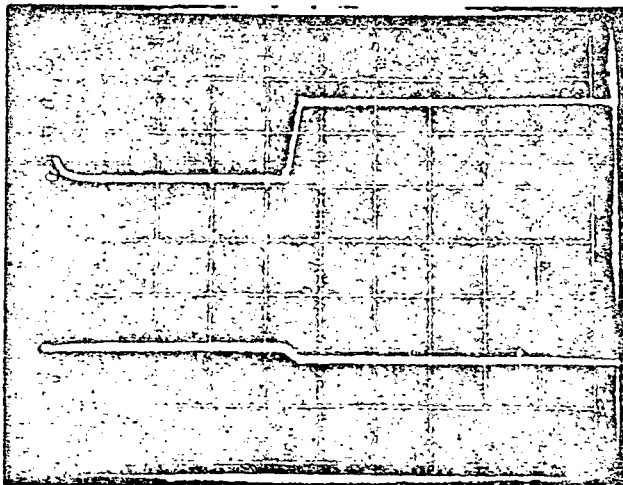
10.4 Performance test (continued)

REF. PARA.	DESCRIPTION	DVM SWITCH POSITIONS	LIMITS	MEASUREMENT	
				PRIMARY	REDUNDANT
5.10.9.2	UUT stays off when bus is resupplied.	S1-ON (S2-ON for RDT)	--	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
5.10.9.3	Photograph of turn-on transient of bus voltage and current as ON command is issued - PRIMARY SIDE				



(5V) VOLTAGE/DIV: 5V
 (5A) CURRENT/DIV: 5A
 (100ms) SWEEP RATE: 100ms

5.10.9.3 Photograph of turn-on transient of bus voltage and current as ON command is issued - REDUNDANT SIDE



(5V) VOLTAGE/DIV: 5V
 (5A) CURRENT/DIV: 5A
 (100ms) SWEEP RATE: 100ms

211

ORIGINAL PAGE IS
OF POOR QUALITY



TS 16603
Rev B
18 December 1980

FEB 04 '82

10.4 Performance test (continued)

REF. PARA.

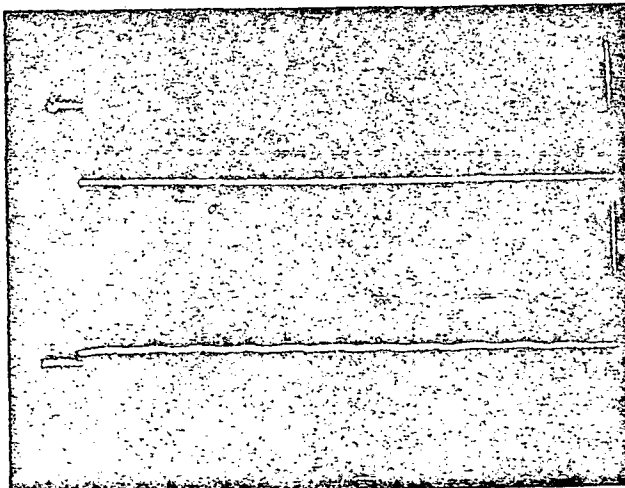
DESCRIPTION

5.10.9.4 Photograph of turn-off transient of input bus voltage and current as OFF command is issued - PRIMARY SIDE



(5V) VOLTAGE/DIV: 5A
(5A) CURRENT/DIV: 5A
(10mS) SWEEP RATE: 10mS

5.10.9.4 Photograph of turn-off transient of input bus voltage and current as OFF command is issued - REDUNDANT SIDE



(5V) VOLTAGE/DIV: 5V
(5A) CURRENT/DIV: 5A
(10mS) SWEEP RATE: 10mS

ORIGINAL PAGE IS
OF POOR QUALITY



TS 16603
Rev B
18 December 1980

10.4 Performance test (continued)

REF. PARA.	DESCRIPTION	DVM SWITCH POSITIONS	LIMITS	PRIMARY	REDUNDANT
5.10.9.5	Record	S27-2 (S27-4)		102.22mv	97.31
5.10.9.6	Record	(S27-4 (S27-2)		2.17mv	21.51mv
	Record	S27-2 (S27-4)			
				106.36mv	76.19
5.10.9.7	Record that UUT turns on.	(Checkmark)		✓	✓
5.10.10.1	Input bus current AFTER it reads ~ 17A AND input bus voltage reads ~ 21V.	S26-1, S27-2 (S27-4 for RDT)		125.24mv	133.29
5.10.10.2	Input bus voltage with 17.0A load	S26-1, S27-1 (S27-3 for RDT)		35.00	35.00
5.10.10.3	Input current telemetry output	S26-4, S28-2 (S28-4 for RDT)		3.66	3.875
5.10.10.4	Input current telemetry output	S26-4, S28-2 (S28-4 for RDT)		3.54V	3.518
	Input bus voltage	S26-1, S27-1 (S27-3 for RDT)		35.03	35.00
	Input bus current	S26-1, S27-2 (S27-4 for RDT)		127.66mv	123.39
5.10.10.5	Input current telemetry output	S26-4, S28-2 (S28-4 for RDT)		3.06	3.05
	Input bus voltage	S26-1, S27-1 (S27-3 for RDT)		34.94	35.00
	Input bus current	S26-1, S27-2 (S27-4 for RDT)		110.47mv	109.17
5.10.10.6	Input current telemetry output	S26-4, S28-2 (S28-4 for RDT)		2.51	2.51
	Input bus voltage	S26-1, S27-1 (S27-3 for RDT)		35.00	35.00
	Input bus current	S26-1, S27-2 (S27-4 for RDT)		94.75mv	94.24
5.10.10.7	Input current telemetry output	S26-4, S28-2 (S28-4 for RDT)		2.01	2.00
	Input bus voltage	S26-1, S27-1 (S27-3 for RDT)		34.95	35.00
	Input bus current	S26-1, S27-2 (S27-4 for RDT)		83.31mv	79.77

ORIGINAL PAGE IS
OF POOR QUALITY

TS 16603
Rev B
18 December 1980



FEB 1 1982

10.4 Performance test (continued)

REF. PART.	DESCRIPTION	DVM SWITCH POSITIONS	MEASUREMENT LIMITS	
			PRIMARY	REUNDANT
5.10.10.8	Input current telemetry output	S26-4, S28-2 (S28-4 for RDT)	<u>1.50</u>	<u>1.50</u>
	Input bus voltage	S26-1, S27-1 (S27-3 for RDT)	<u>35.01</u>	<u>35.00</u>
	Input bus current	S26-1, S27-2 (S27-4 for RDT)	<u>61.61mA</u>	<u>61.55</u>
5.10.10.9	Input current telemetry output	S26-4, S28-2 (S28-4 for RDT)	<u>1.09</u>	<u>1.05</u>
	Input bus voltage	S26-1, S27-1 (S27-3 for RDT)	<u>35.02</u>	<u>35.00</u>
	Input bus current	S26-1, S27-2 (S27-4 for RDT)	<u>53.68mA</u>	<u>44.54</u>
5.10.10.10	Input current telemetry output	S26-4, S28-2 (S28-4 for RDT)	<u>1.555V</u>	<u>0.497</u>
	Input bus voltage	S26-1, S27-1 (S27-3 for RDT)	<u>35.00</u>	<u>34.97</u>
	Input bus current	S26-1, S27-2 (S27-4 for RDT)	<u>34.17mA</u>	<u>28.01</u>
5.10.10.11	Input current telemetry output	S26-4, S28-2 (S28-4 for RDT)	<u>1.262V</u>	<u>1.218</u>
	Input bus voltage	S26-1, S27-1 (S27-3 for RDT)	<u>35.00</u>	<u>35.00</u>
	Input bus current	S26-1, S27-2 (S27-4 for RDT)	<u>20.03mA</u>	<u>23.61</u>
5.10.10.12	Input current telemetry output	S26-4, S28-2 (S28-4 for RDT)	<u>-1.264V</u>	<u>-1.240</u>
	Input bus voltage	S26-1, S27-1 (S27-3 for RDT)	<u>35.00</u>	<u>35.00</u>
	Input bus current	S26-1, S27-2 (S27-4 for RDT)	<u>10.165mA</u>	<u>10.78</u>
5.10.11.1	Band 1+ output voltage	S26-1, S27-5	<u>23.70V</u>	<u>24.37</u>
5.10.11.2	Band 1- output voltage	S27-6	<u>-23.89</u>	<u>-23.79</u>
5.10.11.3	2+	S27-7	<u>24.11</u>	<u>23.57</u>
5.10.11.4	2-	S27-8	<u>-24.11</u>	<u>-24.11</u>
5.10.11.5	3+	S27-9	<u>24.21</u>	<u>24.18</u>
5.10.11.6	3-	S27-10	<u>-23.16</u>	<u>-23.02</u>
5.10.11.7	Band 4+ output voltage	S26-1, S27-11	<u>24.33</u>	<u>24.30</u>

ORIGINAL PAGE IS
OF POOR QUALITY



Rev B
~~18 October 1980~~
Pcd-8 26-81

10.4 Performance test (continued)

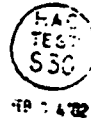
REF. PARA.	DESCRIPTION	DVM SWITCH POSITIONS	LIMITS	MEASUREMENT	
				PRIMARY	REDUNDANT
5.10.11.8	Band 4- output voltage	S26-1, S27-12		- <u>23.84</u>	- <u>23.95</u>
5.10.11.9	5,7+	S26-2, S27-1		<u>23.22</u>	<u>23.74</u>
5.10.11.10	5,7-	S27-2		- <u>23.16</u>	- <u>23.56</u>
5.10.11.11	6+	S27-3		<u>22.78</u>	<u>23.37</u>
5.10.11.12	Band 6-	S27-4		- <u>23.41</u>	- <u>23.70</u>
5.10.11.13	SMA Htr +	S27-5		<u>24.54</u>	<u>25.66</u>
5.10.11.14	Htr -	S27-6		- <u>25.57</u>	- <u>25.78</u>
5.10.11.15	+7V	S27-7		<u>9.645</u>	N/A
5.10.11	+7V	(S27-8 For RDT)		N/A	<u>9.747</u>
5.10.11	+29V	S27-9		<u>32.37</u>	N/A
5.10.11	+29V	(S27-11 For RDT)		N/A	<u>32.81</u>
5.10.11	-29V	S27-10		- <u>32.84</u>	N/A
	SMA -29V	S26-2, (S27-12 for RDT)		N/A	- <u>32.60</u>
5.10.11.18	Radiometer	S26-3, S27-2		<u>9.628</u>	<u>10.10</u>
5.10.11.19	CDVU	S27-3		<u>9.520</u>	<u>9.814</u>
5.10.11.20	Analog +	S27-4		<u>27.62</u>	<u>28.02</u>
5.10.11.21	Analog -	S27-5		- <u>26.09</u>	- <u>26.09</u>
5.10.11.22	Electromech.	S27-6		<u>45.06</u>	<u>44.49</u>
5.10.11.23	Outgas	S27-7		<u>105.40</u>	<u>104.02</u>
5.10.11.24	Parasitic	S27-9		<u>31.23</u>	N/A
	Parasitic output voltage	S26-3, (S27-10 for RDT)		N/A	<u>32.01</u>
5.10.11.25	Band 1+ TM output	S26-4, S28-5		<u>4.325</u>	<u>4.451</u>
5.10.11.26	1-	S28-6		<u>4.246</u>	<u>4.325</u>
5.10.11.27	2+	S28-7		<u>4.359</u>	<u>4.289</u>
5.10.11.28	2-	S28-8		<u>4.365</u>	<u>4.365</u>
5.10.11.29	3+	S28-9		<u>4.772</u>	<u>4.401</u>
5.10.11.30	3-	S28-10		<u>4.216</u>	<u>4.339</u>
5.10.11.31	4+	S28-11		<u>4.419</u>	<u>4.412</u>
5.10.11.32	4-	S26-4, S28-12		<u>4.333</u>	<u>4.351</u>
5.10.11.33	Band 5,7+ TM output	S26-5, S28-1		<u>4.236</u>	<u>4.343</u>

SCN-2

SCN-2

215

ORIGINAL PAGE IS
OF POOR QUALITY



TS 16603
Rev B
~~20-2~~ 20-81

10.4 Performance test (continued)

REF. PARA.	DESCRIPTION	DVM SWITCH POSITIONS	LIMITS	MEASUREMENT	
				PRIMARY	REDUNDANT
5.10.11.34	Band 5,7- TH output	S26-5, S28-2		4.219	4.299
5.10.11.35	6+	S28-3		4.118	4.228
5.10.11.36	Band 6-	S28-4		4.273	4.223
5.10.11.37	SMA Htr +	S28-5		4.479	4.687
5.10.11.38	Htr -	S28-6		4.636	4.673
5.10.11.39	+7V	S28-7 (S28-8 for RDT)		5.945	6.005
5.10.11.40	+29V	S28-9 (S28-11 for RDT)		4.414	4.497
5.10.11.41	SMA -29V	S26-5, S28-10 (S28-12 for RDT)		3.840	3.847
5.10.11.42	Radiometer	S26-6, S28-2		5.327	5.475
5.10.11.43	CDVU	S28-3		5.442	5.435
5.10.11.44	Analog +	S28-4		4.909	4.981
5.10.11.45	Analog -	S28-5		4.503	4.364
5.10.11.46	Electromech.	S28-6		5.516	5.445
5.10.11.47	Outgas - TH output	S26-6, S28-7		5.248	5.178
5.10.12.1	Bus voltage	S26-1, S27-1 (S27-3 for RDT)		35.00	35.00
5.10.12.2	Input bus current	S26-1, S27-2 (S27-4 for RDT)		35.94	36.26
5.10.12.3	SMA Htr + output voltage	S26-2, S27-5		21.55	21.98
5.10.12.4	Htr + ripple	Seen on Scope	<30 mV pk-pk	40	40
5.10.12.5	Htr - voltage	S26-2, S27-6		-22.20	-22.61
5.10.12.6	SMA Htr - ripple	Seen on Scope	<30 mV pk-pk	40	40
5.10.12.7	CDVU voltage	S26-3, S27-3		7.593	7.751
5.10.12.8	CDVU ripple	Seen on Scope	<240 mV pk-pk	40	40
5.10.12.9	Outgas - output voltage	S26-3, S27-7		8705	97.14
5.10.12.10	Outgas - output ripple	Seen on Scope	2.50V pk-pk	300mV	350
5.10.12.11	Parasitic output voltage	S26-3, S27-9 (S27-10 for RDT)		30.26	30.59
5.10.12.12	Parasitic output ripple	Seen on Scope	<900 mV pk-pk	100	150

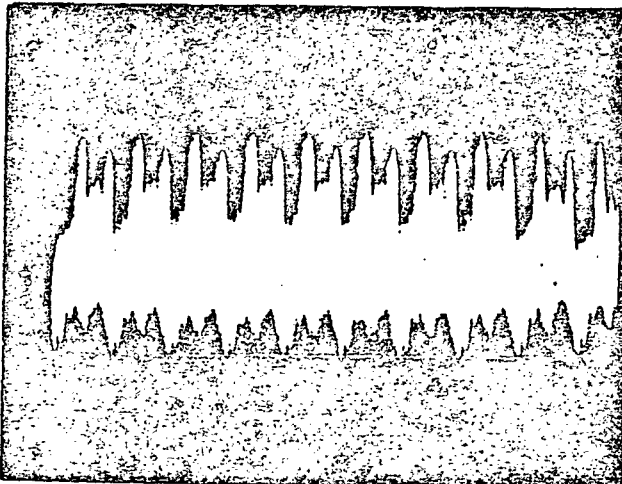
ORIGINAL PAGE IS
OF POOR QUALITY



TS 16603
Rev B
18 December 1980

10.4 Performance test (continued)

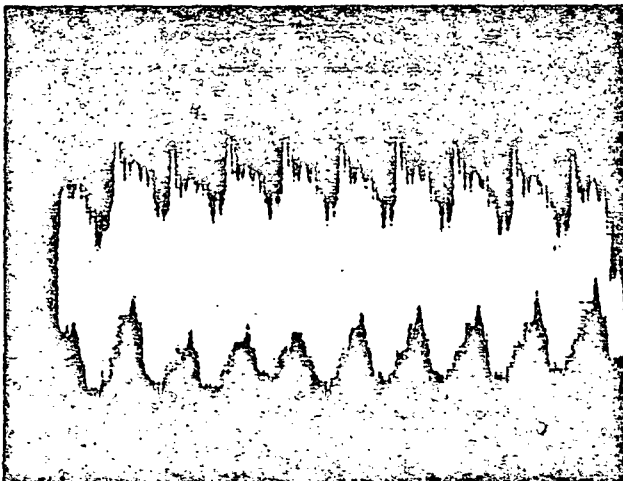
REF. PARA.	DESCRIPTION	DVM SWITCH POSITIONS	LIMITS	MEASUREMENT	
				PRIMARY	REDUNDANT
5.10.13.1	Input current telemetry	S26-4, S28-2 (S28-4 for RDT)		577V	588V
5.10.13.2	SMA Htr + output	S26-5, S28-5		3.940	4.021
5.10.13.3	SMA Htr -	S26-5, S28-6		4.025	4.100
5.10.13.4	CDVU	S26-6, S28-3		4.270	4.355
5.10.13.5	Outgas output telemetry	S26-6, S28-7		4.346	4.378
5.10.14.1	Photograph of reflected input current ripple in outgas mode - PRIMARY SIDE				



(2mA) CURRENT/DIV: 2 mA.A.C.

(10uS) SWEEP RATE: 10 us

5.10.14.1 Photograph of reflected input current ripple in outgas mode - REDUNDANT SIDE



(2mA) CURRENT/DIV: 2 mA.A.C.

(10uS) SWEEP RATE: 10 us

ORIGINAL PAGE IS
OF POOR QUALITY

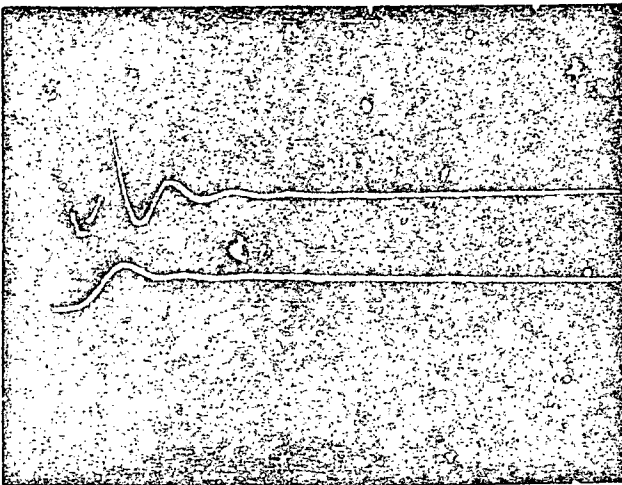


TS 16603
Rev B
18 December 1980

10.4 Performance test (continued)

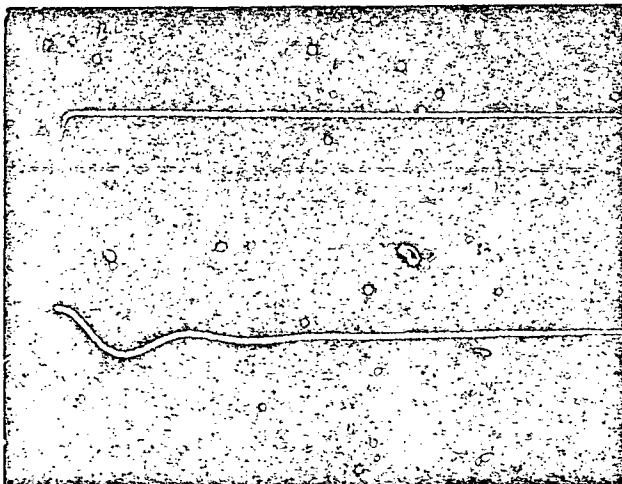
RE: 472

REF. PARA.	DESCRIPTION	DVM SWITCH POSITIONS	LIMITS	MEASUREMENT	
				PRIMARY	REDUNDANT
5.10.15.1.1	Input current with CDVU off.	S26-1, S27-2 (S27-4 for RDT)		<u>34.27mv</u>	<u>34.43</u>
5.10.15.1.2	Photograph of input bus current and CDVU output voltage as CDVU load is enabled - PRIMARY SIDE				



(2V) VOLTAGE/DIV: 2V
(200mA) CURRENT/DIV: 200mA
(1mS) SWEEP RATE: 1mS

5. Photograph of input bus current and CDVU output voltage as CDVU load
is disabled - PRIMARY SIDE



(2V) VOLTAGE/DIV: 2V
(200mA) CURRENT/DIV: 200mA
(2mS) SWEEP RATE: 1mS

218

ORIGINAL PAGE IS
OF POOR QUALITY



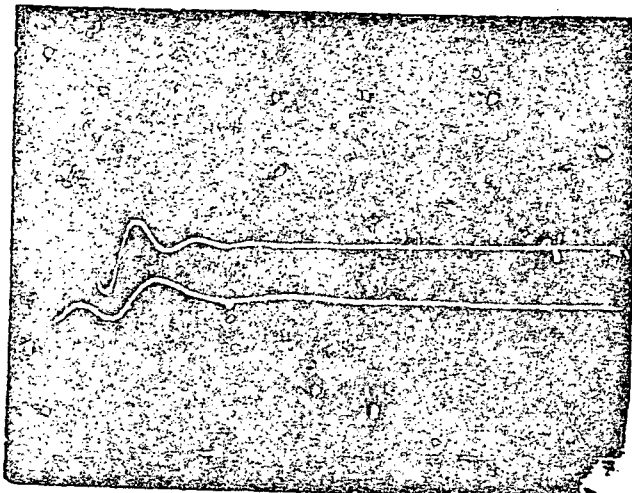
15 1000J
Rev B
18 December 1980

10.4 Performance test (continued)

TR 3472

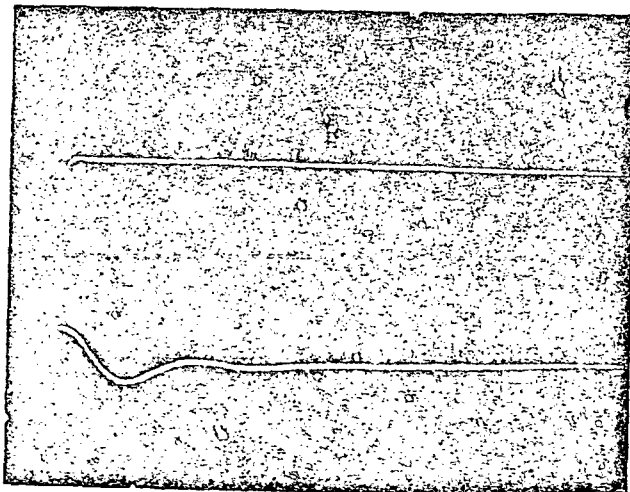
PARA. DESCRIPTION

5.10.15.1.2 Photograph of input bus current and CDVU output voltage as CDVU load is enabled - REDUNDANT SIDE



(2V) VOLTAGE/DIV: 2V
(200mA) CURRENT/DIV: 200mA
(1ms) SWEEP RATE: 1ms

5.10.15.1.2 Photograph of input bus current and CDVU output voltage as CDVU load is disabled - REDUNDANT SIDE



(2V) VOLTAGE/DIV: 2V
(200mA) CURRENT/DIV: 200mA
(2ms) SWEEP RATE: 1ms

219

ORIGINAL PAGE IS
OF POOR QUALITY

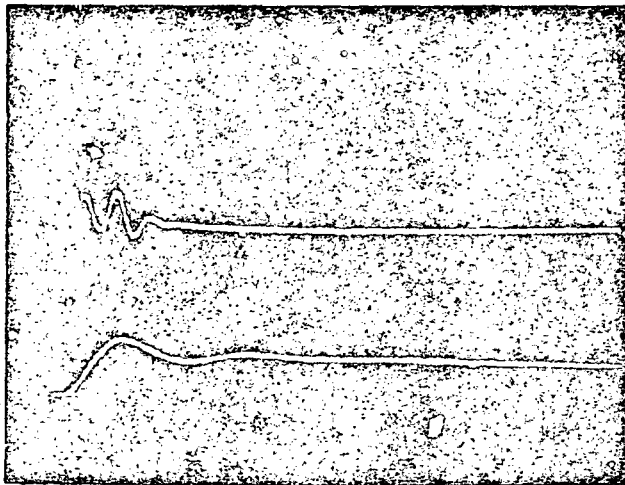
LAB
TEST
530

TS 100US
Rev B
18 December 1980

10.4 Performance test (continued)

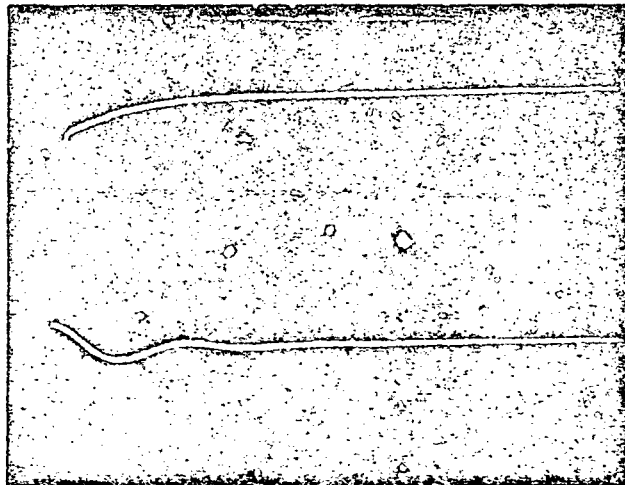
MP 342

F. PARA.	DESCRIPTION	DVM SWITCH POSITIONS	LIMITS	MEASUREMENT	
				PRIMARY	REDUNDANT
5.10.15.2.1	Input bus current with outgas disabled	S26-1, S27-2 (S27-4 for RDT)		12.975 mV	36.36
5.10.15.2.2	Photograph of input bus current and outgas voltage as outgas load is enabled - PRIMARY SIDE				



(5V) VOLTAGE/DIV: 5V
(2A) CURRENT/DIV: 2A
(1mS) SWEEP RATE: 1mS

5.10.15.2.2 Photograph of input bus current and outgas voltage as outgas load
is disabled - PRIMARY SIDE



(5V) VOLTAGE/DIV: 5V
(2A) CURRENT/DIV: 2A
(2mS) SWEEP RATE: 2mS

220

ORIGINAL PAGE IS
OF POOR QUALITY

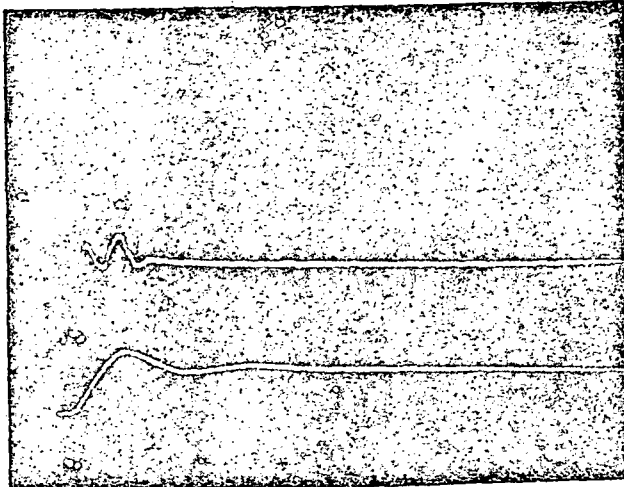


TS 16603
Rev B
18 December 1980

10.4 Performance test (continued)

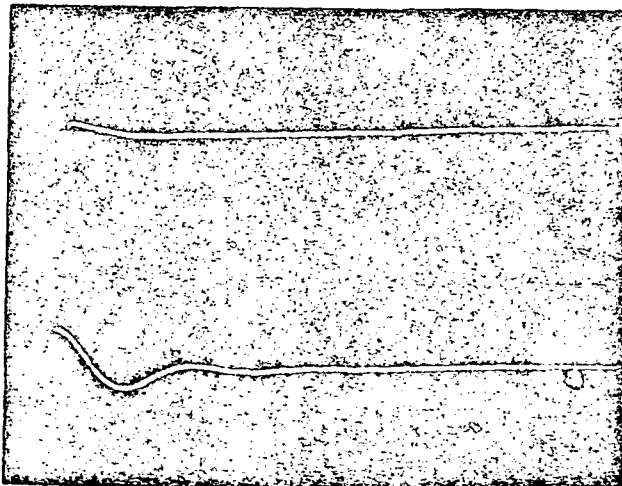
REF. PARA. DESCRIPTION

5.10.15.2.2 Photograph of input bus current and outgas voltage as outgas load is enabled - REDUNDANT SIDE



(5V) VOLTAGE/DIV: 5V
(2A) CURRENT/DIV: 2A
(500us) SWEEP RATE: 1ms

5.10.15.2.2 Photograph of input bus current and outgas voltage as outgas load is disabled - REDUNDANT SIDE



(5V) VOLTAGE/DIV: 5V
(2A) CURRENT/DIV: 2A
(1ms) SWEEP RATE: 1ms

ORIGINAL PAGE IS
OF POOR QUALITY



Rev B
~~20 December 1980~~
SEN-2 9-6-81

10.4 Performance test (continued)

REF. PARA.	DESCRIPTION	DVH SWITCH POSITION	LIMITS	MEASUREMENT	
				PRIMARY	REDUNDANT
5.10.16.1	BPS voltage	S26-1, S27-1 (S27-3 for RDT)		35.05 (49)	35.00
5.10.16.2	BPS current	S26-1, S27-2 (S27-4 for RDT)		15.37 (50)	15.83
5.10.16.3	SMA Htr +output voltage	S26-2, S27-5		21.97 (13)	22.31
5.10.16.4	SMA Htr +load current	S26-8, S34-1		47.16 (38)	48.09
5.10.16.5	SMA Htr -output voltage	S26-2, S27-6		-22.29 (17)	-22.75
5.10.16.6	SMA Htr -load current	S26-8, S34-2		-9.79 (39)	-9.95
5.10.16.7	CVU output voltage	S26-3, S27-3		7.59 (20)	7.74
5.10.16.8	CVU load current	S26-8, S34-10		270 (45)	276
5.10.16.9	Parasitic output voltage	S26-3, S27-9 (S27-10)		30.96 (23)	31.52
5.10.16.10	Parasitic load current	S26-8, S34-7		143.77 (40)	146.96
5.10.16.11	Input power (5.10.16.1 x 5.10.16.2)			53.872	55.405
5.10.16.12	Output power	(Primary) (Redundant)		17.395	18.137
	((5.10.16.3 x 5.10.16.4)	<u>DNA</u> <u>DNA</u>			
	+ (5.10.16.5 x 5.10.16.6)	<u>DNA</u> <u>DNA</u>			
	+ (5.10.15.7 x 5.10.16.8)	<u>DNA</u> <u>DNA</u>			
	+ (5.10.16.9 x 5.10.16.10)	<u>DNA</u> <u>DNA</u>			
5.10.16.13	Efficiency ((5.10.16.12) ÷ (5.10.16.11)) x 100%			32.3%	32.7%

SEN
2

222

ORIGINAL PAGE IS
OF POOR QUALITY

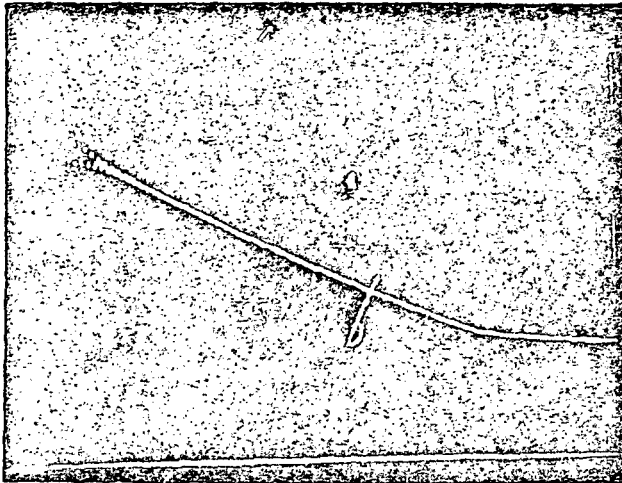


TS 16603
Rev B
18 December 1980

FEB 4 82

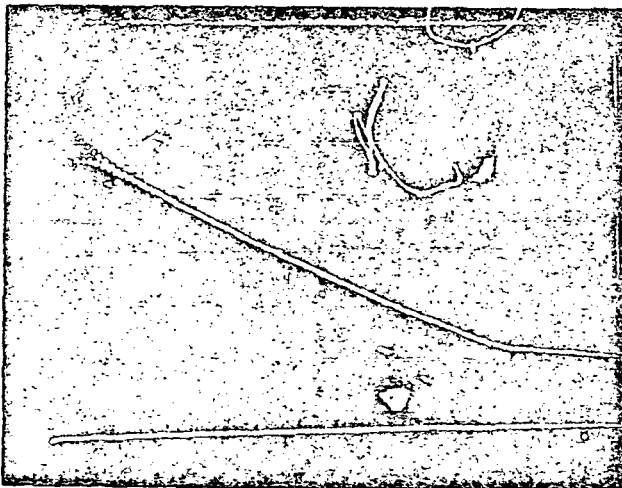
10.4 Performance test (continued)

5.10.17.1 Photograph of input bus current and input bus voltage
as is disable - PRIMARY SIDE



(5V) VOLTAGE/DIV: 5V
(2A) CURRENT/DIV: 2A
(1mS) SWEEP RATE: 1/25

5.10.17.1 Photograph of input bus current and input bus voltage
as is disabled - REDUNDANT SIDE



(5V) VOLTAGE/DIV: 5V
(2A) CURRENT/DIV: 2A
(1mS) SWEEP RATE: 1/25

223

ORIGINAL PAGE IS
OF POOR QUALITY



TS 16603
Rev B
18 December 1980

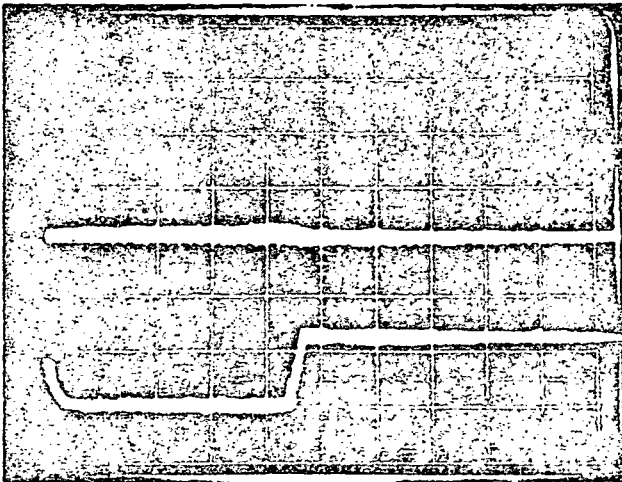
10.4 Performance test (continued)

5.10.17.2 Unit stays off (check)

✓
Primary

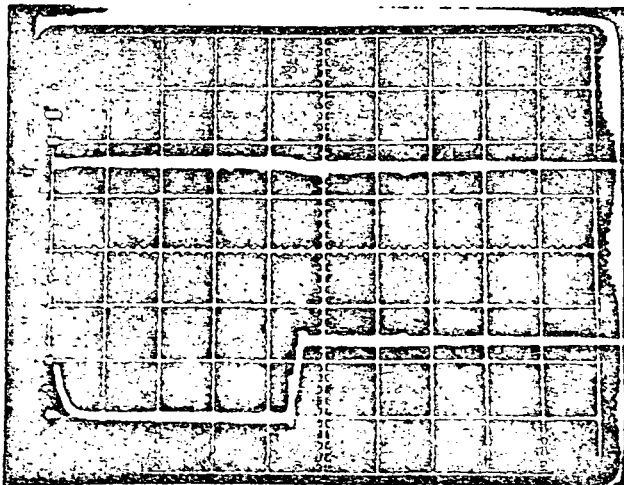
✓
Redundant

5.10.17.3 Photograph of input bus current and input bus voltage
as is enabled - PRIMARY SIDE



(2V) VOLTAGE/DIV: 5V
(2A) CURRENT/DIV: 2A
(100ms) SWEEP RATE: 100ms

5.10.17.3 Photograph of input bus current and input bus voltage as
as is enabled - REDUNDANT SIDE



VOLTAGE/DIV: 5V
CURRENT/DIV: 2A
S) SWEEP RATE: 100ms

224

ORIGINAL PAGE IS
OF POOR QUALITY

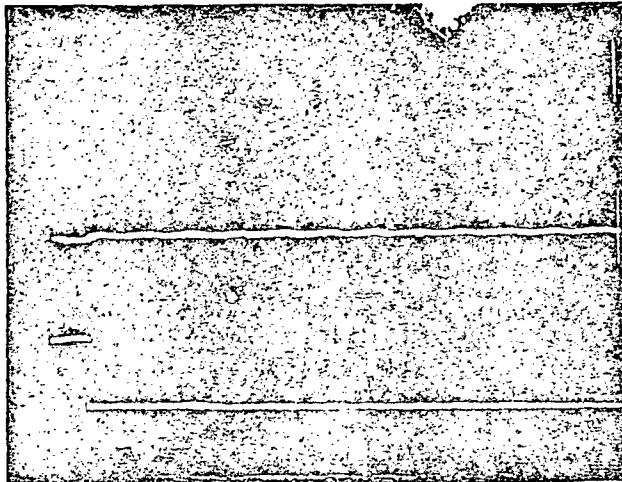


15 10003
Rev B
18 December 1980

10.4 Performance test (continued)

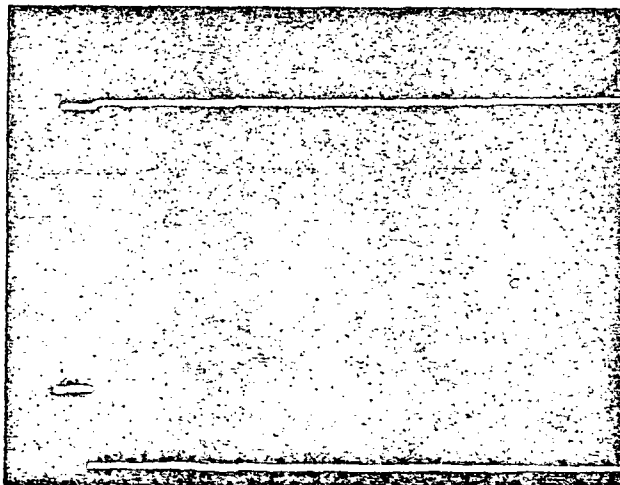
RE: 472

5.10.17.4 Photograph of input bus current and input bus voltage
as is disabled - PRIMARY SIDE



(2V) VOLTAGE/DIV: 5V
(2A) CURRENT/DIV: 2A
(10ms) SWEEP RATE: 10ms

5.10.17.4 Photograph of input bus current and input bus voltage
as is disabled - REDUNDANT SIDE



(2V) VOLTAGE/DIV: 5V
(2A) CURRENT/DIV: 2A
(10ms) SWEEP RATE: 10ms

225

ORIGINAL PAGE IS
OF POOR QUALITY



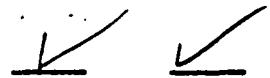
TS 16603
Rev B
18 December 1980

10.4 Performance test (continued)

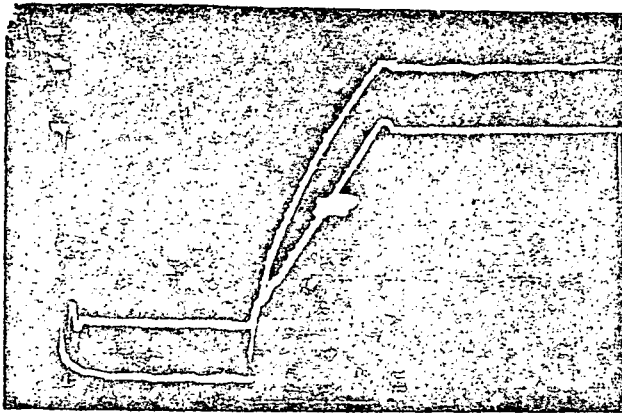
CF. PARA.	DESCRIPTION	DVM SWITCH POSITIONS	LIMITS	MEASUREMENT	
				PRIMARY	REDUNDANT

5.10.17.5 Record that UUT operates correctly.

(checkmark)

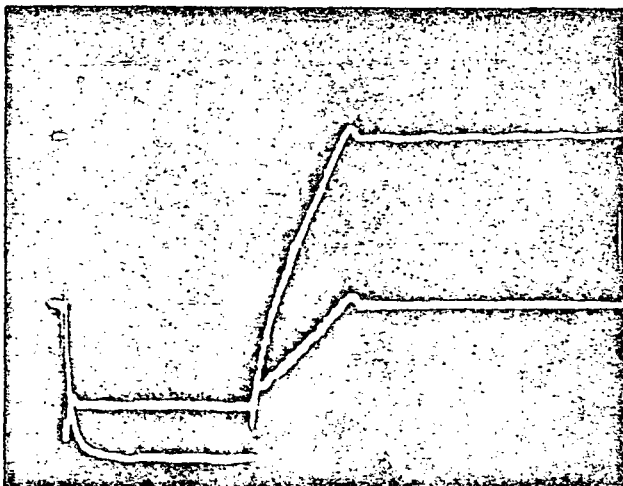


5.10.18.1 Photograph of input bus current and MUX output voltage as MUX enable command is issued (all loads are ON except outgas) - PRIMARY SIDE



(5V) VOLTAGE/DIV: 5V
(5A) CURRENT/DIV: 2A
(20ms) SWEEP RATE: 10ms

5.10.18.2 Photograph of input bus current and parasitic output voltage as parasitic enable command is issued (all loads are ON except outgas) - PRIMARY SIDE



(5V) VOLTAGE/DIV: 5V
(5A) CURRENT/DIV: 2A
(20ms) SWEEP RATE: 10ms

226

ORIGINAL PAGE IS
OF POOR QUALITY

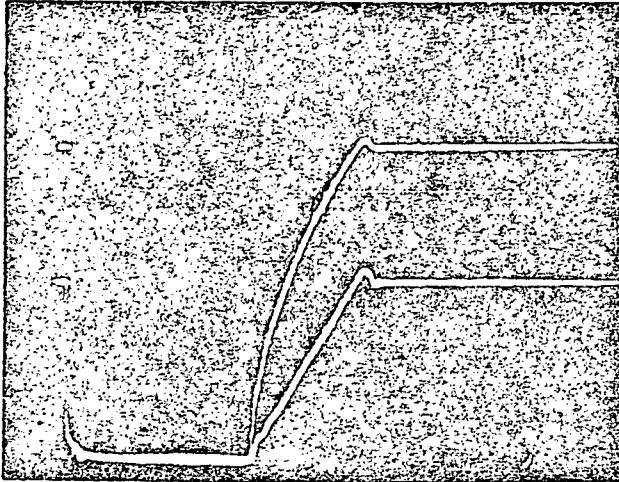


TS 16603
Rev B
18 December 1980

RE 472

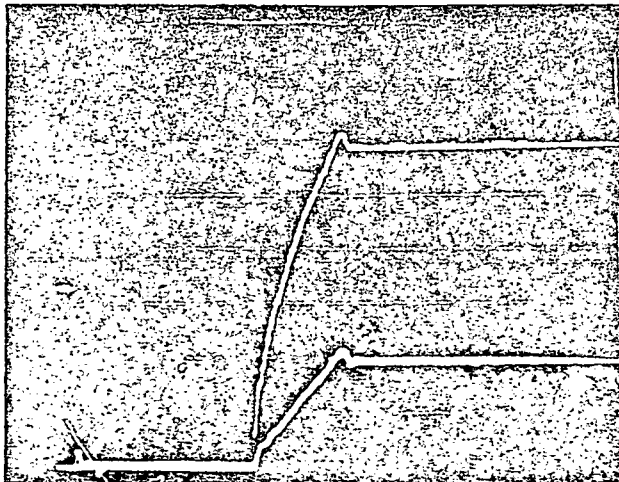
10.4 Performance test (continued)

10.18.1 Photograph of input bus current and MUX output voltage as MUX enable command is issued (all loads are ON except outgas) - REDUNDANT SIDE



(5V) VOLTAGE/DIV: 5V
(5A) CURRENT/DIV: 2A
(20mS) SWEEP RATE: 10mSec

10.18.2 Photograph of input bus current and MUX output voltage as parasitic enable command is issued (all loads are ON except outgas) - REDUNDANT SIDE



(5v) Volts/Div: 5V
(5A) Current/Div: 2A
(20mS) Sweep Rate: 10mSec.

ORIGINAL PAGE 19
OF POOR QUALITY



15 16603
REV B
~~October 1980~~
SC-2 7-6-81

10.4 Performance test (continued)

REF. PARA.	DESCRIPTION	DVM SWITCH POSITIONS	LIMITS	MEASUREMENT	
				PRIMARY	REDUNDANT
5.10.18.4	Undervoltage Trip Point (ON/OFF)	S26-1, S27-1 (S27-3 for RDT)	18.0 ± 1.50V	19.11	18.06
5.10.18.5	UUT stays OFF			✓	✓
5.10.18.6	Undervoltage Trip Point (OFF/ON)	S26-1, S27-1 (S27-3 for RDT)	19.0 ± 1.50V	18.90	18.895
5.10.18.7	Overvoltage Trip Point	S26-1, S27-1 (S27-3 for RDT)	38.0 ± 2V	38.25	38.81 ^{SEM} ₂
5.10.18.8	UUT stays OFF			✓	✓
5.10.18.9	UUT turns ON			✓	✓

2/4/82
DATE

ELGARSON / BENSON
TESTER(S)

228

ORIGINAL PAGE IS
OF POOR QUALITY

TS 16603
Rev B
18 December 1980

10.4 Performance test - Long Form

PROTOFLIGHT NA, OR FLIGHT S/N 004 TEMPERATURE: AMBIENT
 IN-PROCESS NA, QUAL NA, OR ACCEPTANCE
 TESTING PHASE FINAL AMBIENT LINE VOLTAGE: 23.0 VOLTS

REF. PARA.	DESCRIPTION	DVM SWITCH POSITIONS	LIMITS	MEASUREMENT	
				PRIMARY	REDUNDANT
5.10.1.1	Calibrate cmd gen	--	--	<input checked="" type="checkbox"/> <u>6.3205W</u>	<input checked="" type="checkbox"/>
5.10.2.1	Input bus current	S26-1, S27-2 (S27-4 for redundant)		<u>0.226mV</u>	<u>0.228mV</u>
5.10.2.2	MUX output voltage	S26-3, S27-1	30.0 ±0.90V	<u>29.94V</u>	<u>30.27V</u>
5.10.2.3	MUX load current	S26-3, S27-12	3.55 ±0.40A	<u>32.24mV</u>	<u>32.64mV</u>

The rest of Section 5.10.2 requires only checking voltage - indicate by checkmarks.

5.10.2.4.1	B1 + output voltage	S26-1, S27-5		<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
5.10.2.4.2	B1 -	S27-6		<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
5.10.2.4.3	B1 -	S27-5		<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
5.10.2.4.4	B1 +	S27-7		<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
5.10.2.5.1	B2 +	S27-7		<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
5.10.2.5.2	B2 -	S27-8		<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
5.10.2.5.3	B2 -	S27-8		<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
5.10.2.5.4	B2 +	S27-7		<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
5.10.2.6.1	B3 +	S27-9		<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
5.10.2.6.2	B3 -	S27-10		<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
5.10.2.6.3	B3 -	S27-10		<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
5.10.2.6.4	B3 +	S27-9		<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
5.10.2.7.1	B4 +	S27-11		<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
5.10.2.7.2	B4 -	S27-12		<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
5.10.2.7.3	B4 -	S27-12		<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
5.10.2.7.4	B4 +	S26-1, S27-11		<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
5.10.2.8.1	B5,7+	S26-2, S27-1		<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
5.10.2.8.2	B5,7-	S27-2		<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
5.10.2.8.3	B5,7-	S27-2		<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
5.10.2.8.4	B5,7+	S27-1		<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
5.10.2.9.1	B6 +	S27-3		<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
5.10.2.9.2	B6 - output voltage	S26-2, S27-4		<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>

229

TS 16603
 Rev B
~~16 Dec 1980~~
 SCN-1 1/24/81

ORIGINAL PAGE IS
 OF POOR QUALITY

10.4 Performance test (continued)

REF. PARA.	DESCRIPTION	DVM SWITCH POSITIONS	LIMITS	MEASUREMENT	
				PRIMARY	REDUNDANT
5.10.2.9.3	B6 - output voltage	S26-2, S27-4		✓	✓
5.10.2.9.4	B6 + output voltage	S26-2, S27-3		✓	✓
5.10.2.10.1	SMA EIR + output voltage	S27-5		✓	✓
5.10.2.10.2	-	S27-6		✓	✓
5.10.2.10.3	-	S27-6		✓	✓
5.10.2.10.4	-	S27-5		✓	✓
5.10.2.11.1	-7V	S26-2, S27-7		✓	✓
5.10.2.11.2	-7V	(S27-3 for RDT)		✓	✓
5.10.2.12.1	-29V	S26-2, S27-9		✓	✓
		(S27-11 for RDT)		✓	✓
5.10.2.12.2	-29V	S26-2, S27-10		✓	✓
		(S27-12 for RDT)		✓	✓
5.10.2.12.3	-29V	S26-2, S27-10		✓	✓
5.10.2.12.4	SMA EIR -29V	S26-2, S27-9		✓	✓
5.10.2.13.1	Radiometer	S26-3, S27-2		✓	✓
5.10.2.13.2	Radiometer	S27-2		✓	✓
5.10.2.14.1	CVU	S27-3		✓	✓
5.10.2.14.2	CVU	S27-3		✓	✓
5.10.2.15.1	Analog +	S27-4		✓	✓
5.10.2.15.2	Analog -	S27-5		✓	✓
5.10.2.15.3	Analog -	S27-5		✓	✓
5.10.2.15.4	Analog +	S27-4		✓	✓
5.10.2.16.1	Electromech.	S27-6		✓	✓
5.10.2.16.2	Electromech.	S27-6		✓	✓
5.10.2.17.1	Outgas output voltage	S26-3, S27-7		✓	✓
5.10.3.1	Bus voltage	S26-1, S27-1			
		(S27-3 for RDT)			
5.10.3.2	MUX load current	S26-3, S27-12	4.130 ± 0.025A	23.06V (49) 23.05 41.46V 41.44	✓
5.10.3.3	Bus current	S26-1, S27-2			
		(S27-4 for RDT)			
5.10.3.3.2	BPS Voltage	S26-1, S27-1		156.27V (50) 158.84	✓
		S27-3)		23.06V 23.04V	✓
5.10.3.3.3	BPS Current	S26-1, S27-2		157.53V 158.84V	✓
		(S27-4)			
5.10.3.3.4	MUX Current	S26-3, S27-12		41.35V 41.50	✓

SCN-1

ORIGINAL PAGE IS
OF POOR QUALITY

IS 16603
Rev B
18 December 1980

10.4 Performance test (continued)

REF. PARA.	DESCRIPTION	DVM SWITCH POSITIONS	LIMITS	MEASUREMENT	
				PRIMARY	REDUNDANT
5.10.3.4.1	B1 + output voltage	S26-1, S27-5	20.50 \pm 2.50V	<u>20.46</u>	(1) <u>20.60</u>
5.10.3.4.2	B1 + output ripple	Look on Scope	<600 mV pk-pk	<u>30</u>	<u>40</u>
5.10.3.4.3	B1 - output voltage	S26-1, S27-6	-20.50 \pm 2.50V	<u>-20.48</u>	(2) <u>-20.62</u>
5.10.3.4.4	B1 - output ripple	Look on Scope	<600 mV pk-pk	<u>30</u>	<u>30</u>
5.10.3.5.1	B2 + output voltage	S26-1, S27-7	20.50 \pm 2.50V	<u>20.31</u>	(3) <u>20.46</u>
5.10.3.5.2	B2 + output ripple	Look on Scope	<600 mV pk-pk	<u>30</u>	<u>40</u>
5.10.3.5.3	B2 - output voltage	S26-1, S27-8	-20.50 \pm 2.50V	<u>-20.34</u>	(4) <u>-20.49</u>
5.10.3.5.4	B2 - output ripple	Seen on Scope	<600 mV pk-pk	<u>30</u>	<u>40</u>
5.10.3.6.1	B3 + output voltage	S26-1, S27-9	20.50 \pm 2.50V	<u>20.41</u>	(5) <u>20.42</u>
5.10.3.6.2	B3 + output ripple	Seen on Scope	<600 mV pk-pk	<u>30</u>	<u>40</u>
5.10.3.6.3	B3 - output voltage	S26-1, S27-10	-20.50 \pm 2.50V	<u>-20.36</u>	(6) <u>-20.50</u>
5.10.3.6.4	B3 - output ripple	Seen on Scope	<600 mV pk-pk	<u>30</u>	<u>2</u>
5.10.3.7.1	B4 + output voltage	S26-1, S27-11	20.50 \pm 2.50V	<u>20.43</u>	(7) <u>20.60</u>
5.10.3.7.2	B4 + output ripple	Seen on Scope	<600 mV pk-pk	<u>30</u>	<u>30</u>
5.10.3.7.3	B4 - output voltage	S26-1, S27-12	-20.50 \pm 2.50V	<u>-20.46</u>	(8) <u>-20.62</u>
5.10.3.7.4	B4 - output ripple	Seen on Scope	<600 mV pk-pk	<u>30</u>	<u>30</u>
5.10.3.8.1	B5,7 + voltage	S26-2, S27-1	20.50 \pm 2.50V	<u>20.20</u>	(9) <u>20.16</u>
5.10.3.8.2	B5,7 + ripple	Seen on Scope	<600 mV pk-pk	<u>30</u>	<u>50</u>
5.10.3.8.3	B5,7 - voltage	S26-3, S27-2	-20.50 \pm 2.50V	<u>-20.19</u>	(10) <u>-20.19</u>
5.10.3.8.4	B5,7 - ripple	Seen on Scope	<600 mV pk-pk	<u>40</u>	<u>50</u>
5.10.3.9.1	B6 + voltage	S26-2, S27-3	20.50 \pm 2.50V	<u>20.37</u>	(11) <u>20.51</u>
5.10.3.9.2	B6 + ripple	Seen on Scope	<600 mV pk-pk	<u>30</u>	<u>50</u>
5.10.3.9.3	B6 - voltage	S26-2, S27-4	-20.50 \pm 2.50V	<u>-20.37</u>	(12) <u>-20.54</u>
5.10.3.9.4	B6 - ripple	Seen on Scope	<600 mV pk-pk	<u>30</u>	<u>30</u>
5.10.3.10.1	SMA Htr + voltage	S26-2, S27-5	21.20 \pm 2.12V	<u>22.21</u>	(13) <u>22.42</u>
5.10.3.10.2	SMA Htr + ripple	Seen on Scope	<630 mV pk-pk	<u>30</u>	<u>30</u>
5.10.3.10.3	SMA Htr - voltage	S26-2, S27-6	-21.20 \pm 2.12V	<u>-22.65</u>	(14) <u>-22.87</u>
5.10.3.10.4	SMA Htr - ripple	Seen on Scope	<630 mV pk-pk	<u>30</u>	<u>30</u>
5.10.3.11.1	SMA +7V ∇ voltage	S26-2, S27-7 (S27-8 for RL $\bar{}$)	7.10 \pm 0.80V	<u>7.656</u>	(15) <u>7.759</u>
5.10.3.11.2	SMA +7V output ripple	Seen on Scope	<10 mV pk-pk	<u>20</u>	<u>30</u>

ORIGINAL PAGE IS
OF POOR QUALITY

Ts 16603
Rev B
18 December 1980

10.4 Performance test (continued)

REF. PARA.	DESCRIPTION	DSM SWITCH POSITIONS	LIMITS	MEASUREMENT	
				PRIMARY	REFERENCE
5.10.3.12.1	SMA +29V output voltage	S26-2, S27-9 (S27-11 for RDT)	29.50 ±1.50V	<u>30.36</u> (16)	<u>30.58</u>
5.10.3.12.2	SMA +29V ripple	Seen on Scope	<870 mV, pk-pk	<u>50</u>	<u>50</u>
5.10.3.12.3	SMA -29V voltage	S26-2, S27-10 (S27-12 for RDT)	-29.50 ±1.50V	<u>-30.34</u> (17)	<u>-30.60</u>
5.10.3.12.4	SMA -29V ripple	Seen on Scope	<870 mV pk-pk	<u>50</u>	<u>42</u>
5.10.3.13.1	HUX voltage	S26-3, S27-1	30.00 ±0.90V	<u>30.09</u> (18)	<u>30.28</u>
5.10.3.13.2	HUX ripple	Seen on Scope	<900 mV, pk-pk	<u>50</u>	<u>60</u>
5.10.3.14.1	Radiometer voltage	S26-3, S27-2	8.50 ±0.85V	<u>8.544</u> (19)	<u>8.552</u>
5.10.3.14.2	Radiometer ripple	Seen on Scope	<250 mV pk-pk	<u>30</u>	<u>30</u>
5.10.3.15.1	CDVU voltage	S26-3, S27-3	8.00 ±0.80V	<u>7.600</u> (20)	<u>7.709</u>
5.10.3.15.2	CDVU ripple	Seen on Scope	<240 mV pk-pk	<u>30</u>	<u>30</u>
5.10.3.16.1	Analog + voltage	S26-3, S27-4	21.20 ±2.12V	<u>22.40</u> (21)	<u>22.52</u>
5.10.3.16.2	Analog + ripple	Seen on Scope	<330 mV pk-pk	<u>30</u>	<u>30</u>
5.10.3.16.3	Analog - voltage	S26-3, S27-5	-21.20 ±2.12V	<u>-22.46</u> (22)	<u>-22.59</u>
5.10.3.16.4	Analog - ripple	Seen on Scope	<330 mV pk-pk	<u>40</u>	<u>30</u>
5.10.3.17.1	Electromech. voltage	S26-3, S27-6	33.40 ±3.34V	<u>32.99</u> (23)	<u>33.28</u>
5.10.3.17.2	Electromech. ripple	Seen on Scope	<1.0V pk-pk	<u>30</u>	<u>40</u>
5.10.3.18.1	Outgas voltage	S26-3, S27-7	100.0 ±12.0V	<u>102.39</u>	<u>102.04</u>
5.10.3.18.2	Outgas output ripple	Seen on Scope	<3.0V pk-pk	<u>90</u>	<u>100</u>
5.10.4.1	Input current telemetry	S26-4, S28-2 (S28-4 for RDT)		<u>4.787</u>	<u>4.748</u>
5.10.4.2.1	Band 1 + volt. telemetry	S26-4, S28-5		<u>3.737</u>	<u>3.768</u>
5.10.4.2.2	Band 1 -	S28-6		<u>3.728</u>	<u>3.754</u>
5.10.4.3.1	Band 2+	S28-7		<u>3.697</u>	<u>3.732</u>
5.10.4.3.2	Band 2-	S28-8		<u>3.688</u>	<u>3.712</u>
5.10.4.4.1	Band 3+	S28-9		<u>3.714</u>	<u>3.719</u>
5.10.4.4.2	Band 3-	S28-10		<u>3.715</u>	<u>3.739</u>
5.10.4.5.1	Band 4+	S28-11		<u>3.711</u>	<u>3.746</u>
5.10.4.5.2	Band 4-	S26-4, S28-12		<u>3.723</u>	<u>3.751</u>
5.10.4.6.1	Band 5,7+	S26-5, S28-1		<u>3.694</u>	<u>3.689</u>
5.10.4.6.2	Band 5,7- volt. telemetry	S26-5, S28-2		<u>3.680</u>	<u>3.678</u>

(252)

10.4 Performance test (continued)

AC	PARA.	DESCRIPTION	DVM SWITCH POSITIONS	LIMITS	MEASUREMENT	
					PRIMARY	REDUNDANT
	5.10.4.7.1	Band 6 + volt. telemetry	S26-5, S28-3		<u>3.685</u>	<u>3.719</u>
	5.10.4.7.2	Band 6 -	S28-4		<u>3.720</u>	<u>3.750</u>
	5.10.4.8.1	SMA Htr +	S28-5		<u>4.057</u>	<u>4.103</u>
	5.10.4.8.2	SMA Htr -	S28-6		<u>4.107</u>	<u>4.145</u>
	5.10.4.9	SMA +7V	S26-5, S27-7 (S27-8 for RDT)		<u>4.881</u>	<u>4.965</u>
	5.10.4.10.1	SMA +29V	S26-5, S28-9 (S27-11 for RDT)		<u>4.165</u>	<u>4.221</u>
	5.10.4.10.2	SMA -29V	S26-5, S28-10 (S27-12 for RDT)		<u>3.955</u>	<u>3.998</u>
	5.10.4.11	MDX	S26-6, S28-1		<u>4.269</u>	<u>4.299</u>
	5.10.4.12	Radiometer	S26-6, S28-2		<u>4.687</u>	<u>4.691</u>
	5.10.4.13	CDVU	S26-6, S28-3		<u>4.270</u>	<u>4.328</u>
	5.10.4.14.1	Analog + volt. telemetry	S26-6, S28-4		<u>4.025</u>	<u>4.027</u>
	5.10.4.14.2	Analog -	S26-6, S28-5		<u>3.939</u>	<u>3.960</u>
	5.10.4.15	Electromech.	S28-6		<u>4.051</u>	<u>4.087</u>
	5.10.4.16	Outgas volt. telemetry	S26-6, S28-7		<u>5.170</u>	<u>5.100</u>
	5.10.5.1.1	Analog + load current	S26-3, S27-11 mV ÷ 10 = Amps		<u>15.519</u>	<u>15.603</u>
	5.10.5.1.2	MDX	S26-3, S27-12 mV ÷ 10 = Amps		<u>41.36</u>	<u>41.53</u>
	5.10.5.1.3	Band 1 +	S26-7, S34-1 mV ÷ 0.5 = mA		<u>91.02</u>	<u>91.63</u>
	5.10.5.1.4	Band 1 -	S34-2		<u>-91.20</u>	<u>-91.84</u>
	5.10.5.1.5	2 +	S34-3		<u>90.15</u>	<u>90.84</u>
	5.10.5.1.6	2 -	S34-4		<u>-90.99</u>	<u>-91.62</u>
	5.10.5.1.7	3 +	S34-5		<u>90.98</u>	<u>91.00</u>
	5.10.5.1.8	3 -	S34-6		<u>-90.77</u>	<u>-91.38</u>
	5.10.5.1.9	4 +	S34-7		<u>90.90</u>	<u>91.67</u>
	5.10.5.1.10	4 -	S34-8		<u>-90.60</u>	<u>-91.28</u>
	5.10.5.1.11	5,7 +	S34-9		<u>90.85</u>	<u>90.68</u>
	5.10.5.1.12	5,7 -	S34-10		<u>-90.03</u>	<u>-89.99</u>
	5.10.5.1.13	6 +	S34-11		<u>47.35</u>	<u>47.69</u>
	5.10.5.1.14	Band 6 -	S26-7, S34-12		<u>-47.17</u>	<u>-47.57</u>
	5.10.5.1.15	SMA Htr +	S26-8, S34-1 mV ÷ 0.5 = mA		<u>47.88</u>	<u>48.33</u>
	5.10.5.1.16	SMA Htr - load current	S26-8, S34-2 mV = mA		<u>-8.946</u>	<u>-9.024</u>

ORIGINAL PAGE IS
OF POOR QUALITY

TS 16603
Rev B

Rev 2 7-6-81
GCAU-3 njs/BJ

10.4 Performance test (continued)

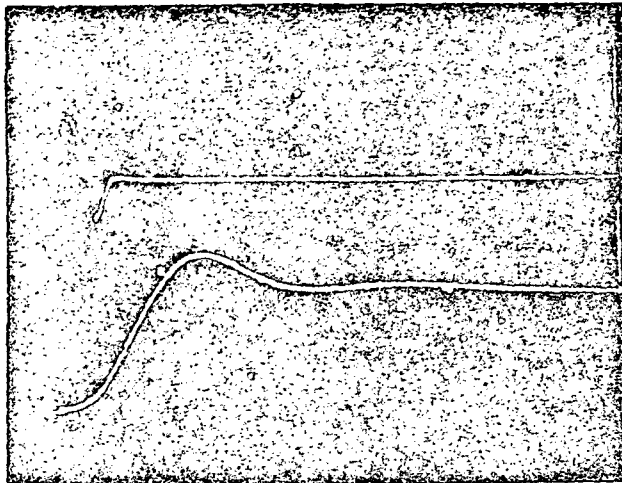
REF. PARA.	DESCRIPTION	DWS SWITCH POSITIONS	LIMITS	MEASUREMENT	
				PRIMARY	REDUNDANT
5.10.5.1.17	SMA +29V load current	S26-8, S34-3	mV ÷ 0.402 = mA	50.74 (4)	51.13
5.10.5.1.18	SMA -29V	S34-4	mV ÷ 0.402 = mA	-50.48 (4)	-50.92
5.10.5.1.19	SMA +7V	S34-5	V ÷ 0.1 = Amps	378.2 (4)	281.9
5.10.5.1.20	Analog -	S34-6	mV ÷ 0.402 = mA	-269.3 (4)	-270.8
5.10.5.1.21	Radiometer	S34-9	mV ÷ 0.5 = mA	152.90 (4)	152.04
5.10.5.1.22	CDVU	S34-10	mV ÷ 0.5 = mA	271.7 (4)	275.6
5.10.5.1.23	Electromech. load current	S26-8, S34-11	mV ÷ 0.402 = mA	210.0 (4)	211.8
5.10.5.2.1	Bus power supply voltage	S26-1, S27-1 (S27-3 for RDT)		27.06	27.04
5.10.5.2.2	Bus input current	S26-1, S27-2 (S27-4 for RDT)	mV ÷ 10 = Amps	157.66 (4)	159.07
5.10.5.2.3	P _{IN} (Section 5.10.5)			363.563	366.497
5.10.5.2.4	P _{IN} (Section 5.10.3)			360.358	366.126
5.10.5.2.5	P _{IN} (avg)			361.84	366.372
5.10.5.2.9	Input current at current limit	26-1, 27-2 (26-1 27-4 Rdt)		181.4	199.2
	Input voltage at current limit	27-1 (27-3 Rdt)		22.83V	22.95V
	MUX voltage at current limit	26-3, 27-1		29.03V	28.78
	MUX current at current limit	27-12		36.23mA	49.06mA
5.10.5.3.1	P _{OUT}			270.317	272.91
5.10.5.3.2	Efficiency	> 70%		75.18%	75.27%

INPUT POWER #3 = 363.563
 INPUT POWER #1 = 360.358
 AVE INPUT POWER = 361.84
 OUTPUT POWER = 270.317
 EFFICIENCY = 75.18
 INPUT POWER #3 = 366.497
 INPUT POWER #1 = 366.126
 AVE INPUT POWER = 366.312
 OUTPUT POWER = 272.91
 EFFICIENCY = 75.27

ORIGINAL PAGE IS
 OF POOR QUALITY

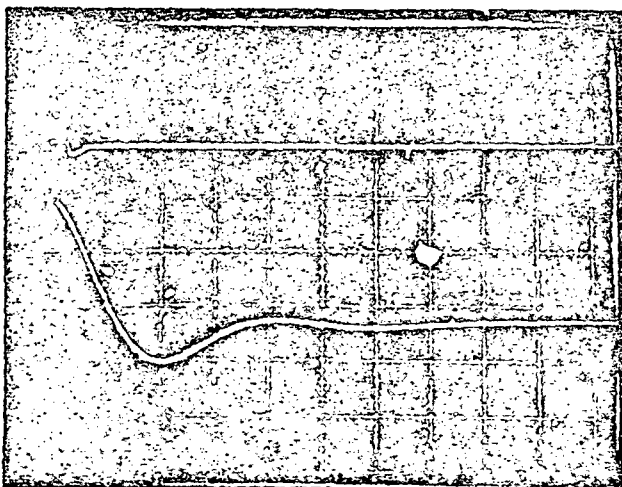
10.4 Performance test (continued)

EF. PARA.	DESCRIPTION	DVM SWITCH POSITIONS	LIMITS	MEASUREMENT	
				PRIMARY	REDUNDANT
5.10.6.1	+7V output pulsed	S26-2, S27-7 (S27-8 for RDT)	7.10 \pm 0.80V	6.922V	7.022V
5.10.6.2	Photograph of transients induced on input bus current and SMA +7V output voltage as SMA +7V output is being pulse-loaded-PRIMARY SIDE				



(0.2A) CURRENT/DIV: 0.2A A.C.
 (1V) VOLTAGE/DIV: 1V
 (200uS) SWEEP RATE: 500uS

5.10.6.2 Photograph of transients induced on input bus current and SMA +7V output voltage as pulse-load on SMA +7V outputs is being removed - PRIMARY SIDE



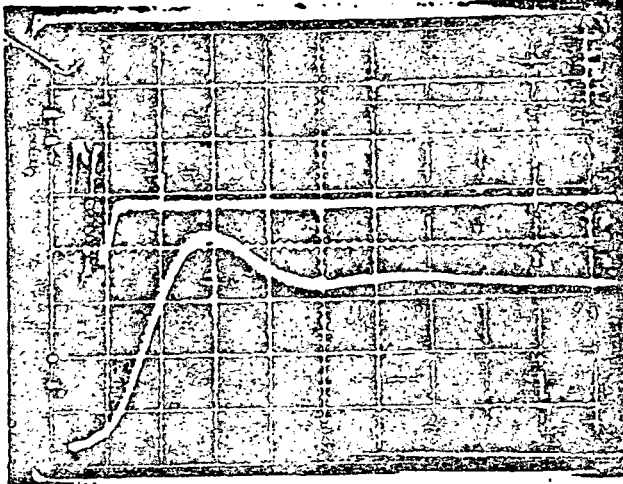
(0.2A) CURRENT/DIV: 0.2A A.C.
 (1V) VOLTAGE/DIV: 1V
 (200uS) SWEEP RATE: 500uS

ORIGINAL PAGE IS
OF POOR QUALITY

10.4 Performance test (continued)

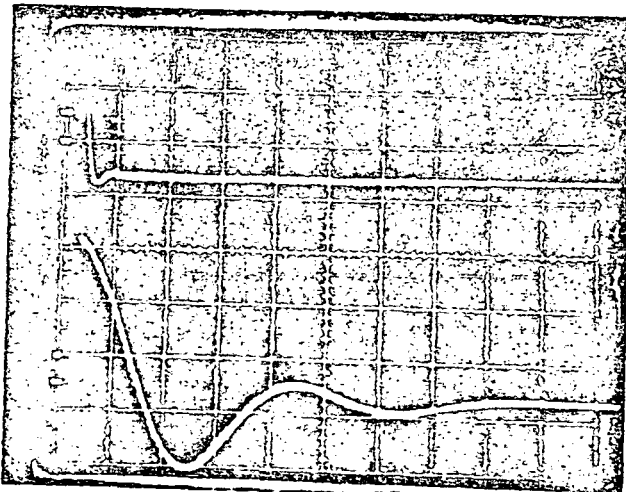
REF. PARA. _____ DESCRIPTION _____

5.10.6.2 Photograph of transients induced on input bus current and SMA +7V output voltage as SMA +7V output is being pulse-loaded-REDUNDANT SIDE



(0.2A) CURRENT/DIV: .2A A.C.
(1V) VOLTAGE/DIV: 1V
(200ns) SWEEP RATE: 500ns

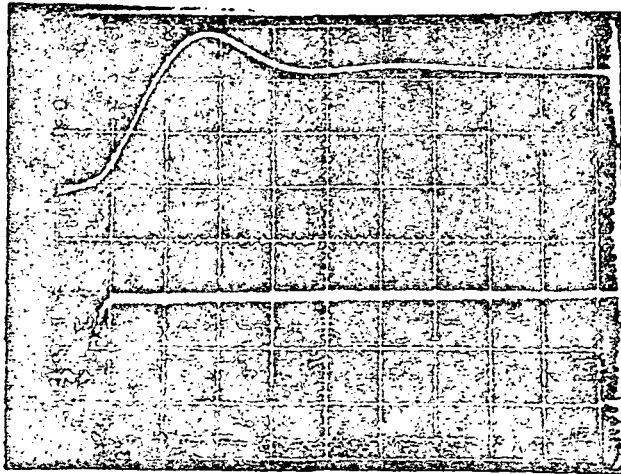
5.10.6.2 Photograph of transients induced on input bus current and SMA +7V output voltage as pulse-load is being removed-REDUNDANT SIDE



(0.2A) CURRENT/DIV: .2A A.C.
(1V) VOLTAGE/DIV: 1V
(200ns) SWEEP RATE: 500ns

10.4 Performance test (continued)

REF. PARA.	DESCRIPTION	DVM SWITCH POSITIONS	LIMITS	MEASUREMENT	
				PRIMARY	SECONDARY
5.10.6.3	Input bus current	S26-1, S27-2 (S27-4 for RDT)	6.300V 4/4/82 161.59	165.27	
5.10.6.4	SMA +7V IM- pulsed	S26-5, S28-7 (S28-8 for RDT)		4.490V	4.643V
5.10.6.5	SMA +7V load current- pulsed	(S26-8, S34-5)		456.8V	467.7V
5.10.6.6	Photograph of transients induced on input bus current and SMA +7V load current as SMA +7V output is being pulse-loaded-PRIMARY SIDE				

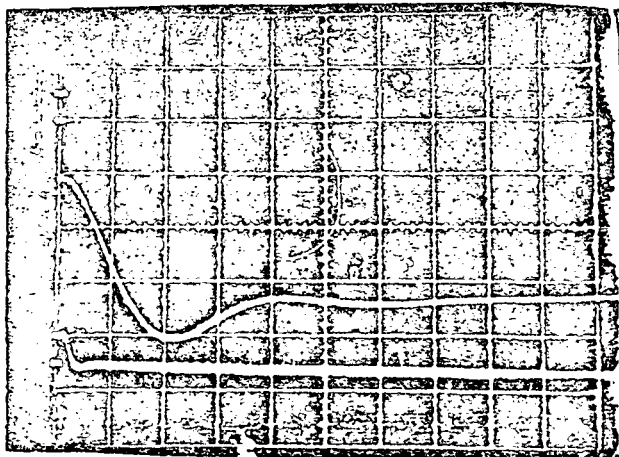


(1A)* SMA CURRENT/DIV: 0.1V/0
 (2A) BUS CURRENT/DIV: 200mA
 (200us) SWEEP RATE: 500µSec

* Using 0.1Ω shunt and 100 mV/Div on scope

← SMA CURRENT

5.10.6.6 Photograph of transients induced on input bus current and SMA +7V load current as pulse-load is being removed-PRIMARY SIDE



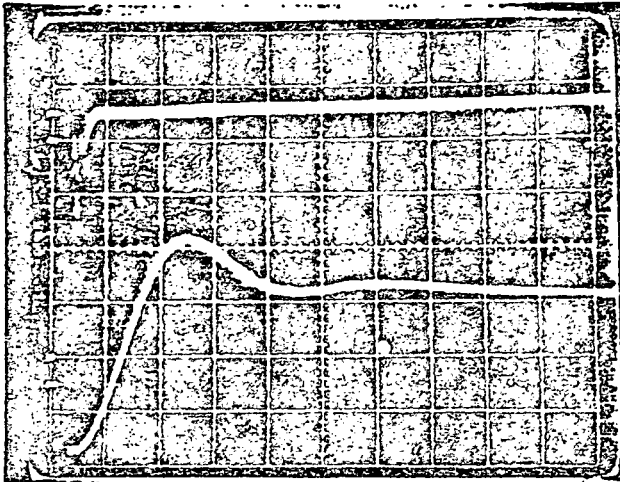
(1A)* SMA CURRENT/DIV: 0.1V/0
 (2A) BUS CURRENT/DIV: 200mA
 (200us) SWEEP RATE: 500µSec

*Using 0.1Ω shunt and 100mV/Div on Scope

SMA current

10.4 Performance test (continued)

REF. PARA.	DESCRIPTION
5.10.6.6	Photograph of transients induced on input bus current and SMA + 7V load current as SMA + 7V output is being pulse loaded - REDUNDANT SIDE

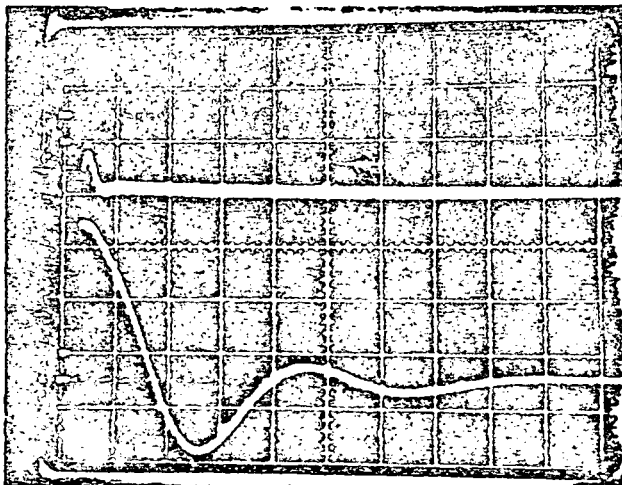


(1A)* SMA CURRENT/DIV: 2.1V
(2A) BUS CURRENT/DIV: 0.2A
(200us) SWEEP RATE: 500ns

*Using 0.1 Ω shunt and 100 mV/Div on scope.

2

5.10.6.6 Photograph of transients induced on input bus current and SMA + 7V load current as pulse-load is removed - REDUNDANT SIDE



(1A)* SMA CURRENT/DIV: 0.1V
(2A) BUS CURRENT/DIV: 0.2A
(200us) SWEEP RATE: 500ns

*Using 0.1 Ω shunt and 100mV/Div on scope.

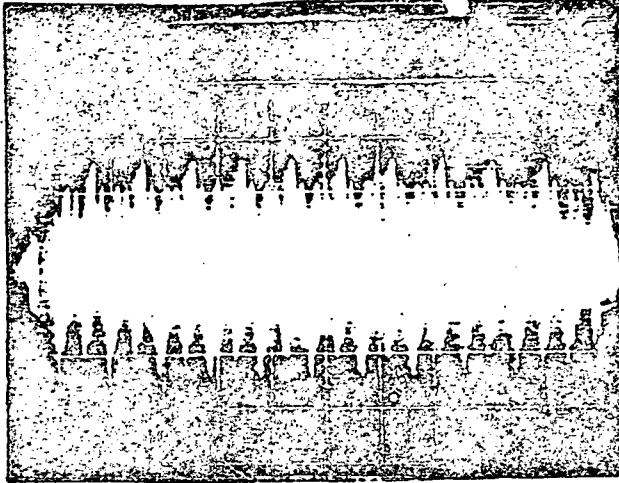
2

ORIGINAL PAGE IS
OF POOR QUALITY

TS 16603
Rev B
18 December 1980

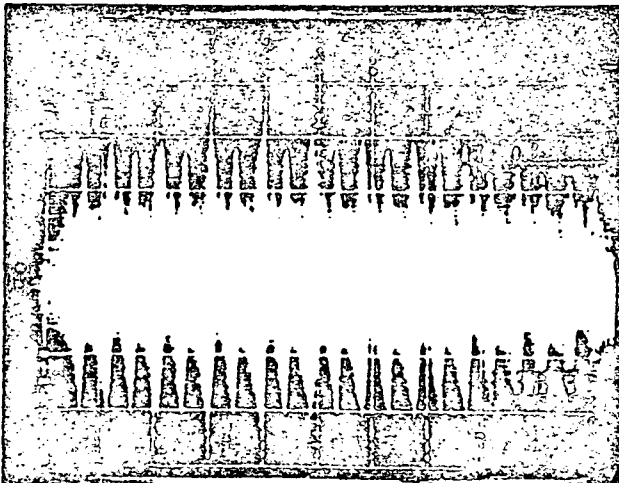
10.4 Performance test (continued)

REF. PARA.	DESCRIPTION
.10.7.1	Photograph of reflected input current ripple - PRIMARY SIDE



(1mA) CURRENT/DIV: 2mA A.C.
(10uS) SWEEP RATE: 10uSec

5.10.7.1 Photograph of reflected input current ripple - REDUNDANT SIDE



(1mA) CURRENT/DIV: 2mA A.C.
(10uS) SWEEP RATE: 10uSec.

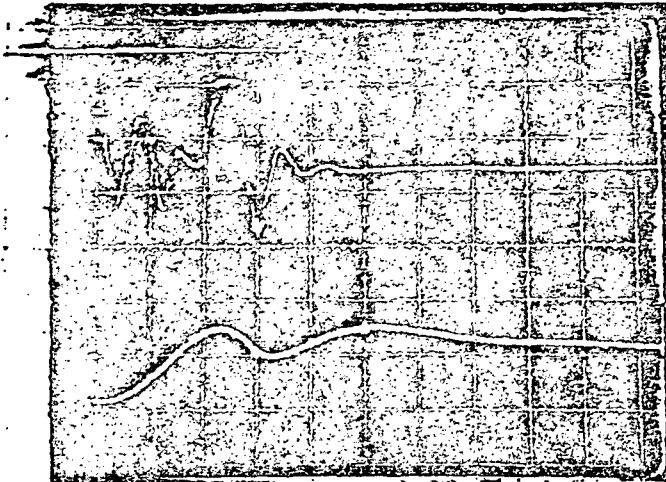
239

5.10.8.1.1 Input current - full load S26-1, S27-2
(S27-4 for RDT)

156.16mV 158.7mV
126.90mV 127.43

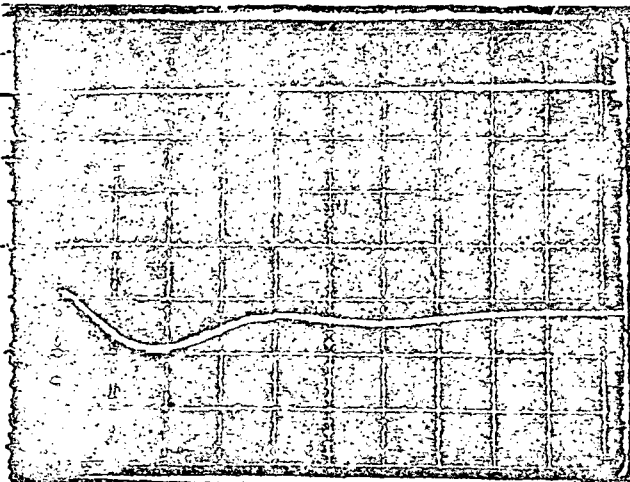
5.10.8.1.2 Input current w/o analog load Same load

5.10.8.1.3 Photograph of transients induced on input bus current and analog + voltage as analog output is enabled - PRIMARY SIDE



(2V) VOLTAGE/DIV: 2V
(1A) CURRENT/DIV: 2A
(500us) SWEEP RATE: 500us

5.10.8.1.3 Photograph of transients induced on input bus current and analog + voltage as analog output is disabled - PRIMARY SIDE



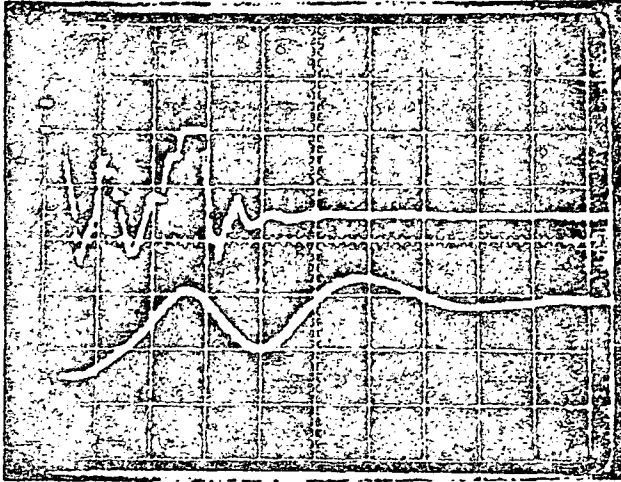
(5V) VOLTAGE/DIV: 2V
(1A) CURRENT/DIV: 2A
(1ms) SWEEP RATE: 500us

ORIGINAL PAGE IS
OF POOR QUALITY

240

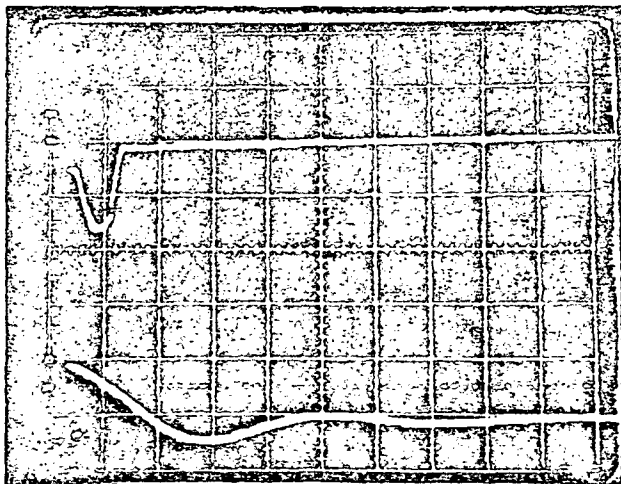
10.4 Performance test (continued)

REF. PARA.	DESCRIPTION
5.10.8.1.3	Photograph of transients induced on input bus current and analog + output voltage as analog output is enabled - REDUNDANT SIDE.



(2V) VOLTAGE/DIV: 2V
(1A) CURRENT/DIV: 2A
(500uS) SWEEP RATE: 500uSec.

5.10.8.1.3	Photograph of transients induced on input bus current and analog + output voltage as analog output is disabled - REDUNDANT SIDE.
------------	--

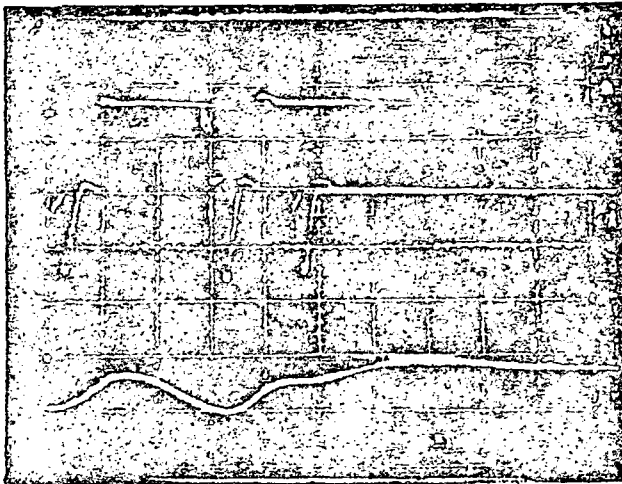


(5V) VOLTAGE/DIV: 2V
(1A) CURRENT/DIV: 2A
(1uS) SWEEP RATE: 500uSec.

241

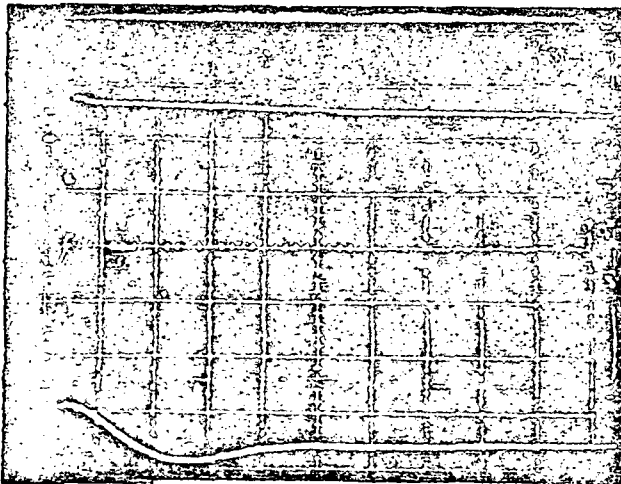
10.4 Performance test (continued)

EF. PARA.	DESCRIPTION	DVM SWITCH POSITIONS	LIMITS	MEASUREMENT	
				PRIMARY	REDUNDANT
5.10.8.2.1	Input bus current w/o SMA +7V load	S26-1, S27-2 (S27-4 for RDT)		146.70mV	145.60mV
5.10.8.2.2	Photograph of transients induced on input bus current and SMA +7V output voltage as SMA +7V is enabled - PRIMARY SIDE.				



(5V) VOLTAGE/DIV: 2V
 (1A) CURRENT/DIV: 100μ
 (200ns) SWEEP RATE: 500μsec

5.10.8.2.2 Photograph of transients induced on input bus current and SMA +7V output voltage as SMA +7V is disabled - PRIMARY SIDE.



(2V) VOLTAGE/DIV: 2V
 (1A) CURRENT/DIV: 100μ
 (2ms) SWEEP RATE: 500μsec

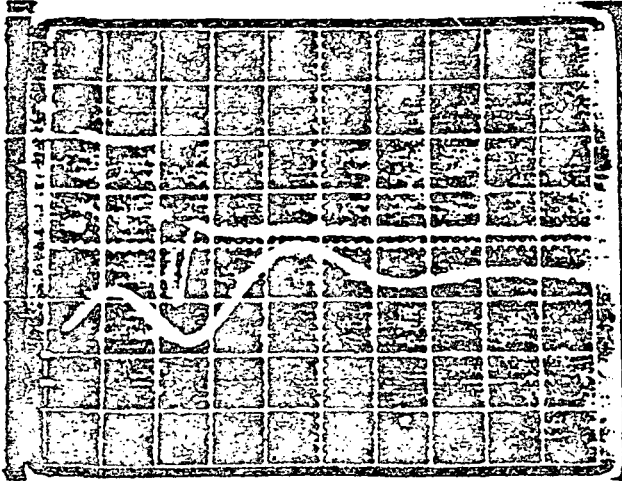
202

ORIGINAL PAGE IS
OF POOR QUALITY

TS 16603
Rev B
18 December 1980

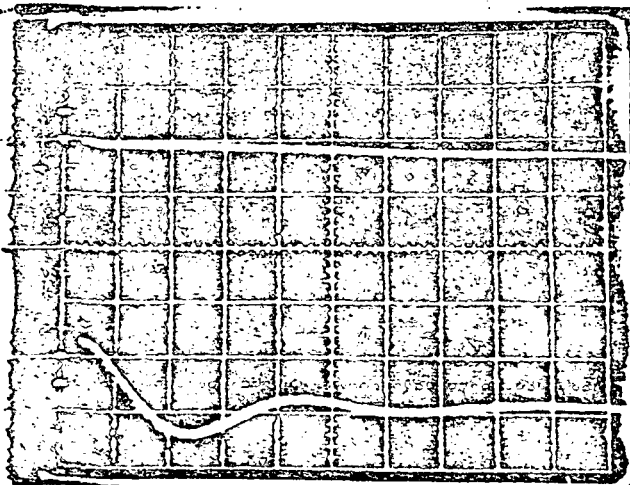
10.4 Performance test (continued)

REF. PARA.	DESCRIPTION
5.10.8.2.2	Photograph of transients induced on input bus current and SMA +7V output voltage as SMA +7V is enabled - REDUNDANT SIDE



(5V) VOLTAGE/DIV: 2V
(1A) CURRENT/DIV: 1A
(200 μ S) SWEEP RATE: 500 μ Sec.

5.10.8.2.2	Photograph of transients induced on input bus current and SMA +7V output voltage as SMA +7V is disabled - REDUNDANT SIDE
------------	--

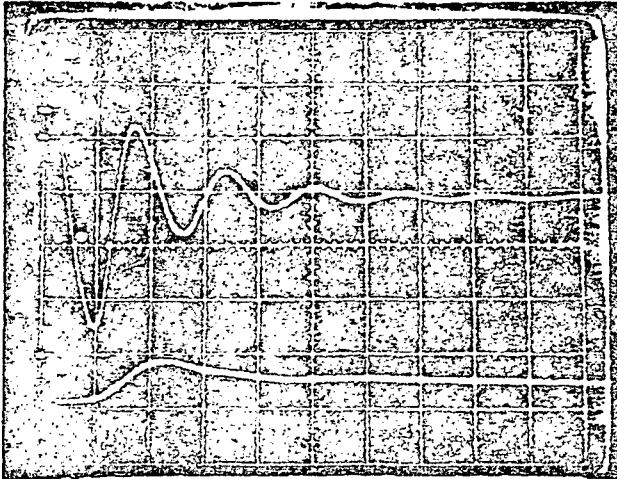


(2V) VOLTAGE/DIV: 2V
(1A) CURRENT/DIV: 1A
(2mS) SWEEP RATE: 500 μ Sec.

249

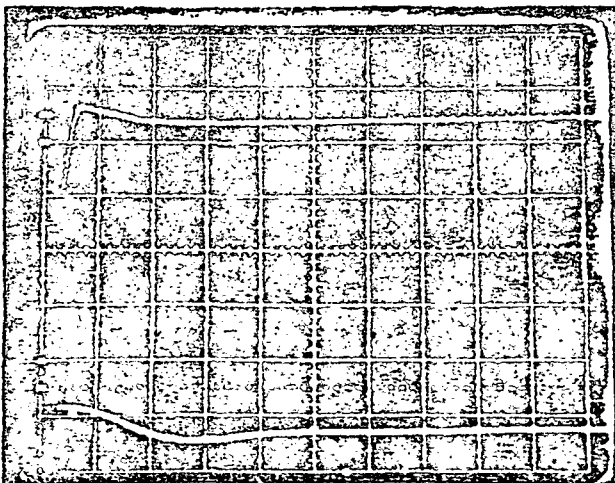
10.4 Performance test (continued)

REF. PARA.	DESCRIPTION	DVM SWITCH POSITIONS	LIMITS	MEASUREMENT	
				PRIMARY	REDUNDANT
5.10.8.2.3	Input bus current w/o SMA +29V load	S26-1, S27-2 (S27-4 for RDT)		153.17mA	154.61mA
5.10.8.2.4	Photograph of transients induced on input bus current and SMA +29V output voltage as SMA +29V is enabled - PRIMARY SIDE				



(2V) VOLTAGE/DIV: 1V
(0.5V) CURRENT/DIV: 0.5mA
(1ms) SWEEP RATE: 500ns

5.10.8.2.4 Photograph of transients induced on input bus current and SMA +29V output voltage as SMA +29V is disabled - PRIMARY SIDE

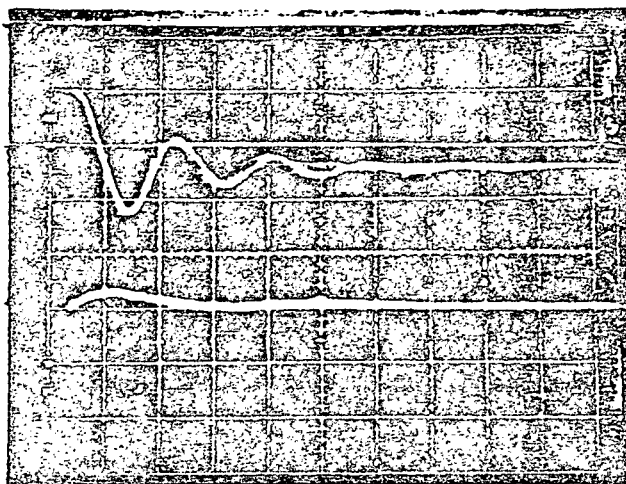


(2V) VOLTAGE/DIV: 1V
(0.5A) CURRENT/DIV: 0.5mA
(1ms) SWEEP RATE: 500ns

200

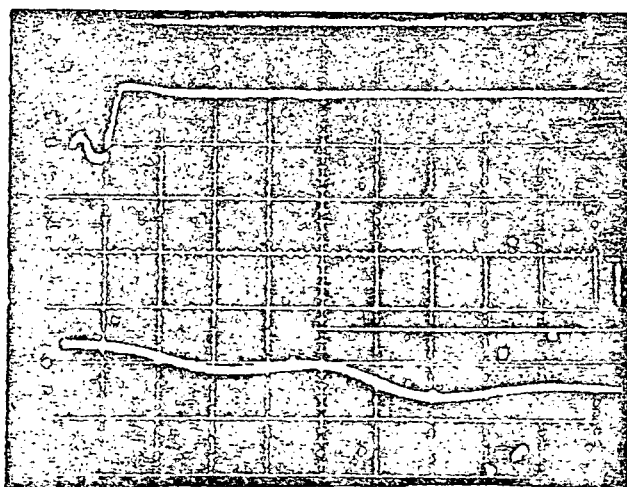
10.4 Performance test (continued)

REF. PARA.	DESCRIPTION
5.10.8.2.4	Photograph of transients induced on input bus current and SMA +29V output voltage as SMA +29V is enabled - REDUNDANT SIDE



(2V) VOLTAGE/DIV: 1V
(0.5A) CURRENT/DIV: 0.5A
(1ms) SWEEP RATE: 500 μ Sec.

5.10.8.2.4	Photograph of transients induced on input bus current and SMA +29V output voltage as +29V is disabled - REDUNDANT SIDE
------------	--

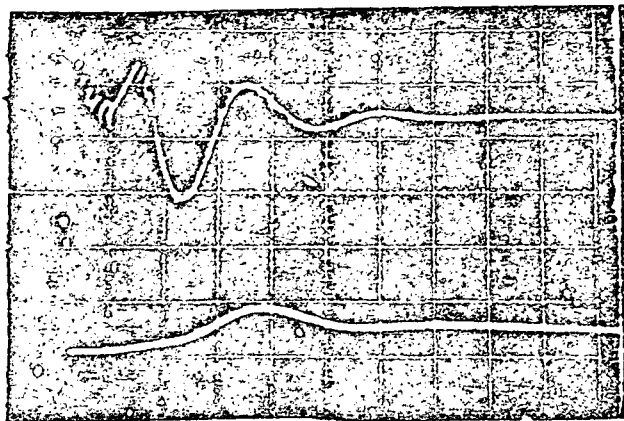


(2V) VOLTAGE/DIV: 1V
(0.5) CURRENT/DIV: 0.5A
(1ms) SWEEP RATE: 500 μ Sec.

245

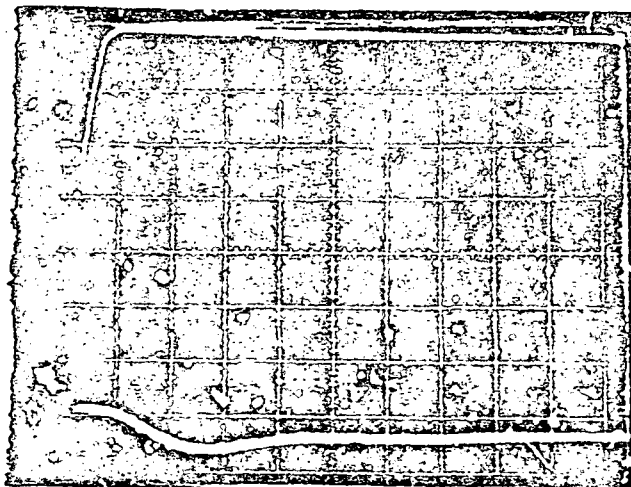
10.4 Performance test (continued)

EF. PARA.	DESCRIPTION	DVM SWITCH POSITIONS	LIMITS	MEASUREMENT	
				PRIMARY	REDUNDANT
5.10.8.3.1	Input bus current w/o CDVU load	S26-1, S27-2 (S27-4 for RDT)		152.92mV	155.50mV
5.10.8.3.2	Photograph of transients induced on input bus current and CDVU output voltage as CDVU is enabled - PRIMARY SIDE				



(2V) VOLTAGE/DIV: 1V
 (0.5A) CURRENT/DIV: 0.5A
 (1mS) SWEEP RATE: 500µsec

5.10.8.3.2 Photograph of transients induced on input bus current and CDVU output voltage as CDVU is disabled - PRIMARY SIDE



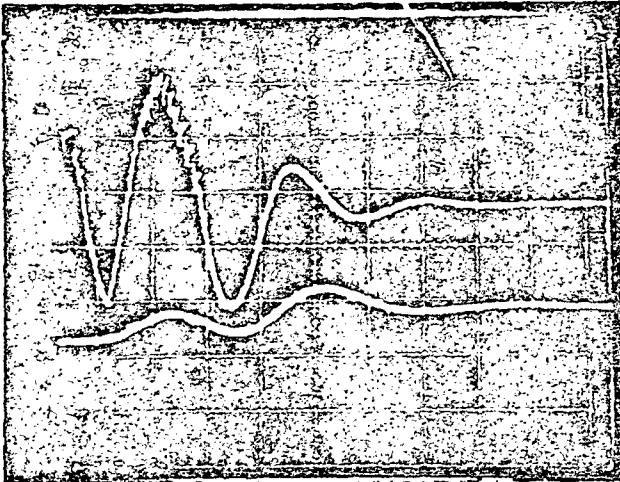
(2V) VOLTAGE/DIV: 1V
 (0.5V) CURRENT/DIV: 0.5A
 (1mS) SWEEP RATE: 500µsec

2.46

10.4 Performance test (continued)

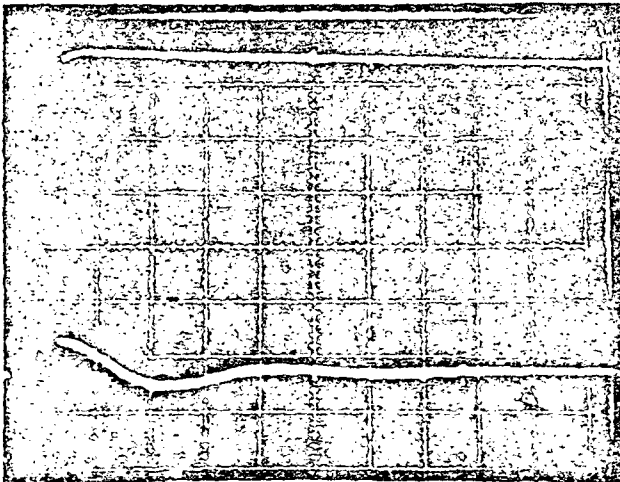
SP. PARA. DESCRIPTION

5.10.8.3.2 Photograph of transients induced on input bus current and CDVU output voltage as CDVU is enabled - REDUNDANT SIDE



(2V) VOLTAGE/DIV: 1V
(0.5A) CURRENT/DIV: 0.5A
(1ms) SWEEP RATE: 50ns/div

5.10.8.3.2 Photograph as transients induced on input bus current and CDVU output voltage as CDVU is disabled - REDUNDANT SIDE

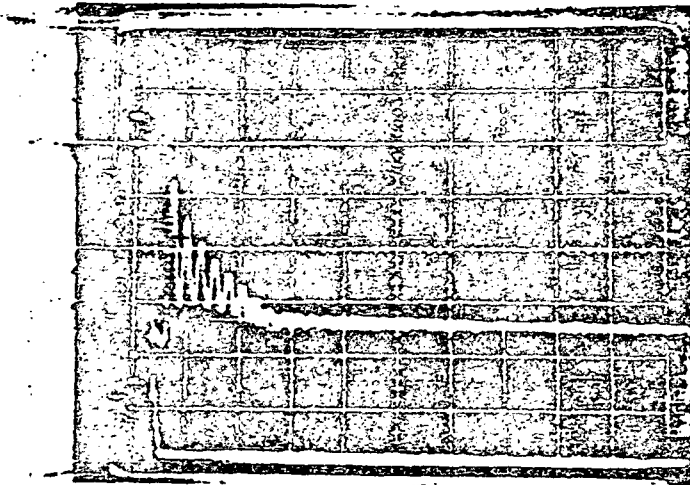


(2V) VOLTAGE/DIV: 1V
(0.5A) CURRENT/DIV: 0.5A
(1ms) SWEEP RATE: 50ns/div

247

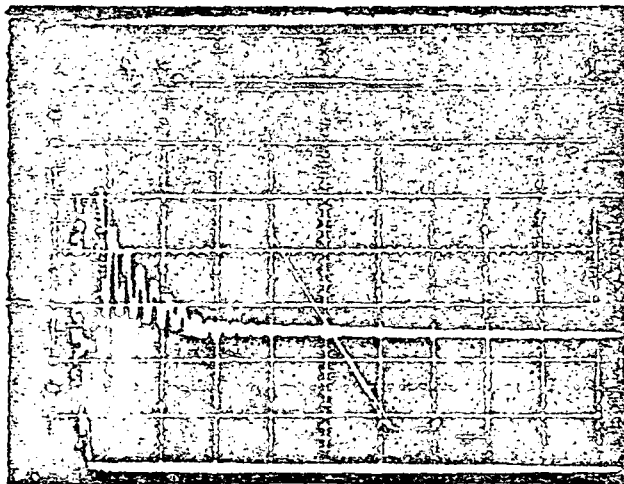
10.4 Performance test (continued)

FF. PARA.	DESCRIPTION
5.10.9.1	Photograph of turn-off transient of input bus voltage and input bus current as bus voltage is removed - PRIMARY SIDE



(5V) VOLTAGE/DIV: 5V
(5A) CURRENT/DIV: 5A
(500ns) SWEEP RATE: 500ns

Photograph of turn-off transient of input bus voltage and input bus current as bus voltage is removed - REDUNDANT SIDE

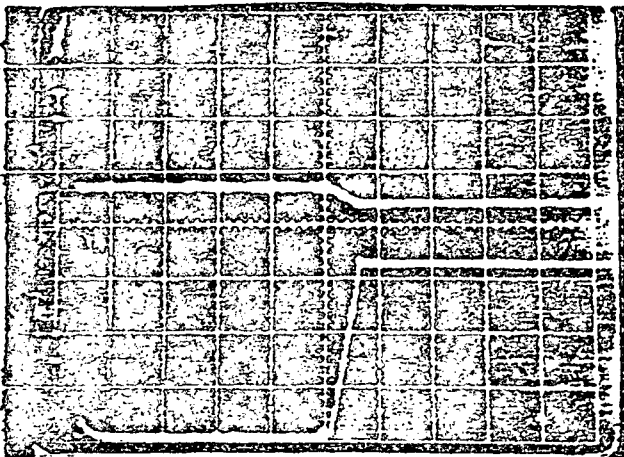


(5V) VOLTAGE/DIV: 5V
(5A) CURRENT/DIV: 5A
(500ns) SWEEP RATE: 500ns

248

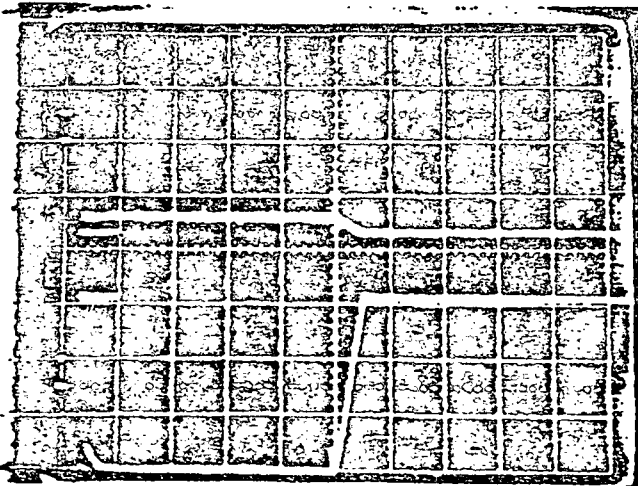
10.4 Performance test (continued)

REF. PARA.	DESCRIPTION	DVM SWITCH POSITIONS	LIMITS	MEASUREMENT	
				PRIMARY	REDUNDANT
5.10.9.2	UUT stays off when bus is reapplied.	S1-ON (S2-ON for RDT)	--	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
5.10.9.3	Photograph of turn-on transient of bus voltage and current as ON command is issued - PRIMARY SIDE				



(5V) VOLTAGE/DIV: 5V
 (5A) CURRENT/DIV: 5A/div
 (100ms) SWEEP RATE: 100ms/div

5.10.9.3 Photograph of turn-on transient of bus voltage and current as ON command is issued - REDUNDANT SIDE



(5V) VOLTAGE/DIV: 5V
 (5A) CURRENT/DIV: 5A/div
 (100ms) SWEEP RATE: 100ms/div

249

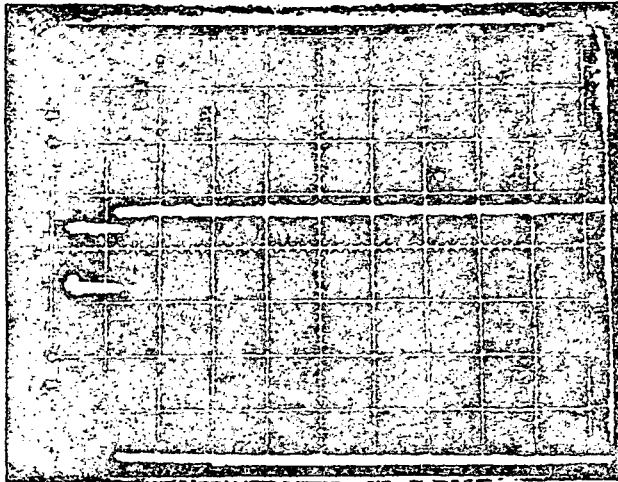
ORIGINAL PAGE IS
OF POOR QUALITY

TS 16603
Rev B
18 December 1980

10.4 Performance test (continued)

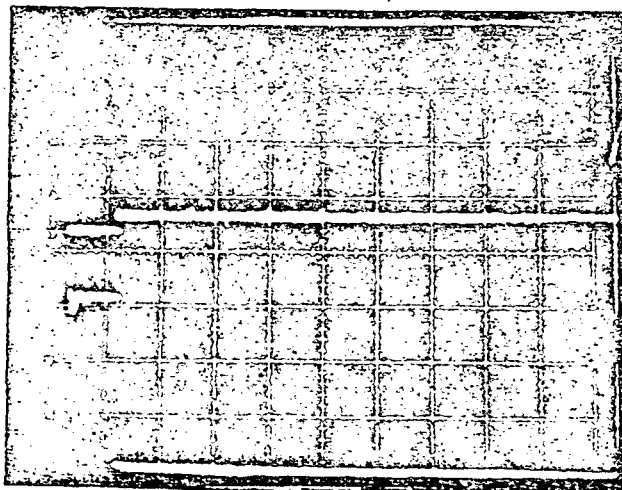
EF. PARA. _____ DESCRIPTION _____

5.10.9.4 Photograph of turn-off transient of input bus voltage and current as OFF command is issued - PRIMARY SIDE



(5V) VOLTAGE/DIV: 5V
(5A) CURRENT/DIV: 5A
(10ms) SWEEP RATE: 10ms

5.10.9.4 Photograph of turn-off transient of input bus voltage and current as OFF command is issued - REDUNDANT SIDE



(5V) VOLTAGE/DIV: 5V
(5A) CURRENT/DIV: 5A
(10ms) SWEEP RATE: 10ms

250

10.4 Performance test (continued)

REF. PARA.	DESCRIPTION	DVM SWITCH POSITIONS	LIMITS	PRIMARY	REDUNDANT
5.10.9.5	Record	S27-2 (S27-4)		152.91mV	158.76
5.10.9.6	Record	(S27-4 (S27-2)		90.71mV	5.439V
	Record	S27-2 (S27-4)		57.94mV	151.48
5.10.9.7	Record that DUT turns on. (Checkmark)			✓	✓
5.10.10.1	Input bus current AFTER it reads ~ 17A AND input bus voltage reads ~ 21V.	S26-1, S27-2 (S27-4 for RDT)		151.05mV	150.58 151.39mV
5.10.10.2	Input bus voltage with 17.0A load	S26-1, S27-1 (S27-3 for RDT)		23.04V	23.05V
5.10.10.3	Input current telemetry output	S26-4, S28-2 (S28-4 for RDT)		4.610V	4.580V
5.10.10.4	Input current telemetry output	S26-4, S28-2 (S28-4 for RDT)		3.582V	3.561V
	Input bus voltage	S26-1, S27-1 (S27-3 for RDT)		23.03V	23.03V
	Input bus current	S26-1, S27-2 (S27-4 for RDT)		122.37mV	120.86mV
5.10.10.5	Input current telemetry output	S26-4, S28-2 (S28-4 for RDT)		3.049V	2.994V
	Input bus voltage	S26-1, S27-1 (S27-3 for RDT)		23.05V	23.04V
	Input bus current	S26-1, S27-2 (S27-4 for RDT)		102.72mV	103.12mV
5.10.10.6	Input current telemetry output	S26-4, S28-2 (S28-4 for RDT)		2.523V	2.535V
	Input bus voltage	S26-1, S27-1 (S27-3 for RDT)		23.03V	23.03V
	Input bus current	S26-1, S27-2 (S27-4 for RDT)		88.81mV	92.16mV
5.10.10.7	Input current telemetry output	S26-4, S28-2 (S28-4 for RDT)		2.087V	2.028V
	Input bus voltage	S26-1, S27-1 (S27-3 for RDT)		23.05V	22.99V
	Input bus current	S26-1, S27-2 (S27-4 for RDT)		73.96V	76.64V

251

10.4 Performance test (continued)

REF. PARA.	DESCRIPTION	DVM SWITCH POSITIONS	LIMITS	MEASUREMENT	
				PRIMARY	REDUNDANT
5.10.10.8	Input current telemetry output	S26-4, S28-2 (S28-4 for RDT)		1.5292V	1.5118V
	Input bus voltage	S26-1, S27-1 (S27-3 for RDT)		23.02V	23.04V
	Input bus current	S26-1, S27-2 (S27-4 for RDT)		56.82mA	60.34mA
5.10.10.9	Input current telemetry output	S26-4, S28-2 (S28-4 for RDT)		1.1053V	1.0653V
	Input bus voltage	S26-1, S27-1 (S27-3 for RDT)		23.04V	23.02V
	Input bus current	S26-1, S27-2 (S27-4 for RDT)		46.06mA	47.44mA
5.10.10.10	Input current telemetry output	S26-4, S28-2 (S28-4 for RDT)		0.4606V	0.5107V
	Input bus voltage	S26-1, S27-1 (S27-3 for RDT)		23.00V	23.04V
	Input bus current	S26-1, S27-2 (S27-4 for RDT)		31.64mA	29.66mA
5.10.10.11	Input current telemetry output	S26-4, S28-2 (S28-4 for RDT)		0.2315V	0.2283V
	Input bus voltage	S26-1, S27-1 (S27-3 for RDT)		23.02V	23.01V
	Input bus current	S26-1, S27-2 (S27-4 for RDT)		17.74mA	21.59mA
5.10.10.12	Input current telemetry output	S26-4, S28-2 (S28-4 for RDT)		75.84mA	74.21mA
	Input bus voltage	S26-1, S27-1 (S27-3 for RDT)		23.01V	23.00V
	Input bus current	S26-1, S27-2 (S27-4 for RDT)		13.251mA	13.561mA
5.10.11.1	Band 1+ output voltage	S26-1, S27-5		23.12V	23.27V
5.10.11.2	Band 1- output voltage	S27-6		-23.21	-23.01
5.10.11.3	2+	S27-7		23.31	22.87
5.10.11.4	2-	S27-8		-23.32	-23.12
5.10.11.5	3+	S27-9		23.82	23.14
5.10.11.6	3-	S27-10		-22.91	-22.94
5.10.11.7	Band 4+ output voltage	S26-1, S27-11		23.76	23.18

252

ORIGINAL PAGE IS
OF POOR QUALITY

TS 16603
Rev B

~~28 December 1980~~
~~524-2 84-81~~

10.4 Performance test (continued)

REF. PARA.	DESCRIPTION	DVM SWITCH POSITIONS	MEASUREMENT	
			PRIMARY	REDUNDANT
5.10.11.8	Band 4- output voltage	S26-1, S27-12	-23.12 V	-23.07
5.10.11.9	5,7+	S26-2, S27-1	-22.71 V	22.01
5.10.11.10	5,7-	S27-2	-22.66	-22.72
5.10.11.11	6+	S27-3	22.55	22.66
5.10.11.12	Band 6-	S27-4	-22.82	-22.81
5.10.11.13	SMA Htr +	S27-5	-24.41	-24.68
5.10.11.14	Htr -	S27-6	-24.86	-24.38
5.10.11.15	+7V	S27-7	8.939	N/A
5.10.11	+7V	(S27-8 For RDT)	N/A	9.021
5.10.11	+29V	S27-9	31.74	N/A
5.10.11	+29V	(S27-11 For RDT)	N/A	31.99
5.10.11	-29V	S27-10	-32.05	N/A
	SMA -29V	S26-2, (S27-12 for RDT)	N/A	-31.82
5.10.11.18	Radiometer	S26-3, S27-2	9.508 V	9.546
5.10.11.19	CDVU	S27-3	9.219	9.308
5.10.11.20	Analog +	S27-4	25.85	26.24
5.10.11.21	Analog -	S27-5	-23.62	-23.25
5.10.11.22	Electromech.	S27-6	-30.48	-30.23
5.10.11.23	Outgas	S27-7	101.07	27.87
5.10.11.24	Parasitic	S27-9	30.92	N/A
	Parasitic output voltage	S26-3, (S27-10 for RDT)	N/A	31.31
5.10.11.25	Band 1+ TM output	S26-4, S28-5	4.216	4.250
5.10.11.26	1-	S28-6	4.216	4.177
5.10.11.27	2+	S28-7	4.239	4.163
5.10.11.28	2-	S28-8	4.218	4.181
5.10.11.29	3+	S28-9	4.328	4.209
5.10.11.30	3-	S28-10	4.169	4.174
5.10.11.31	4+	S28-11	4.235	4.206
5.10.11.32	4-	S26-4, S28-12	4.208	4.188
5.10.11.33	Band 5,7+ TM output	S26-5, S28-1	4.146	4.165

E-205

E-205

253

ORIGINAL PAGE IS
OF POOR QUALITY

TS 16603

Rev B

~~20 December 1989~~
304-2 7-6-81

10.4 Performance test (continued)

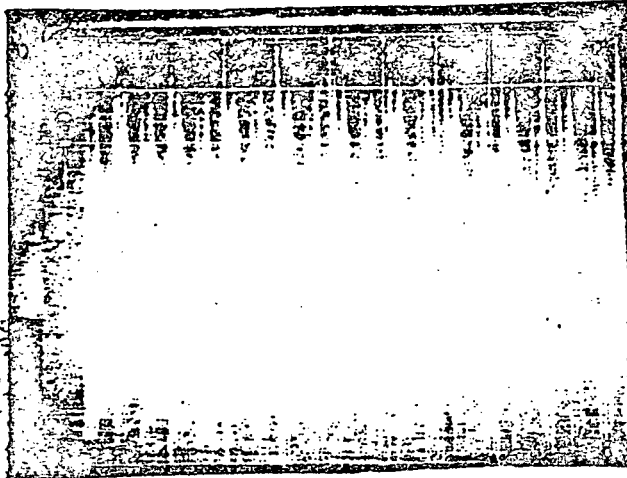
REF. PARA.	DESCRIPTION	DVM SWITCH POSITIONS	MEASUREMENT	
			PRIMARY	REDUNDANT
5.10.11.34	Band 5,7- TM output	S26-5, S28-2	<u>4.118</u>	<u>4.131</u>
5.10.11.35	6+	S28-3	<u>4.076</u>	<u>4.103</u>
5.10.11.36	Band 6-	S28-4	<u>4.153</u>	<u>4.156</u>
5.10.11.37	SMA Htr +	S28-5	<u>4.451</u>	<u>4.508</u>
5.10.11.38	Htr -	S28-6	<u>4.501</u>	<u>4.486</u>
5.10.11.39	+7V	S28-7 (S28-8 for RDT)	<u>5.508</u>	<u>5.553</u>
5.10.11.40	+29V	S28-9 (S28-11 for RDT)	<u>4.329</u>	<u>4.388</u>
5.10.11.41	SMA -29V	S26-5, S28-10 (S28-12 for RDT)	<u>4.068</u>	<u>4.056</u>
5.10.11.42	Radiometer	S26-6, S28-2	<u>5.152</u>	<u>5.228</u>
5.10.11.43	CDVU	S28-3	<u>5.106</u>	<u>5.154</u>
5.10.11.44	Analog +	S28-4	<u>4.590</u>	<u>4.661</u>
5.10.11.45	Analog -	S28-5	<u>3.924</u>	<u>3.960</u>
5.10.11.46	Electromech.	S28-6	<u>4.696</u>	<u>4.666</u>
5.10.11.47	Outgas - TM output	S26-6, S28-7	<u>5.032</u>	<u>4.990</u>
5.10.12.1	Bus voltage	S26-1, S27-1 (S27-3 for RDT)	<u>23.07V</u>	<u>23.02V</u>
5.10.12.2	Input bus current	S26-1, S27-2 (S27-4 for RDT)	<u>50.36mA</u>	<u>50.24mA</u>
5.10.12.3	SMA Htr + output voltage	S26-2, S27-5	<u>21.62V</u>	<u>21.75</u>
5.10.12.4	Htr + ripple	Seen on Scope	<30 mV pk-pk <u>70</u>	<u>80</u>
5.10.12.5	Htr - voltage	S26-2, S27-6	<u>-22.12V</u>	<u>-22.27V</u>
5.10.12.6	SMA Htr - ripple	Seen on Scope	<30 mV pk-pk <u>50</u>	<u>80</u>
5.10.12.7	CDVU voltage	S26-3, S27-3	<u>7.550V</u>	<u>7.696V</u>
5.10.12.8	CDVU ripple	Seen on Scope	<40 mV pk-pk <u>50</u>	<u>80</u>
5.10.12.9	Outgas - output voltage	S26-3, S27-7	<u>86.66V</u>	<u>85.95V</u>
5.10.12.10	Outgas - output ripple	Seen on Scope	2.50V pk-pk <u>250mV</u>	<u>330mV</u>
5.10.12.11	Parasitic output voltage	S26-3, S27-9 (S27-10 for RDT)	<u>30.36V</u>	<u>30.32</u> ⁵⁰ / ₂
5.10.12.12	Parasitic output ripple	Seen on Scope	<900 mV pk-pk <u>150</u>	<u>220</u>

254

ORIGINAL PAGE IS
 OF POOR QUALITY

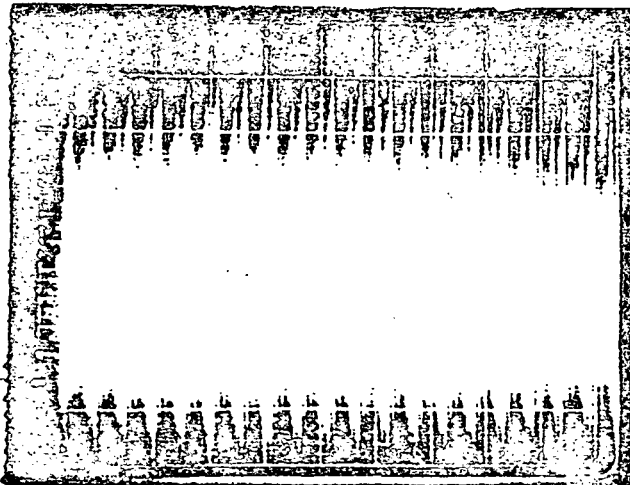
10.4 Performance test (continued)

EF. PARA.	DESCRIPTION	DVM SWITCH POSITIONS	LIMITS	MEASUREMENT	
				PRIMARY	REDUNDANT
5.10.13.1	Input current telemetry	S26-4, S28-2 (S28-4 for RDT)		1.3440V	1.3364
5.10.13.2	SMA Htr + output	S26-5, S28-5		3.950V	3.981V
5.10.13.3	SMA Htr -	S26-5, S28-6		4.011V	4.038V
5.10.13.4	CDVU	S26-6, S28-3		4.240V	4.319V
5.10.13.5	Outgas output telemetry	S26-6, S28-7		4.326V	4.315V
5.10.14.1	Photograph of reflected input current ripple in outgas mode - PRIMARY SIDE				



(2mA) CURRENT/DIV: 2mA A.C.
 (10uS) SWEEP RATE: 10uSec.

5.10.14.1 Photograph of reflected input current ripple in outgas mode - REDUNDANT SIDE

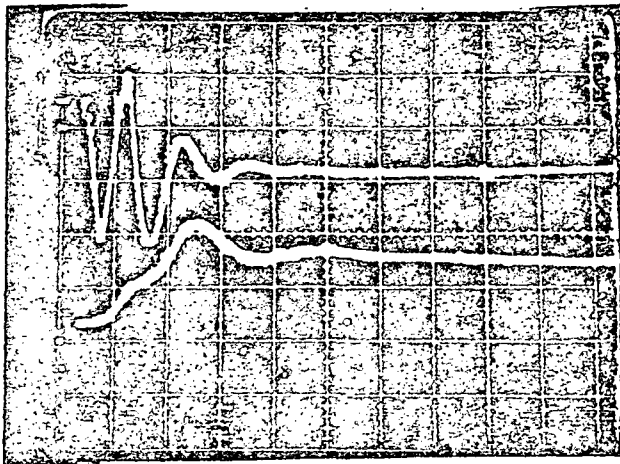


(2mA) CURRENT/DIV: 2mA A.C.
 (10uS) SWEEP RATE: 10uSec.

255

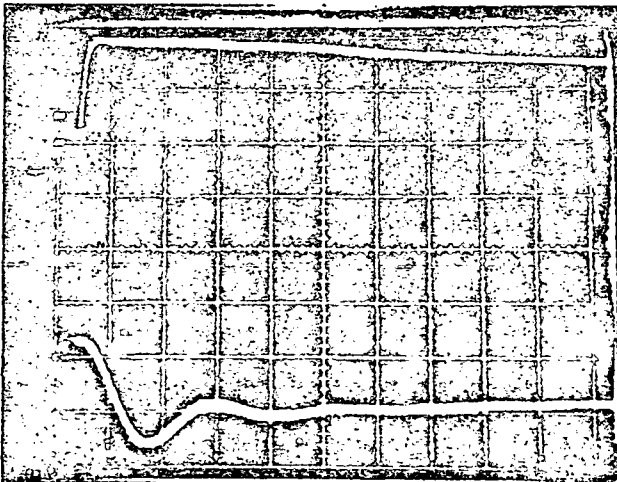
10.4 Performance test (continued)

REF. PARA.	DESCRIPTION	DVM SWITCH POSITIONS	LIMITS	MEASUREMENT	
				PRIMARY	REDUNDANT
5.10.15.1.1	Input current with CDVU off.	S26-1, S27-2 (S27-4 for RDT)		47.48 μ A	47.26 μ A
5.10.15.1.2	Photograph of input bus current and CDVU output voltage as CDVU load is enabled - PRIMARY SIDE				



(2V) VOLTAGE/DIV: 1V
 (200mA) CURRENT/DIV: 200 μ A
 (1mS) SWEEP RATE: 1mS

5.10.15.1.2 Photograph of input bus current and CDVU output voltage as CDVU load is disabled - PRIMARY SIDE

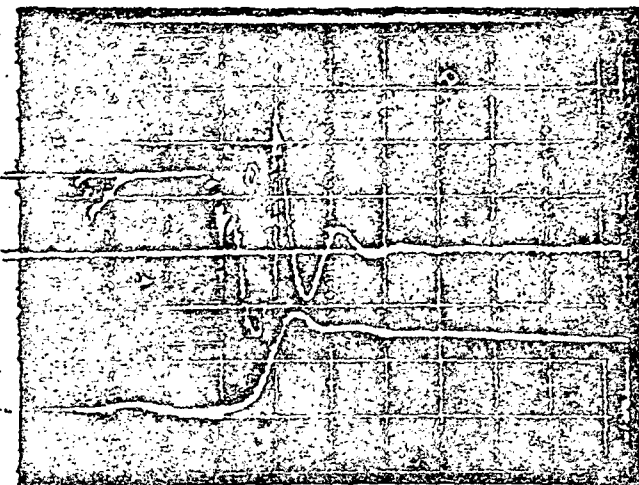


(2V) VOLTAGE/DIV: 1V
 (200mA) CURRENT/DIV: 200 μ A
 (2mS) SWEEP RATE: 1mS

256

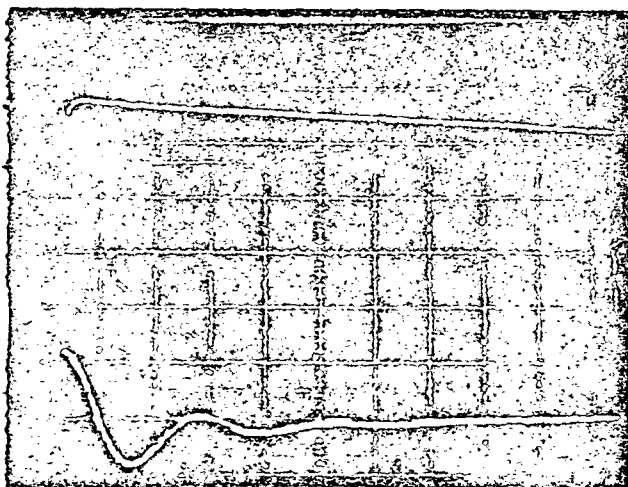
10.4 Performance test (continued)

EF. PARA.	DESCRIPTION
5.10.15.1.2	Photograph of input bus current and CDVU output voltage as CDVU load is enabled - REDUNDANT SIDE



(2V) VOLTAGE/DIV: 1V
(200mA) CURRENT/DIV: 200mA
(1mS) SWEEP RATE: 1mSec.

5.10.15.1.2	Photograph of input bus current and CDVU output voltage as CDVU load is disabled - REDUNDANT SIDE
-------------	---



(2V) VOLTAGE/DIV: 1V
(200mA) CURRENT/DIV: 200mA
(2mS) SWEEP RATE: 1mSec.

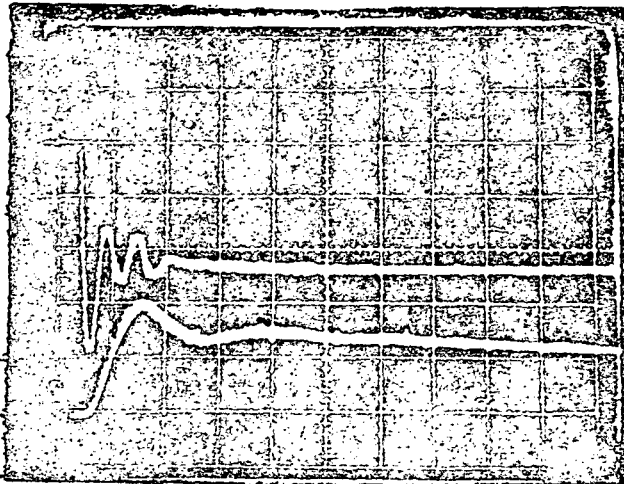
257

ORIGINAL PAGE IS
OF POOR QUALITY

TS 16603
Rev B
18 December 1980

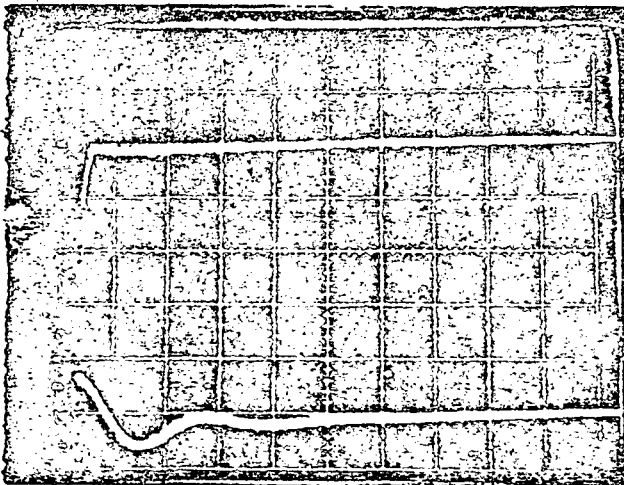
10.4 Performance test (continued)

REF. PARA.	DESCRIPTION	DVM SWITCH POSITIONS	LIMITS	MEASUREMENT	
				PRIMARY	REDUNDANT
5.10.15.2.1	Input bus current with outgas disabled	S26-1, S27-2 (S27-4 for RDT)		16.826 mV	17.404 mV
5.10.15.2.2	Photograph of input bus current and outgas voltage as outgas load is enabled - PRIMARY SIDE				



(5V) VOLTAGE/DIV: 5V
(2A) CURRENT/DIV: 2A
(1ms) SWEEP RATE: 1ms

5.10.15.2.2 Photograph of input bus current and outgas voltage as outgas load
is disabled - PRIMARY SIDE



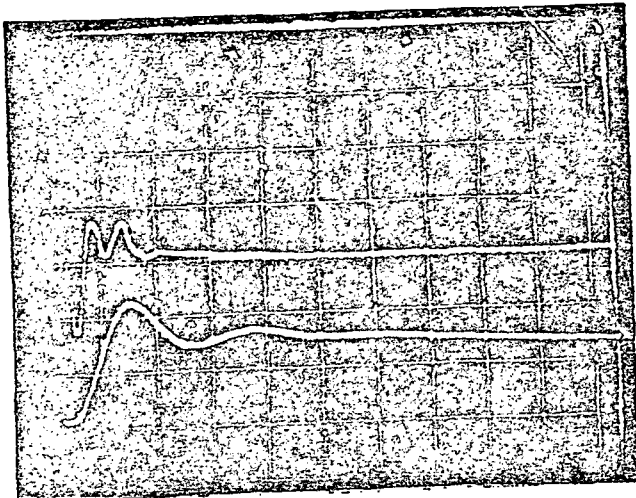
(5V) VOLTAGE/DIV: 5V
(2A) CURRENT/DIV: 2A
(2ms) SWEEP RATE: 1ms

258

10.4 Performance test (continued)

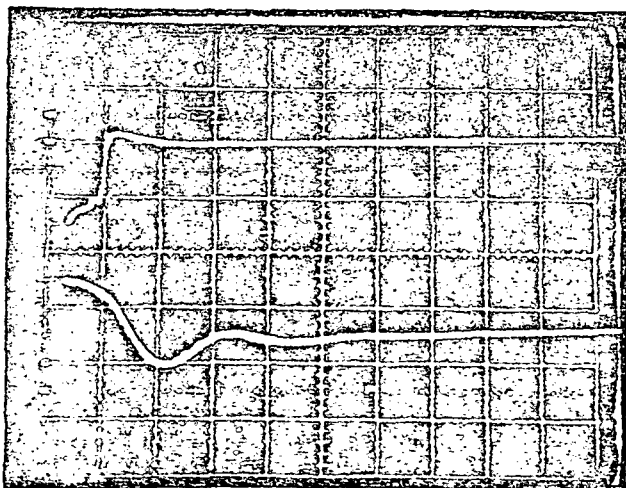
FF. PARA. _____ DESCRIPTION _____

5.10.15.2.2 Photograph of input bus current and outgas voltage as outgas load is enabled - REDUNDANT SIDE



(5V) VOLTAGE/DIV: 5V
(2A) CURRENT/DIV: 2A
(500 μ S) SWEEP RATE: 1 μ Sec.

5.10.15.2.2 Photograph of input bus current and outgas voltage as ~~outgas~~ load is disabled - REDUNDANT SIDE



(5V) VOLTAGE/DIV: 5V
(2A) CURRENT/DIV: 2A.
(1mS) SWEEP RATE: 1mSec.

259

ORIGINAL P/ 2 IS
OF POOR QUALITY

IS 16603
Rev B
~~20 December 1980~~
SCA-2 7-6-81

10.4 Performance test (continued)

REF. PARA.	DESCRIPTION	DVM SWITCH POSITION	LIMITS	MEASUREMENT	
				PRIMARY	REDUNDANT
5.10.15.1	HPS voltage	S26-1, S27-1 (S27-3 for EDT)		<u>23.07V</u> (49)	<u>23.04V</u>
5.10.16.2	HPS current	S26-1, S27-2 (S27-4 for EDT)		<u>20.31mA</u> (50)	<u>20.92mA</u>
5.10.16.3	SMA Htr +output voltage	S26-2, S27-5		<u>21.64V</u> (17)	<u>21.81V</u>
5.10.16.4	SMA Htr +load current	S26-8, S34-1		<u>46.64mA</u> (32)	<u>47.03</u>
5.10.16.5	SMA Htr -output voltage	S26-2, S27-6		<u>-22.01V</u> (4)	<u>-22.23V</u>
5.10.16.6	SMA Htr -load current	S26-8, S34-2		<u>-8.690V</u> (79)	<u>-8.776V</u>
5.10.16.7	CDVU output voltage	S26-3, S27-3		<u>7.546V</u> (20)	<u>7.688V</u>
5.10.16.8	CDVU load current	S26-8, S34-10		<u>269.7mA</u> (45)	<u>274.8mA</u>
5.10.16.9	Parasitic output voltage	S26-3, S27-9 (S27-10)		<u>30.56V</u> (23)	<u>30.86V</u>
5.10.16.10	Parasitic load current	S26-8, S34-7		<u>142.41</u> (46)	<u>143.82</u>
5.10.16.11	Input power (5.10.16.1 x 5.10.16.2)			<u>46.855</u>	<u>48.223</u>
5.10.16.12	Output power (5.10.16.3 x 5.10.16.4) + (5.10.16.5 x 5.10.16.6) + (5.10.15.7 x 5.10.16.8) + (5.10.16.9 x 5.10.16.10)	(Primary) (Redundant) <u>N/A</u> <u>N/A</u>		<u>17.106</u>	<u>17.512</u>
5.10.16.13	Efficiency ((5.10.16.12) ÷ (5.10.16.11)) x 100%			<u>36.5%</u>	<u>36.3%</u>

SMA HTR+= 1.012
SMA HTR-= 1.191
CDVU= 4.87
PARASITIC= 10.826
INPUT POWER= 46.855
OUTPUT POWER= 17.106
EFFICIENCY= 36.5 %

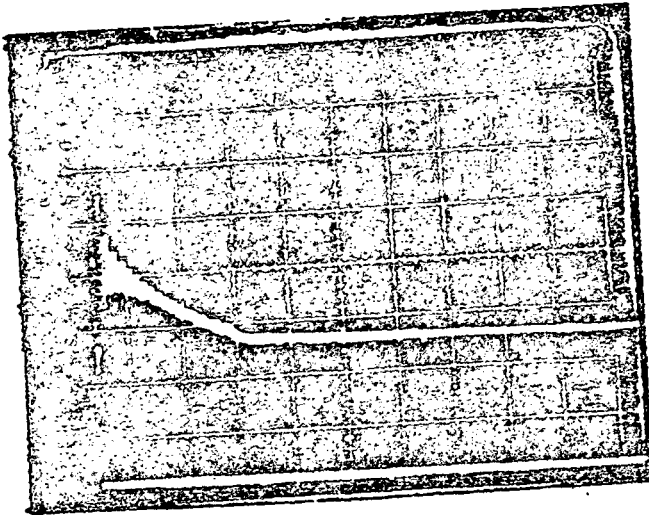
SMA HTR+= 1.251
SMA HTR-= 1.195
CDVU= 4.225
PARASITIC= 11.041
INPUT POWER= 48.223
OUTPUT POWER= 17.512
EFFICIENCY= 36.3 %

260

ORIGINAL PAGE IS
OF POOR QUALITY

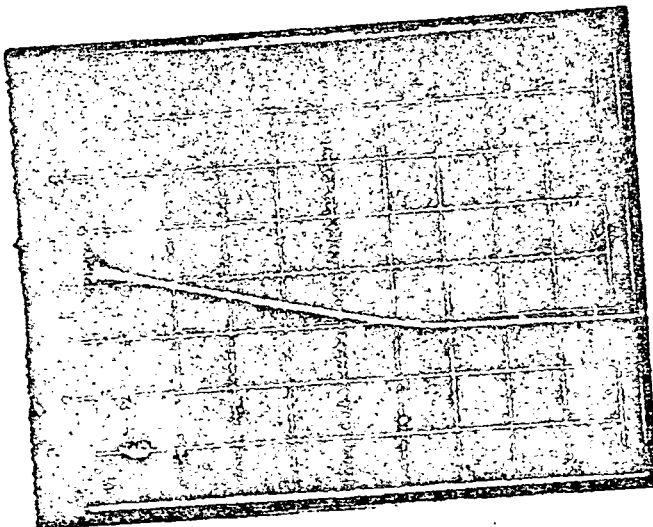
10.4 Performance test (continued)

5.10.17.1 Photograph of input bus current and input bus voltage
as is disable - PRIMARY SIDE



(5V) VOLTAGE/DIV: 5V
(2A) CURRENT/DIV: 2A
(1mS) SWEEP RATE: 1mS

5.10.17.1 Photograph of input bus current and input bus voltage
as is disabled - REDUNDANT SIDE



(5V) VOLTAGE/DIV: 5V
(2A) CURRENT/DIV: 2A
(1mS) SWEEP RATE: 1mSec.

261

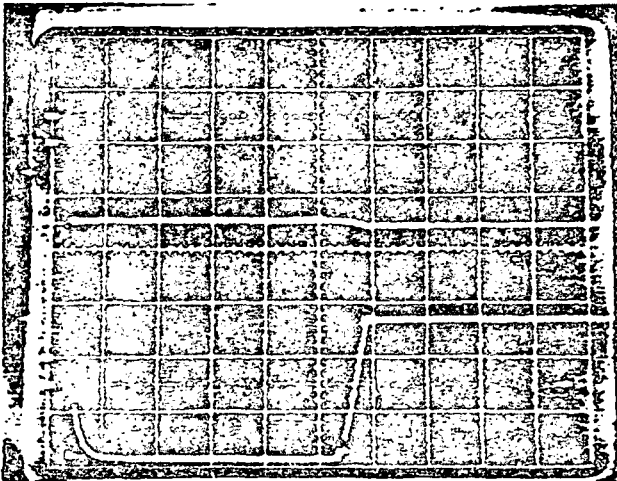
ORIGINAL PAGE IS
OF POOR QUALITY

10.4 Performance test (continued)

5.10.17.2 Unit stays off (check)

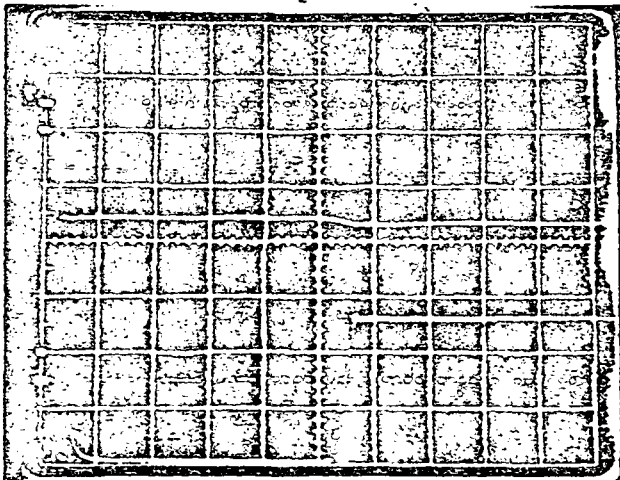
Primary Redundant

5.10.17.3 Photograph of input bus current and input bus voltage as is enabled - PRIMARY SIDE



(2V) VOLTAGE/DIV: 5V
(2A) CURRENT/DIV: 2A
(100ms) SWEEP RATE: 200ns

5.10.17.3 Photograph of input bus current and input bus voltage as is enabled - REDUNDANT SIDE



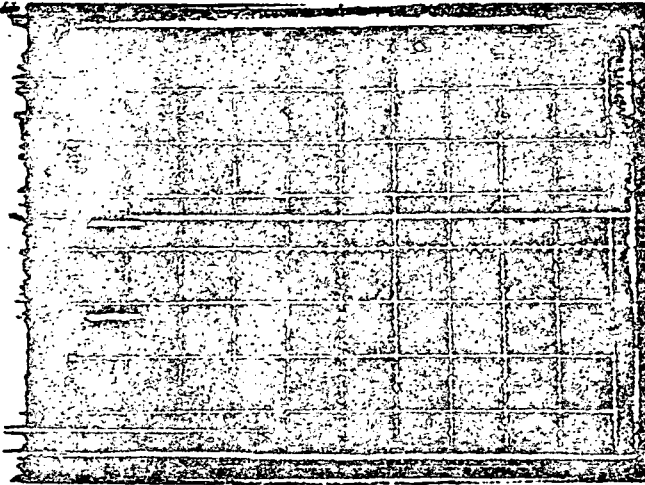
(2V) VOLTAGE/DIV: 5V
(2A) CURRENT/DIV: 2A
(100ms) SWEEP RATE: 200ns

202

ORIGINAL PAGE 10
OF POOR QUALITY

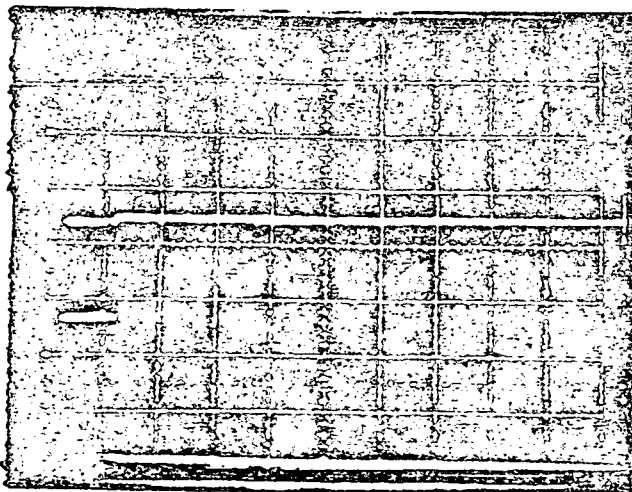
10.4 Performance test (continued)

5.10.17.4 Photograph of input bus current and input bus voltage
as is disabled - PRIMARY SIDE



(2V) VOLTAGE/DIV: 5V
(2A) CURRENT/DIV: 2A
(10ms) SWEEP RATE: 10ms

5.10.17.4 Photograph of input bus current and input bus voltage
as is disabled - REDUNDANT SIDE



(2V) VOLTAGE/DIV: 5V
(2A) CURRENT/DIV: 2A
(10ms) SWEEP RATE: 10ms

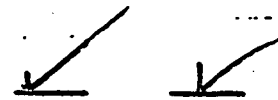
263

10.4 Performance test (continued)

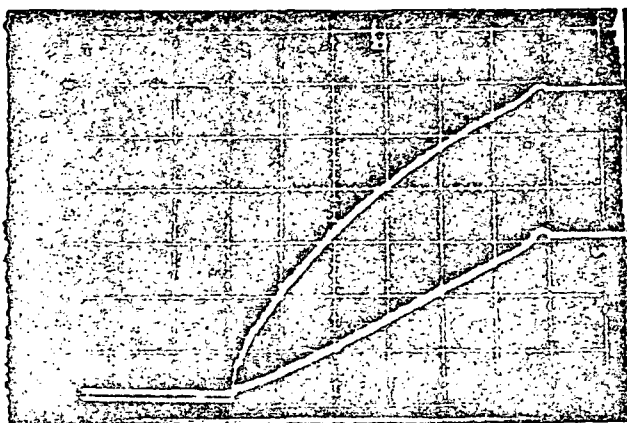
T. PARA.	DESCRIPTION	DVM SWITCH POSITIONS	LIMITS	MEASUREMENT	
				PRIMARY	REDUNDANT

5.10.17.5 Record that UUT operates correctly.

(checkmark)

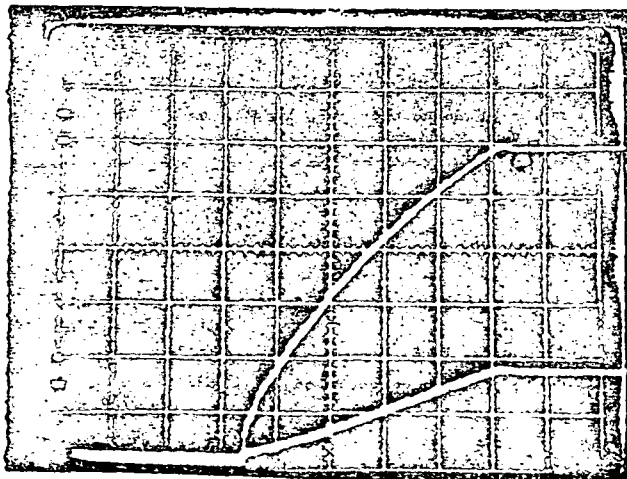


5.10.18.1 Photograph of input bus current and MUX output voltage as MUX enable command is issued (all loads are ON except outgas) - PRIMARY SIDE



(5V) VOLTAGE/DIV: 5V
(5A) CURRENT/DIV: 5A
(20ms) SWEEP RATE: 10ms

5.10.18.2 Photograph of input bus current and parasitic output voltage as parasitic enable command is issued (all loads are ON except outgas) - PRIMARY SIDE

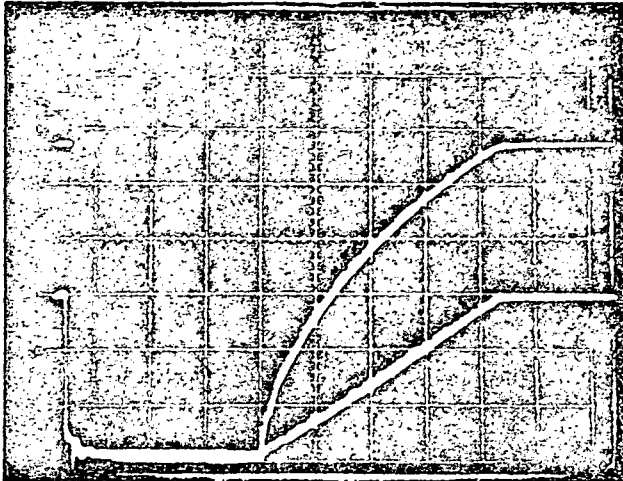


(5V) VOLTAGE/DIV: 5V
(5A) CURRENT/DIV: 5A
(20ms) SWEEP RATE: 10ms

264

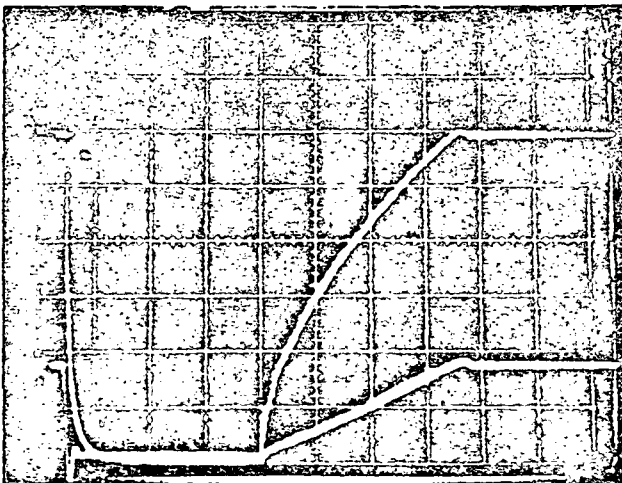
10.4 Performance test (continued)

.10.18.1 Photograph of input bus current and MUX output voltage as MUX enable command is issued (all loads are ON except outgas) - REDUNDANT SIDE



(5V) VOLTAGE/DIV: 5V
(5A) CURRENT/DIV: 5A
(20mS) SWEEP RATE: 10m Sec

.10.18.2 Photograph of input bus current and MUX output voltage as parasitic enable command is issued (all loads are ON except outgas) - REDUNDANT SIDE



(5v) Volts/Div: 5V
(5A) Current/Div: 5A
(20mS) Sweep Rate: 10m Sec

265

ORIGINAL PAGE IS
OF POOR QUALITY

TS 16603
Rev B

~~95-10000-1000~~
820-2 7-3-81

10.4 Performance test (continued)

REF. TARA	DESCRIPTION	SWITCH POSITIONS	LIMITS	MEASUREMENT	
				PRIMARY	REDUNDANT
5.10.18.4	Undervoltage Trip Point (ON/OFF)	S26-1, S27-1 (S27-3 for RDT)	18.0 ± 1.50V	18.016	18.042
5.10.18.5	UUT stays OFF			✓	✓
5.10.18.6	Undervoltage Trip Point (OFF/ON)	S26-1, S27-1 (S27-3 for RDT)	19.0 ± 1.50V	18.919	18.89
5.10.18.7	Overvoltage Trip Point	S26-1, S27-1 (S27-3 for RDT)	38.0 ± 2V	38.50 ✓	38.85 ✓ ^{SCM} ₂
5.10.18.8	UUT stays OFF			✓	✓
5.10.18.9	UUT turns ON			✓	✓

2/4/82

DATE

ELLARS PEARSON

TESTER(S)

103-

266

ORIGINAL PAGE IS
OF POOR QUALITY

TS 16603
Rev B
18 December 1980

10.4 Performance test - Long Form

PROTOFLIGHT N/A OR FLIGHT S/N 004 TEMPERATURE: AMB
 IN-PROCESS N/A QUAL N/A OR ACCEPTANCE
 TESTING PHASE FINAL AMBIENT LINE VOLTAGE: 28 VOLTS

REF. PARA.	DESCRIPTION	DVM SWITCH POSITIONS	LIMITS	MEASUREMENT	
				PRIMARY	REDUNDANT
5.10.1.1	Calibrate cmd gen	--	--	<u>0.228 mV</u>	<input checked="" type="checkbox"/>
5.10.2.1	Input bus current	S26-1, S27-2 (S27-4 for redundant)		<u>0.228 mV</u>	<u>0.228 mV</u>
5.10.2.2	MUX output voltage	S26-3, S27-1	30.0 ±0.90V	<u>29.67V</u>	<u>29.83 V</u>
5.10.2.3	MUX load current	S26-3, S27-12	3.55 ±0.40A	<u>31.94 mV</u>	<u>32.22 mV</u>

The rest of Section 5.10.2 requires only checking voltage - indicate by checkmarks.

5.10.2.4.1	B1 + output voltage	S26-1, S27-5		<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
5.10.2.4.2	B1 -	S27-6		<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
5.10.2.4.3	B1 -	S27-5		<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
5.10.2.4.4	B1 +	S27-7		<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
5.10.2.5.1	B2 +	S27-7		<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
5.10.2.5.2	B2 -	S27-8		<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
5.10.2.5.3	B2 -	S27-8		<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
5.10.2.5.4	B2 +	S27-7		<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
5.10.2.6.1	B3 +	S27-9		<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
5.10.2.6.2	B3 -	S27-10		<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
5.10.2.6.3	B3 -	S27-10		<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
5.10.2.6.4	B3 +	S27-9		<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
5.10.2.7.1	B4 +	S27-11		<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
5.10.2.7.2	B4 -	S27-12		<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
5.10.2.7.3	B4 -	S27-12		<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
5.10.2.7.4	B4 +	S26-1, S27-11		<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
5.10.2.8.1	B5,7+	S26-2, S27-1		<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
5.10.2.8.2	B5,7-	S27-2		<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
5.10.2.8.3	B5,7-	S27-2		<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
5.10.2.8.4	B5,7+	S27-1		<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
5.10.2.9.1	B6 +	S27-3		<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
5.10.2.9.2	B6 - output voltage	S26-2, S27-4		<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>

267

Rev B
 10-000000-000
 SCW-1 1/22/81

ORIGINAL PAGE IS
 OF POOR QUALITY

10.4 Performance test (continued)

REF. PARA.	DESCRIPTION	DVM SWITCH POSITIONS	LIMITS	MEASUREMENT	
				PRIMARY	REDUNDANT
5.10.2.9.3	B6 - output voltage	S26-2, S27-4		✓	✓
5.10.2.9.4	B6 + output voltage	S26-2, S27-3		✓	✓
5.10.2.10.1	SMA EIR + output voltage	S27-5		✓	✓
5.10.2.10.2	-	S27-6		✓	✓
5.10.2.10.3	-	S27-6		✓	✓
5.10.2.10.-	-	S27-5		✓	✓
5.10.2.11.1	-7V	S26-2, S27-7		✓	✓
5.10.2.11.2	-7V	(S27-8 for RDT)		✓	✓
5.10.2.12.1	-29V	S26-2, S27-9		✓	✓
		(S27-11 for RDT)		✓	✓
5.10.2.12.2	-29V	S26-2, S27-10		✓	✓
		(S27-12 for RDT)		✓	✓
5.10.2.12.3	-29V	S26-2, S27-10		✓	✓
5.10.2.12.4	SMA EIR -29V	S26-2, S27-9		✓	✓
5.10.2.13.1	Radiometer	S26-3, S27-2		✓	✓
5.10.2.13.2	Radiometer	S27-2		✓	✓
5.10.2.14.1	DVM	S27-3		✓	✓
5.10.2.14.2	DVM	S27-3		✓	✓
5.10.2.15.1	Analog +	S27-4		✓	✓
5.10.2.15.2	Analog -	S27-5		✓	✓
5.10.2.15.3	Analog -	S27-5		✓	✓
5.10.2.15.4	Analog +	S27-4		✓	✓
5.10.2.16.1	Electromech.	S27-6		✓	✓
5.10.2.16.2	Electromech.	S27-6		✓	✓
5.10.2.17.1	Outgas output voltage	S26-3, S27-7		✓	✓
5.10.3.1	Bus voltage	S26-1, S27-1 (S27-3 for RDT)		28.0V	28.01V
5.10.3.2	MUX load current	S26-3, S27-12	4.130 ± 0.025A	41.31V	41.42V
5.10.3.3	Bus current	S26-1, S27-2 (S27-4 for RDT)		131.08V	131.73V
5.10.3.3.1	BPS Voltage	S26-1, S27-1 S27-3)		28.00V	28.01V
5.10.3.3.3	BPS Current	S26-1, S27-2 (S27-4)		130.99V	131.69V
5.10.3.3.4	MUX Current	S26-3, S27-12		41.29V	41.41V

26B

SCW-1

10.4 Performance test (continued)

REF. PARA.	DESCRIPTION	DVM SWITCH POSITIONS	LIMITS	MEASUREMENT	
				PRIMARY	REDUNDANT
5.10.3.4.1	B1 + output voltage	S26-1, S27-5	20.50 \pm 2.50V	20.58 V (1)	20.71 V
5.10.3.4.2	B1 + output ripple	Look on Scope	<600 mV pk-pk	30 mV	25 mV
5.10.3.4.3	B1 - output voltage	S26-1, S27-6	-20.50 \pm 2.50V	-20.99 V (2)	-20.73 V
5.10.3.4.4	B1 - output ripple	Look on Scope	<600 mV pk-pk	30 mV	25 mV
5.10.3.5.1	B2 + output voltage	S26-1, S27-7	20.50 \pm 2.50V	20.93 V (3)	20.57 V
5.10.3.5.2	B2 + output ripple	Look on Scope	<600 mV pk-pk	25 mV	15 mV
5.10.3.5.3	B2 - output voltage	S26-1, S27-8	-20.50 \pm 2.50V	-20.96 V (4)	-20.59 V
5.10.3.5.4	B2 - output ripple	Seen on Scope	<600 mV pk-pk	25 mV	20 mV
5.10.3.6.1	B3 + output voltage	S26-1, S27-9	20.50 \pm 2.50V	20.51 V (5)	20.51 V
5.10.3.6.2	B3 + output ripple	Seen on Scope	<600 mV pk-pk	30 mV	20 mV
5.10.3.6.3	B3 - output voltage	S26-1, S27-10	-20.50 \pm 2.50V	-20.45 V (6)	-20.60 V
5.10.3.6.4	B3 - output ripple	Seen on Scope	<600 mV pk-pk	25 mV	20 mV
5.10.3.7.1	B4 + output voltage	S26-1, S27-11	20.50 \pm 2.50V	20.55 V (7)	20.71 V
5.10.3.7.2	B4 + output ripple	Seen on Scope	<600 mV pk-pk	25 mV	15 mV
5.10.3.7.3	B4 - output voltage	S26-1, S27-12	-20.50 \pm 2.50V	-20.57 V (8)	-20.73 V
5.10.3.7.4	B4 - output ripple	Seen on Scope	<600 mV pk-pk	25 mV	20 mV
5.10.3.8.1	B5,7 + voltage	S26-2, S27-1	20.50 \pm 2.50V	20.27 V (9)	20.20 V
5.10.3.8.2	B5,7 + ripple	Seen on Scope	<600 mV pk-pk	30 mV	35 mV
5.10.3.8.3	B5,7 - voltage	S26-3, S27-2	-20.50 \pm 2.50V	-20.26 V (10)	-20.23 V
5.10.3.8.4	B5,7 - ripple	Seen on Scope	<600 mV pk-pk	35 mV	40 mV
5.10.3.9.1	B6 + voltage	S26-2, S27-3	20.50 \pm 2.50V	20.48 V (11)	20.55 V
5.10.3.9.2	B6 + ripple	Seen on Scope	<600 mV pk-pk	25 mV	15 mV
5.10.3.9.3	B6 - voltage	S26-2, S27-4	-20.50 \pm 2.50V	-20.96 V (12)	-20.58 V
5.10.3.9.4	B6 - ripple	Seen on Scope	<600 mV pk-pk	30 mV	15 mV
5.10.3.10.1	SMA Htr + voltage	S26-2, S27-5	21.20 \pm 2.12V	22.32 V (13)	22.48 V
5.10.3.10.2	SMA Htr + ripple	Seen on Scope	<630 mV pk-pk	30 mV	15 mV
5.10.3.10.3	SMA Htr - voltage	S26-2, S27-6	-21.20 \pm 2.12V	-22.79 V (14)	-22.94 V
5.10.3.10.4	SMA Htr - ripple	Seen on Scope	<630 mV pk-pk	30 mV	20 mV
5.10.3.11.1	SMA +7V voltage	S26-2, S27-7 (S27-8 for RDT)	7.10 \pm 0.80V	7.716 V (15)	7.808 V
5.10.3.11.2	SMA +7V output ripple	Seen on Scope	<210 mV pk-pk	40 mV	35 mV

269

ORIGINAL PAGE IS
 OF POOR QUALITY

10.6 Performance test (continued)

REF. PARA.	DESCRIPTION	DVM SWITCH POSITIONS	LIMITS	MEASUREMENT	
				PRIMARY	REDUNDANT
5.10.3.12.1	SMA +29V output voltage	S26-2, S27-9 (S27-11 for RDT)	29.50 ±1.50V	<u>30.44V</u> (16)	<u>30.68V</u>
5.10.3.12.2	SMA +29V ripple	Seen on Scope	<870 mV, pk-pk	<u>50 mV</u>	<u>50 mV</u>
5.10.3.12.3	SMA -29V voltage	S26-2, S27-10 (S27-12 for RDT)	-29.50 ±1.50V	<u>-30.47</u> (17)	<u>-30.69 V.</u>
5.10.3.12.4	SMA -29V ripple	Seen on Scope	<870 mV pk-pk	<u>50 mV</u>	<u>40 mV.</u>
5.10.3.13.1	BOX voltage	S26-3, S27-1	30.00 ±0.90V	<u>30.24V</u> (18)	<u>30.64 V.</u>
5.10.3.13.2	BOX ripple	Seen on Scope	<900 mV, pk-pk	<u>50 mV</u>	<u>60 mV</u>
5.10.3.14.1	Radiometer voltage	S26-3, S27-2	8.50 ±0.85V	<u>8.581 V</u> (19)	<u>8.557 V.</u>
5.10.3.14.2	Radiometer ripple	Seen on Scope	<250 mV pk-pk	<u>30 mV</u>	<u>30 mV.</u>
5.10.3.15.1	CDVU voltage	S26-3, S27-3	8.00 ±0.80V	<u>7.577 V</u> (20)	<u>7.718 V.</u>
5.10.3.15.2	CDVU ripple	Seen on Scope	<240 mV pk-pk	<u>25 mV</u>	<u>25 mV.</u>
5.10.3.16.1	Analog + voltage	S26-3, S27-4	21.20 ±2.12V	<u>22.45 V</u> (21)	<u>22.53 V.</u>
5.10.3.16.2	Analog + ripple	Seen on Scope	<630 mV pk-pk	<u>30 mV</u>	<u>30 mV.</u>
5.10.3.16.3	Analog - voltage	S26-3, S27-5	-21.20 ±2.12V	<u>-22.51 V</u> (22)	<u>-22.59 V.</u>
5.10.3.16.4	Analog - ripple	Seen on Scope	<630 mV pk-pk	<u>30 mV</u>	<u>25 mV.</u>
5.10.3.17.1	Electromech. voltage	S26-3, S27-6	33.40 ±3.34V	<u>33.13 V</u> (23)	<u>33.40 V.</u>
5.10.3.17.2	Electromech. ripple	Seen on Scope	<1.0V pk-pk	<u>40 mV</u>	<u>50 mV.</u>
5.10.3.18.1	Outgas voltage	S26-3, S27-7	100.0 ±12.0V	<u>104.53 V</u>	<u>103.01 V.</u>
5.10.3.18.2	Outgas output ripple	Seen on Scope	<1.0V pk-pk	<u>150 mV</u>	<u>150 mV.</u>
5.10.4.1	Input current telemetry	S26-4, S28-2 (S28-4 for RDT)		<u>3.806 V</u>	<u>3.826 V.</u>
5.10.4.2.1	Band 1 + volt. telemetry	S26-4, S28-5		<u>3.760</u>	<u>3.795</u>
5.10.4.2.2	Band 1 -	S28-6		<u>3.750</u>	<u>3.775</u>
5.10.4.3.1	Band 2+	S28-7		<u>3.719</u>	<u>3.757</u>
5.10.4.3.2	Band 2-	S28-8		<u>3.709</u>	<u>3.732</u>
5.10.4.4.1	Band 3+	S28-9		<u>3.733</u>	<u>3.738</u>
5.10.4.4.2	Band 3-	S28-10		<u>3.732</u>	<u>3.758</u>
5.10.4.5.1	Band 4+	S28-11		<u>3.734</u>	<u>3.769</u>
5.10.4.5.2	Band 4-	S26-4, S28-12		<u>3.744</u>	<u>3.774</u>
5.10.4.6.1	Band 5,7+	S26-5, S28-1		<u>3.700</u>	<u>3.708</u>
5.10.4.6.2	Band 5,7- volt. telemetry	S26-5, S28-2		<u>3.695</u>	<u>3.688</u>

2.70

ORIGINAL PAGE IS
OF POOR QUALITY

TS 16603
Rev B
18 December 1980

10.4 Performance test (continued)

REF. PARA.	DESCRIPTION	DVM SWITCH POSITIONS	LIMITS	MEASUREMENT	
				PRIMARY	REDUNDANT
5.10.4.7.1	Band 6 + volt. telemetry	S26-5, S28-3		3.701 V	3.726 V
5.10.4.7.2	Band 6 -	S28-4		3.737	3.760
5.10.4.8.1	SMA Htr +	S28-5		4.077	4.112
5.10.4.8.2	SMA Htr -	S28-6		4.132	4.158
5.10.4.9	SMA +7V	S26-5, S27-7 (S27-8 for RDT)		4.919	4.999
5.10.4.10.1	SMA +29V	S26-5, S28-9 (S27-11 for RDT)		4.180	4.235
5.10.4.10.2	SMA -29V	S26-5, S28-10 (S27-12 for RDT)		3.781	3.857
5.10.4.11	MUX	S26-6, S28-1		4.306	4.303
5.10.4.12	Radiometer	S26-6, S28-2		4.709	4.700
5.10.4.13	CDVU	S26-6, S28-3		4.259	4.334
5.10.4.14.1	Analog + volt. telemetry	S26-6, S28-4		4.024	4.031
5.10.4.14.2	Analog -	S26-5, S28-5		3.947	3.962
5.10.4.15	Electrodech.	S28-6		4.069	4.103
5.10.4.16	Outgas volt. telemetry	S26-6, S28-7		5.230 V	5.154 V
5.10.5.1.1	Analog + load current	S26-3, S27-11 mV ÷ 10 = Amps	15.604	15.617 V	15.617 V
5.10.5.1.2	MUX	S26-3, S27-12 mV ÷ 10 = Amps	4.229	4.42 V	4.42 V
5.10.5.1.3	Band 1 +	S26-7, S34-1 mV ÷ 0.5 = mA	91.58	92.17 mV	92.17 mV
5.10.5.1.4	Band 1 -	S34-2	-91.75	(27) -92.39	-92.39
5.10.5.1.5	2 +	S34-3	90.65	(28) 4.334	4.334
5.10.5.1.6	2 -	S34-4	-91.49	(29) -92.12	-92.12
5.10.5.1.7	3 +	S34-5	91.90	(30) 91.44	91.44
5.10.5.1.8	3 -	S34-6	-91.21	(31) -91.83	-91.83
5.10.5.1.9	4 +	S34-7	91.43	(32) 92.21	92.21
5.10.5.1.10	4 -	S34-8	-91.11	(33) -91.82	-91.82
5.10.5.1.11	5,7 +	S34-9	91.19	(34) 90.97	90.97
5.10.5.1.12	5,7 -	S34-10	-90.36	(35) -90.22	-90.22
5.10.5.1.13	6 +	S34-11	47.57	(36) 47.91	47.91
5.10.5.1.14	Band 6 -	S26-7, S34-12	-47.40	(37) -47.70	-47.70
5.10.5.1.15	SMA Htr +	S26-8, S34-1 mV ÷ 0.5 = mA	48.12	(38) 48.43	48.43
5.10.5.1.16	SMA Htr - load current	S26-8, S34-2 mV = mA	-9.005	(39) -9.061	-9.061

ORIGINAL PAGE IS
OF POOR QUALITY

TS 16603
Rev B

~~ECN-2 7-6-81~~
SCU-2 4/3/81

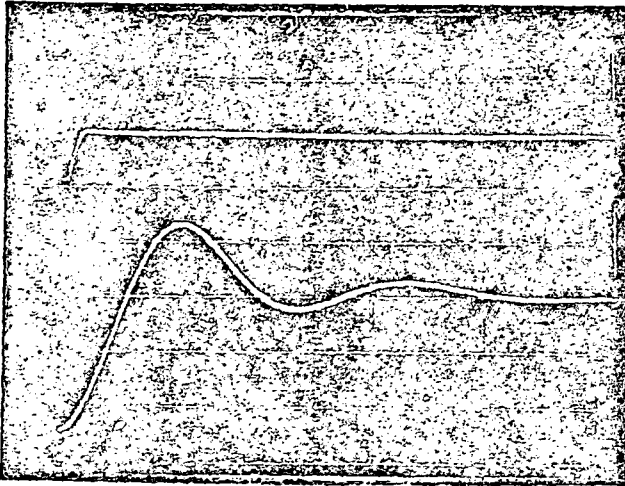
10.4 Performance test (continued)

REF. PARA.	DESCRIPTION	DVM SWITCH POSITIONS	LIMITS	MEASUREMENT	
				PRIMARY	REDUNDANT
5.10.5.1.17	SMA +29V load current	S26-8, S34-3	mV ÷ 0.402 = mA	50.97 mV (40)	51.32 mV
5.10.5.1.18	SMA -29V	S34-4	mV ÷ 0.402 = mA	-50.73 mV (41)	-51.10 mV
5.10.5.1.19	SMA +7V	S34-5	V ÷ 0.1 = Amps	2.799 V (42)	2.844 V
5.10.5.1.20	Analog -	S34-6	mV ÷ 0.402 = mA	-2.700 V (43)	-2.710 V
5.10.5.1.21	Radiometer	S34-9	mV ÷ 0.5 = mA	153.66 mV (44)	153.35 mV
5.10.5.1.22	CDVD	S34-10	mV ÷ 0.5 = mA	2.710 V (45)	2.760 V
5.10.5.1.23	Electromech. load current	S26-8, S34-11	mV ÷ 0.402 = mA	2.109 V (46)	2.127 V
5.10.5.2.1	Bus power supply voltage	S26-1, S27-1 (S27-3 for RDT)		28.00 V (47)	28.01 V
5.10.5.2.2	Bus input current	S26-1, S27-2 (S27-4 for RDT)	mV ÷ 10 = Amps	131.27 mV (48)	131.97 mV
5.10.5.2.3	P _{IN} (Section 5.10.5)			367.556	369.697
5.10.5.2.4	P _{IN} (Section 5.10.3)			367.024	368.975
5.10.5.2.5	P _{IN} (avg)			367.29	369.312
5.10.5.2.9	Input current at current limit		26-1, 27-2 (26-1 27-4 Rdt) -	159.8 mV	172.0 mV
	Input voltage at current limit		27-1 (27-3 Rdt)	27.72 V	27.61 V
	MUX voltage at current limit		26-3, 27-1	30.28 V	30.46 V
	MUX current at current limit		27-12	54.07 mV	50.38 mV
5.10.5.3.1	P _{OUT}			271.545	274.579
5.10.5.3.2	Efficiency		> 70%	74.83	74.84

INPUT POWER #1 = 367.556
 INPUT POWER #1 = 367.556
 AVE INPUT POWER = 367.29
 OUTPUT POWER = 271.545
 EFFICIENCY = 74.83
 INPUT POWER #2 = 369.697
 INPUT POWER #2 = 369.697
 AVE INPUT POWER = 369.312
 OUTPUT POWER = 274.579
 EFFICIENCY = 74.84

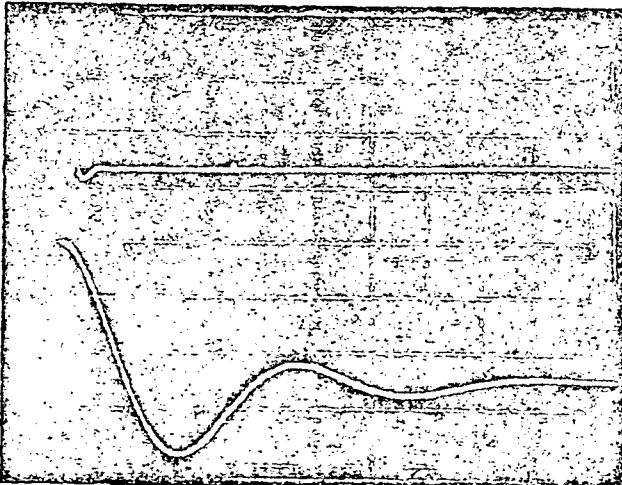
10.4 Performance test (continued)

REF. PARA.	DESCRIPTION	DVM SWITCH POSITIONS	LIMITS	MEASUREMENT	
				PRIMARY	REDUNDANT
5.10.6.1	+7V output pulsed	S26-2, S27-7 (S27-8 for RDT)	7.10 \pm 0.80V	2.036 V	2.185 V
5.10.6.2	Photograph of transients induced on input bus current and SMA +7V output voltage as SMA +7V output is being pulse-loaded-PRIMARY SIDE				



(0.2A) CURRENT/DIV: 0.2 A/div A.C.
(1V) VOLTAGE/DIV: 1V/div
(200 μ s) SWEEP RATE: 500 μ sec.

5.10.6.2 Photograph of transients induced on input bus current and SMA +7V output voltage as pulse-load on SMA +7V outputs is being removed - PRIMARY SIDE



(0.2A) CURRENT/DIV: 0.2 A. A.C.
(1V) VOLTAGE/DIV: 1V
(200 μ s) SWEEP RATE: 500 μ sec.

273

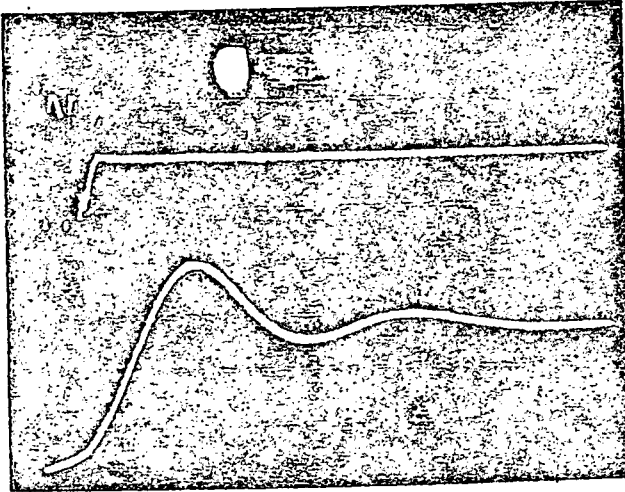
ORIGINAL PAGE IS
OF POOR QUALITY

TS 16603
Rev B
18 December 1980

10.4 Performance test (continued)

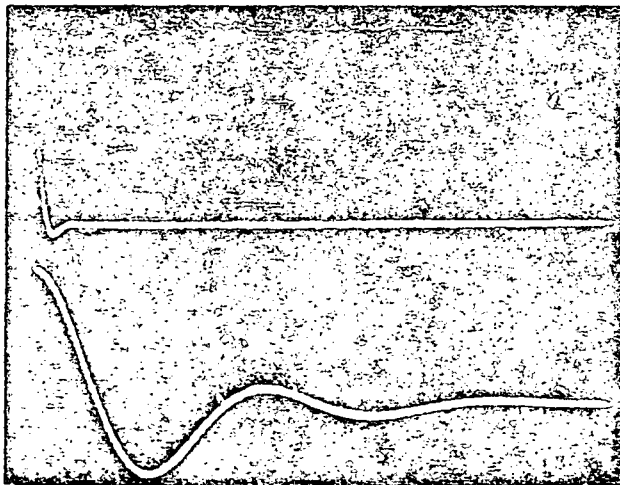
REF. PARA. DESCRIPTION

5.10.6.2 Photograph of transients induced on input bus current and SMA +7V output voltage as SMA +7V output is being pulse-loaded-REDUNDANT SIDE



(0.2A) CURRENT/DIV: .2A. A.C.
(1V) VOLTAGE/DIV: 1V
(200 μ S) SWEEP RATE: 500 μ SEC.

5.10.6.2 Photograph of transients induced on input bus current and SMA +7V output voltage as pulse-load is being removed-REDUNDANT SIDE



(0.2A) CURRENT/DIV: .2A A.C.
(1V) VOLTAGE/DIV: 1V
(200 μ S) SWEEP RATE: 500 μ SEC.

Q7A

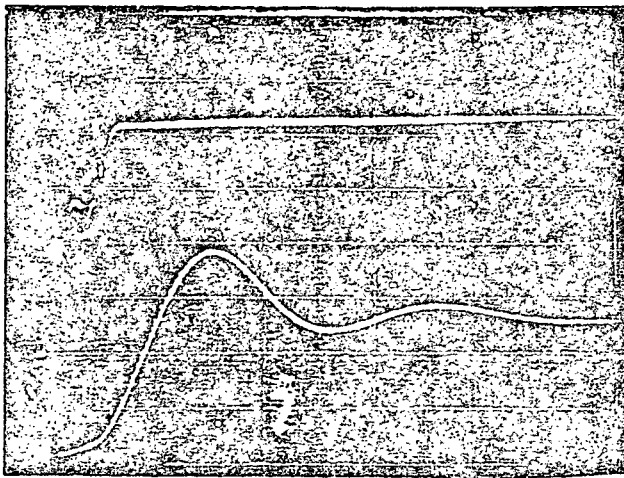
273A

ORIGINAL PAGE IS
OF POOR QUALITY

TS 16603
Rev B
~~28 December 1980~~
Sheet 2 of 81

10.4 Performance test (continued)

REF. PARA.	DESCRIPTION	DVM SWITCH POSITIONS	LIMITS	MEASUREMENT	
				PRIMARY	REDUNDANT
5.10.6.3	Input bus current	S26-1, S27-2 (S27-4 for RDT)		137.26 mV	141.42 mV
5.10.6.4	SMA +7V TM- pulsed	S26-5, S28-7 (S28-8 for RDT)		4.572 V	4707 V
5.10.6.5	SMA +7V load current-pulsed	(S26-8, S34-5)		466 mV	475 mV
5.10.6.6	Photograph of transients induced on input bus current and SMA +7V load current as SMA +7V output is being pulse-loaded-PRIMARY SIDE				

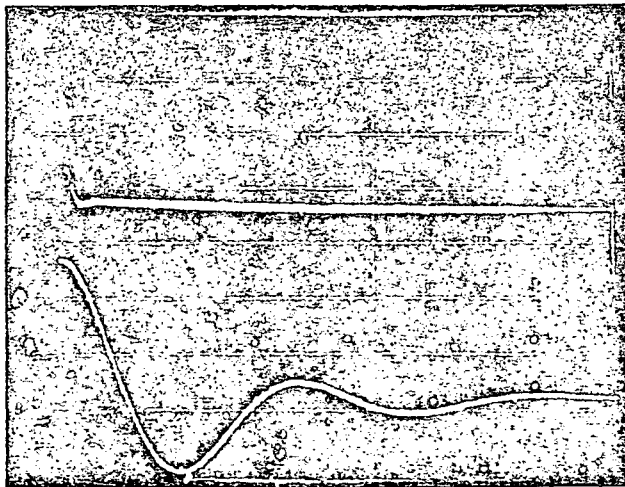


(1A)* SMA CURRENT/DIV: 0.1 V
(1A) BUS CURRENT/DIV: 2.00 mA
(200uS) SWEEP RATE: 500 μsec

* Using 0.1 Ω shunt and 100 mV/Div on scope

SMA Current

5.10.6.6 Photograph of transients induced on input bus current and SMA +7V load current as pulse-load is being removed-PRIMARY SIDE



(1A)* SMA CURRENT/DIV: 0.1 V
(1A) BUS CURRENT/DIV: 2.00 mA
(200uS) SWEEP RATE: 500 μsec

*Using 0.1 Ω shunt and 100mV/Div on Scope

SMA Current

274

E-4

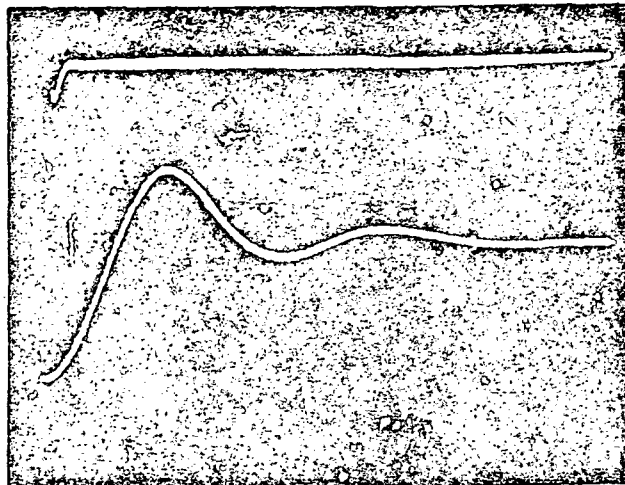
ORIGINAL PAGE IS
OF POOR QUALITY

ORIGINAL PAGE IS
OF POOR QUALITY

TS 16603
Rev B
~~10 December 1980~~
EEN-2 7-6-81

10.4 Performance test (continued)

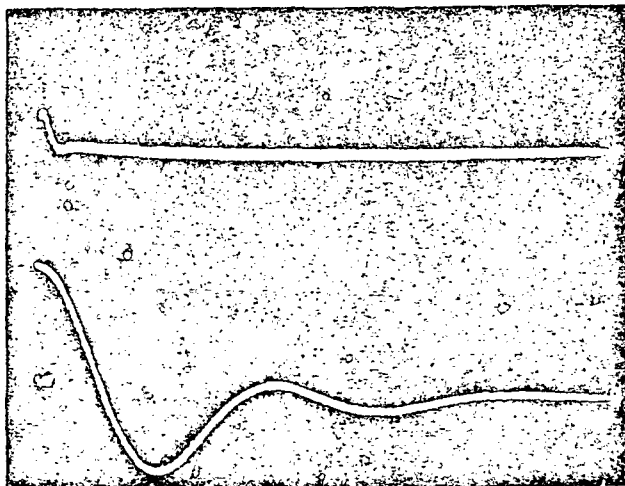
REF. PARA.	DESCRIPTION
5.10.6.6	Photograph of transients induced on input bus current and SMA + 7V load current as SMA + 7V output is being pulse loaded - REDUNDANT SIDE



(1A)* SMA CURRENT/DIV: 0.1 V
(2A) BUS CURRENT/DIV: 0.2 A
(200uS) SWEEP RATE: 500u sec.

*Using 0.1 Ω shunt and
100 mV/Div on scope.

5.10.6.6 Photograph of transients induced on input bus current and SMA + 7V load current as pulse-load is removed - REDUNDANT SIDE



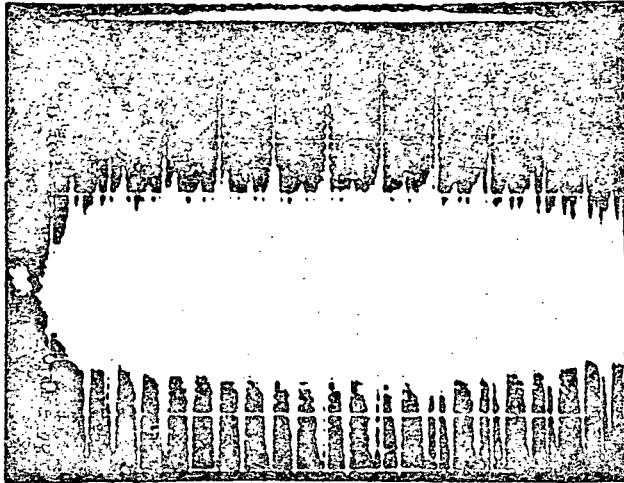
(1A)* SMA CURRENT/DIV: 0.1 V
(2A) BUS CURRENT/DIV: 0.2 A
(200uS) SWEEP RATE: 500u sec.

*Using 0.1 Ω shunt and
100mV/Div on scope.

275

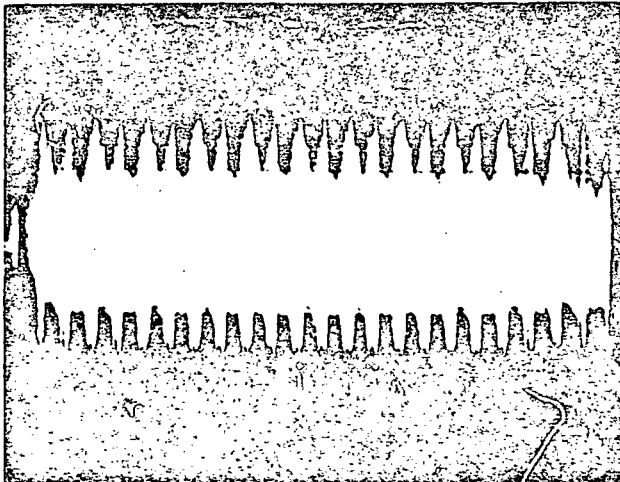
10.4 Performance test (continued)

REF. PARA.	DESCRIPTION
5.10.7.1	Photograph of reflected input current ripple - PRIMARY SIDE



(1mA) CURRENT/DIV: 2mA A.C.
(10uS) SWEEP RATE: 10uS/SEC.

5.10.7.1 Photograph of reflected input current ripple - REDUNDANT SIDE



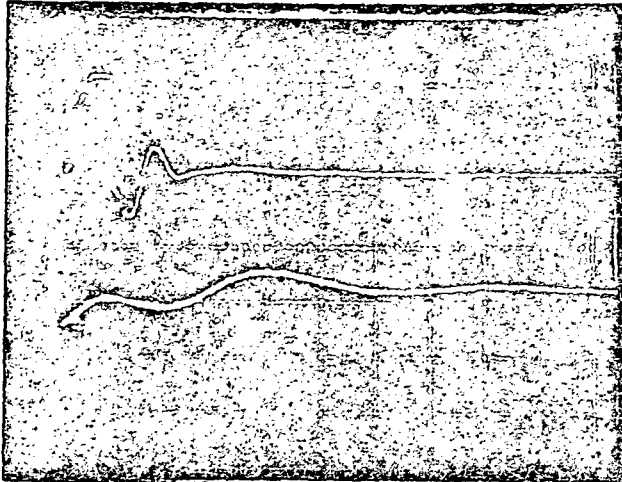
(1mA) CURRENT/DIV: 2mA A.C.
(10uS) SWEEP RATE: 10uS/SEC.

..1 Input current - full load S26-1, S27-4
(S27-4 for RDT)

131.68 mA, 135.81 mV
104.05 mV, 108.81 mV

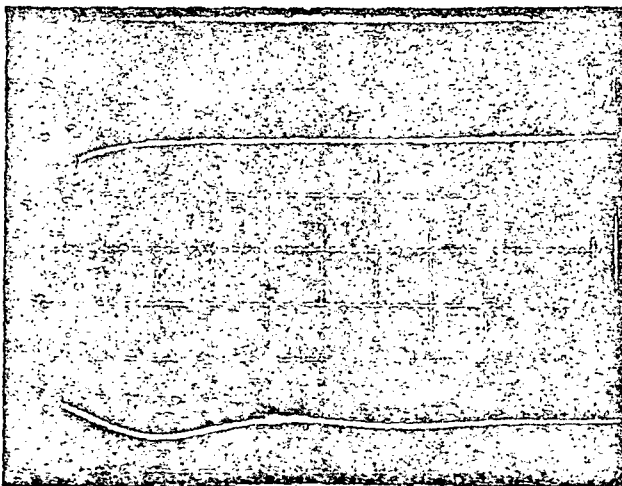
8.1.2 Input current w/o analog load Same

10.8.1.3 Photograph of transients induced on input bus current and analog + voltage as analog output is enabled - PRIMARY SIDE



(2V) VOLTAGE/DIV: 2 V
(1A) CURRENT/DIV: 2 Amp.
(500uS) SWEEP RATE: 500 μ sec.

5.10.8.1.3 Photograph of transients induced on input bus current and analog + voltage as analog output is disabled - PRIMARY SIDE



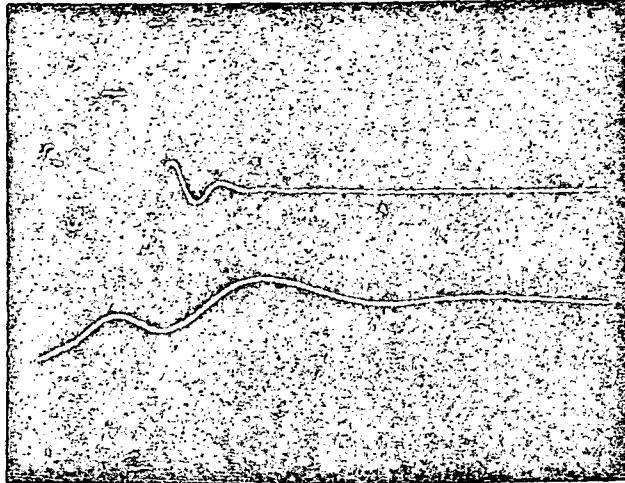
(5V) VOLTAGE/DIV: 2 V
(1A) CURRENT/DIV: 2 Amp.
(1mS) SWEEP RATE: 500 μ sec.

ORIGINAL PAGE IS
OF POOR QUALITY

277

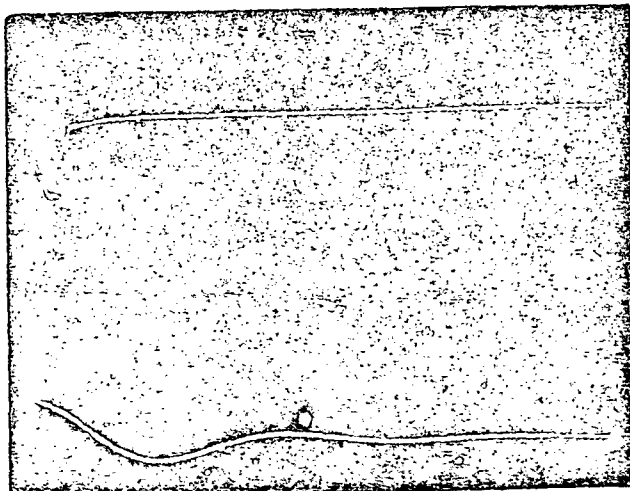
30.4 Performance test (continued)

REF. PARA.	DESCRIPTION
5.10.8.1.3	Photograph of transients induced on input bus current and analog + output voltage as analog output is enabled - REDUNDANT SIDE.



(2V) VOLTAGE/DIV: 2V
(1A) CURRENT/DIV: 2A
(500ns) SWEEP RATE: 500

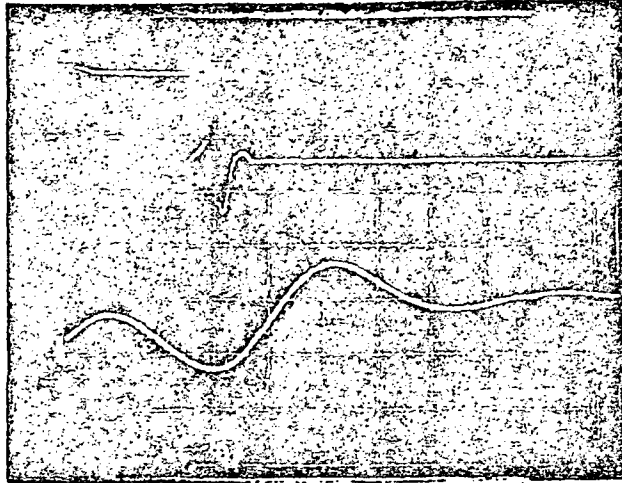
5.10.8.1.3	Photograph of transients induced on input bus current and analog - output voltage as analog output is disabled - REDUNDANT SIDE.
------------	--



(3V) VOLTAGE/DIV: 2V
(1A) CURRENT/DIV: 2A
(1ms) SWEEP RATE: 500,440

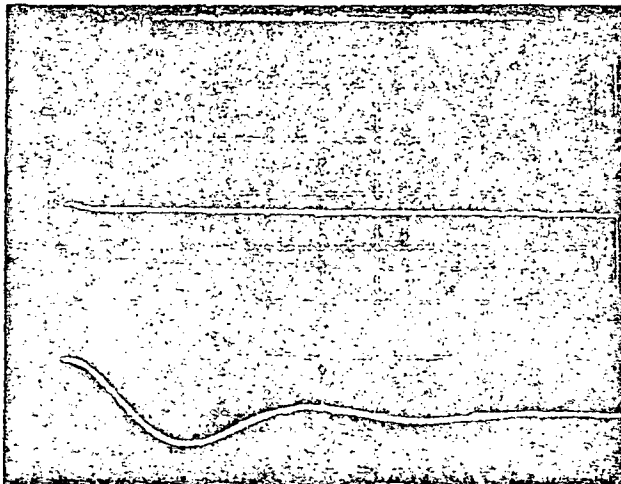
10.4 Performance test (continued)

EF. PARA.	DESCRIPTION	DVM SWITCH POSITIONS	LIMITS	MEASUREMENT	
				PRIMARY	REDUNDANT
4.10.8.2.1	Input bus current w/o SMA +7V load	S26-1, S27-2 (S27-4 for RDT)		120.27 V	124.20 V
5.10.8.2.2	Photograph of transients induced on input bus current and SMA +7V output voltage as SMA +7V is enabled - PRIMARY SIDE.				



(5V) VOLTAGE/DIV: 2V
 (1A) CURRENT/DIV: 1 Amp.
 (200us) SWEEP RATE: 500 μsec.

5.10.8.2.2 Photograph of transients induced on input bus current and SMA +7V output voltage as SMA +7V is disabled - PRIMARY SIDE.

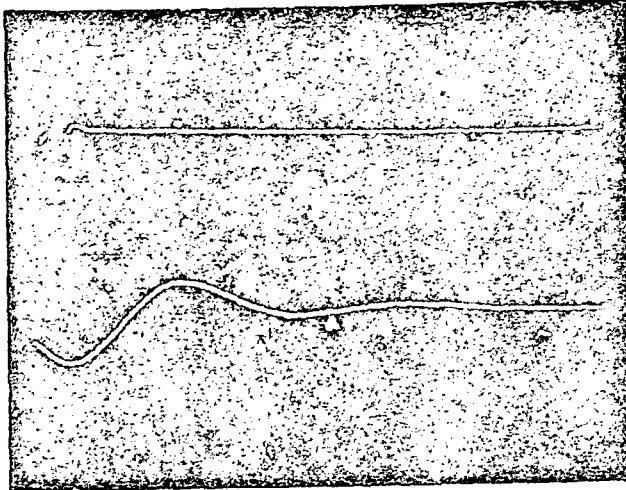


(2V) VOLTAGE/DIV: 2V
 (1A) CURRENT/DIV: 1 Amp.
 (2ms) SWEEP RATE: 500 μsec.

279

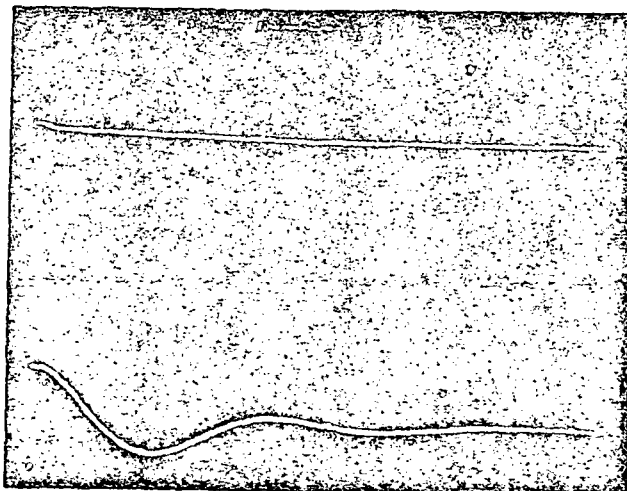
10.4 Performance test (continued)

REF. PARA.	DESCRIPTION
10.8.2.2	Photograph of transients induced on input bus current and SMA +7 output voltage as SMA +7V is enabled - REDUNDANT SIDE



(5V) VOLTAGE/DIV: 2V
(1A) CURRENT/DIV: 1Amp
(200us) SWEEP RATE: 500 μ sec

5.10.8.2.2	Photograph of transients induced on input bus current and SMA +7V output voltage as SMA +7V is disabled - REDUNDANT SIDE
------------	--

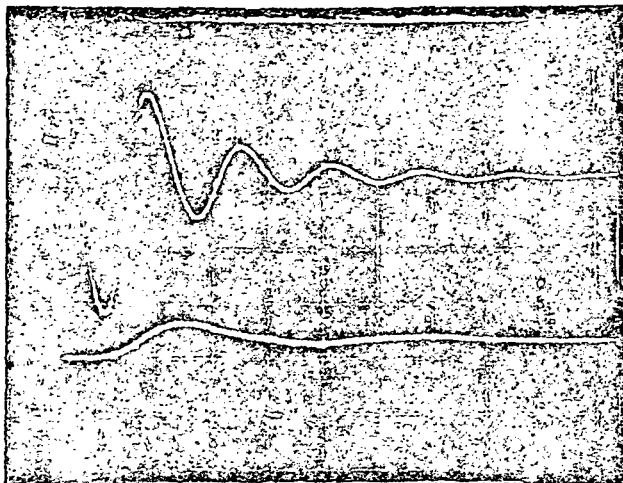


V) VOLTAGE/DIV: 2V
A) CURRENT/DIV: 1Amp
ms) SWEEP RATE: 500 μ sec

280

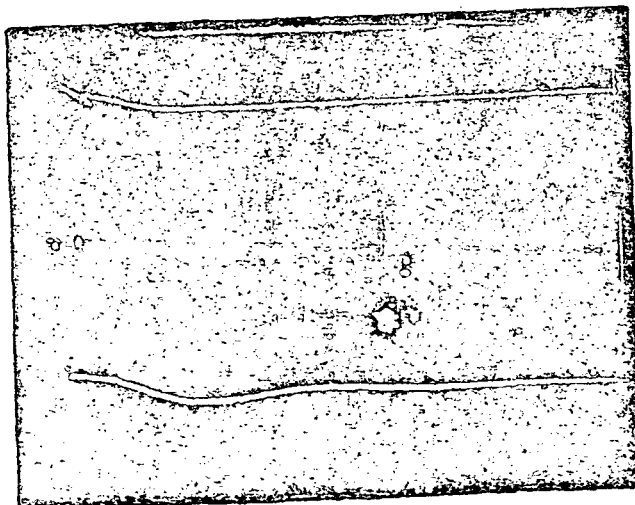
10.4 Performance test (continued)

EF. PARA.	DESCRIPTION	DWM SWITCH POSITIONS	LIMITS	MEASUREMENT	
				PRIMARY	REDUNDAN
5.10.8.2.3	Input bus current w/o SMA +29V load	S26-1, S27-2 (S27-4 for RDT)		127.70 nV	132.07 nV
5.10.8.2.4	Photograph of transients induced on input bus current and SMA +29V output voltage as SMA +29V is enabled - PRIMARY SIDE				



(2V) VOLTAGE/DIV: 1V.
(0.5V) CURRENT/DIV: 0.5 Amps
(1mS) SWEEP RATE: 500 μsec.

5.10.8.2.4 Photograph of transients induced on input bus current and SMA +29V output
voltage as SMA +29V is disabled - PRIMARY SIDE

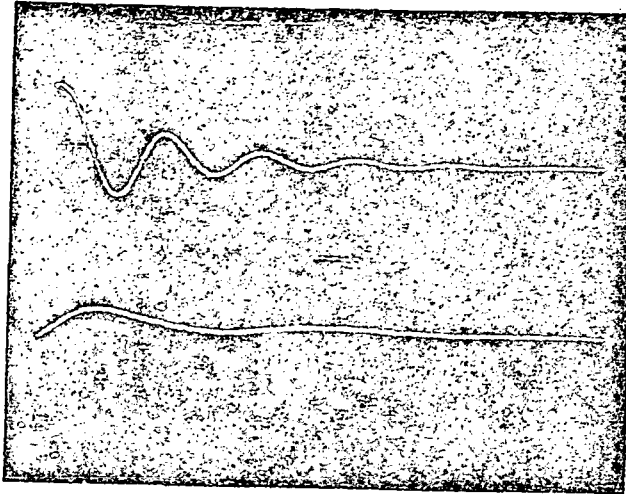


(2V) VOLTAGE/DIV: 1V.
(0.5A) CURRENT/DIV: 0.5 Amps
(1mS) SWEEP RATE: 500 μsec.

281

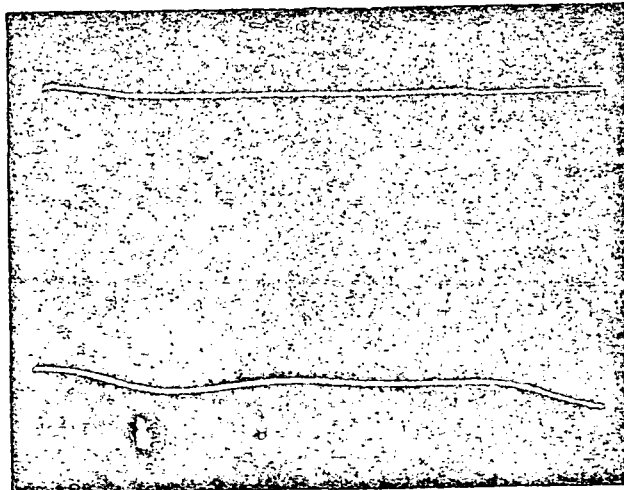
10.4 Performance test (continued)

REF. PARA.	DESCRIPTION
5.10.8.2.4	Photograph of transients induced on input bus current and SMA +29V output voltage as SMA +29V is enabled - REDUNDANT SIDE



(2V) VOLTAGE/DIV: 1V
(0.5A) CURRENT/DIV: 0.5 Amps.
(1ms) SWEEP RATE: 500 μ SEC.

5.10.8.2.4	Photograph of transients induced on input bus current and SMA +29V output voltage as +29V is disabled - REDUNDANT SIDE
------------	--



(2V) VOLTAGE/DIV: 1V.
(0.5) CURRENT/DIV: 0.5 Amps
(1ms) SWEEP RATE: 500 μ SEC.

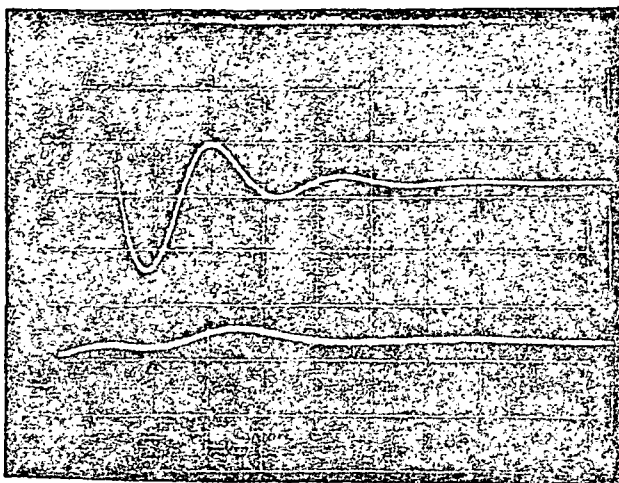
282

ORIGINAL PAGE IS
OF POOR QUALITY

TS 16603
Rev B
18 December 1980

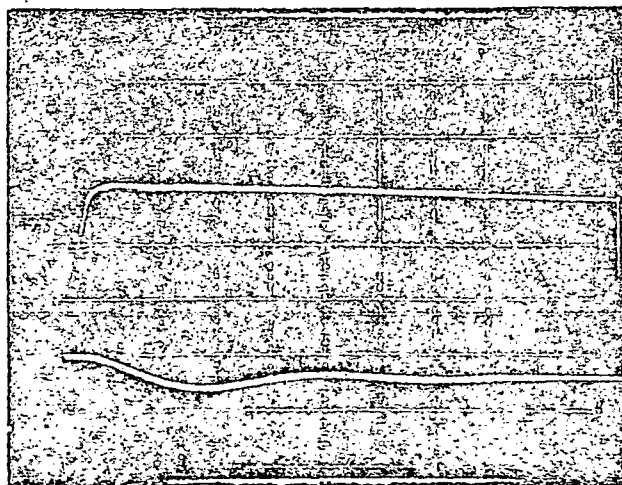
10.4 Performance test (continued)

EF. PARA.	DESCRIPTION	DVM SWITCH POSITIONS	LIMITS	MEASUREMENT	
				PRIMARY	REDUNDAN
5.10.8.3.1	Input bus current w/o CDVU load	S26-1, S27-2 (S27-4 for RDT)		129.48 mV	133.31 mV
5.10.8.3.2	Photograph of transients induced on input bus current and CDVU output voltage as CDVU is enabled - PRIMARY SIDE				



(2V) VOLTAGE/DIV: 1 V.
(0.5A) CURRENT/DIV: 0.5 A_{pp}
(1ms) SWEEP RATE: 500 μsec.

5.10.8.3.2 Photograph of transients induced on input bus current and CDVU output
voltage as CDVU is disabled - PRIMARY SIDE



(2V) VOLTAGE/DIV: 1 V
(0.5V) CURRENT/DIV: 0.5 A_{pp}
(1ms) SWEEP RATE: 500 μsec.

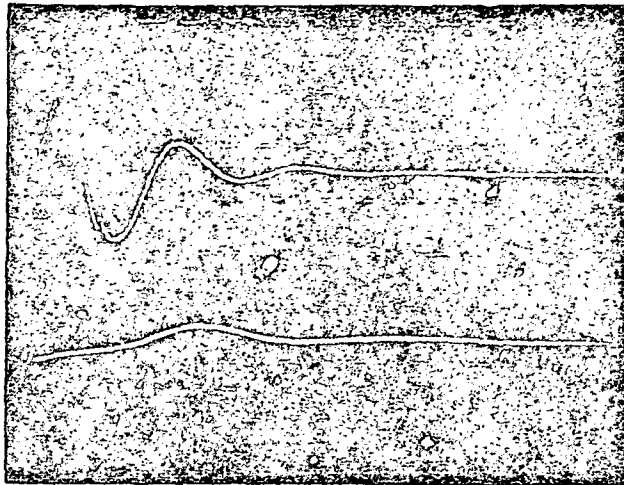
283

10.4 Performance test (continued)

EF. PARA.

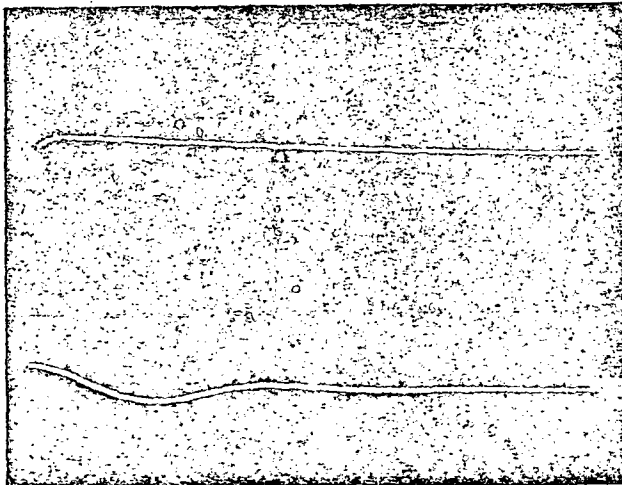
DESCRIPTION

5.10.8.3.2 Photograph of transients induced on input bus current and CDVU output voltage as CDVU is enabled - REDUNDANT SIDE



(2V) VOLTAGE/DIV: 1V.
(0.5A) CURRENT/DIV: 0.5 Amps.
(1ms) SWEEP RATE: 500µsec.

5.10.8.3.2 Photograph as transients induced on input bus current and CDVU output voltage as CDVU is disabled - REDUNDANT SIDE



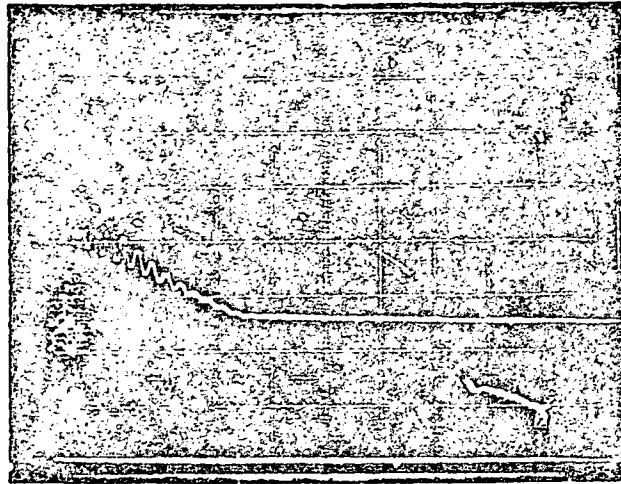
(2V) VOLTAGE/DIV: 1V
(0.5A) CURRENT/DIV: 0.5 Amps.
(1ms) SWEEP RATE: 500µsec.

284

ORIGINAL PAGE IS
OF POOR QUALITY

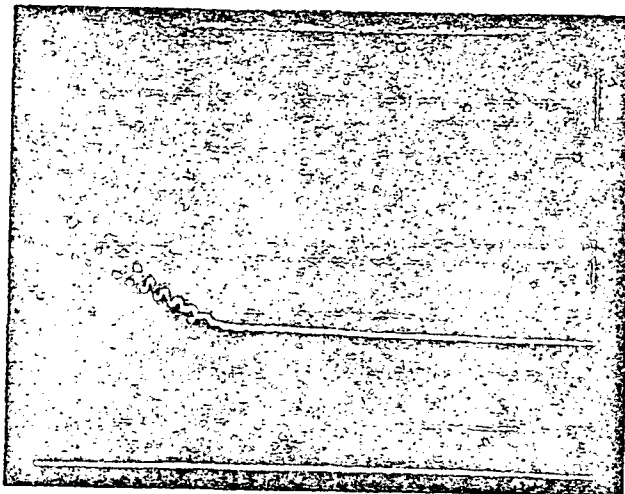
10.4 Performance test (continued)

F. PARA.	DESCRIPTION
5.10.9.1	Photograph of turn-off transient of input bus voltage and input bus current as bus voltage is removed - PRIMARY SIDE



(5V) VOLTAGE/DIV: 5V
(5A) CURRENT/DIV: 5A
(500uS) SWEEP RATE: 500 μ SEC.

Photograph of turn-off transient of input bus voltage and input bus current as bus voltage is removed - REDUNDANT SIDE



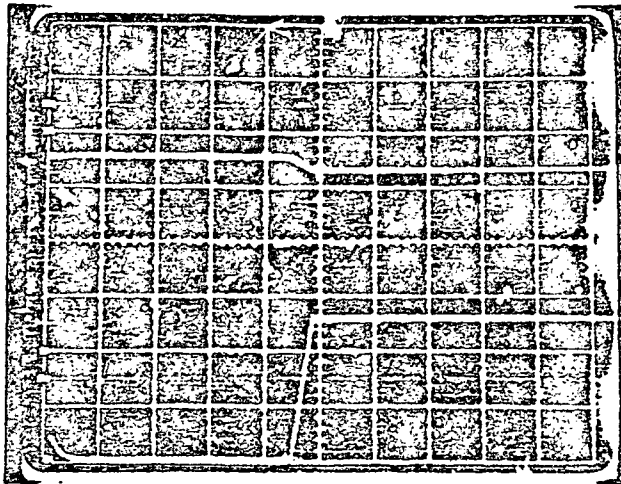
(5V) VOLTAGE/DIV: 5V
(5A) CURRENT/DIV: 5A
(500uS) SWEEP RATE: 500 μ SEC.

285

ORIGINAL PAGE IS
 OF POOR QUALITY

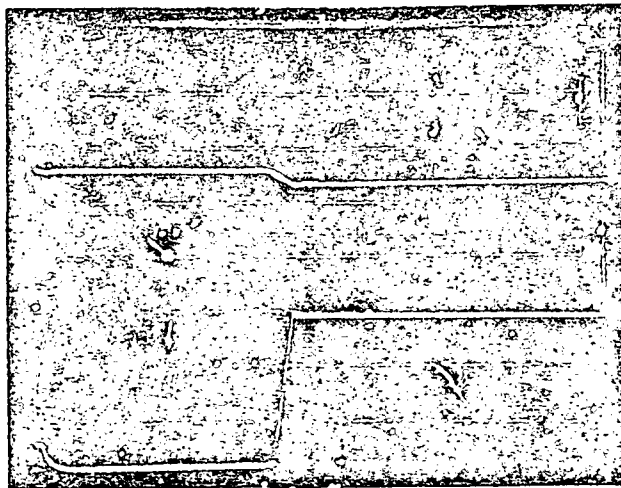
10.4 Performance test (continued)

REF. PARA.	DESCRIPTION	DVM SWITCH POSITIONS	LIMITS	MEASUREMENT	
				PRIMARY	REDUNDANT
5.10.9.2	UUT stays off when bus is reapplied.	S1-ON (S2-ON for RDT)	--	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
5.10.9.3	Photograph of turn-on transient of bus voltage and current as ON command is issued - PRIMARY SIDE				



(5V) VOLTAGE/DIV: 5V.
 (5A) CURRENT/DIV: 5 Amps.
 (100mS) SWEEP RATE: 100 μ sec.

5.10.9.3 Photograph of turn-on transient of bus voltage and current as ON command is issued - REDUNDANT SIDE



(5V) VOLTAGE/DIV: 5V
 (5A) CURRENT/DIV: 5 Amps.
 (100mS) SWEEP RATE: 100 μ sec.

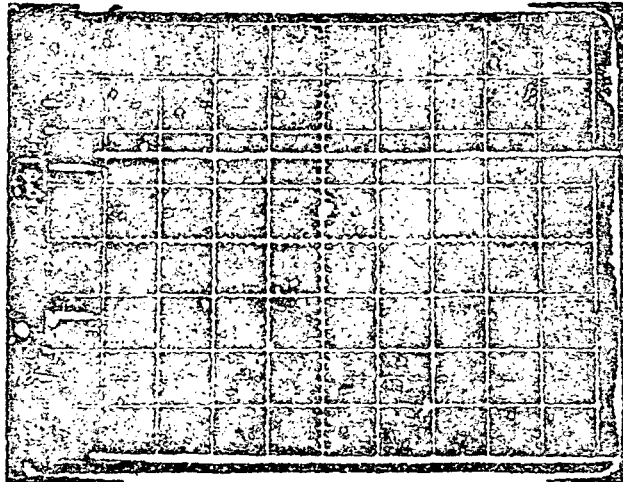
286

10.4 Performance test (continued)

F. PARA.

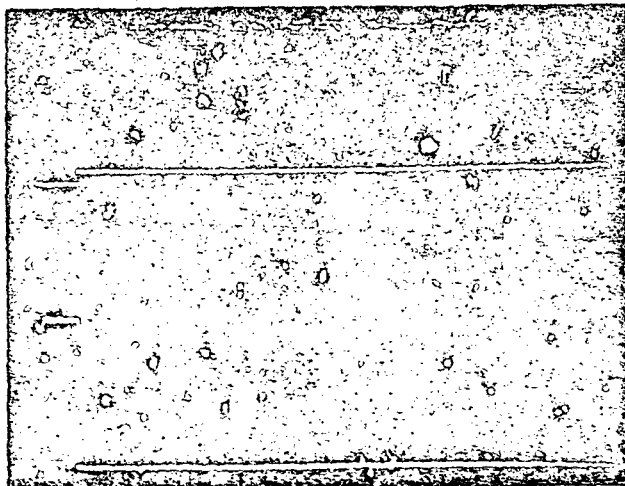
DESCRIPTION

5.10.9.4 Photograph of turn-off transient of input bus voltage and current as OFF command is issued - PRIMARY SIDE



(5V) VOLTAGE/DIV: 5V
(5A) CURRENT/DIV: 5 Amps
(10ms) SWEEP RATE: 10ms/sec

5.10.9.4 Photograph of turn-off transient of input bus voltage and current as OFF command is issued - REDUNDANT SIDE



(5V) VOLTAGE/DIV: 5V
(5A) CURRENT/DIV: 5 Amps
(10ms) SWEEP RATE: 10ms/sec

ORIGINAL PAGE IS
 OF POOR QUALITY

10.4 Performance test (continued)

REF. PARA.	DESCRIPTION	EVM SWITCH POSITIONS	LIMITS	PRIMARY	REDUNDANT
5.10.9.5	Record	S27-2 (S27-4)		127.31 mV.	131.77 mV.
5.10.9.6	Record	(S27-4 (S27-2)		2.483 mV.	22.92
	Record	S27-2 (S27-4)		126.09 mV.	107.54
5.10.9.7	Record that UUT turns on.	(Checkmark)		✓	✓
5.10.10.1	Input bus current AFTER it reads ~ 17A AND input bus voltage reads ~ 21V.	S26-1, S27-2 (S27-4 for RDT)		15 0.86 mV.	150.73 V.
5.10.10.2	Input bus voltage with 17.0A load	S26-1, S27-1 (S27-3 for RDT)		28.00 V.	28.00 V.
5.10.10.3	Input current telemetry output	S26-4, S28-2 (S28-4 for RDT)		4.332 V.	4.477 V.
5.10.10.4	Input current telemetry output	S26-4, S28-2 (S28-4 for RDT)		3.501	3.511 V.
	Input bus voltage	S26-1, S27-1 (S27-3 for RDT)		28.02 V.	28.01 V.
	Input bus current	S26-1, S27-2 (S27-4 for RDT)		124.47 mV.	122.31 mV.
5.10.10.5	Input current telemetry output	S26-4, S28-2 (S28-4 for RDT)		3.018 V.	3.002 V.
	Input bus voltage	S26-1, S27-1 (S27-3 for RDT)		28.01 V.	28.04 V.
	Input bus current	S26-1, S27-2 (S27-4 for RDT)		110.44 mV.	105.31 mV.
5.10.10.6	Input current telemetry output	S26-4, S28-2 (S28-4 for RDT)		2.503 V.	2.504 V.
	Input bus voltage	S26-1, S27-1 (S27-3 for RDT)		28.01 V.	28.02 V.
	Input bus current	S26-1, S27-2 (S27-4 for RDT)		93.00 mV.	91.70 mV.
5.10.10.7	Input current telemetry output	S26-4, S28-2 (S28-4 for RDT)		2.014 V.	2.005 V.
	Input bus voltage	S26-1, S27-1 (S27-3 for RDT)		28.01 V.	28.03 V.
	Input bus current	S26-1, S27-2 (S27-4 for RDT)		78.26 mV.	74.30 mV.

288

ORIGINAL PAGE IS
OF POOR QUALITY

TS 16603
Rev B
18 December 1980

10.4 Performance test (continued)

REF. PARA.	DESCRIPTION	DVM SWITCH POSITIONS	LIMITS	MEASUREMENT	
				PRIMARY	REUNDANT
5.10.10.8	Input current telemetry output	S26-4, S28-2 (S26-4 for RDT)		1.5006 V.	1.5074 V.
	Input bus voltage	S26-1, S27-1 (S27-3 for RDT)		28.04 V.	29.00 V.
	Input bus current	S26-1, S27-2 (S27-4 for RDT)		62.18 mA	58.80 mA
5.10.10.9	Input current telemetry output	S26-4, S28-2 (S26-4 for RDT)		1.0064 V.	1.0020 V.
	Input bus voltage	S26-1, S27-1 (S27-3 for RDT)		28.00 V.	28.00 V.
	Input bus current	S26-1, S27-2 (S27-4 for RDT)		48.61 mA	37.86 mA
5.10.10.10	Input current telemetry output	S26-4, S28-2 (S26-4 for RDT)		.5049 V.	.4999 V.
	Input bus voltage	S26-1, S27-1 (S27-3 for RDT)		28.00 V.	28.00 V.
	Input bus current	S26-1, S27-2 (S27-4 for RDT)		30.18 mA	28.7 mA ^{2.892} Full Scale
5.10.10.11	Input current telemetry output	S26-4, S28-2 (S26-4 for RDT)		.2116 V.	.2001 V.
	Input bus voltage	S26-1, S27-1 (S27-3 for RDT)		28.00 V.	27.9 V.
	Input bus current	S26-1, S27-2 (S27-4 for RDT)		32.32 mA	2074 mA
5.10.10.12	Input current telemetry output	S26-4, S28-2 (S26-4 for RDT)		6.3 mA	42.5 mA
	Input bus voltage	S26-1, S27-1 (S27-3 for RDT)		28.00 V.	28.00 V.
	Input bus current	S26-1, S27-2 (S27-4 for RDT)		11.521 mA	14.391 mA
5.10.11.1	Band 1- output voltage	S26-1, S27-5		23.56 V.	24.25 V.
5.10.11.2	Band 1- output voltage	S27-6		-23.76	-23.73
5.10.11.3	2+	S27-7		24.12	23.61
5.10.11.4	2-	S27-8		-24.13	-24.00
5.10.11.5	3+	S27-9		25.19	24.3
5.10.11.6	3-	S27-10		-23.37	-23.78
5.10.11.7	Band 4- output voltage	S26-1, S27-11		29.04	24.16

289

10.4 Performance test (continued)

REF. PARA.	DESCRIPTION	DWM SWITCH POSITIONS	L.D.BITS	MEASUREMENT	
				PRIMARY	REDUNDANT
5.10.11.8	Band 4- output voltage	S26-1, S27-12		-23.70 V.	-23.89 V.
5.10.11.9	5,7+	S26-2, S27-1		23.20	23.63
5.10.11.10	5,7-	S27-2		-23.14	-23.45
5.10.11.11	6+	S27-3		22.88	23.32
5.10.11.12	Band 6-	S27-4		-21.38	-23.58
5.10.11.13	SMA Htr +	S27-5		24.66	25.46
5.10.11.14	Htr -	S27-6		-25.24	-28.42
5.10.11.15	+7V	S27-7		9.178	N/A
5.10.11	+7V	(S27-8 For RDT)		N/A	9.282
5.10.11	+29V	S27-9		31.92 V.	N/A
5.10.11	+29V	(S27-11 For RDT)		N/A	31.45 V.
5.10.11	-29V	S27-10		-32.27 V.	N/A
	SMA -29V	S26-2, (S27-12 for RDT)		N/A	-36.77 V.
5.10.11.18	Radiometer	S26-3, S27-2		9.602 V.	9.721 V.
5.10.11.19	CDVU	S27-3		9.456	9.438
5.10.11.20	Analog +	S27-4		26.64	26.85
5.10.11.21	Analog -	S27-5		-25.94	-25.20
5.10.11.22	Electromech.	S27-6		41.70	41.60
5.10.11.23	Outgas	S27-7		102.58	100.73
5.10.11.24	Parasitic	S27-9		30.94	N/A
	Parasitic output voltage	S26-3, (S27-10 for RDT)		N/A	31.17 V.
5.10.11.25	Band 1+ IM output	S26-4, S28-5		4.298 V.	4.434 V.
5.10.11.26	1-	S28-6		4.310	4.315
5.10.11.27	2+	S28-7		4.389	4.299
5.10.11.28	2-	S28-8		4.368	4.356
5.10.11.29	3+	S28-9		4.617	4.380
5.10.11.30	3-	S28-10		4.257	4.332
5.10.11.31	4+	S28-11		4.363	4.385
5.10.11.32	4-	S26-4, S28-12		4.306	4.341
5.10.11.33	Band 5,7+ IM output	S26-5, S28-1		4.229	4.324

290

ORIGINAL PAGE IS
OF POOR QUALITY

TS 26603
Rev B
~~26-2 7-8-81~~

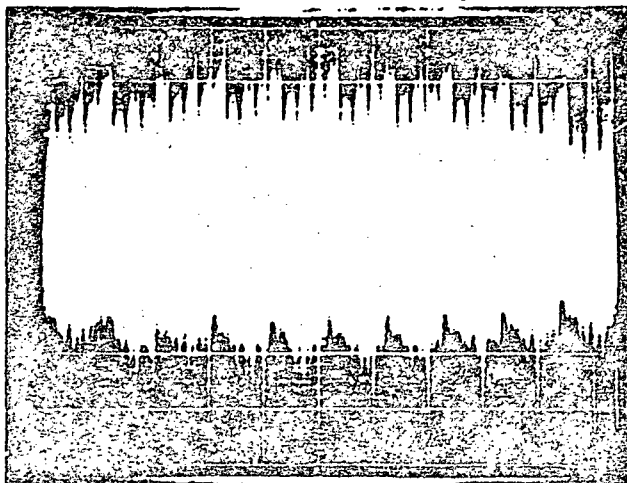
10.4 Performance test (continued)

REF. PARA.	DESCRIPTION	DVM SWITCH POSITIONS	LIMITS	MEASUREMENT	
				PRIMARY	REDUANT
5.10.11.34	Band 5,7- IM output	S26-5, S28-2		4.216 V.	4.270 V.
5.10.11.35	6+	S28-3		4.135	4.220
5.10.11.36	Band 6-	S28-4		4.254	4.300
5.10.11.37	SMA Htr +	S28-5		4.500	4.649
5.10.11.38	Htr -	S28-6		4.560	4.595
5.10.11.39	+7V	S28-7 (S28-8 for RDT)		5.656	5.716
5.10.11.40	+29V	S28-9 (S28-11 for RDT)		4.351	4.388
5.10.11.41	SMA -29V	S26-5, S28-10 (S28-12 for RDT)		3.920 V.	3.889 V.
5.10.11.42	Radiometer	S26-6, S28-2		5.200 V.	5.269 V.
5.10.11.43	CDVU	S28-3		5.242	5.226
5.10.11.44	Analog +	S28-4		4.727	4.759
5.10.11.45	Analog -	S28-5		4.061	4.069
5.10.11.46	Electromech.	S28-6		5.096	5.088
5.10.11.47	Outgas - IM output	S26-6, S28-7		5.105	5.014
5.10.12.1	Bus voltage	S26-1, S27-1 (S27-3 for RDT)		28.00	28.01
5.10.12.2	Input bus current	S26-1, S27-2 (S27-4 for RDT)		42.53 nV.	45.38 nV.
5.10.12.3	SMA Htr + output voltage	S26-2, S27-5		2.158 V.	2.189 V.
5.10.12.4	Htr + ripple	Seen on Scope	<30 mV pk-pk	50 nV	30 nV.
5.10.12.5	Htr - voltage	S26-2, S27-6		-2.219 V	30 nV.
5.10.12.6	SMA Htr - ripple	Seen on Scope	<30 mV pk-pk	50 nV	30 nV.
5.10.12.7	CDVU voltage	S26-3, S27-3		7.550 V	7.701 V
5.10.12.8	CDVU ripple	Seen on Scope	<60 mV pk-pk	60 nV	30 nV.
5.10.12.9	Outgas - output voltage	S26-3, S27-7		86.65 V.	86.90 V.
5.10.12.10	Outgas - output ripple	Seen on Scope	2.50V pk-pk	250 nV.	250 nV.
5.10.12.11	Parasitic output voltage	S26-3, S27-9 (S27-10 for RDT)		30.23 V.	30.34 V.
5.10.12.12	Parasitic output ripple	Seen on Scope	<900 mV pk-pk	100 nV.	300 nV.

291

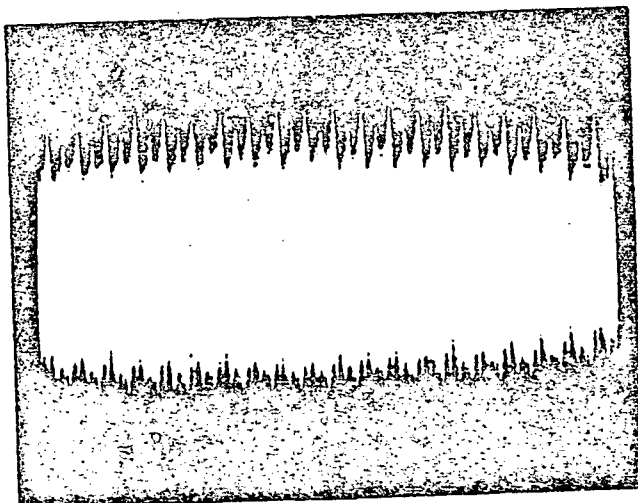
10.4 Performance test (continued)

REF. PARA.	DESCRIPTION	DVM SWITCH POSITIONS	LIMITS	MEASUREMENT	
				PRIMARY	REDUNDANT
5.10.13.1	Input current telemetry	S26-4, S28-2 (S28-4 for RDT)	1.0119	V.	1.2072 V.
5.10.13.2	SMA Htr + output	S26-5, S28-5	3.941	V.	3.992 V.
5.10.13.3	SMA Htr -	S26-5, S28-6	4.014	V.	4.066 V.
5.10.13.4	CDVU	S26-6, S28-3	4.242	V.	4.324 V.
5.10.13.5	Outgas output telemetry	S26-6, S28-7	4.326	V.	4.363 V.
5.10.14.1	Photograph of reflected input current ripple in outgas mode - PRIMARY SIDE				



(2mA) CURRENT/DIV: 2mA A.C.
(10uS) SWEEP RATE: 10µsec

5.10.14.1 Photograph of reflected input current ripple in outgas mode - REDUNDANT SIDE

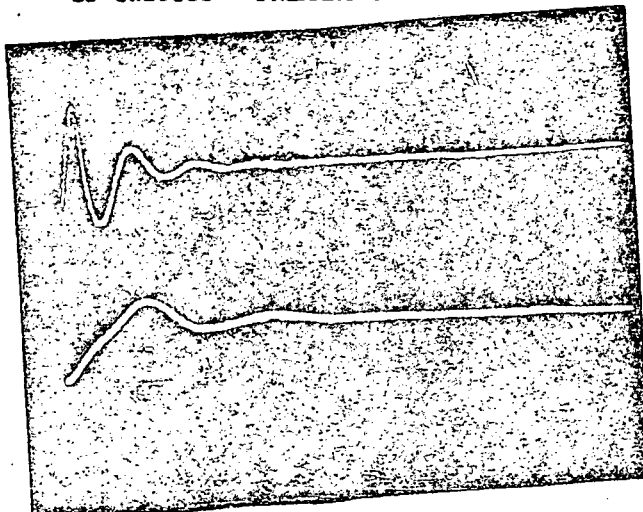


CURRENT/DIV: 2mA A.C.
SWEEP RATE: 10µsec

292

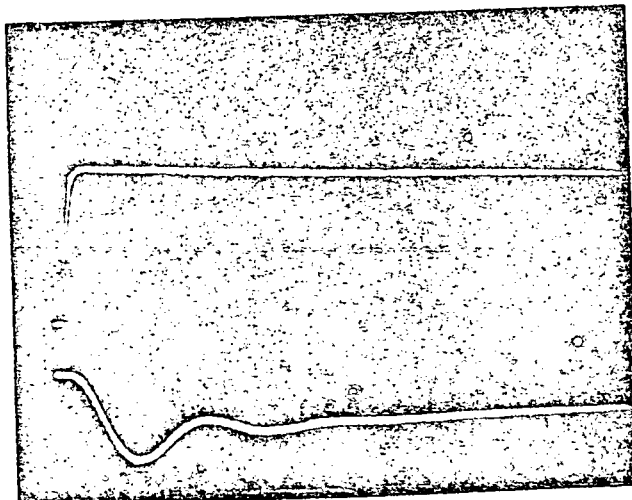
10.4 Performance test (continued)

REF. PARA.	DESCRIPTION	DVM SWITCH POSITIONS	LIMITS	MEASUREMENT	
				PRIMARY	REDUNDANT
5.10.15.1.1	Input current with CDVU off.	S26-1, S27-2 (S27-4 for RDT)		40.22 mV.	42.98 mV.
5.10.15.1.2	Photograph of input bus current and CDVU output voltage as CDVU load is enabled - PRIMARY SIDE				



(2V) VOLTAGE/DIV: 1V
 (200mA) CURRENT/DIV: 200 mA
 (1ms) SWEEP RATE: 1ms

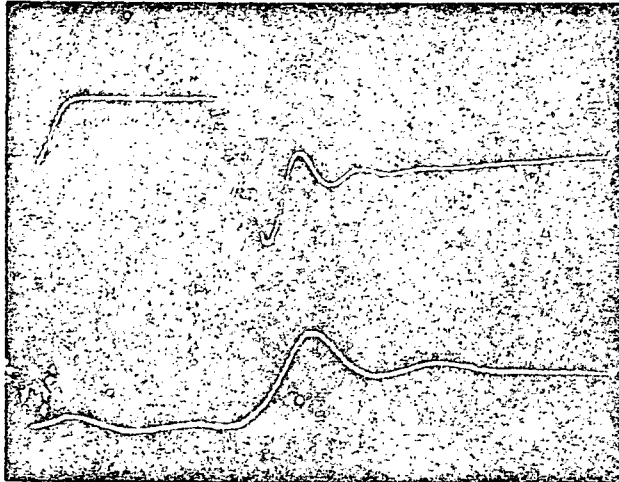
5.10.15.1.2 Photograph of input bus current and CDVU output voltage as CDVU load is disabled - PRIMARY SIDE



(2V) VOLTAGE/DIV: 1V
 (200mA) CURRENT/DIV: 200 mA
 (2ms) SWEEP RATE: 1ms

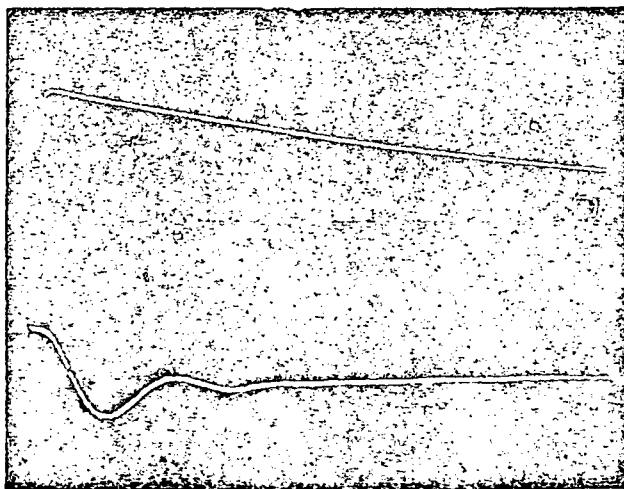
10.4 Performance test (continued)

7. PARA.	DESCRIPTION
5.10.15.1.2	Photograph of input bus current and CDVU output voltage as CDVU load is enabled - REDUNDANT SIDE



1) VOLTAGE/DIV: 1V.
2) CURRENT/DIV: 200 mA.
3) SWEEP RATE: 1 ms SEC.

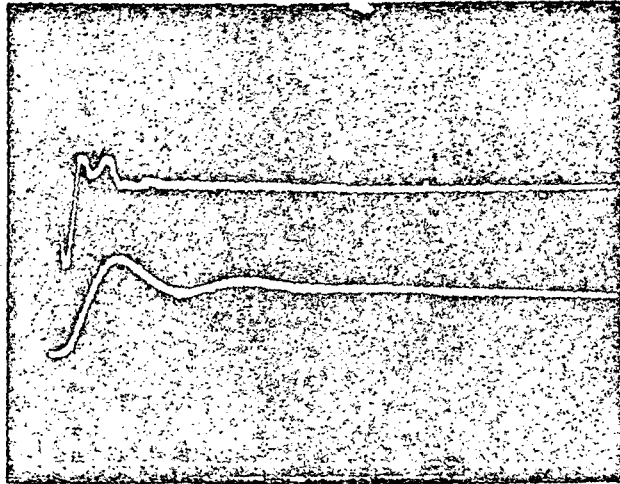
5.10.15.1.2	Photograph of input bus current and CDVU output voltage as CDVU load is disabled - REDUNDANT SIDE
-------------	---



(2V) VOLTAGE/DIV: 1V.
(200mA) CURRENT/DIV: 200 mA.
(2ms) SWEEP RATE: 1 ms SEC.

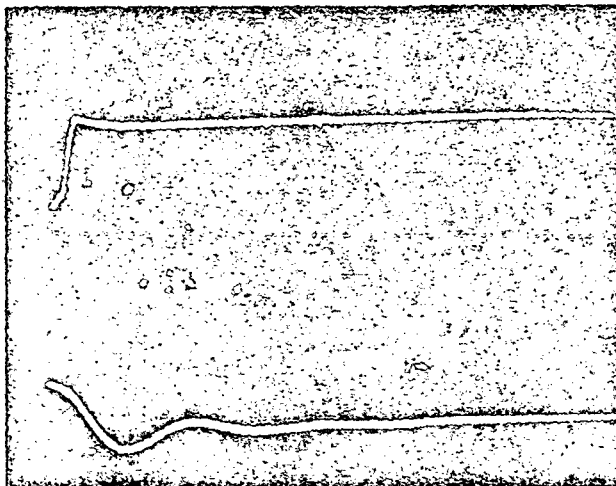
10.4 Performance test (continued)

EF. PARA.	DESCRIPTION	DVM SWITCH POSITIONS	LIMITS	MEASUREMENT	
				PRIMARY	REDUNDANT
5.10.15.2.1	Input bus current with outgas disabled	S26-1, S27-2 (S27-4 for RDT)		14.770 mV	17.523 mA
5.10.15.2.2	Photograph of input bus current and outgas voltage as outgas load is enabled - PRIMARY SIDE				



(V) VOLTAGE/DIV: 5 V.
(A) CURRENT/DIV: 2 A.
(mS) SWEEP RATE: 1 msec.

5.10.15.2.2 Photograph of input bus current and outgas voltage as outgas load
is disabled - PRIMARY SIDE



(3V) VOLTAGE/DIV: 5V.
(2A) CURRENT/DIV: 2 A.
(2mS) SWEEP RATE: 1 msec.

295

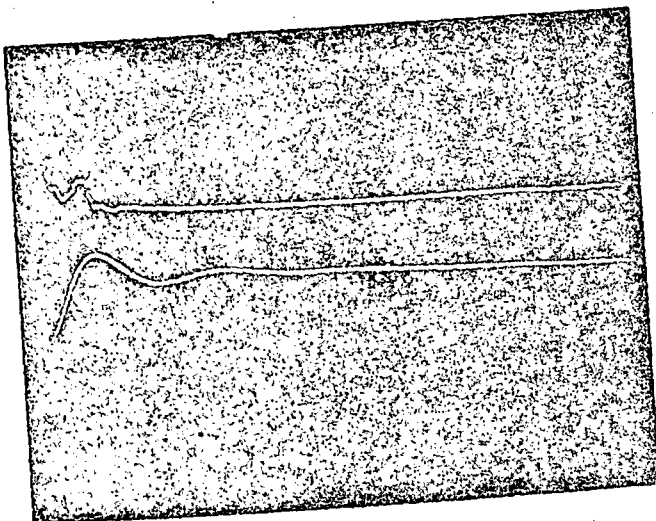
ORIGINAL PAGE IS
OF POOR QUALITY

15 10003
Rev B
18 December 1980

10.4 Performance test (continued)

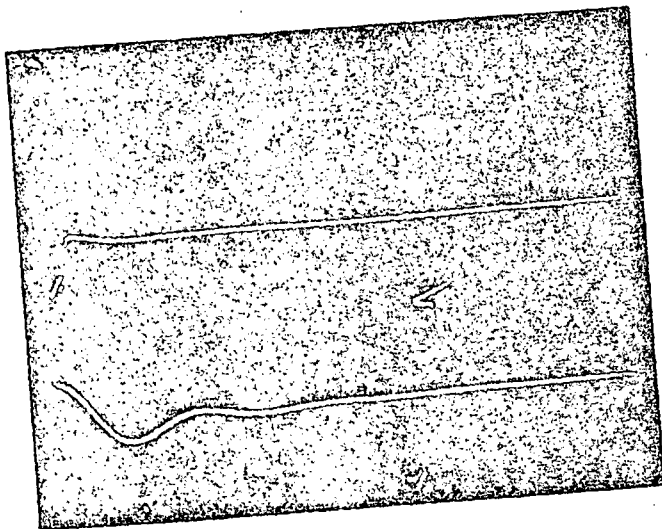
FF. PARA. DESCRIPTION

o.10.15.2.2 Photograph of input bus current and outgas voltage as outgas load is enabled - REDUNDANT SIDE



(5V) VOLTAGE/DIV: 5V.
(2A) CURRENT/DIV: 2A.
(500 μ S) SWEEP RATE: 1 μ sec.

o.10.15.2.2 Photograph of input bus current and outgas voltage as outgas load is disabled - REDUNDANT SIDE



(5V) VOLTAGE/DIV: 5V.
(2A) CURRENT/DIV: 2A.
(1ms) SWEEP RATE: 1 μ sec.

296

10.4 Performance test (continued)

ORIGINAL PAGE IS
OF POOR QUALITY

TS 16603
Rev B
~~25 December 1988~~
SEN-2 8-6-81

REF. PARA.	DESCRIPTION	DVM SWITCH POSITION	LIMITS	MEASUREMENT	
				PRIMARY	REDUNDANT
5.10.16.1	BPS voltage	S26-1, S27-1 (S27-3 for RDT)		28.00 V ₍₄₉₎	28.00 V
5.10.16.2	BPS current	S26-1, S27-2 (S27-4 for RDT)		17.578 mA ₍₅₀₎	20.49 mA
5.10.16.3	SMA Htr +output voltage	S26-2, S27-5		21.69 V ₍₁₃₎	21.83 V
5.10.16.4	SMA Htr +load current	S26-8, S34-1		46.77 mA ₍₃₅₎	49.02 mA
5.10.16.5	SMA Htr -output voltage	S26-2, S27-6		-22.07 V ₍₁₄₎	-22.30 V
5.10.16.6	SMA Htr -load current	S26-8, S34-2		-8.716 mA ₍₃₉₎	-8.84 mA
5.10.16.7	CDVU output voltage	S26-3, S27-3		7.545 V ₍₂₀₎	7.697 V
5.10.16.8	CDVU load current	S26-8, S34-10		2.696 V ₍₄₅₎	2.751 V
5.10.16.9	Parasitic output voltage	S26-3, S27-9 (S27-10)		30.64 V ₍₂₃₎	30.83 V
5.10.16.10	Parasitic load current	S26-8, S34-7		142.76 mA ₍₂₅₎	143.71 mA
5.10.16.11	Input power (5.10.16.1 x 5.10.16.2)			49.218	57.372 ^W
5.10.16.12	Output power	(Primary) (Redundant)		17.17	17.504
	((5.10.16.3 x 5.10.16.4)	NA	NA		
	+ (5.10.16.5 x 5.10.16.6)				
	+ (5.10.16.7 x 5.10.16.8)				
	+ (5.10.16.9 x 5.10.16.10)				
5.10.16.13	Efficiency ((5.10.16.12) ÷ (5.10.16.11)) x 100%			34.9%	30.5%

```

100 HTR = 2.000
100 HTR = 1.999
10.0V = 4.000
PARASITIC = 10.000
INPUT POWER = 49.218
OUTPUT POWER = 17.17
EFFICIENCY = 34.88%
100 HTR = 2.000
100 HTR = 1.999
10.0V = 4.000
PARASITIC = 11.000
INPUT POWER = 57.372
OUTPUT POWER = 17.504
EFFICIENCY = 30.50%
    
```

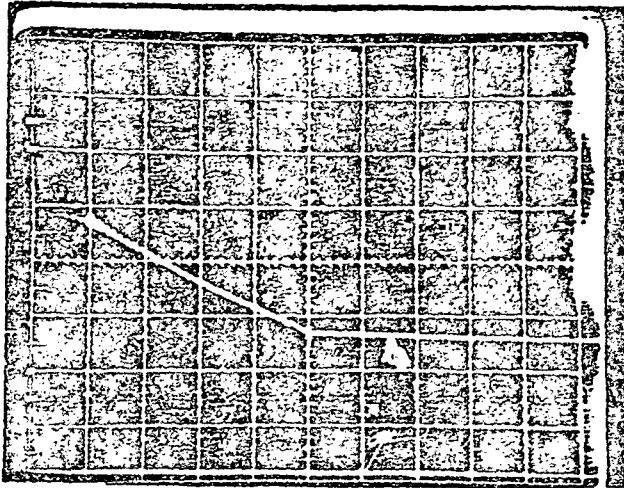
297

ORIGINAL PAGE IS
OF POOR QUALITY

TS 16603
Rev B
18 December 1980

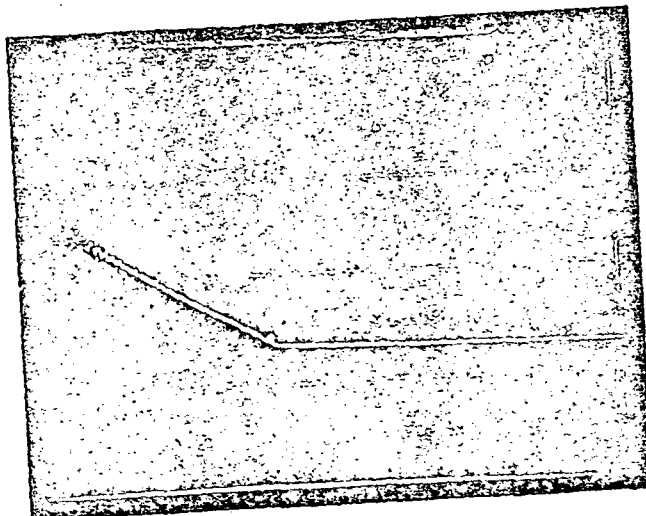
10.4 Performance test (continued)

5.10.17.1 Photograph of input bus current and input bus voltage
as is disable - PRIMARY SIDE



(5V) VOLTAGE/DIV: 5V.
(2A) CURRENT/DIV: 2 Amps.
(1ms) SWEEP RATE: 1 msec.

5.10.17.1 Photograph of input bus current and input bus voltage
as is disabled - REDUNDANT SIDE



(5V) VOLTAGE/DIV: 5V.
(2A) CURRENT/DIV: 2 Amps.
(1ms) SWEEP RATE: 1 msec.

(9.98)

ORIGINAL PAGE IS
OF POOR QUALITY

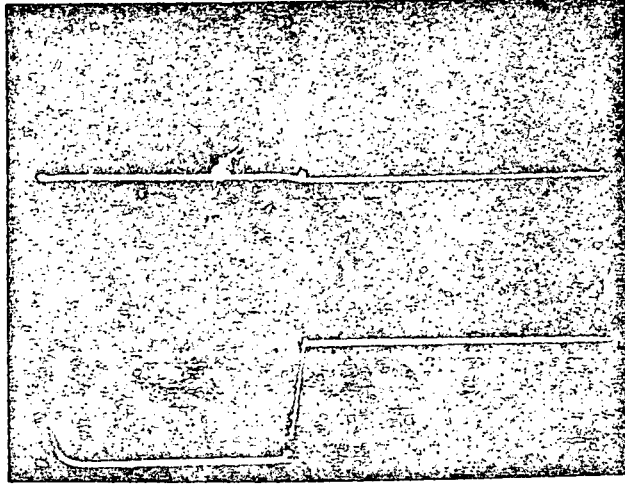
10.4 Performance test (continued)

5.10.17.2 Unit stays off (check)

✓
Primary

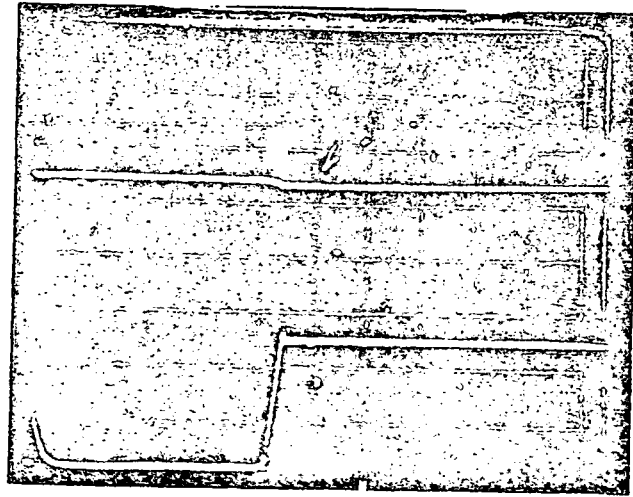
✓
Redundant

5.10.17.3 Photograph of input bus current and input bus voltage
as is enabled - PRIMARY SIDE



(2V) VOLTAGE/DIV: 5V
(2A) CURRENT/DIV: 2A
(100ms) SWEEP RATE: 100μsec.

5.10.17.3 Photograph of input bus current and input bus voltage as
as is enabled - REDUNDANT SIDE



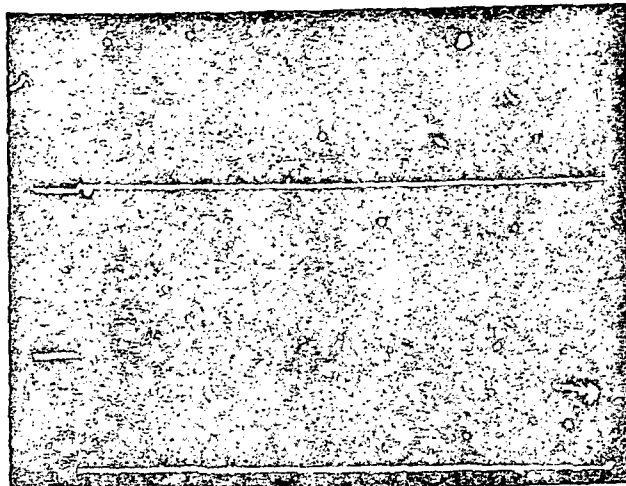
(2V) VOLTAGE/DIV: 5V
(2A) CURRENT/DIV: 2A
(100ms) SWEEP RATE: 100μsec.

699

ORIGINAL PAGE IS
OF POOR QUALITY

10.4 Performance test (continued)

5.10.17.4 Photograph of input bus current and input bus voltage
as is disabled - PRIMARY SIDE



(2V) VOLTAGE/DIV: 5V.
(2A) CURRENT/DIV: 2A.
(10ms) SWEEP RATE: 10 msec.

5.10.17.4 Photograph of input bus current and input bus voltage
as is disabled - REDUNDANT SIDE



(2V) VOLTAGE/DIV: 5V
(2A) CURRENT/DIV: 2A
(10ms) SWEEP RATE: 10 msec

300

ORIGINAL PAGE IS
OF POOR QUALITY

Rev B
18 December 1980

Performance test (continued)

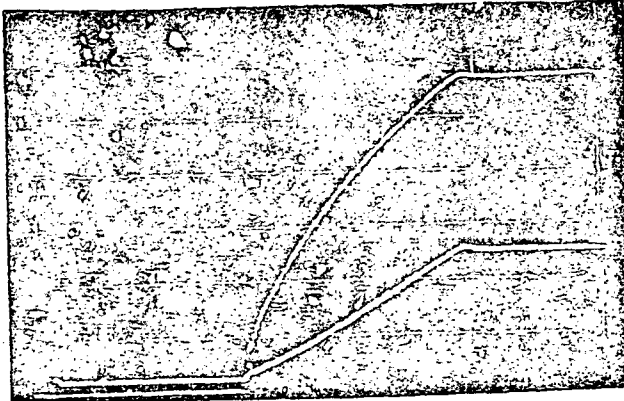
PARA.	DESCRIPTION	DVM SWITCH POSITIONS	LIMITS	MEASUREMENT	
				PRIMARY	REDUNDANT

5.10.17.5 Record that UUT operates correctly.

(checkmark)

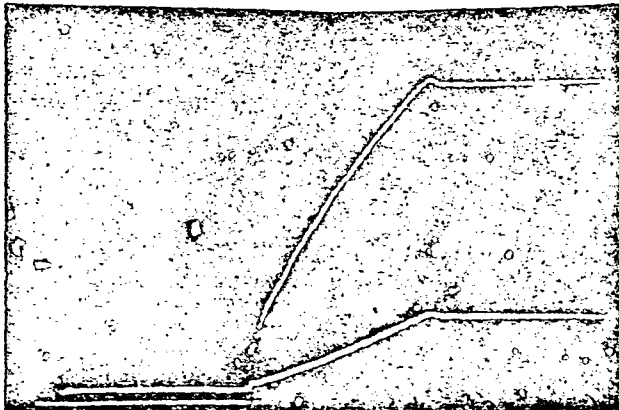
✓

5.10.18.1 Photograph of input bus current and MUX output voltage as MUX enable command is issued (all loads are ON except outgas) - PRIMARY SIDE



(5V) VOLTAGE/DIV: 5V.
(5A) CURRENT/DIV: 5A.
(20ms) SWEEP RATE: 10ms/sec.

5.10.18.2 Photograph of input bus current and parasitic output voltage as parasitic enable command is issued (all loads are ON except outgas) - PRIMARY SIDE

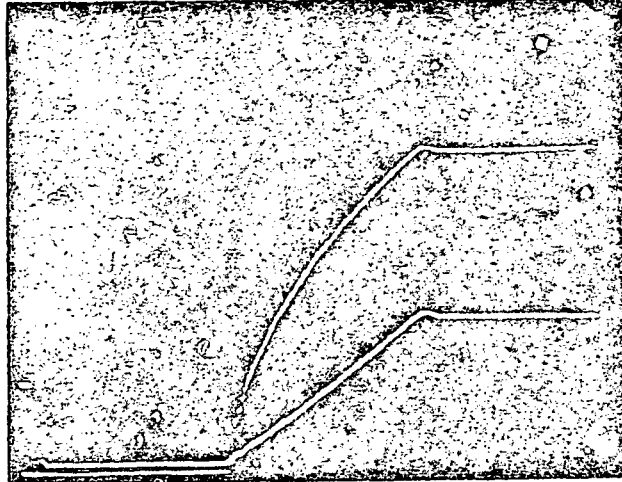


(5V) VOLTAGE/DIV: 5V.
(5A) CURRENT/DIV: 5A.
(20ms) SWEEP RATE: 10ms/sec.

(301)

4 Performance test (continued)

18.1 Photograph of input bus current and MUX output voltage as MUX enable command is issued (all loads are ON except outgas) - REDUNDANT SIDE



(5V) VOLTAGE/DIV: 5V
(5A) CURRENT/DIV: 5A
(20mS) SWEEP RATE: 10m sec.

3.10.18.2 Photograph of input bus current and MUX output voltage as parasitic enable command is issued (all loads are ON except outgas) - REDUNDANT SIDE



(5v) Volts/Div: 5V.
(5A) Current/Div: 5 Amps.
(20mS) Sweep Rate: 10m sec.

ORIGINAL PAGE IS
OF POOR QUALITY

TS 16603
Rev B
~~CP-2~~ 1000
SC-2 7-6-81

10.4 Performance test (continued)

P. PARA.	DESCRIPTION	DWM SWITCH POSITIONS	LIMITS	MEASUREMENT	
				PRIMARY	REDUNDANT
5.10.18.4	Undervoltage Trip Point (ON/OFF)	S26-1, S27-1 (S27-3 for RDT)	18.0 ± 1.50V	18.07 V. ✓	18.04 V. ✓
5.10.18.5	UUT stays OFF			✓	✓
5.10.18.6	Undervoltage Trip Point (OFF/ON)	S26-1, S27-1 (S27-3 for RDT)	19.0 ± 1.50V	18.9 V. ✓	18.9 V. ✓
5.10.18.7	Overvoltage Trip Point	S26-1, S27-1 (S27-3 for RDT)	38.0 ± 2V	37.8 V. ✓	38.8 V. ^{SCN} ₂ ✓
5.10.18.8	UUT stays OFF			✓	✓
5.10.18.9	UUT turns ON			✓	✓

Feb. 5, 1982

Brown / CRAWFORD

DATE

TESTER(S)

ORIGINAL PAGE IS
OF POOR QUALITY

TS 16603
Rev B
18 December 1980

10.4 Performance test - Long Form

PROTOFLIGHT N/A OR FLIGHT ✓ S/N 034 TEMPERATURE: AMB
 IN-PROCESS N/A QUAL N/A OR ACCEPTANCE ✓
 TESTING PHASE Final Ambient LINE VOLTAGE: 35 VOLTS

REF. PARA.	DESCRIPTION	DVM SWITCH POSITIONS	LIMITS	MEASUREMENT	
				PRIMARY	REDUNDANT
5.10.1.1	Calibrate cmd gen	--	--	✓	
5.10.2.1	Input bus current	S26-1, S27-2 (S27-4 for redundant)		<u>0.232</u> mA	<u>227</u>
5.10.2.2	MUX output voltage	S26-3, S27-1	30.0 ±0.90V	<u>29.65</u> V	<u>30.40</u>
5.10.2.3	MUX load current	S26-3, S27-12	3.55 ±0.40A	<u>31.91</u> mA	<u>32.73</u>

The rest of Section 5.10.2 requires only checking voltage - indicate by checkmarks.

5.10.2.4.1	B1 + output voltage	S26-1, S27-5		✓	✓
5.10.2.4.2	B1 -	S27-6		✓	✓
5.10.2.4.3	B1 -	S27-5		✓	✓
5.10.2.4.4	B1 +	S27-7		✓	✓
5.10.2.5.1	B2 +	S27-7		✓	✓
5.10.2.5.2	B2 -	S27-8		✓	✓
5.10.2.5.3	E2 -	S27-8		✓	✓
5.10.2.5.4	B2 +	S27-7		✓	✓
5.10.2.6.1	B3 +	S27-9		✓	✓
5.10.2.6.2	B3 -	S27-10		✓	✓
5.10.2.6.3	B3 -	S27-10		✓	✓
5.10.2.6.4	B3 +	S27-9		✓	✓
5.10.2.7.1	B4 +	S27-11		✓	✓
5.10.2.7.2	B4 -	S27-12		✓	✓
5.10.2.7.3	B4 -	S27-12		✓	✓
5.10.2.7.4	B4 +	S26-1, S27-11		✓	✓
5.10.2.8.1	B5,7+	S26-2, S27-1		✓	✓
5.10.2.8.2	B5,7-	S27-2		✓	✓
5.10.2.8.3	B5,7-	S27-2		✓	✓
5.10.2.8.4	B5,7+	S27-1		✓	✓
5.10.2.9.1	B6 +	S27-3		✓	✓
5.10.2.9.2	B6 - output voltage	S26-2, S27-4		✓	✓

304

3 1000
 Rev 3
 10-000000-000
 SCN-1 1/24/81

ORIGINAL PAGE IS
 OF POOR QUALITY

10.4 Performance test (continued)

REF. PARA.	DESCRIPTION	DVM SWITCH POSITIONS	LIMITS	MEASUREMENT	
				PRIMARY	REDUNDANT
5.10.2.9.3	B6 - output voltage	S26-2, S27-4		✓	✓
5.10.2.9.4	B6 + output voltage	S26-2, S27-3		✓	✓
5.10.2.10.1	SMA RTR + output voltage	S27-5		✓	✓
5.10.2.10.2	-	S27-6		✓	✓
5.10.2.10.3	-	S27-6		✓	✓
5.10.2.10.4	+	S27-5		✓	✓
5.10.2.11.1	-7V	S26-2, S27-7		✓	✓
5.10.2.11.2	-7V	(S27-8 for RDT)		✓	✓
5.10.2.12.1	+29V	S26-2, S27-9		✓	✓
		(S27-11 for RDT)		✓	✓
5.10.2.12.2	-29V	S26-2, S27-10		✓	✓
		(S27-12 for RDT)		✓	✓
5.10.2.12.3	-29V	S26-2, S27-10		✓	✓
5.10.2.12.4	SMA RTR -29V	S26-2, S27-9		✓	✓
5.10.2.13.1	Radiometer	S26-3, S27-2		✓	✓
5.10.2.13.2	Radiometer	S27-2		✓	✓
5.10.2.14.1	CDVU	S27-3		✓	✓
5.10.2.14.2	CDVU	S27-3		✓	✓
5.10.2.15.1	Analog +	S27-4		✓	✓
5.10.2.15.2	Analog -	S27-5		✓	✓
5.10.2.15.3	Analog -	S27-5		✓	✓
5.10.2.15.4	Analog +	S27-4		✓	✓
5.10.2.16.1	Electromech.	S27-6		✓	✓
5.10.2.16.2	Electromech.	S27-6		✓	✓
5.10.2.17.1	Outgas output voltage	S26-3, S27-7		✓	✓
5.10.3.1	Bus voltage	S26-1, S27-1		✓	✓
		(S27-3 for RDT)		✓	✓
5.10.3.2	MAX load current	S26-3, S27-12	4.130 ± 0.025A	35.00 (49) 35.00	41.38 41.43
5.10.3.3	Bus current	S26-1, S27-2		105.51 ± (50) 107.79	34.99 V. 34.99
		(S27-4 for RDT)		105.53 V. 167.89	
5.10.3.3.2	BPS Voltage	S26-1, S27-1		41.29 V	41.44
		S27-3)			
5.10.3.3.3	BPS Current	S26-1, S27-2			
		(S27-4)			
5.10.3.3.4	MAX Current	S26-3, S27-12			

305

SCN-1

ORIGINAL PAGE IS
OF POOR QUALITY

TS 16603
Rev B
18 December 1980

10.4 Performance test (continued)

REF. PARA.	DESCRIPTION	DVM SWITCH POSITIONS	LIMITS	MEASUREMENT	
				PRIMARY	REDUNDANT
5.10.3.4.1	B1 + output voltage	S26-1, S27-5	20.50 \pm 2.50V	<u>20.53 V</u> (1)	<u>20.79</u>
5.10.3.4.2	B1 + output ripple	Look on Scope	<600 mV pk-pk	<u>20 mV</u>	<u>20</u>
5.10.3.4.3	B1 - output voltage	S26-1, S27-6	-20.50 \pm 2.50V	<u>-20.54 V</u> (2)	<u>20.81</u>
5.10.3.4.4	B1 - output ripple	Look on Scope	<600 mV pk-pk	<u>20 mV</u>	<u>20</u>
5.10.3.5.1	B2 + output voltage	S26-1, S27-7	20.50 \pm 2.50V	<u>20.34 V</u> (3)	<u>20.62</u>
5.10.3.5.2	B2 + output ripple	Look on Scope	<600 mV pk-pk	<u>20 mV</u>	<u>20</u>
5.10.3.5.3	B2 - output voltage	S26-1, S27-8	-20.50 \pm 2.50V	<u>-20.37 V</u> (4)	<u>20.64</u>
5.10.3.5.4	B2 - output ripple	Seen on Scope	<600 mV pk-pk	<u>20 mV</u>	<u>20</u>
5.10.3.6.1	B3 + output voltage	S26-1, S27-9	20.50 \pm 2.50V	<u>20.30 V</u> (5)	<u>20.55</u>
5.10.3.6.2	B3 + output ripple	Seen on Scope	<600 mV pk-pk	<u>20 mV</u>	<u>20</u>
5.10.3.6.3	B3 - output voltage	S26-1, S27-10	-20.50 \pm 2.50V	<u>-20.36 V</u> (6)	<u>20.63</u>
5.10.3.6.4	B3 - output ripple	Seen on Scope	<600 mV pk-pk	<u>25 mV</u>	<u>20</u>
5.10.3.7.1	B4 + output voltage	S26-1, S27-11	20.50 \pm 2.50V	<u>20.51 V</u> (7)	<u>20.80</u>
5.10.3.7.2	B4 + output ripple	Seen on Scope	<600 mV pk-pk	<u>20 mV</u>	<u>20</u>
5.10.3.7.3	B4 - output voltage	S26-1, S27-12	-20.50 \pm 2.50V	<u>-20.53 V</u> (8)	<u>20.81</u>
5.10.3.7.4	B4 - output ripple	Seen on Scope	<600 mV pk-pk	<u>20 mV</u>	<u>20</u>
5.10.3.8.1	B5,7 + voltage	S26-2, S27-1	20.50 \pm 2.50V	<u>20.03 V</u> (9)	<u>20.17</u>
5.10.3.8.2	B5,7 + ripple	Seen on Scope	<600 mV pk-pk	<u>30 mV</u>	<u>40</u>
5.10.3.8.3	B5,7 - voltage	S26-3, S27-2	-20.50 \pm 2.50V	<u>-20.07 V</u> (10)	<u>20.19</u>
5.10.3.8.4	B5,7 - ripple	Seen on Scope	<600 mV pk-pk	<u>30 mV</u>	<u>40</u>
5.10.3.9.1	B6 + voltage	S26-2, S27-3	20.50 \pm 2.50V	<u>20.29 V</u> (11)	<u>20.53</u>
5.10.3.9.2	B6 + ripple	Seen on Scope	<600 mV pk-pk	<u>20 mV</u>	<u>20</u>
5.10.3.9.3	B6 - voltage	S26-2, S27-4	-20.50 \pm 2.50V	<u>-20.30 V</u> (12)	<u>20.55</u>
5.10.3.9.4	B6 - ripple	Seen on Scope	<600 mV pk-pk	<u>20 mV</u>	<u>20</u>
5.10.3.10.1	SMA Htr + voltage	S26-2, S27-5	21.20 \pm 2.12V	<u>22.11 V</u> (13)	<u>22.41</u>
5.10.3.10.2	SMA Htr + ripple	Seen on Scope	<630 mV pk-pk	<u>20 mV</u>	<u>20</u>
5.10.3.10.3	SMA Htr - voltage	S26-2, S27-6	-21.20 \pm 2.12V	<u>-22.62 V</u> (14)	<u>22.92</u>
5.10.3.10.4	SMA Htr - ripple	Seen on Scope	<630 mV pk-pk	<u>20 mV</u>	<u>20</u>
5.10.3.11.1	SMA +7V ∇ voltage	S26-2, S27-7 (S27-8 for RDT)	7.20 \pm 0.80V	<u>7.645 V</u> (15)	<u>7.927</u>
5.10.3.11.2	SMA +7V output ripple	Seen on Scope	<210 mV pk-pk	<u>35 mV</u>	<u>40</u>

306

ORIGINAL PAGE IS
OF POOR QUALITY

To 16603
Rev B
18 December 1980

10.4 Performance test (continued)

REF. PARA.	DESCRIPTION	DVM SWITCH POSITIONS	LIMITS	MEASUREMENT	
				PRIMARY	SECONDARY
5.10.3.12.1	SMA +29V output voltage	S26-2, S27-9 (S27-11 for RDT)	29.50 ±1.50V	30.91V (16)	30.70
5.10.3.12.2	SMA +29V ripple	Seen on Scope	<870 mV, pk-pk	50mV	60
5.10.3.12.3	SMA -29V voltage	S26-2, S27-10 (S27-12 for RDT)	-29.50 ±1.50V	30.30V (17)	30.72
5.10.3.12.4	SMA -29V ripple	Seen on Scope	<870 mV pk-pk	60mV	60
5.10.3.13.1	HIX voltage	S26-3, S27-1	30.00 ±0.90V	29.95V (18)	30.26
5.10.3.13.2	HIX ripple	Seen on Scope	<900 mV, pk-pk	80mV	80
5.10.3.14.1	Radiometer voltage	S26-3, S27-2	8.50 ±0.85V	8.465V (19)	8.516
5.10.3.14.2	Radiometer ripple	Seen on Scope	<250 mV pk-pk	30mV	30
5.10.3.15.1	CDVU voltage	S26-3, S27-3	8.00 ±0.80V	7.531V (20)	7.709
5.10.3.15.2	CDVU ripple	Seen on Scope	<240 mV pk-pk	25mV	20
5.10.3.16.1	Analog + voltage	S26-3, S27-4	21.20 ±2.12V	22.21V (21)	22.46
5.10.3.16.2	Analog + ripple	Seen on Scope	<330 mV pk-pk	40mV	40
5.10.3.16.3	Analog - voltage	S26-3, S27-5	-21.20 ±2.12V	-22.27V (22)	-22.53
5.10.3.16.4	Analog - ripple	Seen on Scope	<330 mV pk-pk	25mV	20
5.10.3.17.1	Electromech. voltage	S26-3, S27-6	33.40 ±3.34V	32.97V (23)	33.46
5.10.3.17.2	Electromech. ripple	Seen on Scope	<1.0V pk-pk	40mV	60
5.10.3.18.1	Outgas voltage	S26-3, S27-7	100.0 ±12.0V	105.21V	105.84
5.10.3.18.2	Outgas output ripple	Seen on Scope	<1.0V pk-pk	240mV	225
5.10.4.1	Input current telemetry	S26-4, S28-2 (S28-4 for RDT)		2.933V	2.992
5.10.4.2.1	Band 1 + volt. telemetry	S26-4, S28-5		3.752	3.812
5.10.4.2.2	Band 1 -	S28-6		3.741	3.790
5.10.4.3.1	Band 2+	S28-7		3.706	3.765
5.10.4.3.2	Band 2-	S28-8		3.695	3.744
5.10.4.4.1	Band 3+	S28-9		3.717	3.746
5.10.4.4.2	Band 3-	S28-10		3.716	3.765
5.10.4.5.1	Band 4+	S28-11		3.726	3.795
5.10.4.5.2	Band 4-	S26-4, S28-12		3.737	3.789
5.10.4.6.1	Band 5,7+	S26-5, S28-1		3.668	3.714
5.10.4.6.2	Band 5,7- volt. telemetry	S26-5, S28-2		3.659	3.676

307

ORIGINAL PAGE IS
OF POOR QUALITY

TS 16603
Rev B
18 December 1980

10.4 Performance test (continued)

PT. PARA.	DESCRIPTION	DVM SWITCH POSITIONS	LIMITS	MEASUREMENT	
				PRIMARY	REDUNDANT
5.10.4.7.1	Band 6 + volt. telemetry	S26-5, S28-3		+3.674V	3.721
5.10.4.7.2	Band 6 -	S28-4		3.706	3.755
5.10.4.8.1	SMA Htr +	S28-5		4.041	4.102
5.10.4.8.2	SMA Htr -	S28-6		4.103	4.161
5.10.4.9	SMA +7V	S26-5, S28-7 (S27-8 for RDT)		4.903	5.009
5.10.4.10.1	SMA +29V	S26-5, S28-9 (S27-11 for RDT)		4.156	4.236
5.10.4.10.2	SMA -29V	S26-5, S28-10 (S27-12 for RDT)		3.471	3.625
5.10.4.11	MIX	S26-6, S28-1		4.262	4.288
5.10.4.12	Radiometer	S26-6, S28-2		4.644	4.673
5.10.4.13	CDVU	S26-6, S28-3		4.234	4.326
5.10.4.14.1	Analog + volt. telemetry	S26-6, S28-4		3.975	4.018
5.10.4.14.2	Analog -	S26-6, S28-5		3.915	3.949
5.10.4.15	Electromach.	S28-6		4.050	4.111
5.10.4.16	Outgas volt. telemetry	S26-6, S28-7		5.274	5.192
5.10.5.1.1	Analog + load current	S26-3, S27-11 mV ÷ 10 = Amps	15.392	15.392	15.600
5.10.5.1.2	MIX	S26-3, S27-12 mV ÷ 10 = Amps		4.633	4.145
5.10.5.1.3	Band 1 +	S26-7, S34-1 mV ÷ 0.5 = mA		91.35	92.52
5.10.5.1.4	Band 1 -	S34-2		-91.51	92.74
5.10.5.1.5	2 +	S34-3		90.32	91.59
5.10.5.1.6	2 -	S34-4		-91.15	92.39
5.10.5.1.7	3 +	S34-5		90.97	91.64
5.10.5.1.8	3 -	S34-6		-90.78	92.03
5.10.5.1.9	4 +	S34-7		91.25	92.58
5.10.5.1.10	4 -	S34-8		-90.92	92.19
5.10.5.1.11	5,7 +	S34-9		90.33	90.75
5.10.5.1.12	5,7 -	S34-10		-89.50	90.06
5.10.5.1.13	6 +	S34-11		47.19	47.75
5.10.5.1.14	Band 6 -	S26-7, S34-12		-47.03	47.63
5.10.5.1.15	SMA Htr +	S26-8, S34-1 mV ÷ 0.5 = mA		47.68	49.34
5.10.5.1.16	SMA Htr - load current	S26-8, S34-2 mV = mA		-8.936	9.057

(208)

TS 16603
Rev B

ORIGINAL PAGE IS
OF POOR QUALITY

10.4 Performance test (continued)

201-2 2-6-81
201-3 2/3/81

REF. PARA.	DESCRIPTION	DVM SWITCH POSITIONS	LIMITS	MEASUREMENT	
				PRIMARY	RECORDANT
5.10.5.1.17	SMA +29V load current	S26-8, S34-3	mV ÷ 0.402 = mA	50.71 (40)	5139
5.10.5.1.18	SMA -29V	S34-4	mV ÷ 0.402 = mA	-50.46 (40)	5117
5.10.5.1.19	SMA +7V	S34-5	V ÷ 0.1 = Amps	.2900 (40)	.2845
5.10.5.1.20	Analog -	S34-6	mV ÷ 0.402 = mA	-2.673 (40)	.2702
5.10.5.1.21	Radiometer	S34-9	mV ÷ 0.5 = mA	151.53 (40)	152.56
5.10.5.1.22	CDVU	S34-10	mV ÷ 0.5 = mA	.2693 (40)	.2756
5.10.5.1.23	Electromech. load current	S26-8, S34-11	mV ÷ 0.402 = mA	.2100 (40)	.2131
5.10.5.2.1	Bus power supply voltage	S26-1, S27-1 (S27-3 for RDT)		35.01 (40)	35.00
5.10.5.2.2	Bus input current	S26-1, S27-2 (S27-4 for RDT)	mV ÷ 10 = Amps	105.64 (40)	109.05
5.10.5.2.3	P _{IN} (Section 5.10.5)			369.885	378.175
5.10.5.2.4	P _{IN} (Section 5.10.3)			369.285	377.265
5.10.5.2.5	P _{IN} (avg)			369.565	377.72
5.10.5.2.9	Input current at current limit	26-1, 27-2 (26-1 27-4 Rdt)		122.9 (40)	126.99
	Input voltage at current limit	27-1 (27-3 Rdt)		34.83 (40)	34.81
	MUX voltage at current limit	26-3, 27-1		30.10 (40)	30.22
	MUX current at current limit	27-12		51.14 (40)	53.37
5.10.5.3.1	P _{OUT}			268.89	274.895
5.10.5.3.2	Efficiency		> 70%	73.25%	73.5%

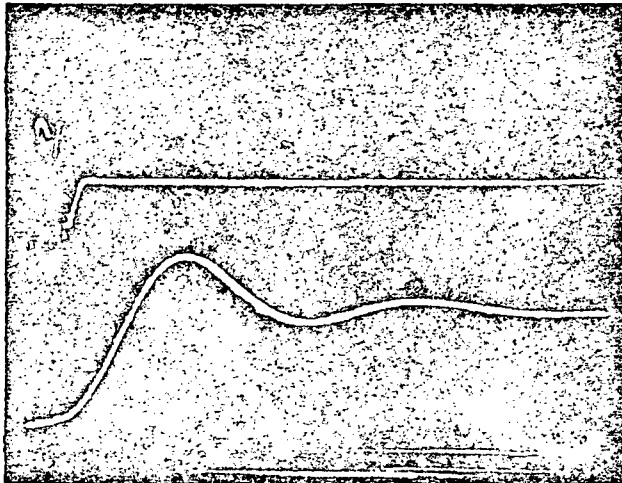
INPUT POWER #1= 369 285
 INPUT POWER #2= 369 565
 AVE INPUT POWER= 369 565
 OUTPUT POWER= 268 89
 EFFICIENCY = 73.25

INPUT POWER #1= 377 265
 INPUT POWER #2= 378 175
 AVE INPUT POWER= 377 72
 OUTPUT POWER= 274 895
 EFFICIENCY = 73.15

309

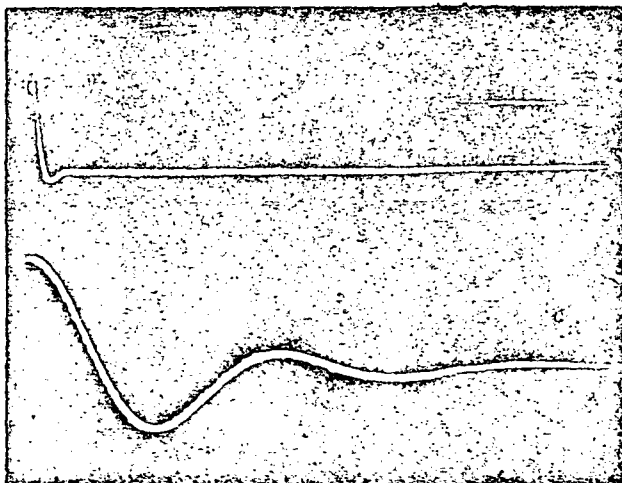
10.4 Performance test (continued)

FF. PARA.	DESCRIPTION	DVM SWITCH POSITIONS	LIMITS	MEASUREMENT	
				PRIMARY	REDUNDANT
5.10.6.1	+7V output pulsed	S26-2, S27-7 (S27-8 for RDT)	7.10 \pm 0.80V	7.043 V	7.206
5.10.6.2	Photograph of transients induced on input bus current and SMA +7V output voltage as SMA +7V output is being pulse-loaded-PRIMARY SIDE				



0.2 A.C.
 (0.2A) CURRENT/DIV: 0.2 A.C.
 (1V) VOLTAGE/DIV: 1V
 (200 μ S) SWEEP RATE: 500 μ sec.
 A.R. Blom

5.10.6.2 Photograph of transients induced on input bus current and SMA +7V output voltage as pulse-load on SMA +7V outputs is being removed - PRIMARY SIDE



(0.2A) CURRENT/DIV: 0.2A A.C.
 (1V) VOLTAGE/DIV: 1V
 (200 μ S) SWEEP RATE: 500 μ sec.

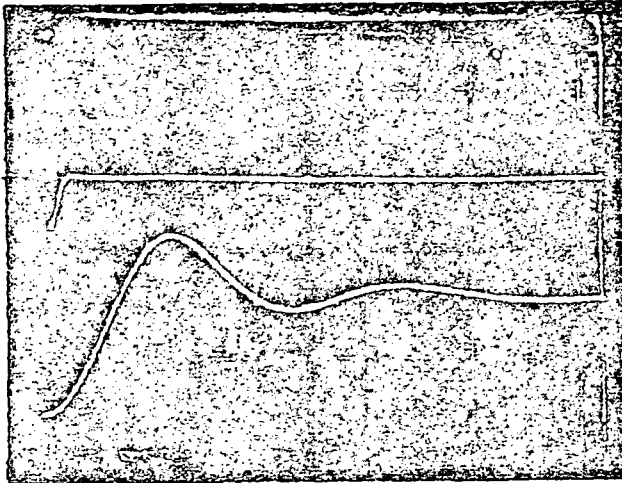
(210)

ORIGINAL PAGE IS
OF POOR QUALITY

10.4 Performance test (continued)

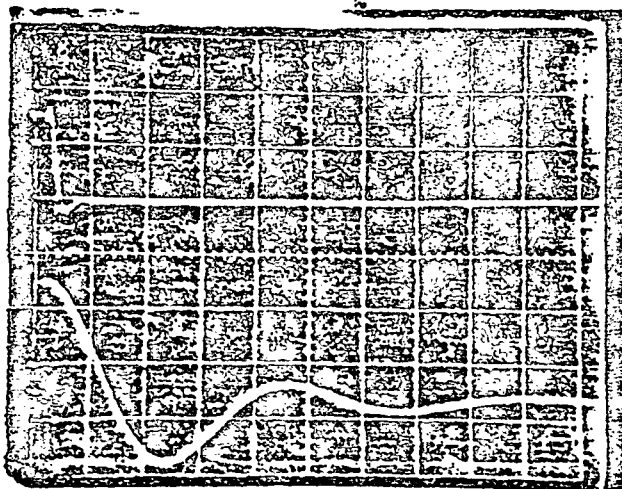
REF. PARA. DESCRIPTION

5.10.6.2 Photograph of transients induced on input bus current and SMA +7V output voltage as SMA +7V output is being pulse-loaded-REDUNDANT SIDE



(0.2A) CURRENT/DIV: 1.2 A.C.
(1V) VOLTAGE/DIV: 1V
(200us) SWEEP RATE: 500 us

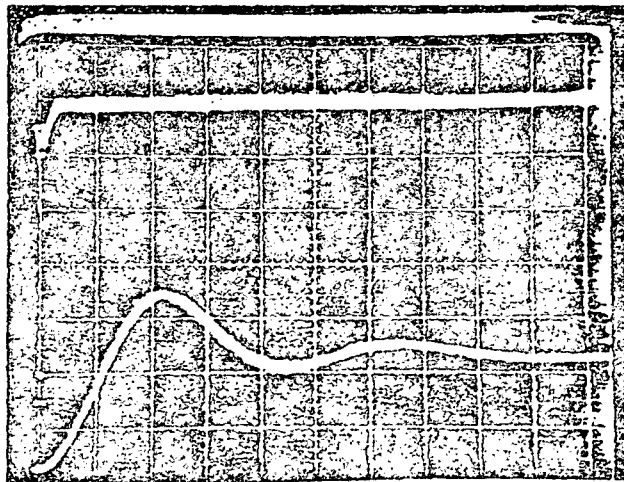
5.10.6.2 Photograph of transients induced on input bus current and SMA +7V output voltage as pulse-load is being removed-REDUNDANT SIDE



(0.2A) CURRENT/DIV: 1.2 A.C.
(1V) VOLTAGE/DIV: 1V
(200us) SWEEP RATE: 500 us

10.4 Performance test (continued)

REF. PARA.	DESCRIPTION	DVM SWITCH POSITIONS	LIMITS	MEASUREMENT	
				PRIMARY	RESIDUAL
5.10.6.3	Input bus current	S26-1, S27-2 (S27-4 for RDT)		110.20 mA	112.70
5.10.6.4	SMA +7V TM- pulsed	S26-5, S28-7 (S28-8 for RDT)		4.573 V	4.717
5.10.6.5	SMA +7V load current- pulsed	(S26-8, S34-5)		4.653 V	4.741
5.10.6.6	Photograph of transients induced on input bus current and SMA +7V load current as SMA +7V output is being pulse-loaded-PRIMARY SIDE				

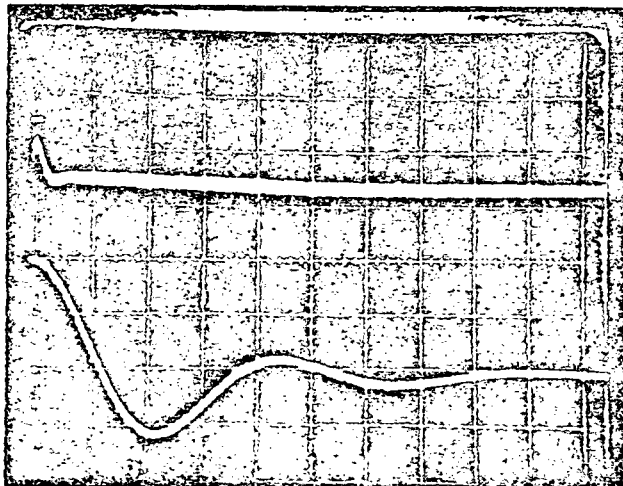


(1A)* SMA CURRENT/DIV: 0.1 %
(1A) BUS CURRENT/DIV: 200 mA
(200ns) SWEEP RATE: 500 μsec.

* Using 0.1 Ω shunt and 100 mV/Div on scope

→ SMA Current

5.10.6.6 Photograph of transients induced on input bus current and SMA +7V load current as pulse-load is being removed-PRIMARY SIDE



(1A)* SMA CURRENT/DIV: 0.1 %
(1A) BUS CURRENT/DIV: 200 mA
(200ns) SWEEP RATE: 500 μsec.

* Using 0.1 Ω shunt and 100mV/Div on Scope

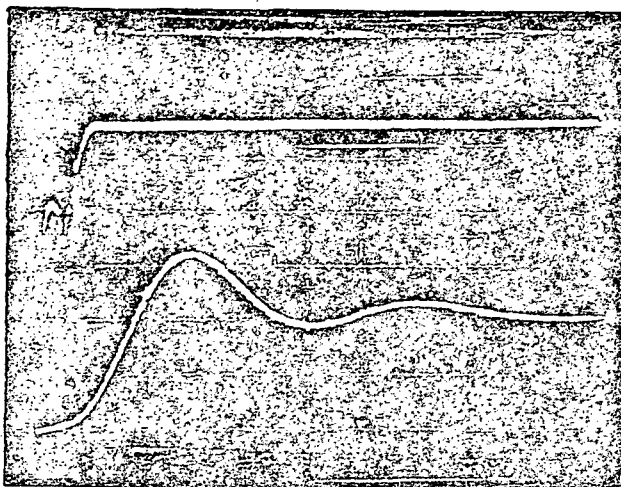
→ SMA Current

ORIGINAL PAGE IS
OF POOR QUALITY

TS 16603
Rev B
~~18 December 1988~~
~~Feb-2 76-81~~

10.4 Performance test (continued)

REF. PARA.	DESCRIPTION
5.10.6.6	Photograph of transients induced on input bus current and SMA + 7V load current as SMA + 7V output is being pulse loaded - REDUNDANT SIDE

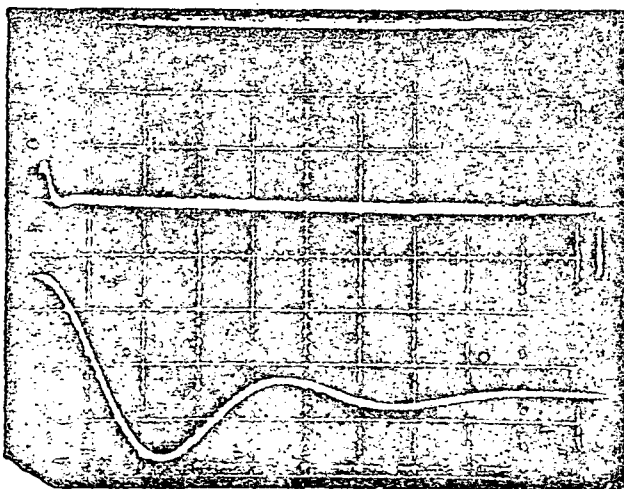


(1A)* SMA CURRENT/DIV: .1
(2A) BUS CURRENT/DIV: 200 mA
(200uS) SWEEP RATE: 500 usec

*Using 0.1 ohm shunt and
100 mV/Div on scope.

2

5.10.6.6 Photograph of transients induced on input bus current and SMA + 7V load current as pulse-load is removed - REDUNDANT SIDE



(1A)* SMA CURRENT/DIV: .1
(2A) BUS CURRENT/DIV: 200 mA
(200uS) SWEEP RATE: 500 usec

*Using 0.1 ohm shunt and
100 mV/Div on scope.

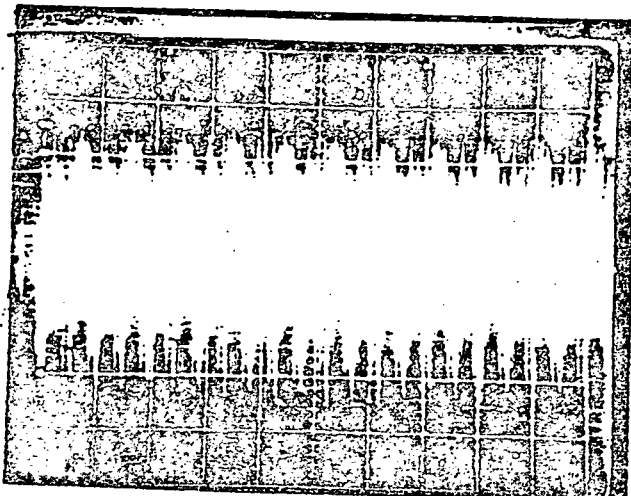
2

10.4 Performance test (continued)

ORIGINAL PAGE IS
OF POOR QUALITY

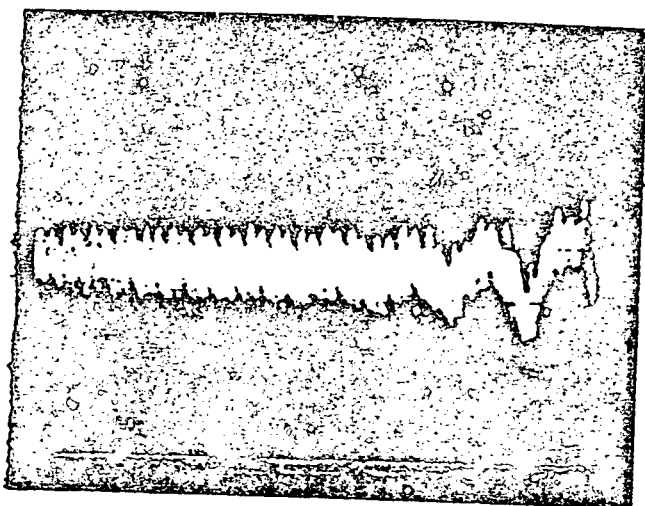
TS 16603
Rev B
18 December 1980

REF. PARA.	DESCRIPTION
5.10.7.1	Photograph of reflected input current ripple - PRIMARY SIDE



(1mA) CURRENT/DIV: 2m A. A.C.
(10 μ s) SWEEP RATE: 10 μ sec.

5.10.7.1 Photograph of reflected input current ripple - REDUNDANT SIDE



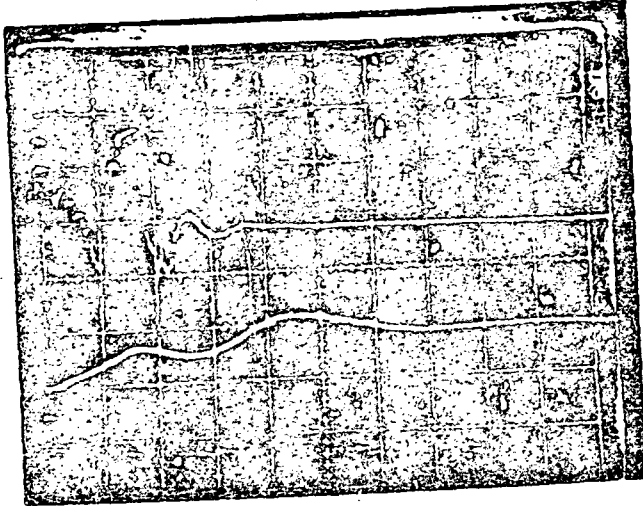
(1mA) CURRENT/DIV: 2m A A.C.
(10 μ s) SWEEP RATE: 10 μ sec

5.10.8.1.1 Input current - full load S26-1, S27-2
(S27-4 for RDT)

105.57 mA 107.87
84.76 mA 87.08

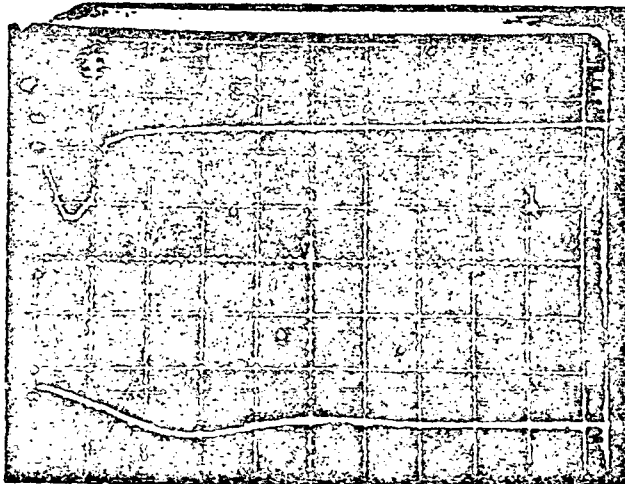
5.10.8.1.2 Input current w/o analog Same
load

5.10.8.1.3 Photograph of transients induced on input bus current and analog + voltage as analog output is enabled - PRIMARY SIDE



(2V) VOLTAGE/DIV: 2 V
(1A) CURRENT/DIV: 2 Amps.
(500uS) SWEEP RATE: 500 μ sec.

5.10.8.1.3 Photograph of transients induced on input bus current and analog + voltage as analog output is disabled - PRIMARY SIDE



(5V) VOLTAGE/DIV: 2 V
(1A) CURRENT/DIV: 2 Amps.
(1mS) SWEEP RATE: 500 μ sec.

ORIGINAL PAGE IS
OF POOR QUALITY

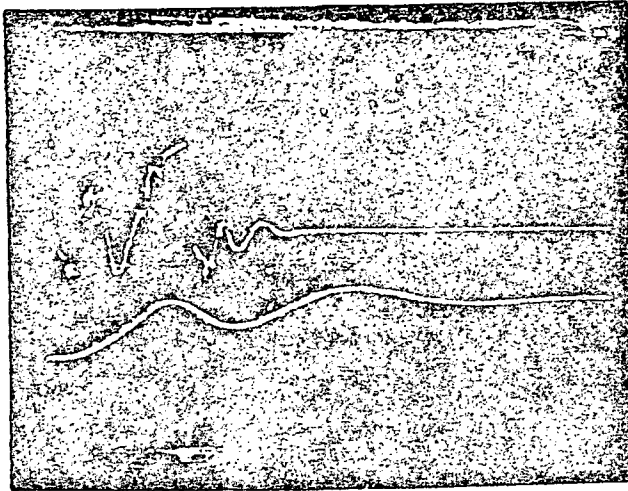
315

ORIGINAL PAGE IS
OF POOR QUALITY

TS 16603
Rev B
18 December 1960

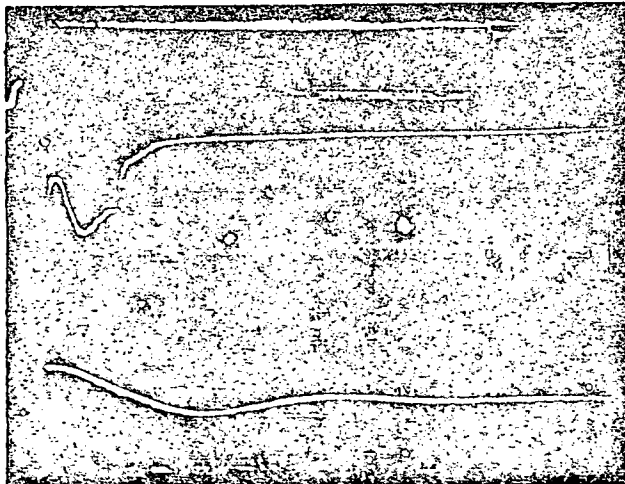
10.4 Performance Tests (Continued)

REF. PARA	DESCRIPTION
5.10.8.1.3	Photograph of transients induced on input bus current and analog + output voltage as analog output is enabled - REDUNDANT SIDE.



(5V) VOLTAGE/DIV: 20
(1A) CURRENT/DIV: 20
(500 μ S) SWEEP RATE: 500 μ S

5.10.8.1.3 Photograph of transients induced on input bus current and analog - output voltage as analog output is disabled - REDUNDANT SIDE.



(5V) VOLTAGE/DIV: 20
(1A) CURRENT/DIV: 20
(1 μ S) SWEEP RATE: 500 μ S

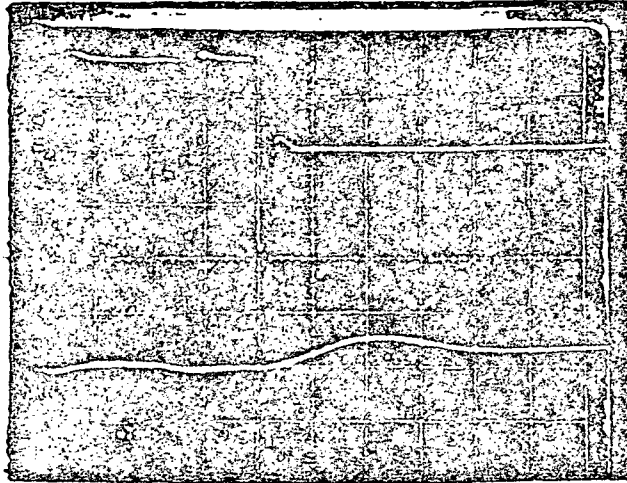
(11)

ORIGINAL PAGE IS
OF POOR QUALITY

TS 16603
Rev B
18 December 1980

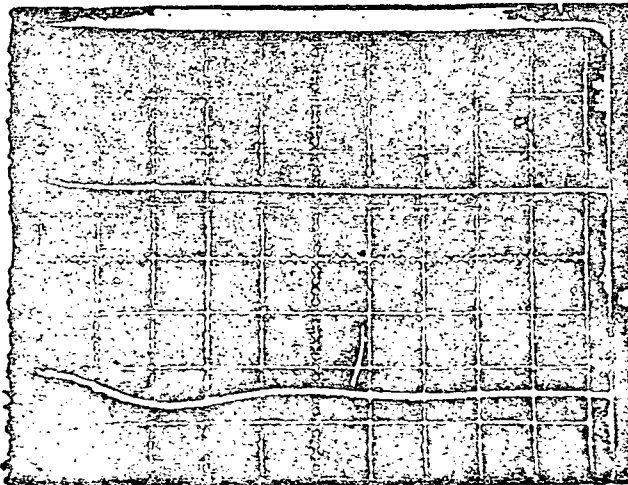
10.4 Performance test (continued)

F. PARA.	DESCRIPTION	DVM SWITCH POSITIONS	LIMITS	MEASUREMENT	
				PRIMARY	REDUNDANT
5.10.8.2.1	Input bus current w/o SMA +7V load	S26-1, S27-2 (S27-4 for RDT)		96.35 mV.	98.30
5.10.8.2.2	Photograph of transients induced on input bus current and SMA +7V output voltage as SMA +7V is enabled - PRIMARY SIDE.				



(5V) VOLTAGE/DIV: 2V
(1A) CURRENT/DIV: 1 Amp.
(200 μ S) SWEEP RATE: 500 μ sec.

5.10.8.2.2 Photograph of transients induced on input bus current and SMA +7V output voltage as SMA +7V is disabled - PRIMARY SIDE.



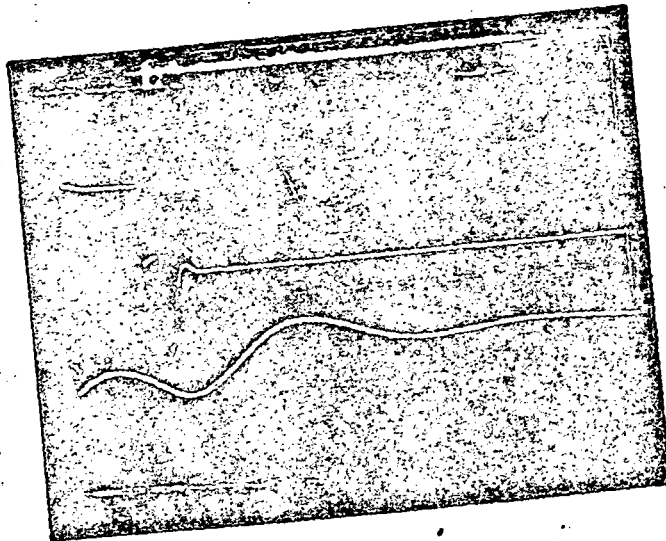
(2V) VOLTAGE/DIV: 2V
(1A) CURRENT/DIV: 1 Amp.
(2mS) SWEEP RATE: 500 μ sec.

317

ORIGINAL PAGE IS
OF POOR QUALITY

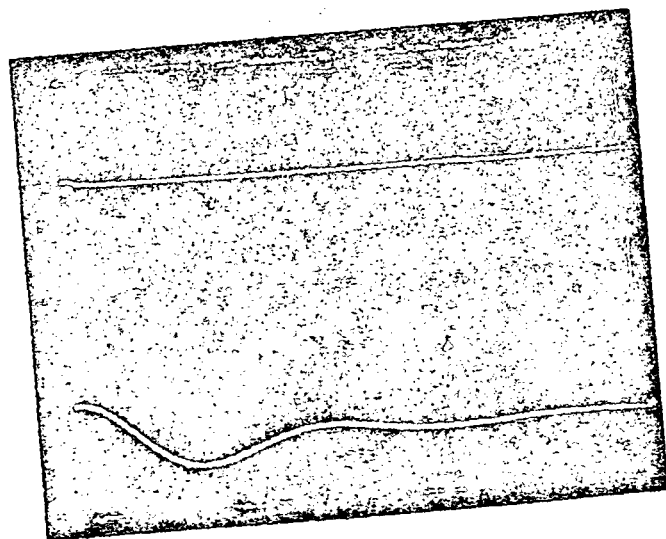
10.4 Performance test (continued)

REF. PARA.	DESCRIPTION
5.10.8.2.2	Photograph of transients induced on input bus current and SMA +7 output voltage as SMA +7V is enabled - REDUNDANT SIDE



(5V) VOLTAGE/DIV: 2V
(1A) CURRENT/DIV: 1A
(200uS) SWEEP RATE: 500uS

5.10.8.2.2	Photograph of transients induced on input bus current and SMA +7V output voltage as SMA +7V is disabled - REDUNDANT SIDE
------------	--



(2V) VOLTAGE/DIV: 2V
(1A) CURRENT/DIV: 1A
(2mS) SWEEP RATE: 500uS

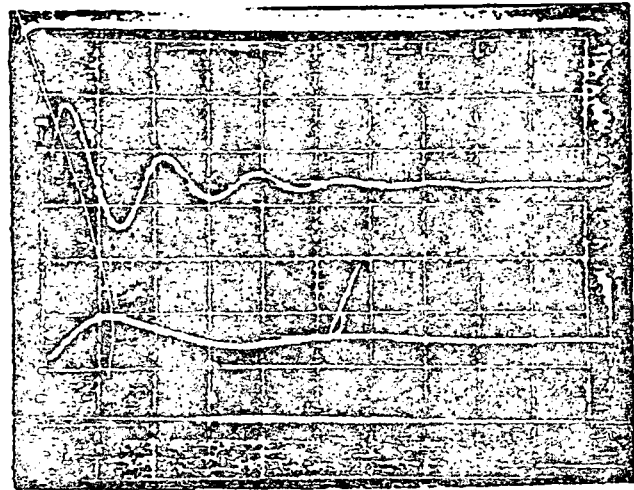
378

ORIGINAL PAGE IS
OF POOR QUALITY

TS 16603
Rev B
18 December 1980

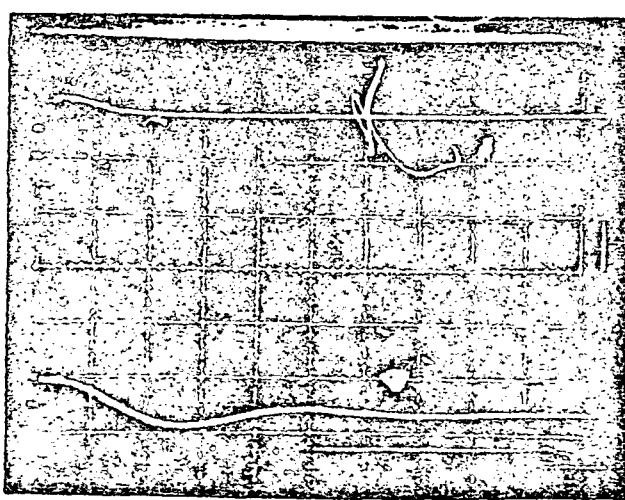
10.4 Performance test (continued)

REF. PARA.	DESCRIPTION	DVM SWITCH POSITIONS	LIMITS	MEASUREMENT	
				PRIMARY	REDUNDANT
5.10.8.2.3	Input bus current w/o SMA +29V load	S26-1, S27-2 (S27-4 for RDT)		102.33 mV	104.39
5.10.8.2.4	Photograph of transients induced on input bus current and SMA +29V output voltage as SMA +29V is enabled - PRIMARY SIDE				



(2V) VOLTAGE/DIV: 1V
 (0.5V) CURRENT/DIV: 0.5 Amp.
 (1mS) SWEEP RATE: 500 μ sec.

5.10.8.2.4 Photograph of transients induced on input bus current and SMA +29V output voltage as SMA +29V is disabled - PRIMARY SIDE

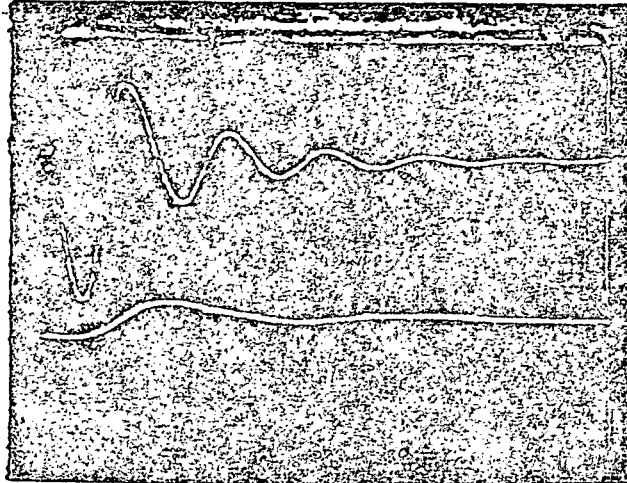


(2V) VOLTAGE/DIV: 1V
 (0.5A) CURRENT/DIV: 0.5 Amp.
 (1mS) SWEEP RATE: 500 μ sec.

319

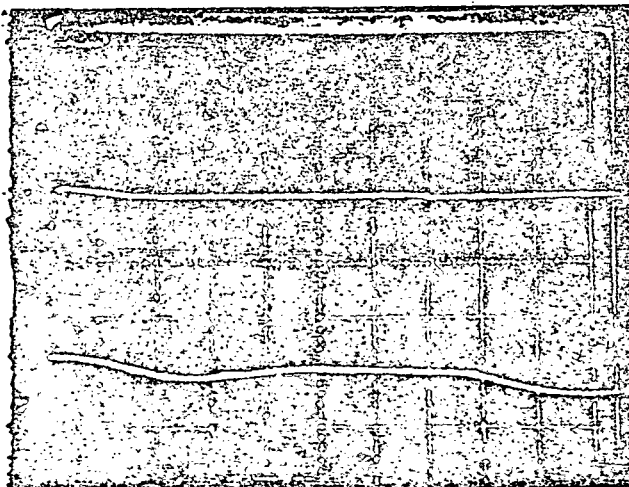
10.4 Performance test (continued)

<u>TEST PARA.</u>	<u>DESCRIPTION</u>
5.10.8.2.4	Photograph of transients induced on input bus current and SMA +29V output voltage as SMA +29V is enabled - REDUNDANT SIDE



(2V) VOLTAGE/DIV: 1V
(0.5A) CURRENT/DIV: 5A
(1ms) SWEEP RATE: 500ns

5.10.8.2.4	Photograph of transients induced on input bus current and SMA +29V output voltage as +29V is disabled - REDUNDANT SIDE
------------	--

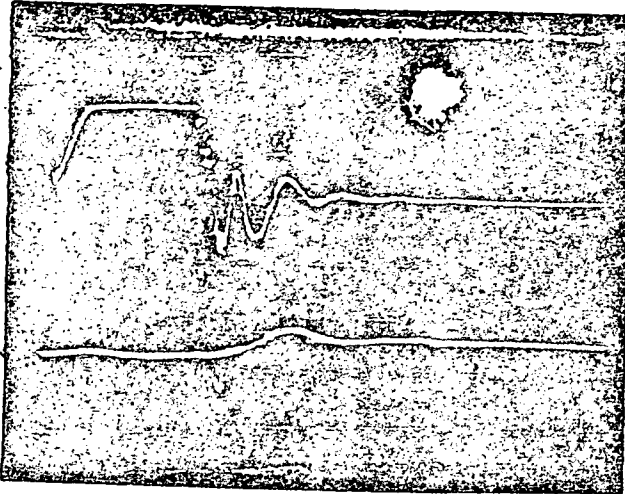


(2V) VOLTAGE/DIV: 1V
(0.5) CURRENT/DIV: 5A
(1ms) SWEEP RATE: 500ns

320

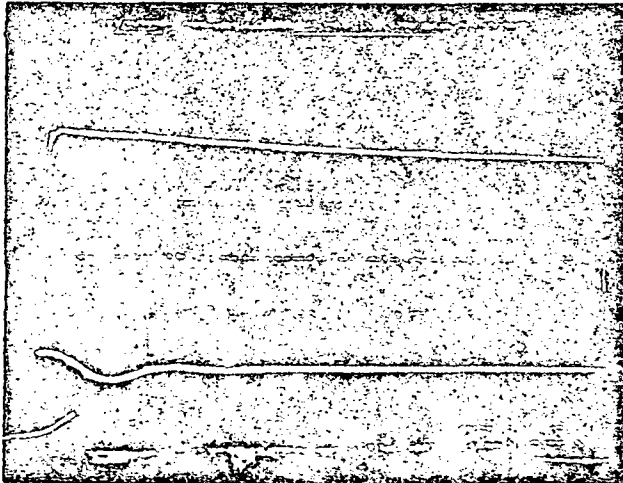
10.4 Performance test (continued)

TEST PARA.	DESCRIPTION
5.10.8.3.2	Photograph of transients induced on input bus current and CDVU output voltage as CDVU is enabled - REDUNDANT SIDE



(2V) VOLTAGE/DIV: 10
(0.5A) CURRENT/DIV: 5A
(1mS) SWEEP RATE: 5mS

5.10.8.3.2	Photograph as transients induced on input bus current and CDVU output voltage as CDVU is disabled - REDUNDANT SIDE
------------	--

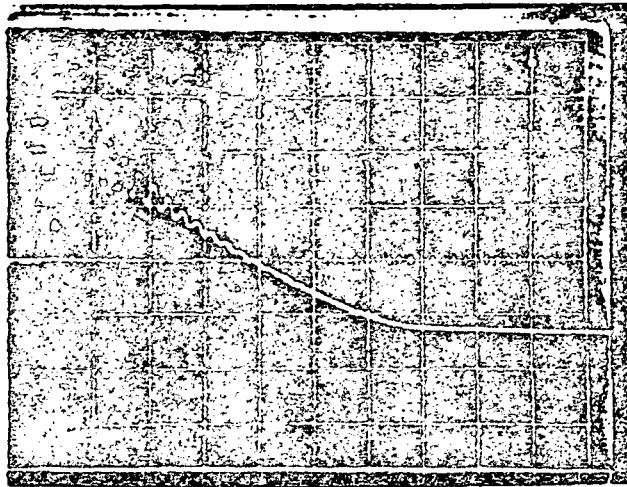


(2V) VOLTAGE/DIV: 10
(0.5A) CURRENT/DIV: 5A
(1mS) SWEEP RATE: 5mS

322

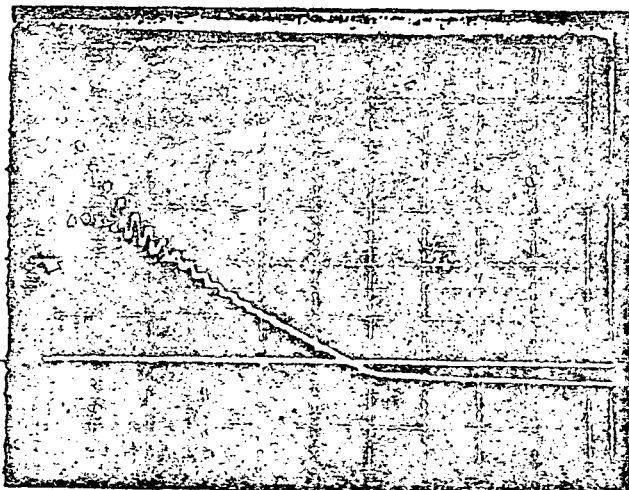
10.4 Performance test (continued)

TEST PARA.	DESCRIPTION
5.10.9.1	Photograph of turn-off transient of input bus voltage and input bus current as bus voltage is removed - PRIMARY SIDE



(5V) VOLTAGE/DIV: 5V
(5A) CURRENT/DIV: 5A
(500 μ S) SWEEP RATE: 500 μ SEC.

Photograph of turn-off transient of input bus voltage and input bus current as bus voltage is removed - REDUNDANT SIDE

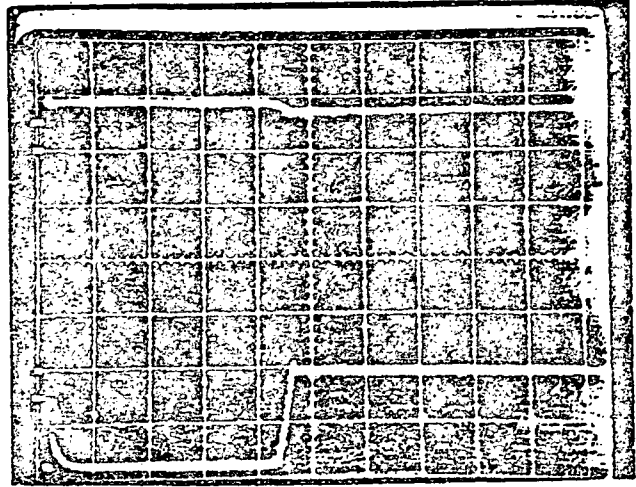


(5V) VOLTAGE/DIV: 5V
(5A) CURRENT/DIV: 5A
(500 μ S) SWEEP RATE: 500 μ SEC.

ORIGINAL PAGE IS
 OF POOR QUALITY

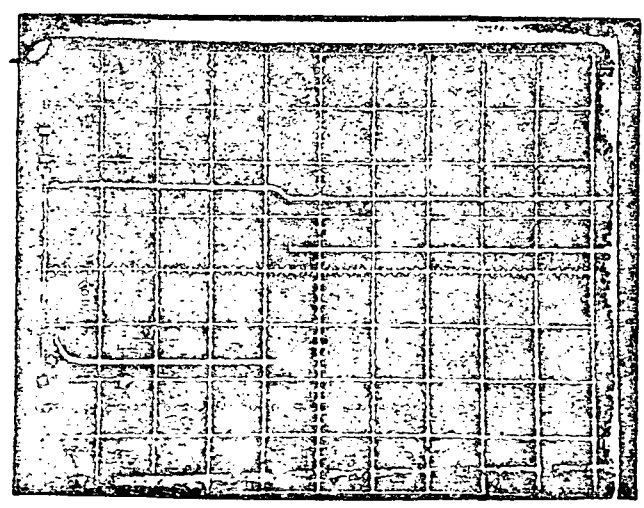
10.4 Performance test (continued)

REF. PARA.	DESCRIPTION	DVM SWITCH POSITIONS	LIMITS	MEASUREMENT	
				PRIMARY	REDUNDANT
5.10.9.2	DUT stays off when bus is reapplied.	S1-ON (S2-ON for RDT)	—	✓	✓
5.10.9.3	Photograph of turn-on transient of bus voltage and current as ON command is issued - PRIMARY SIDE				



(5V) VOLTAGE/DIV: 5V
 (5A) CURRENT/DIV: 5 Amps.
 (100ms) SWEEP RATE: 100ms/sec.

5.10.9.3 Photograph of turn-on transient of bus voltage and current as ON command is issued - REDUNDANT SIDE



(5V) VOLTAGE/DIV: 5V
 (5A) CURRENT/DIV: 5A
 (100ms) SWEEP RATE: 100ms

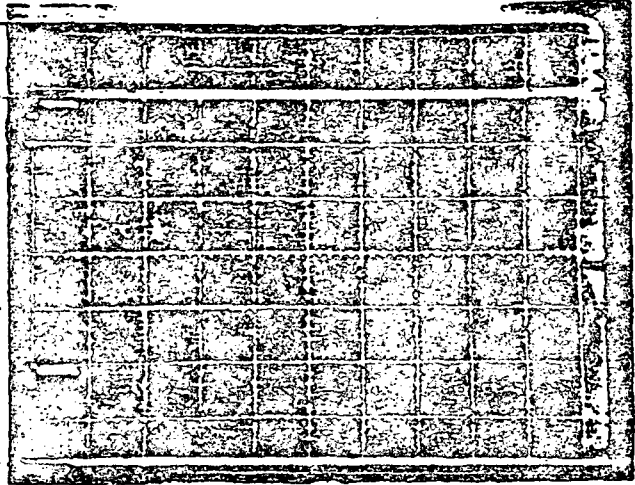
324

ORIGINAL PAGE IS
OF POOR QUALITY

TS 16603
Rev B
18 December 1980

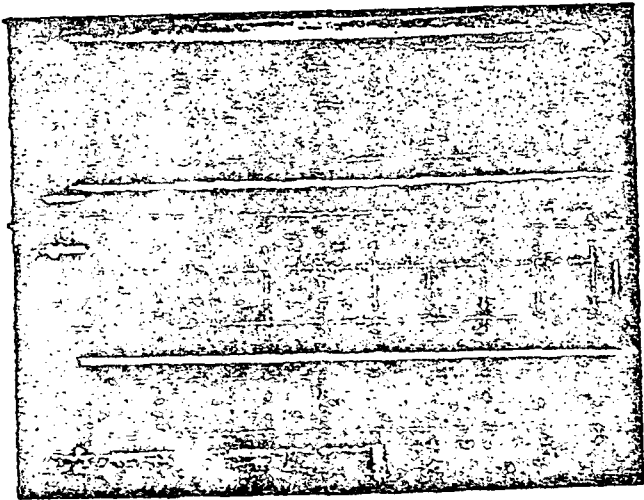
10.4 Performance test (continued)

7. PARA.	DESCRIPTION
5.10.9.4	Photograph of turn-off transient of input bus voltage and current as OFF command is issued - PRIMARY SIDE



(5V) VOLTAGE/DIV: 5V
(5A) CURRENT/DIV: 5 A_{mps}
(10ms) SWEEP RATE: 10_m sec.

5.10.9.4 Photograph of turn-off transient of input bus voltage and current as OFF command is issued - REDUNDANT SIDE



(5V) VOLTAGE/DIV: 5V
(5A) CURRENT/DIV: 5A
(10ms) SWEEP RATE: 10ms

325

ORIGINAL PAGE IS
OF POOR QUALITY

TS 16603
Rev B
18 December 1980

10.4 Performance test (continued)

REF. PARA.	DESCRIPTION	DVM SWITCH POSITIONS	LIMITS	PRIMARY	REDUNDANT
5.10.9.5	Record	S27-2 (S27-4)		105.29 mV	105.53
5.10.9.6	Record	(S27-4 (S27-2)		89.52 mV	20.53
	Record	S27-2 (S27-4)		23.11 mV	95.11
5.10.9.7	Record that UUT turns on.	(Checkmark)		✓	✓
5.10.10.1	Input bus current AFTER it reads ~ 17A AND input bus voltage reads ~ 21V.	S26-1, S27-2 (S27-4 for RDT)		110.95 mV	125.03
5.10.10.2	Input bus voltage with 17.0A load	S26-1, S27-1 (S27-3 for RDT)		35.02 V	35.00
5.10.10.3	Input current telemetry output	S26-4, S28-2 (S28-4 for RDT)		3.035 V	3.521
5.10.10.4	Input current telemetry output	S26-4, S28-2 (S28-4 for RDT)		3.002 V	3.505
	Input bus voltage	S26-1, S27-1 (S27-3 for RDT)		NA	35.00
	Input bus current	S26-1, S27-2 (S27-4 for RDT)		NA mV	124.15
5.10.10.5	Input current telemetry output	S26-4, S28-2 (S28-4 for RDT)		3.002 V	3.026
	Input bus voltage	S26-1, S27-1 (S27-3 for RDT)		35.00 V	35.00
	Input bus current	S26-1, S27-2 (S27-4 for RDT)		109.70 mV	109.47
5.10.10.6	Input current telemetry output	S26-4, S28-2 (S28-4 for RDT)		2.500 V	2.520
	Input bus voltage	S26-1, S27-1 (S27-3 for RDT)		34.99 V	35.00
	Input bus current	S26-1, S27-2 (S27-4 for RDT)		95.31 mV	94.43
5.10.10.7	Input current telemetry output	S26-4, S28-2 (S28-4 for RDT)		2.008 V	2.003
	Input bus voltage	S26-1, S27-1 (S27-3 for RDT)		35.00 V	35.00
	Input bus current	S26-1, S27-2 (S27-4 for RDT)		80.79 mV	75.15

326

ORIGINAL PAGE 19
OF POOR QUALITY

10.4 Performance test (continued)

REF. PARA.	DESCRIPTION	DVM SWITCH POSITIONS	LIMITS	MEASUREMENT	
				PRIMARY	REDUNDANT
5.10.10.8	Input current telemetry output	S26-4, S28-2 (S28-4 for RDT)		1.5036 V.	1.508
	Input bus voltage	S26-1, S27-1 (S27-3 for RDT)		35.01 V.	35.00
	Input bus current	S26-1, S27-2 (S27-4 for RDT)		62.47 mA.	62.90
5.10.10.9	Input current telemetry output	S26-4, S28-2 (S28-4 for RDT)		1.0026 V.	1.097
	Input bus voltage	S26-1, S27-1 (S27-3 for RDT)		35.00 V.	35.00
	Input bus current	S26-1, S27-2 (S27-4 for RDT)		47.53 mA.	46.15
5.10.10.10	Input current telemetry output	S26-4, S28-2 (S28-4 for RDT)		0.4916 V.	1.5270
	Input bus voltage	S26-1, S27-1 (S27-3 for RDT)		35.01 V.	35.00
	Input bus current	S26-1, S27-2 (S27-4 for RDT)		33.00 mA.	30.66
5.10.10.11	Input current telemetry output	S26-4, S28-2 (S28-4 for RDT)		0.2030 V.	1.2164
	Input bus voltage	S26-1, S27-1 (S27-3 for RDT)		35.00 V.	35.00
	Input bus current	S26-1, S27-2 (S27-4 for RDT)		29.73 mA.	23.35
5.10.10.12	Input current telemetry output	S26-4, S28-2 (S28-4 for RDT)		-0.2467 V.	1.2164
	Input bus voltage	S26-1, S27-1 (S27-3 for RDT)		34.99 V.	35.00
	Input bus current	S26-1, S27-2 (S27-4 for RDT)		10.545 mA.	10.76
5.10.11.1	Band 1+ output voltage	S26-1, S27-5		23.98	24.56
5.10.11.2	Band 1- output voltage	S27-6		24.17	23.96
5.10.11.3	2+	S27-7		24.28	23.67
5.10.11.4	2-	S27-8		24.28	24.18
5.10.11.5	3+	S27-9		26.21	24.29
5.10.11.6	3-	S27-10		23.27	23.86
5.10.11.7	Band 4+ output voltage	S26-1, S27-11		24.61	24.46

327

ORIGINAL PAGE IS
OF POOR QUALITY

TS 16603
Rev B

~~10 December 1980~~
Rev. 2 86-81

10.4 Performance test (continued)

REF. PARA.	DESCRIPTION	SWITCH POSITIONS	LIMITS	MEASUREMENT	
				PRIMARY	REDUNDANT
5.10.11.8	Band 4- output voltage	S26-1, S27-12		-24.13	-24.09
5.10.11.9	5,7+	S26-2, S27-1		23.31	23.83
5.10.11.10	5,7-	S27-2		-23.27	-23.66
5.10.11.11	6+	S27-3		22.84	23.47
5.10.11.12	Band 6-	S27-4		-23.50	-23.78
5.10.11.13	SMA Htr +	S27-5		24.72	25.56
5.10.11.14	Htr -	S27-6		-25.65	-25.44
5.10.11.15	+7V	S27-7		9.807	N/A
5.10.11	+7V	(S27-8 For EDT)		N/A	9.759
5.10.11	+29V	S27-9		31.73	N/A
5.10.11	+29V	(S27-11 For EDT)		N/A	31.97
5.10.11	-29V	S27-10		-32.05	Δ
	SMA -29V	S26-2, (S27-12 for EDT)		N/A	-31.80
5.10.11.18	Radiometer	S26-3, S27-2		9.58	9.853
5.10.11.19	CDVU	S27-3		9.70	9.638
5.10.11.20	Analog +	S27-4		26.88	27.23
5.10.11.21	Analog -	S27-5		-24.42	-25.33
5.10.11.22	Electromech.	S27-6		45.27	47.76
5.10.11.23	Outgas	S27-7		103.69	102.10
5.10.11.24	Parasitic	S27-9		31.00	N/A
	Parasitic output voltage	S26-3, (S27-10 for EDT)		N/A	31.75
5.10.11.25	Band 1+ TM output	S26-4, S28-5		4.372	4.490
5.10.11.26	1-	S28-6		4.398	4.361
5.10.11.27	2+	S28-7		4.416	4.307
5.10.11.28	2-	S28-8		4.396	4.384
5.10.11.29	3+	S28-9		4.770	4.423
5.10.11.30	3-	S28-10		4.240	4.350
5.10.11.31	4+	S28-11		4.466	4.443
5.10.11.32	4-	S26-4, S28-12		4.386	4.381
5.10.11.33	Band 5,7+ TM output	S26-5, S28-1		4.253	4.363

2-222

2-222

328

10.4 Performance test (continued)

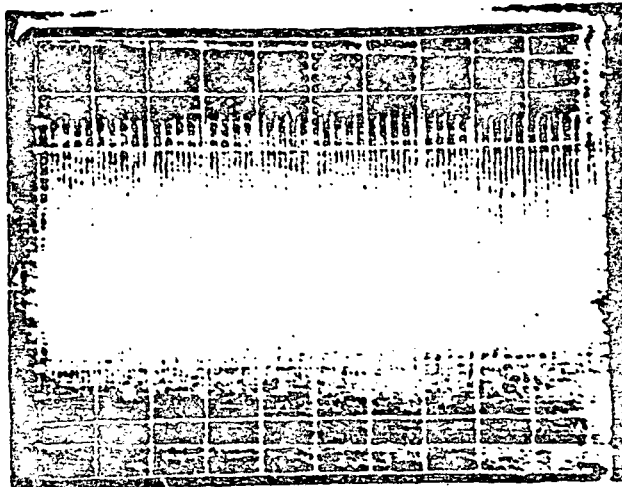
REF. PARA.	DESCRIPTION	DVM SWITCH POSITIONS	LIMITS	MEASUREMENT	
				PRIMARY	REDUNDANT
5.10.11.34	Band 5,7- TM output	S26-5, S28-2		4.242	4.302
5.10.11.35	6+	S28-3		4.131	4.250
5.10.11.36	Band 6-	S28-4		4.290	4.342
5.10.11.37	SMA Htr +	S28-5		4.512	4.657
5.10.11.38	Htr -	S28-6		4.523	4.601
5.10.11.39	+7V	S28-7 (S28-8 for RDT)		6.043	6.019
5.10.11.40	+29V	S28-9 (S28-11 for RDT)		4.328	4.385
5.10.11.41	SMA -29V	S26-5, S28-10 (S28-12 for RDT)		3.671	3.723
5.10.11.42	Radiometer	S26-6, S28-2		5.199	5.340
5.10.11.43	CDVU	S28-3		5.378	5.383
5.10.11.44	Analog +	S28-4		4.779	5.329
5.10.11.45	Analog -	S28-5		4.470	4.839
5.10.11.46	Electromech.	S28-6		5.544	4.480
5.10.11.47	Outgas - TM output	S26-6, S28-7		5.165	4.480
5.10.12.1	Bus voltage	S26-1, S27-1 (S27-3 for RDT)		35.01	35.00
5.10.12.2	Input bus current	S26-1, S27-2 (S27-4 for RDT)		35.37	36.08
5.10.12.3	SMA Htr + output voltage	S26-2, S27-5		21.39	21.93
5.10.12.4	Htr + ripple	Seen on Scope	<30 mV pk-pk	40	40
5.10.12.5	Htr - voltage	S26-2, S27-6		-22.09	-22.63
5.10.12.6	SMA Htr - ripple	Seen on Scope	<30 mV pk-pk	40	40
5.10.12.7	CDVU voltage	S26-3, S27-3		7.519	7.692
5.10.12.8	CDVU ripple	Seen on Scope	<40 mV pk-pk	50	60
5.10.12.9	Outgas - output voltage	S26-3, S27-7		96.68	97.57
5.10.12.10	Outgas - output ripple	Seen on Scope	2.50V pk-pk	300mV	350mV
5.10.12.11	Parasitic output voltage	S26-3, S27-9 (S27-10 for RDT)		30.01	30.60
5.10.12.12	Parasitic output ripple	Seen on Scope	<900 mV pk-pk	100	100

329

10.4 Performance test (continued)

ORIGINAL PAGE IS
 OF POOR QUALITY

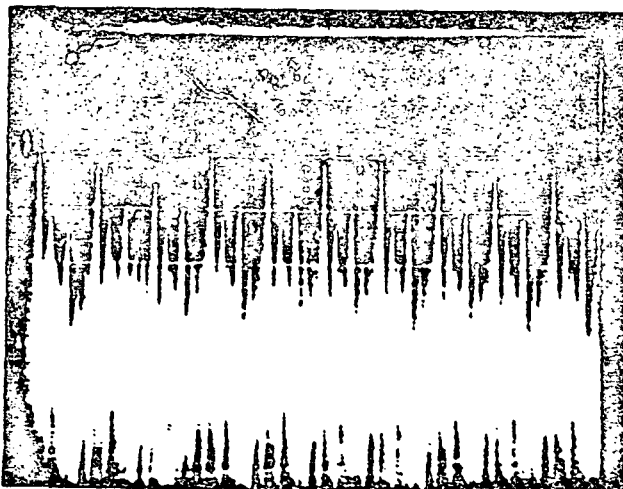
REF. PARA.	DESCRIPTION	DVM SWITCH POSITIONS	LIMITS	MEASUREMENT	
				PRIMARY	REDUNDANT
5.10.13.1	Input current telemetry	S26-4, S28-2 (S28-4 for RDT)		7096	19428
5.10.13.2	SMA Htr + output	S26-5, S28-5		3909	41011
5.10.13.3	SMA Htr -	S26-5, S28-6		4004	4110
5.10.13.4	CDVU	S26-6, S28-3		4218	4317
5.10.13.5	Outgas output telemetry	S26-6, S28-7		4328	4396
5.10.14.1	Photograph of reflected input current ripple in outgas mode - PRIMARY SIDE				



(2mA) CURRENT/DIV: 2 mA.A.C.

(10uS) SWEEP RATE: 50 μ s

5.10.14.2 Photograph of reflected input current ripple in outgas mode - REDUNDANT SIDE



(2mA) CURRENT/DIV: 2 mA.A.C.

(10uS) SWEEP RATE: 10 μ s

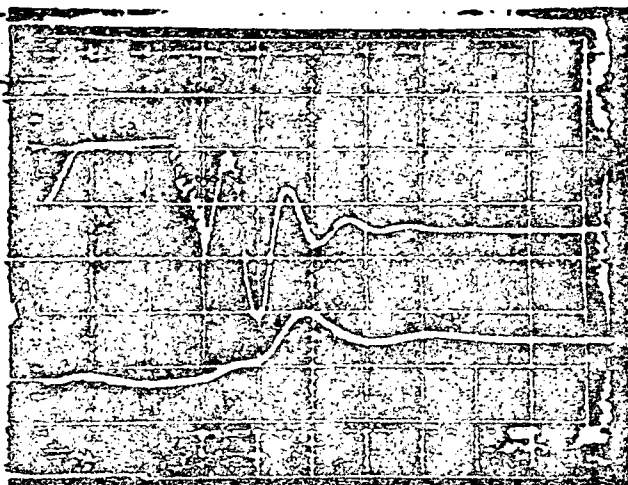
320

ORIGINAL PAGE IS
OF POOR QUALITY

TS 16603
Rev B
18 December 1980

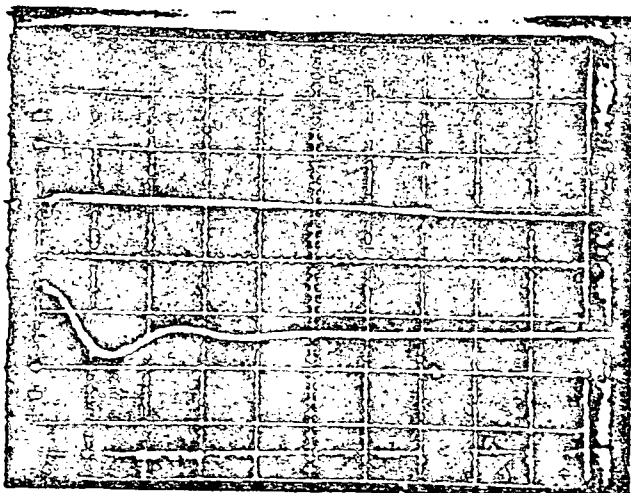
10.4 Performance test (continued)

REF. PARA.	DESCRIPTION	DVM SWITCH POSITIONS	LIMITS	MEASUREMENT	
				PRIMARY	REDUNDANT
5.10.15.1.1	Input current with CDVU off.	S26-1, S27-2 (S27-4 for RDT)		33.61	34.23
5.10.15.1.2	Photograph of input bus current and CDVT output voltage as CDVU load is enabled - PRIMARY SIDE				



(2V) VOLTAGE/DIV: 1V
(200mA) CURRENT/DIV: 200mA
(1ms) SWEEP RATE: 1ms

5.10.15.1.2 Photograph of input bus current and CDVT output voltage as CDVU load is disabled - PRIMARY SIDE



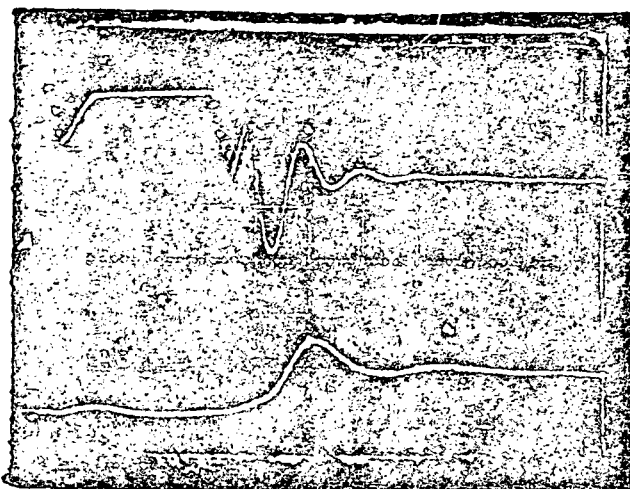
(2V) VOLTAGE/DIV: 1V
(200mA) CURRENT/DIV: 200mA
(2ms) SWEEP RATE: 1ms

331

10.4 Performance test (continued)

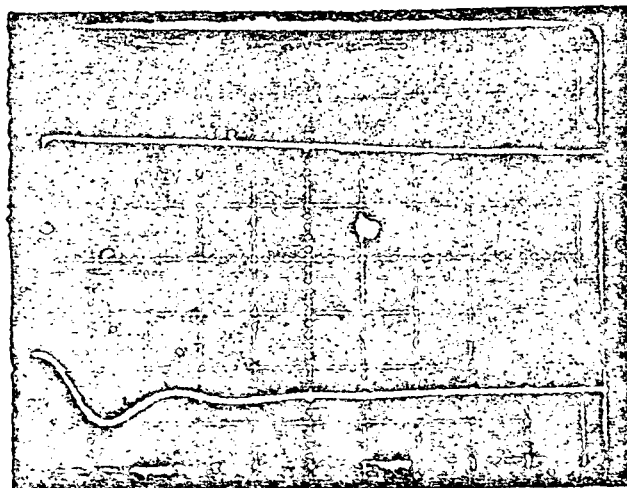
ORIGINAL PAGE IS
OF POOR QUALITY

EF. PARA.	DESCRIPTION
5.10.15.1.2	Photograph of input bus current and CDVU output voltage as CDVU load is enabled - REDUNDANT SIDE



(2V) VOLTAGE/DIV: 1V
(200mA) CURRENT/DIV: 200mA
(1ms) SWEEP RATE: 1ms

5.10.15.1.2	Photograph of input bus current and CDVU output voltage as CDVU load is disabled - REDUNDANT SIDE
-------------	---



(2V) VOLTAGE/DIV: 1V
(200mA) CURRENT/DIV: 200mA
(2ms) SWEEP RATE: 1ms

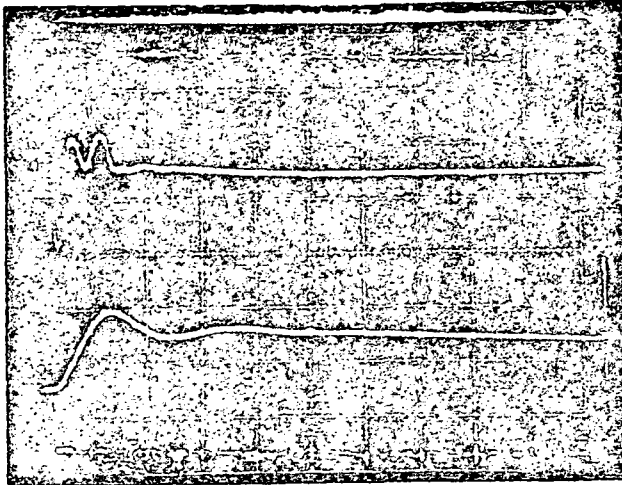
332

ORIGINAL PAGE IS
OF POOR QUALITY

TS 16603
Rev B
18 December 1980

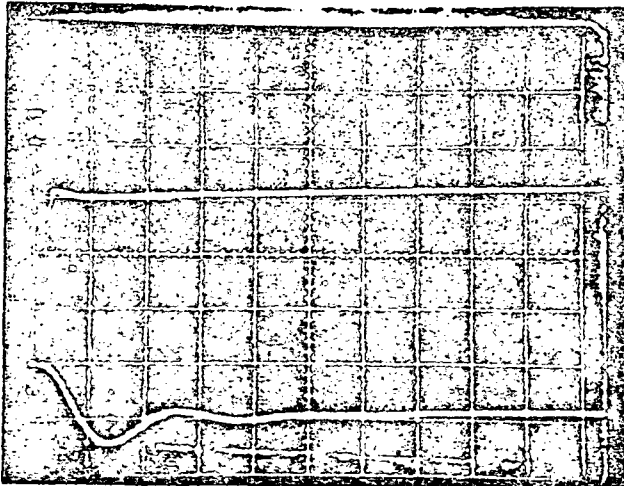
10.4 Performance test (continued)

REF. PARA.	DESCRIPTION	DVM SWITCH POSITIONS	LIMITS	MEASUREMENT	
				PRIMARY	REDUNDANT
5.10.15.2.1	Input bus current with outgas disabled	S26-1, S27-2 (S27-4 for RDT)		<u>12.944</u>	<u>13.173</u>
5.10.15.2.2	Photograph of input bus current and outgas voltage as outgas load is enabled - PRIMARY SIDE				



(5V) VOLTAGE/DIV: 5V
(2A) CURRENT/DIV: 2A
(1mS) SWEEP RATE: 1mS

5.10.15.2.2 Photograph of input bus current and outgas voltage as outgas load
is disabled - PRIMARY SIDE



(5V) VOLTAGE/DIV: 5V
(2A) CURRENT/DIV: 2A
(2mS) SWEEP RATE: 1mS

333

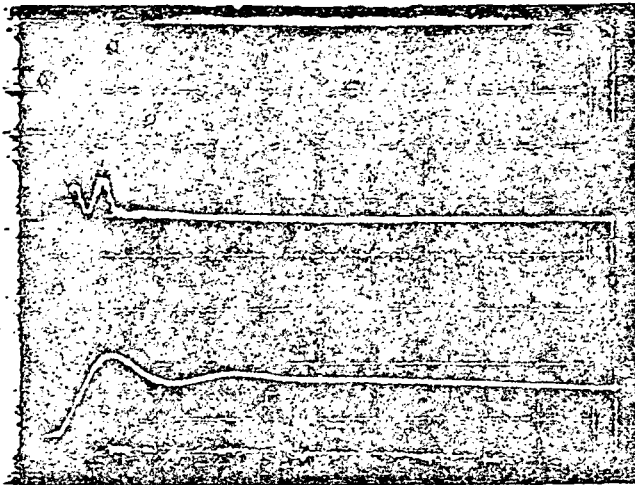
10.4 Performance test (continued)

ORIGINAL PAGE IS
OF POOR QUALITY

EP. PARA.

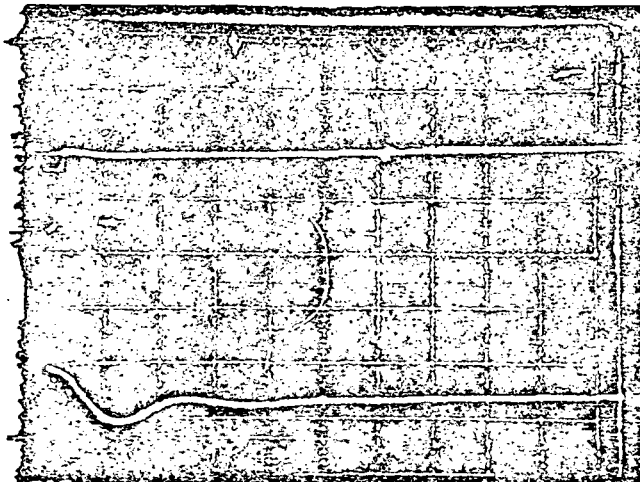
DESCRIPTION

5.10.15.2.2 Photograph of input bus current and outgas voltage as outgas load is enabled - REDUNDANT SIDE



(5V) VOLTAGE/DIV: 5V
(2A) CURRENT/DIV: 2A
(500 μ S) SWEEP RATE: 1MS

5.10.15.2.2 Photograph of input bus current and outgas voltage as outgas load is disabled - REDUNDANT SIDE



5V) VOLTAGE/DIV: 5V
2A) CURRENT/DIV: 2A
1MS) SWEEP RATE: 1MS

334

10.4 Performance test (continued)

ORIGINAL PAGE IS
OF POOR QUALITY

TS 16603
Rev B
~~29 December 1969~~
~~SEN-2 7-8-81~~

REF. PARA.	DESCRIPTION	DVM SWITCH POSITION	LIMITS	MEASUREMENT	
				PRIMARY	REDUNDANT
5.10.16.1	BPS voltage	S26-1, S27-1 (S27-3 for RDT)		35.09 ₍₄₉₎	35.00
5.10.16.2	EPS current	S26-1, S27-2 (S27-4 for RDT)		15.19 ₍₅₀₎	15.684
5.10.16.3	SMA Htr +output voltage	S26-2, S27-5		21.77 ₍₁₃₎	22.15
5.10.16.4	SMA Htr +load current	S26-8, S34-1		46.43 ₍₁₈₎	47.76
5.10.16.5	SMA Htr -output voltage	S26-2, S27-6		-22.16 ₍₁₄₎	22.57
5.10.16.6	SMA Htr -load current	S26-8, S34-2		-9.750 ₍₁₇₎	9.910
5.10.16.7	CDVU output voltage	S26-3, S27-3		7.513 ₍₂₀₎	7.658
5.10.16.8	CDVU load current	S26-8, S34-10		1.2684 ₍₂₅₎	2.748
5.10.16.9	Parasitic output voltage	S26-3, S27-9 (S27-10)		30.73 ₍₂₃₎	31.27
5.10.16.10	Parasitic load current	S26-8, S34-7		143.20 ₍₄₆₎	145.47
5.10.16.11	Input power (5.10.16.1 x 5.10.16.2)			53.165	54.912
5.10.16.12	Output power (5.10.16.3 x 5.10.16.4) + (5.10.16.5 x 5.10.16.6) + (5.10.15.7 x 5.10.16.8) + (5.10.16.9 x 5.10.16.10)	(Primary) N/A ↓ ↓ ↓ (Redundant) N/A ↓ ↓ ↓		17.217	17.878
5.10.16.13	Efficiency (5.10.16.12) ÷ (5.10.16.11) x 100%			32.4%	32.6%

SMA HTR+ = 2.043
SMA HTR- = 1.94
CDVU = 4.333
PARASITIC = 10.947
INPUT POWER = 53.165
OUTPUT POWER = 17.217
EFFICIENCY = 32.4%

SMA HTR+ = 2.119
SMA HTR- = 1.91
CDVU = 4.228
PARASITIC = 11.734
INPUT POWER = 54.912
OUTPUT POWER = 17.878
EFFICIENCY = 32.6%

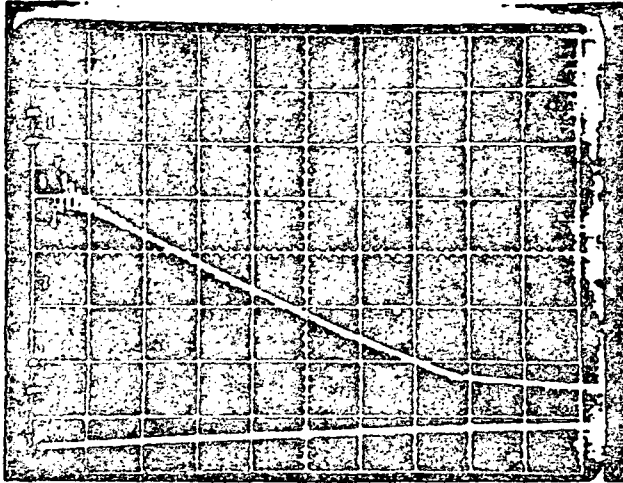
335

ORIGINAL PAGE IS
OF POOR QUALITY

TS 16603
Rev B
18 December 1980

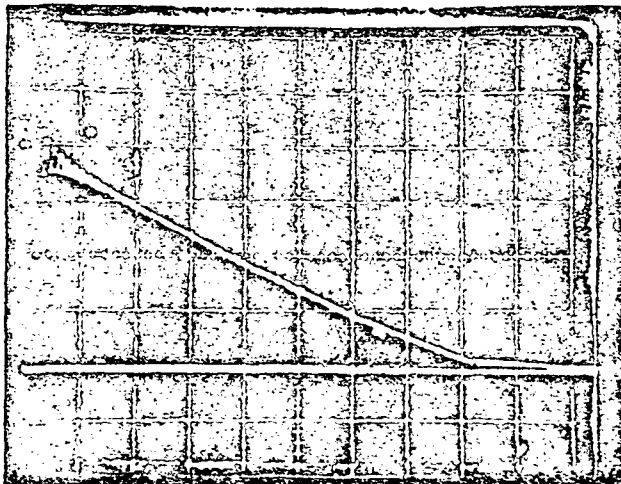
10.4 Performance test (continued)

5.10.17.1 Photograph of input bus current and input bus voltage
as is disable - PRIMARY SIDE



(5V) VOLTAGE/DIV: 5V
(2A) CURRENT/DIV: 2A
(1ms) SWEEP RATE: 1MS

5.10.17.1 Photograph of input bus current and input bus voltage
as is disabled - REDUNDANT SIDE



(5V) VOLTAGE/DIV: 5V
(2A) CURRENT/DIV: 2A
(1ms) SWEEP RATE: 1ms

236

ORIGINAL PAGE IS
OF POOR QUALITY

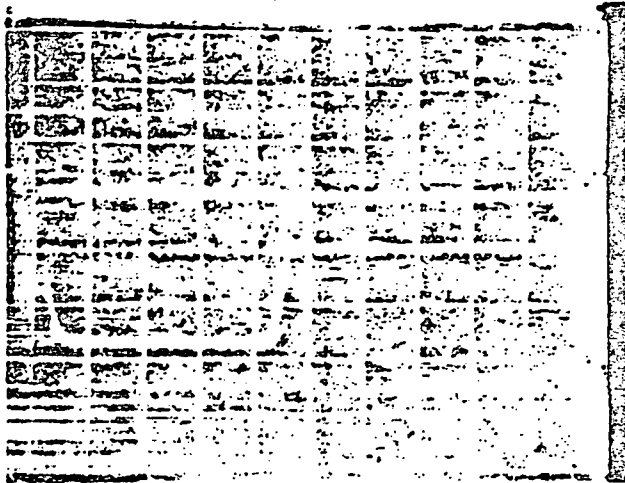
10.4 Performance test (continued)

5.10.17.2 Unit stays off (check)

Primary

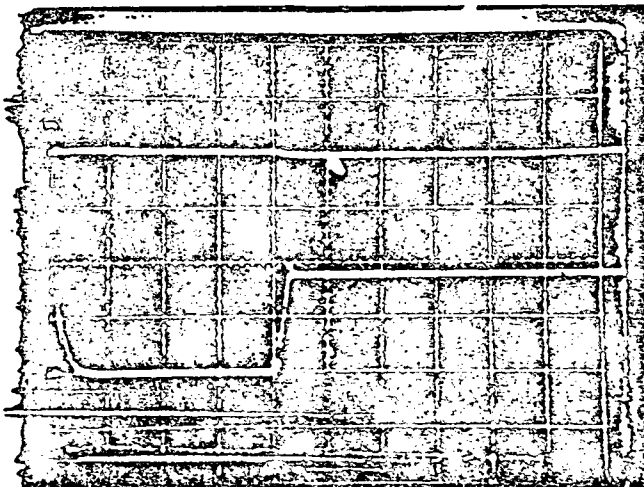
Redundant

5.10.17.3 Photograph of input bus current and input bus voltage
as is enabled - PRIMARY SIDE



(2V) VOLTAGE/DIV: 5V
(2A) CURRENT/DIV: 2A
(100ms) SWEEP RATE: 100MS

5.10.17.3 Photograph of input bus current and input bus voltage as
as is enabled - REDUNDANT SIDE



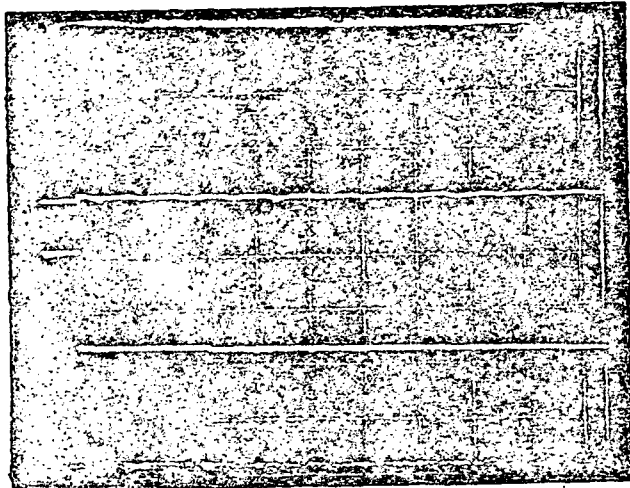
(2V) VOLTAGE/DIV: 5V
(2A) CURRENT/DIV: 2A
(100ms) SWEEP RATE: 100ms

337

ORIGINAL PAGE IS
OF POOR QUALITY

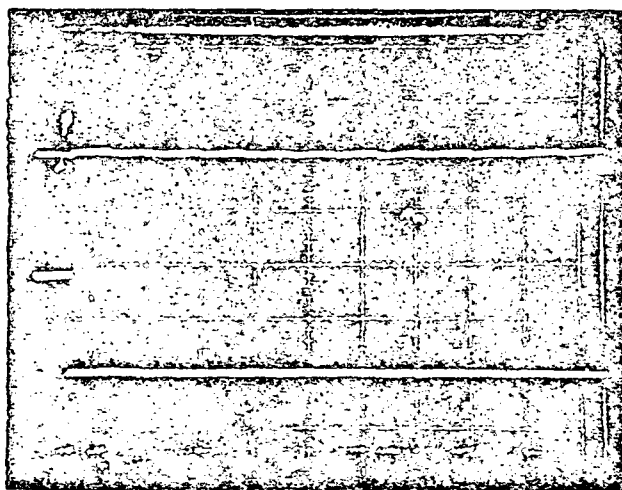
10.4 Performance test (continued)

5.10.17.4 Photograph of input bus current and input bus voltage
as is disabled - PRIMARY SIDE



(2V) VOLTAGE/DIV: 5V
(2A) CURRENT/DIV: 2A
(10ms) SWEEP RATE: 10ms

5.10.17.4 Photograph of input bus current and input bus voltage
as is disabled - REDUNDANT SIDE



(2V) VOLTAGE/DIV: 5V
(2A) CURRENT/DIV: 2A
(10ms) SWEEP RATE: 10ms

338

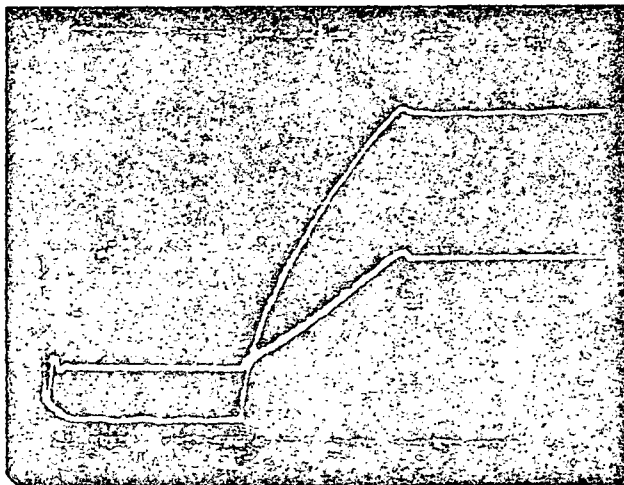
10.4 Performance test (continued)

E. PARA.	DESCRIPTION	DVM SWITCH POSITIONS	LIMITS	MEASUREMENT	
				PRIMARY	REDUNDANT

5.10.17.5 Record that UUT operates correctly.

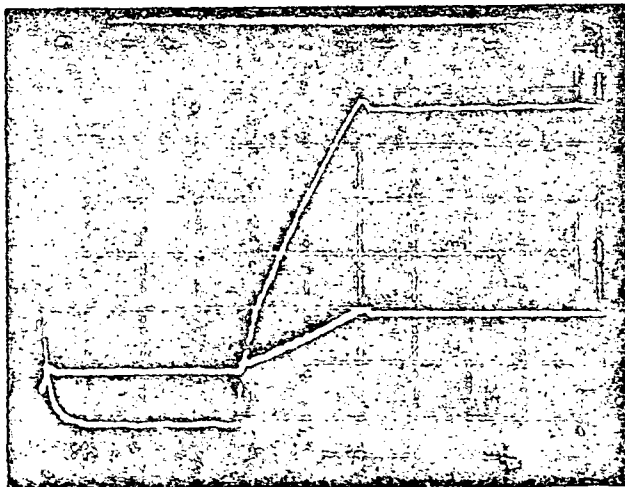
(checkmark)

5.10.18.1 Photograph of input bus current and MUX output voltage as MUX enable outgas) - PRIMARY SIDE



(5V) VOLTAGE/DIV: 5V
(5A) CURRENT/DIV: 5A
(20ms) SWEEP RATE: 10ms

5.10.18.2 Photograph of input bus current and parasitic output voltage as parasitic enable command is issued (all loads are ON except outgas) - PRIMARY SIDE



(5V) VOLTAGE/DIV: 5V
(5A) CURRENT/DIV: 5A
(20ms) SWEEP RATE: 10ms

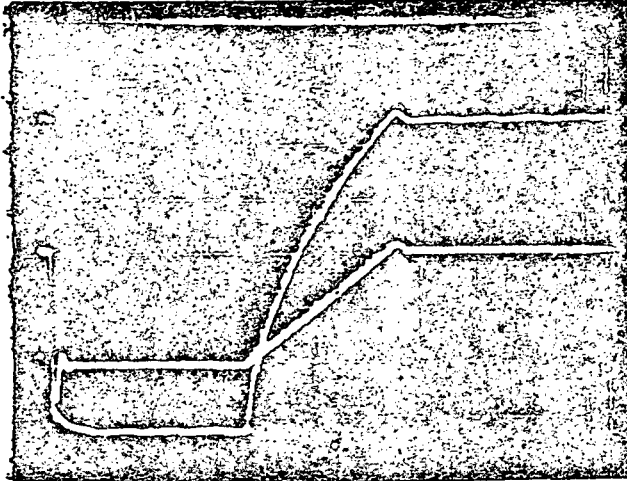
339

ORIGINAL PAGE IS
OF POOR QUALITY

TS 16603
Rev B
18 December 1980

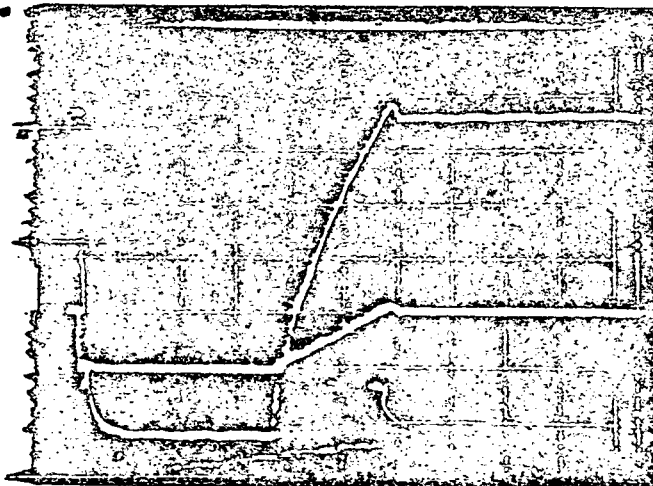
10.4 Performance test (continued)

- .10.18.1 Photograph of input bus current and MUX output voltage as MUX enable command is issued (all loads are ON except outgas) - REDUNDANT SIDE



(5V) VOLTAGE/DIV: 5V
(5A) CURRENT/DIV: 5A
(20mS) SWEEP RATE: 10ms

- 5.10.18.2 Photograph of input bus current and MUX output voltage as parasitic enable command is issued (all loads are ON except outgas) - REDUNDANT SIDE



(5v) Volts/Div: 5V
(5A) Current/Div: 5A
(20mS) Sweep Rate: 10ms

340

TS 16603
 Rev B
~~TS 16603~~
 Sec 2 76-81

ORIGINAL PAGE IS
 OF POOR QUALITY

10.4 Performance test (continued)

REF. PARA.	DESCRIPTION	DVM SWITCH POSITIONS	LIMITS	MEASUREMENT	
				PRIMARY	REDUNDANT
5.10.18.4	Undervoltage Trip Point (ON/OFF)	S26-1, S27-1 (S27-3 for RDT)	18.0 ±1.50V	<u>15.09</u>	<u>18.08</u>
5.10.18.5	UUT stays OFF			<u>✓</u>	<u>✓</u>
5.10.18.6	Undervoltage Trip Point (OFF/ON)	S26-1, S27-1 (S27-3 for RDT)	19.0 ±1.50V	<u>19.95</u>	<u>18.88</u>
5.10.18.7	Overtoltage Trip Point	S26-1, S27-1 (S27-3 for RDT)	38.0 ± 2V	<u>39.37</u>	<u>39.97^{sch}</u> ₂
5.10.18.8	UUT stays OFF			<u>✓</u>	<u>✓</u>
5.10.18.9	UUT turns ON			<u>✓</u>	<u>✓</u>

2-5-82
 DATE

RKC
 TESTER(S)

341

ORIGINAL PAGE IS
OF POOR QUALITY

TS 16603
Rev B
18 December 1980

10.1 Redundant lead test

PROTOFLIGHT INA OR FLIGHT ✓ S/N 004 TEMPERATURE: Ambient
IN-PROCESS DNA QUAL DNA OR ACCEPTANCE: ✓
TESTING PHASE: FINAL

REF. PARA.	DESCRIPTION	LIMITS	MEASUREMENT
5.3.1	Open light of 3646388	ON	<u>✓</u>
	Continuity light of 3646388	OFF	<u>✓</u>
5.3.2	Open light of 3646388	OFF	<u>✓</u>
	Continuity light of 3646388	ON	<u>✓</u>
5.3.3	Open light of 3646388	ON	<u>✓</u>
	Continuity light of 3646388	OFF	<u>✓</u>
5.3.4	Open light of 3646388	OFF	<u>✓</u>
	Continuity light of 3646388	ON	<u>✓</u>

5 Feb 82

Date

R. Ellers

Tester(s)

10.2 Ground Isolation Test

PROTOFLIGHT NA, OR FLIGHT , S/N 004 TEMPERATURE AMB
 IN-PROCESS NA, QUAL N/A, OR ACCEPTANCE
 TESTING PHASE: FINAL @ Accept. Prior to Delivery.

REF. PARA.	DESCRIPTION	LIMITS	MEASUREMENT
5.4.1.2	J19-4 (D) to J18-4 (N)	< 1 Ω	<u>0.011 Ω</u>
5.4.1.3	to J3-B1	> 1 Ω	<u>3.0 M Ω</u>
5.4.1.4	to J3-B2		<u>3.0 M Ω</u>
5.4.1.5	to J3-D2		<u>3.00</u>
5.4.1.6	to J3-F2		<u>3.22</u>
5.4.1.7	to J3-C3		<u>3.02</u>
5.4.1.8	to J4-R1		<u>4.04</u>
5.4.1.9	to J3-S5		<u>∞</u>
5.4.1.10	to J3-V5		<u>∞</u>
5.4.1.11	to J3-S1		<u>3.02</u>
5.4.1.12	to J4-P3		<u>3.20</u>
5.4.1.13	to J4-A2		<u>3.80</u>
5.4.1.14	to J4-C2		<u>3.80</u>
5.4.1.15	to J4-E2		<u>4.02</u>
5.4.1.16	to J4-G2		<u>4.02</u>
5.4.1.17	to J4-J2		<u>4.20</u>
5.4.1.18	J19-4 (D) to J4-M2		<u>4.32</u>
5.4.2.2	J3-V1 to J3-B1		<u>4.42</u>
5.4.2.3	to J3-B2		<u>4.64</u>
5.4.2.4	to J3-D2		<u>4.80</u>
5.4.2.5	to J3-F2		<u>4.81</u>
5.4.2.6	to J3-C3		<u>4.58</u>
5.4.2.7	to J4-R1		<u>4.60</u>
5.4.2.8	to J3-S5		<u>∞</u>
5.4.2.9	to J3-V5		<u>∞</u>
5.4.2.10	to J3-S1		<u>4.20</u>
5.4.2.11	to J4-P3		<u>4.76</u>
5.4.2.12	J3-V1 to J4-A2	> 1 Ω	<u>4.85 M Ω</u>

343

ORIGINAL PAGE IS
OF POOR QUALITY

TS 15603
Rev B
18 December 1980

10.2 Ground isolation test (continued)

REF. PARA.	DESCRIPTION	LIMITS	MEASUREMENT
5.4.2.13	J3-V1 to J4-C2	> 1 Ω	5.15 MΩ
5.4.2.14	to J4-E2	↓	5.17
5.4.2.15	to J4-G2	↓	5.67
5.4.2.16	to J4-J2	↓	5.12
5.4.2.17	to J4-M2	> 1 Ω	5.19 MΩ
5.4.2.18	J3-V1 to J18-4 (N)	< 1 Ω	0.079 Ω
5.4.3.2.2	J3-B1 to J3-C3	> 1 KΩ	1.573 KΩ
5.4.3.2.3	to J4-R1	> 50 KΩ	87 KΩ
5.4.3.2.4	to J3-S5	> 1 Ω	∞
5.4.3.2.5	to J3-V5	> 1 Ω	∞
5.4.3.2.6	to J3-S1	> 750Ω	1.01 KΩ
5.4.3.2.7	to J4-P3	> 750Ω	1.01 KΩ
5.4.3.2.8	to J4-A2	> 50 KΩ	87 KΩ
5.4.3.2.9	to J4-C2	↓	87 KΩ
5.4.3.2.10	to J4-E2	↓	87
5.4.3.2.11	to J4-G2	↓	87
5.4.3.2.12	to J4-J2	↓	87
5.4.3.2.13	J3-B1 to J4-M2	> 50 KΩ	87 KΩ
5.4.3.2.1	J3-B2 to J3-C3	> 1 KΩ	1.51 KΩ
5.4.3.2.2	to J4-R1	> 50 KΩ	87 KΩ
5.4.3.2.3	to J3-S5	> 1 Ω	∞
5.4.3.2.4	to J3-V5	> 1 Ω	∞
5.4.3.2.5	to J3-S1	> 750Ω	1.01 KΩ
5.4.3.2.6	to J4-P3	> 750Ω	1.01 KΩ
5.4.3.2.7	to J4-A2	> 50 KΩ	87 KΩ
5.4.3.2.8	to J4-C2	↓	87
5.4.3.2.9	to J4-E2	↓	87
5.4.3.2.10	to J4-G2	↓	87
5.4.3.2.11	to J4-J2	↓	87
5.4.3.2.12	J3-B2 to J4-M2	> 50 KΩ	87 KΩ
5.4.3.3.1	J3-D2 to J3-C3	> 1 KΩ	1.52 KΩ

344

10.2 Ground Isolation Test (continued)

REF. PARA.	DESCRIPTION	LIMITS	MEASUREMENT
5.4.3.3.2	J3-D2 to J4-R1	> 50 k Ω	<u>87kΩ</u>
5.4.3.3.3	to J3-S5	> 1 M Ω	<u>∞</u>
5.4.3.3.4	to J3-V5	> 1 M Ω	<u>∞</u>
5.4.3.3.5	to J3-S1	> 750 Ω	<u>1.02kΩ</u>
5.4.3.3.6	to J4-P3	> 750 Ω	<u>1.02kΩ</u>
5.4.3.3.7	to J4-A2	> 50 k Ω	<u>87kΩ</u>
5.4.3.3.8	to J4-C2		<u>87</u>
5.4.3.3.9	to J4-E2		<u>87</u>
5.4.3.3.10	to J4-G2		<u>87</u>
5.4.3.3.11	to J4-J2		<u>87</u>
5.4.3.3.12	J3-D2 to J4-M2	> 50 k Ω	<u>87kΩ</u>
5.4.3.4.1	J3-F2 to J3-C3	> 1 k Ω	<u>151kΩ</u>
5.4.3.4.2	to J4-R1	> 50 k Ω	<u>87kΩ</u>
5.4.3.4.3	to J3-S5	> 1 M Ω	<u>∞</u>
5.4.3.4.4	to J3-V5	> 1 M Ω	<u>∞</u>
5.4.3.4.5	to J3-S1	> 750 Ω	<u>1.01kΩ</u>
5.4.3.4.6	to J4-P3	> 750 Ω	<u>1.01kΩ</u>
5.4.3.4.7	to J4-A2	> 50 k Ω	<u>87kΩ</u>
5.4.3.4.8	to J4-C2		<u>87kΩ</u>
5.4.3.4.9	to J4-E2		<u>87kΩ</u>
5.4.3.4.10	to J4-G2		<u>87kΩ</u>
5.4.3.4.11	to J4-J2		<u>87kΩ</u>
5.4.3.4.12	J3-F2 to J4-M2	> 50 k Ω	<u>87kΩ</u>
5.4.4.2	J3-C3 to J4-R1	> 50 k Ω	<u>87kΩ</u>
5.4.4.3	to J3-S5	> 1 M Ω	<u>∞</u>
5.4.4.4	to J3-V5	> 1 M Ω	<u>∞</u>
5.4.4.5	to J3-S1	> 450 Ω	<u>499Ω</u>
5.4.4.6	to J4-P3	> 450 Ω	<u>499Ω</u>
5.4.4.7	to J4-A2	> 50 k Ω	<u>87kΩ</u>
5.4.4.8	to J4-C2	> 50 k Ω	<u>87kΩ</u>
5.4.4.9	J3-C3 to J4-E2	> 50 k Ω	<u>87kΩ</u>

345

ORIGINAL PAGE IS
OF POOR QUALITY

TS 16603
Rev 3
18 December 1980

10.2 Ground isolation test (continued)

REF. PARA.	DESCRIPTION	LIMITS	MEASUREMENT
5.4.4.10	J3-C3 to J4-G2	> 50 K Ω	87K Ω
5.4.4.11	↓ to J4-J2	↓	87K Ω
5.4.4.12	J3-C3 to J4-M2	> 50 K Ω	87K Ω
5.4.5.2	J4-R1 to J3-S5	> 1 M Ω	∞
5.4.5.3	↓ to J3-V5	> 1 M Ω	∞
5.4.5.4	↓ to J3-S1	> 50 K Ω	87K Ω
5.4.5.5	↓ to J4-P3	> 50 K Ω	87K Ω
5.4.5.6	↓ to J4-A2	> 150 K Ω	200K Ω
5.4.5.7	↓ to J4-C2	↓	200
5.4.5.8	↓ to J4-E2	↓	200
5.4.5.9	↓ to J4-G2	↓	200
5.4.5.10	↓ to J4-J2	> 150 K Ω	200K Ω
5.4.5.11	J4-R1 to J4-M2	> 50 K Ω	200K Ω
5.4.6.1.1	J3-S5 to J3-S1	> 5 M Ω	∞
5.4.6.1.2	↓ to J4-P3	↓	∞
5.4.6.1.3	↓ to J4-A2	↓	∞
5.4.6.1.4	↓ to J4-C2	↓	∞
5.4.6.1.5	↓ to J4-E2	↓	∞
5.4.6.1.6	↓ to J4-G2	↓	∞
5.4.6.1.7	↓ to J4-J2	↓	∞
5.4.6.1.8	↓ to J4-J2	↓	∞
5.4.6.1.9	J3-S5 to J4-M2	> 5 M Ω	∞
5.4.6.2.1	J3-V5 to J3-S1	> 5 M Ω	∞
5.4.6.2.2	↓ to J4-P3	↓	∞
5.4.6.2.3	↓ to J4-A2	↓	∞
5.4.6.2.4	↓ to J4-C2	↓	∞
5.4.6.2.5	↓ to J4-E2	↓	∞
5.4.6.2.6	↓ to J4-G2	↓	∞
5.4.6.2.7	↓ to J4-J2	↓	∞
5.4.6.2.8	↓ to J4-J2	↓	∞
5.4.6.2.9	J3-V5 to J4-M2	> 5 M Ω	∞
5.4.7.1.1	J3-S1 to J4-A2	> 50 K Ω	87K Ω
5.4.7.1.2	↓ to J4-C2	↓	86K Ω
5.4.7.1.3	J3-S1 to J4-E2	> 50 K Ω	86K Ω

346

ORIGINAL PAGE IS
OF POOR QUALITY

TS 16603
Rev B
18 December 1980

10.2 Ground isolation test (continued)

REF. PARA.	DESCRIPTION	LIMITS	MEASUREMENT
5.4.7.1.5	J3-S1 to J4-G2	> 50 kΩ	<u>87 kΩ</u>
5.4.7.1.6	↓ to J4-J2	↓	<u>86 kΩ</u>
5.4.7.1.7	J3-S1 to J4-M2	> 50 kΩ	<u>86 kΩ</u>
5.4.8.1.2	J4-A2 to J4-C2	> 150 kΩ	<u>200 kΩ</u>
5.4.8.1.3	↓ to J4-E2	↓	<u>200</u>
5.4.8.1.4	↓ to J4-G2	↓	<u>200</u>
5.4.8.1.5	↓ to J4-J2	↓	<u>200 kΩ</u>
5.4.8.1.6	J4-A2 to J4-M2	> 150 kΩ	<u>200 kΩ</u>
5.4.8.2.2	J4-C2 to J4-E2	> 150 kΩ	<u>200</u>
5.4.8.2.3	↓ to J4-G2	↓	<u>200</u>
5.4.8.2.4	↓ to J4-J2	↓	<u>200</u>
5.4.8.2.5	J4-C2 to J4-M2	↓	<u>200</u>
5.4.8.3.2	J4-E2 to J4-G2	↓	<u>200</u>
5.4.8.3.3	↓ to J4-J2	↓	<u>200</u>
5.4.8.3.4	J4-E2 to J4-M2	↓	<u>200</u>
5.4.8.4.2	J4-G2 to J4-J2	↓	<u>200</u>
5.4.8.4.3	J4-G2 to J4-M2	↓	<u>200</u>
5.4.8.5.1	J4-J2 to J4-M2	> 150 kΩ	<u>200 kΩ</u>

2/5/82
JAE

ELLARS/BOWSON
EYER(s)

347

ORIGINAL PAGE IS
OF POOR QUALITY

TS 16603
Rev B
18 December 1980

10.3 Hi-pot test

PROTOFLIGHT DNA OR FLIGHT
IN-PROCESS DNA, QUAL DNA, S/N 804 TEMPERATURE: Ambient
TESTING PHASE: FINAL OR ACCEPTANCE
100V DNA OR 30V

REF. PARA.	DESCRIPTION	LIMITS	MEASUREMENT
5.5.1	UIT to J18 & J1;	> 1 M Ω	
5.5.2	a) UIT to J46A	> 1 M Ω	13 meg Ω
	b) UIT TO J46B	> 1 M Ω	4.5 meg Ω
	c) UIT UJ47A	> 1 M Ω	10.5 meg Ω
	d) UIT UJ47B	> 1 M Ω	10.5 meg Ω
		> 1 M Ω	4.2 meg Ω

5 Feb 82
Date

[Signature]
Tester(s)

348