

TEXAS UTILITIES SERVICES INC.  
2001 BRYAN TOWER · DALLAS, TEXAS 75201

Log # TXX-3412  
File # 903.8

October 1, 1981

Mr. Robert L. Tedesco  
Assistant Director for Licensing  
Division of Licensing  
U. S. Nuclear Regulatory Commission  
Washington, D.C. 20555

SUBJECT: COMANCHE PEAK STEAM ELECTRIC STATION  
CONFIRMATORY ANALYSIS OF SEISMIC CATEGORY I  
BUILDINGS



Dear Mr. Tedesco:

In your letter of May 6, 1981 you requested data for an independent confirmatory seismic/structural analysis of the CPSES Unit 1 Containment and Auxiliary Buildings. This data was submitted to members of your staff during the Structural Engineering Branch Audit conducted during the week of May 11, 1981 at the office of Gibbs and Hill in New York City.

Attached please find a confirmatory copy of that data for record purposes.

Should you have questions, please contact John Marshall (214-653-4871) of my office.

Sincerely,

A handwritten signature in black ink that appears to read "H. C. Schmidt".

H. C. Schmidt

JSM:tls

Attachment

cc: J. T. Merritt - 1L, OA  
J. B. George - 1L, OA  
R. D. Calder - 1L, OA  
R. E. Ballard - 1L, OA

3001  
SIL

# **Gibbs & Hill, Inc.**

ENGINEERS DESIGNERS CONSTRUCTORS

DIRECT DIAL EXTENSION  
(212) 780-4438

May 22, 1981

GTN-53393

**RECEIVED**

Texas Utilities Generating Company  
Post Office Box 1002  
Glen Rose, Texas 76043

**MAY 26 1981**

**T.U.S.I. — NUCLEAR DIV.  
LICENSING**

Attention: Mr. J. T. Merritt  
Manager of Construction & Engineering

Gentlemen:

TEXAS UTILITIES GENERATING COMPANY  
COMANCHE PEAK STEAM ELECTRIC STATION  
G&H PROJECT NO. 2323  
SEISMIC INPUT DATA FOR DYNAMIC ANALYSIS  
OF REACTOR AND AUXILIARY BUILDINGS

During the SEB Audit, the week of May 11, 1981, the NRC requested the input data for the dynamic models used for seismic analysis of the Reactor and Auxiliary Buildings, and results thereof in terms of force components to be used for verification by independent analysis (reference attachment 4). The requested information is supplied in attachments 1 to 3, and explanation of the attached data is furnished as follows:

### Attachment 1

Reactor Building (Containment and Internal Structures) -

1. Figure 3.7B-23 - Plan View
2. Figure 3.7B-24 - Elevation View
3. Figure 3.7B-34 - Dynamic Model
4. Lower Bound, Best Estimate and Upper Bound Models
5. Table 3.7B-9 - Mass Point Nodal Coordinates
6. Mass Point Mass Data

## Texas Utilities Generating Company

7. Table 3.7B-19 - Degrees of Freedom
8. Foundation Spring Constants
- 9a. Stiffness and Flexibility Matrices of Uncracked Containment Model
- b. Stiffness and Flexibility Matrices of Cracked Containment Model
- c. Stiffness and Flexibility Matrices of Internal Structure Model
10. Results - Three Components of Forces and Three Components of Moments for the Best Estimate Uncracked Model due to SSE in Z-direction.

Above stiffness and flexibility matrices are calculated based upon fixed base assumption. In order to obtain a complete stiffness or flexibility matrix for the Reactor Building supported on rock foundation, the corresponding matrices from either 9a or 9b should be combined with 9c and 8 (based upon appropriate model).

Attachment 2

## Auxiliary and Electrical Building -

1. Figure 3.7B-28 - Plan View
2. Figure 3.7B-29 - Elevation View
3. Figure 3.7B-36 - Dynamic Model
4. Lower Bound, Best Estimate and Upper Bound Models
5. Table 3.7B-11 - Mass Point Nodal Coordinates
6. Table 3.7B-16 - Mass Point Mass Data
7. Table 3.7B-21 - Degrees of Freedom
8. Tables 3.7B-26 and 3.7B-27 - Foundation Sprint Constants
- 9a. Stiffness Matrix of Structure combined with Lower Bound Soil Spring (K/4)
  - b. Stiffness Matrix of Structure combined with Best Estimate Soil Spring (K)
  - c. Stiffness Matrix of Structure combined with Upper Bound Soil Spring (2K)
10. Results - Three Components of Forces and Three Components of Moments for the Best Estimate Model due to SSE in Z-direction.

Above stiffness matrices are for the combined Auxiliary and Electrical Building models along with the appropriate soil springs.

GTN- 53393

-3-

May 22, 1981

Texas Utilities Generating Company

In the free vibration analysis of both the Reactor and Auxiliary Buildings, an equivalent soil mass is added to the structural mat for both the lower bound and the best estimate analyses, but not for the upper bound analysis. However, the inertia load due to this soil mass is not considered to obtain the resulting loads provided in item 10 for both buildings.

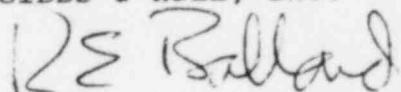
Ground response spectra for both horizontal and vertical components of SSE and material properties are provided in Attachment 3.

Please note that all data are supplied in terms of KIP-FOOT-SECOND units, unless otherwise noted.

In accordance with the information requested in attachment 4, and per discussion with the NRC Audit Team, G&H believes that the information supplied herewith is adequate for independent analysis and verification. However, if any additional information is required, please feel free to contact our office.

Very truly yours,

GIBBS & HILL, Inc.



Robert E. Ballard, Jr.  
Project Manager

*Etha KKB*  
REBa-EJBo-KKB:lc

1 Letter + 1 Attachment

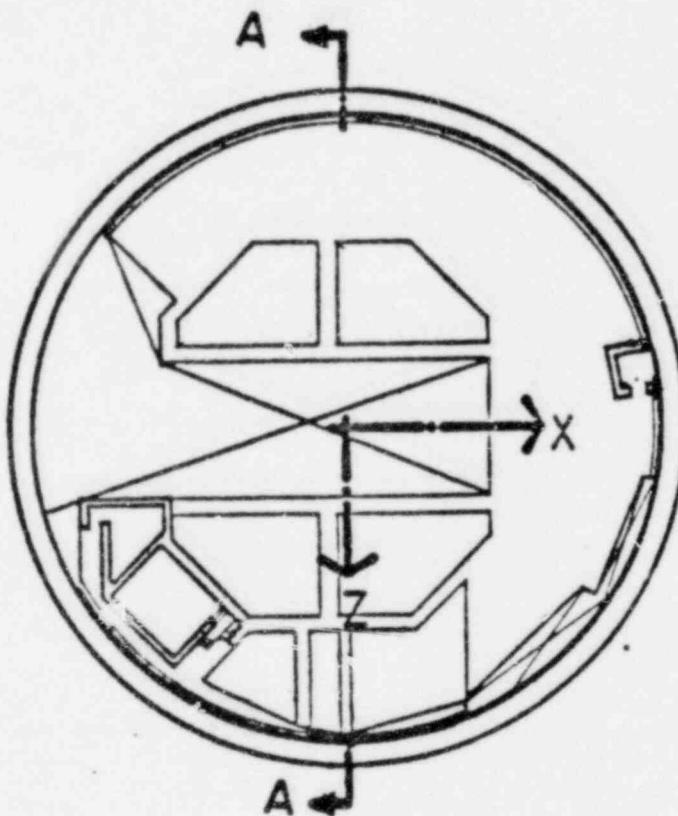
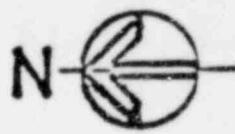
CC: ARMS (B&R Site) OL 1A

~~H. C. Schmidt (TUSI Dallas)~~ 1L 1A

R. D. Calder (TUSI Site) 1L 1A

F. Rinaldi (USNRC - Washington) 1L 1A

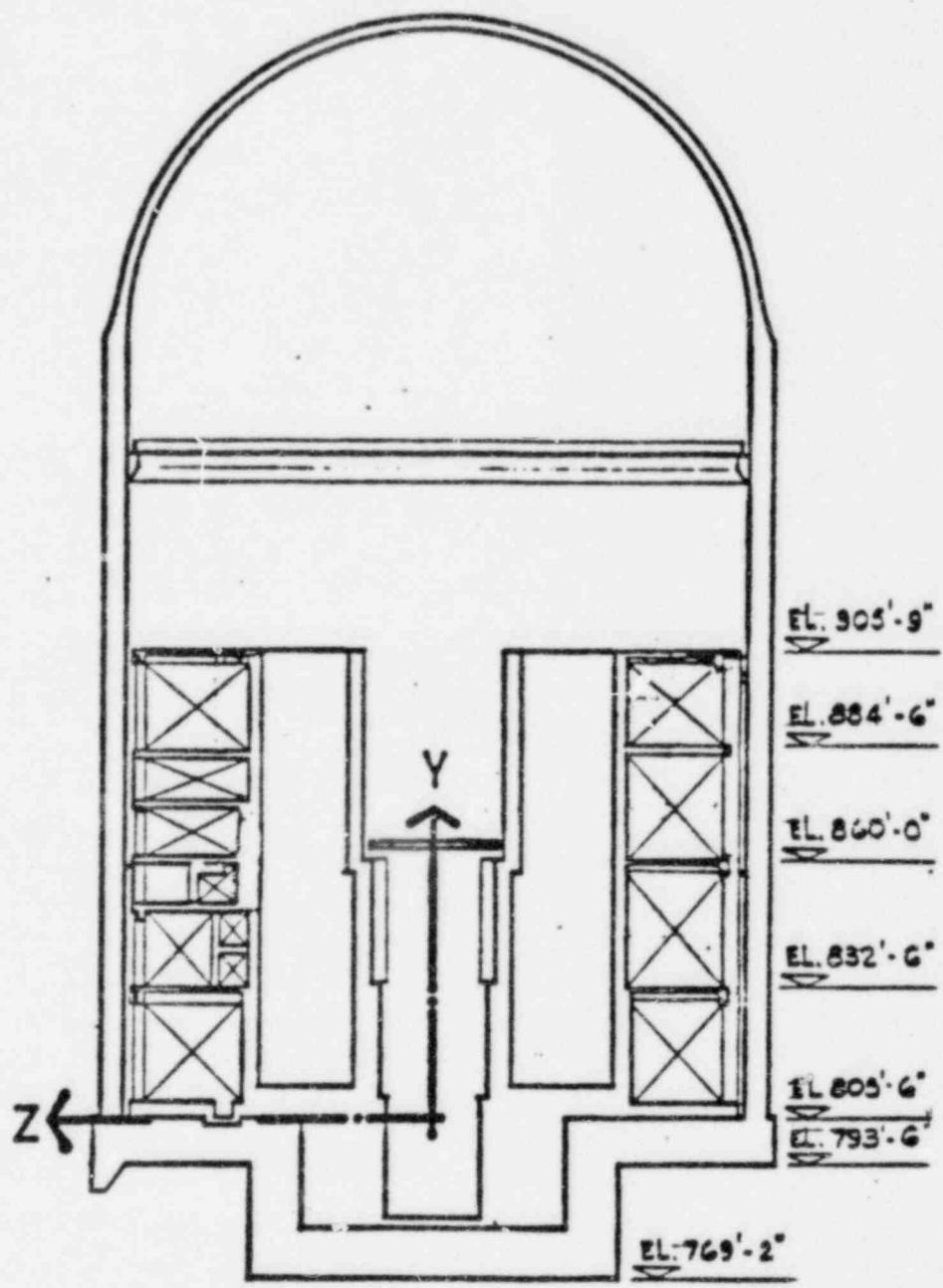
ATTACHMENT 1



PLAN EL. 905'-9"

NOTE: ORIGIN OF COORDINATES IS AT EL. 808'-6"

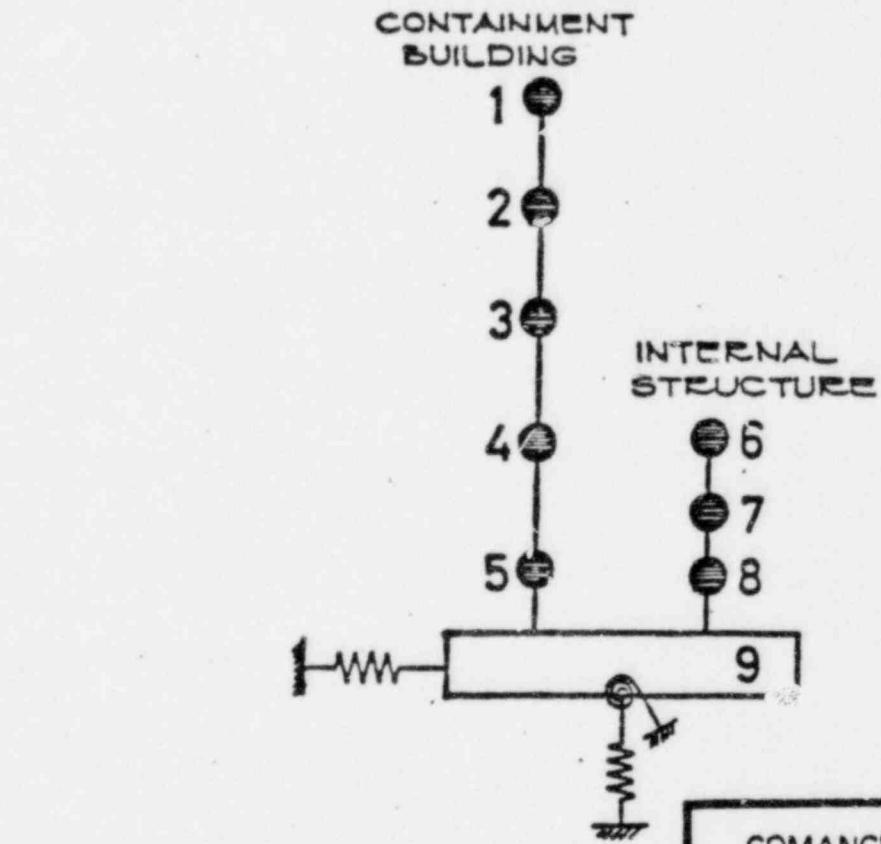
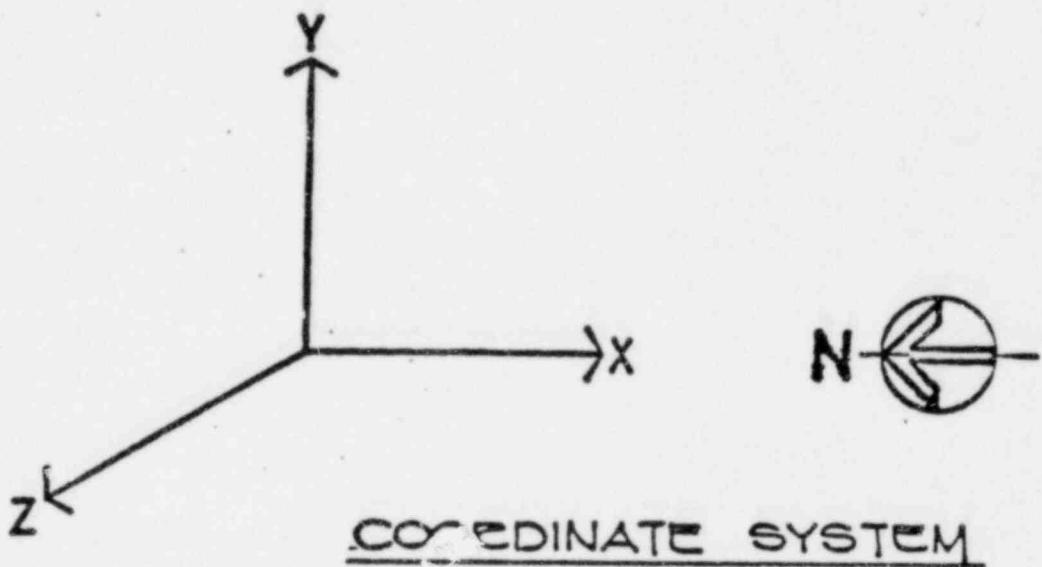
COMANCHE PEAK S.E.S.  
FINAL SAFETY ANALYSIS REPORT  
UNITS 1 and 2  
  
PLAN VIEW  
CONTAINMENT & INTERNAL  
STRUCTURES  
FIGURE 3.7B-23



COMANCHE PEAK S.E.S  
FINAL SAFETY ANALYSIS REPORT  
UNITS 1 and 2

ELEVATION VIEW  
CONTAINMENT & INTERNAL  
STRUCTURES

FIGURE 3.7B-24

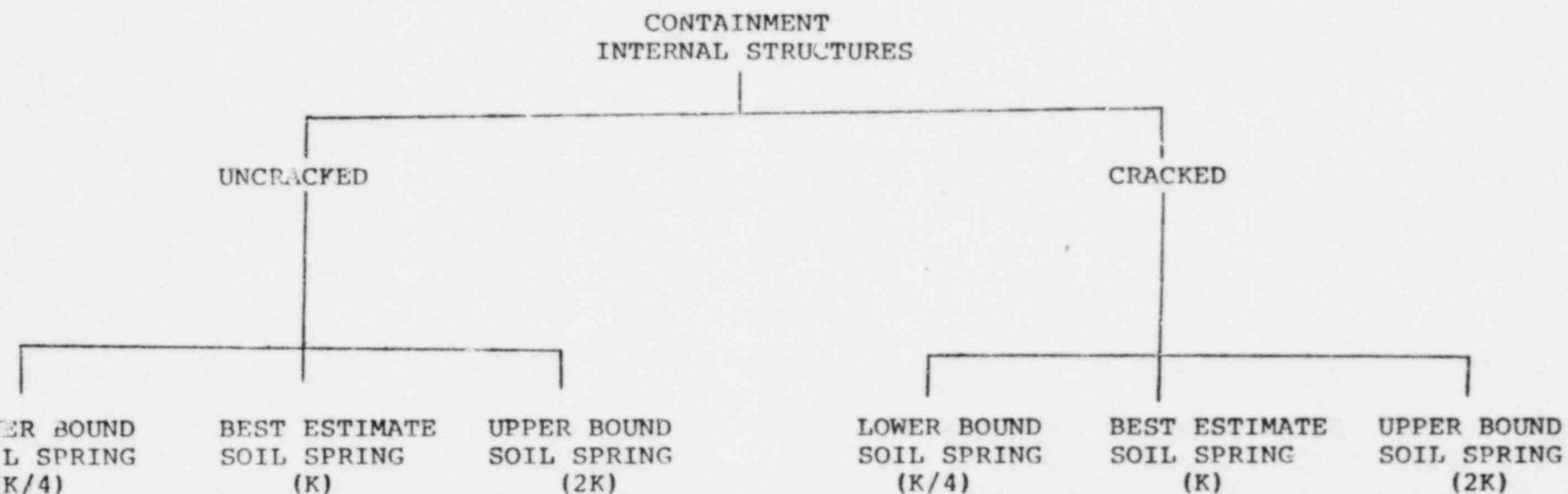


DYNAMIC MODEL

COMANCHE PEAK S.E.S.  
FINAL SAFETY ANALYSIS REPORT  
UNITS 1 and 2

DYNAMIC MODEL  
CONTAINMENT & INTERNAL  
STRUCTURES

FIGURE 3.7B-34



LOWER BOUND, BEST ESTIMATE AND UPPER BOUND MODELS

CPSFS/FSAR  
TABLE 3.7B-9

CONTAINMENT AND INTERNAL STRUCTURES  
MASS POINT NODAL COORDINATES

Mass Point	X (ft)	Y (ft)	Z (ft)
1	0.00	246.60	0.00
2	0.00	197.00	0.00
3	0.00	145.00	0.00
4	0.00	87.75	0.00
5	0.00	29.25	0.00
6	9.45	89.83	4.44
7	-0.28	55.94	8.27
8	-5.87	26.98	2.42
9	2.40	-7.75	0.38
Foundation spring	0.00	-18.85	0.00

- 
- NOTES: a. The origin of coordinates is at elevation 605 ft 6 in.  
 b. For orientation of coordinate axes, see Figure 3.7B-23.  
 c. For structure dynamic model showing the mass point numbers, see Figure 3.7B-34.

CONTAINMENT AND INTERNAL STRUCTURES  
MASS POINT MASS DATA

Mass Point	Mass (kip-sec <sup>2</sup> /ft)			Mass Moment of Inertia (kip-sec <sup>2</sup> -ft)		
	M <sub>x</sub>	M <sub>y</sub>	M <sub>z</sub>	I <sub>x</sub>	I <sub>y</sub>	I <sub>z</sub>
1	173	173	173	186,400	340,500	186,400
2	375	375	375	966,000	1,734,000	966,000
3	542	555	542	1,395,000	2,510,000	1,395,000
	538	538	538	1,463,000	2,618,000	1,463,000
5	538	538	538	1,463,000	2,618,000	1,463,000
6	440	440	440	599,800	982,500	429,600
7	708	531	710	816,400	1,112,000	623,600
8	602	640	602	440,900	980,800	588,200
9	1821	1959	1821	2,105,000	3,889,000	2,169,000
9A	322	2186	322	3,864,000	2,898,000	3,864,000

- NOTES:
- a. Mass points 1 through 9 are for the structures. Mass point 9A is for the foundation material.
  - b. The origin of coordinates is at elevation 805 ft 6 in. For orientation of coordinate axes, see Figure 3.7B-23.
  - c. For structure dynamic model showing the mass point numbers, see Figure 3.7B-34.

CPSSES/FSAR  
 TABLE 3.7B-19  
 (Sheet 1 of 4)

CONTAINMENT AND INTERNAL STRUCTURES  
DEGREES OF FREEDOM

<u>Mass Point</u>	<u>Degree of Freedom</u>	<u>Direction of Motion</u>	
1	1	Translation	X
1	2	Translation	Y
1	3	Translation	Z
1	4	Rotation	$\theta_x$
1	5	Rotation	$\theta_y$
1	6	Rotation	$\theta_z$
2	7	Translation	X
2	8	Translation	Y
2	9	Translation	Z
2	10	Rotation	$\theta_x$
2	11	Rotation	$\theta_y$
2	12	Rotation	$\theta_z$
3	13	Translation	X
3	14	Translation	Y
3	15	Translation	Z
3	16	Rotation	$\theta_x$
3	17	Rotation	$\theta_y$
3	18	Rotation	$\theta_z$
4	19	Translation	X
4	20	Translation	Y

CPSES/FSAR  
 TABLE 3.7B-19  
 (Sheet 2 of 4)

CONTAINMENT AND INTERNAL STRUCTURES  
DEGREES OF FREEDOM

<u>Mass Point</u>	<u>Degree of Freedom</u>	<u>Direction of Motion</u>	
3	21	Translation	z
4	22	Rotation	$\theta_x$
4	23	Rotation	$\theta_y$
4	24	Rotation	$\theta_z$
5	25	Translation	x
5	26	Translation	y
5	27	Translation	z
5	28	Rotation	$\theta_x$
5	29	Rotation	$\theta_y$
5	30	Rotation	$\theta_z$
6	31	Translation	x
6	32	Translation	y
6	33	Translation	z
6	34	Rotation	$\theta_x$
6	35	Rotation	$\theta_y$
6	36	Rotation	$\theta_z$
7	37	Translation	x
7	38	Translation	y
7	39	Translation	z

CPSES/FSAR  
TABLE 3.7B-19  
(Sheet 3 of 4)

CONTAINMENT AND INTERNAL STRUCTURES  
DEGREES OF FREEDOM

<u>Mass Point</u>	<u>Degree of Freedom</u>	<u>Direction of Motion</u>	
7	40	Rotation	$\theta_x$
7	41	Rotation	$\theta_y$
7	42	Rotation	$\theta_z$
8	43	Translation	x
8	44	Translation	y
8	45	Translation	z
8	46	Rotation	$\theta_x$
8	47	Rotation	$\theta_y$
8	48	Rotation	$\theta_z$

CPSES/FSAP  
TABLE 3.7B-19  
(Sheet 4 of 4)

CONTAINMENT AND INTERNAL STRUCTURES  
DEGREES OF FREEDOM

<u>Mass Point</u>	<u>Degree of Freedom</u>	<u>Direction of Motion</u>	
9	49	Translation	X
9	50	Translation	Y
9	51	Translation	Z
9	52	Rotation	$\theta_x$
9	53	Rotation	$\theta_y$
9	54	Rotation	$\theta_z$

- 
- NOTES:
- a. The origin of coordinates is at elevation 805 ft 6 in.
  - b. For orientation of coordinate axes, see Figure 3.7B-23.
  - c. For structure dynamic model showing the mass point numbers, see Figure 3.7B-34.

CPSSES/FSAR  
TABLE 3.7B-24

CONTAINMENT AND INTERNAL STRUCTURES  
FOUNDATION SPRING CONSTANTS

Direction	Lower_Found	Best_Estimate	Upper_Found
Translation along X axis (kip/ft)	$0.116 \times 10^6$	$0.465 \times 10^6$	$0.930 \times 10^6$
Translation along Y axis (kip/ft)	$0.125 \times 10^6$	$0.499 \times 10^6$	$0.998 \times 10^6$
Translation along Z axis (kip/ft)	$0.116 \times 10^6$	$0.465 \times 10^6$	$0.930 \times 10^6$
Rotation about X axis (kip-ft/rad)	$0.390 \times 10^{12}$	$0.156 \times 10^{12}$	$0.312 \times 10^{12}$
Rotation about Y axis (kip-ft/rad)	$0.600 \times 10^{12}$	$0.240 \times 10^{12}$	$0.480 \times 10^{12}$
Rotation about Z axis (kip-ft/rad)	$0.390 \times 10^{12}$	$0.156 \times 10^{12}$	$0.312 \times 10^{12}$

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NOTES: a. The origin of coordinates is at elevation 805 ft 6 in.  
b. For orientation of coordinate axes, see Figure 3.7B-23.

STIFFNESS MATRIX (ELEMS HAVE BEEN INSERTED IN THE ORIGINAL REDUCED STIFFNESS MATRIX  
AT WHICH # ON STIR = Noders AND WHICH NODAL DIRECTIONS ARE UNDUCED)

	1	2	3	4	5	6
1	-117547E+09	-204604E-06	-128122E-02	-686026E-05	-130000E-01	-317210E+06
2	-94767595E+09	-716030E-07	-117647E+08	-700707E+07	-171835E+08	-560024E+01
3	-7126122E-02	-716030E-07	-117647E+08	-313219E+05	-14219E-05	-14219E-05
4	-545071E-05	-700707E-02	-113219E+05	-12035E+12	-925454E+01	-664155E+03
5	-6137211E+01	-1550724E-01	-141811E-05	-864155E+00	-353515E-03	-353515E+03
6	-4317211E+05	-205495E-05	-121624E-05	-664741E-05	-281942E-04	-136023E+12
7	-383735E+07	-140095E+04	-184270E+15	-910195E+04	-867229E+03	-100194E+04
8	-97134019E+08	-140095E+04	-184270E+15	-910195E+04	-867229E+03	-114746E+04
9	-201295E-05	-363721E-06	-343706E+07	-109149E+09	-819567E-04	-714111E-05
10	-59735E-05	-601152E-06	-107295E+09	-308949E+11	-821557E-03	-464755E-06
11	-516377E+06	-160653E+05	-190653E+05	-10332E+07	-351281E+11	-597721E+03
12	-107621E+03	-629701E-05	-814740E-05	-85423E-04	-324219E-01	-398938E+11
13	-131307E+05	-33760E-05	-131747E-05	-122476E-05	-6444949E-07	-540812E+06
14	-5390011E+04	-156371E-04	-527326E-05	-640647E-14	-274655E-05	-290112E+05
15	-107371E-05	-160653E-04	-161307E-05	-560894E+05	-209384E-06	-923412E-06
16	-552054E-05	-657370E-04	-579001E+05	-290117E-05	-440456E-05	-367594E-06
17	-424417E+05	-84647E-05	-150749E+05	-137455E+06	-324219E-05	-398938E+11
18	-5390011E+04	-156371E-04	-527326E-05	-640647E-14	-274655E-05	-290112E+05
19	-515375E+02	-171261E-05	-457262E-06	-450734E-05	-67335E-07	-123652E+06
20	-2827103E+09	-2020318E+09	-1482687E+09	-1482687E+09	-727730E+08	-3471140E+04
21	-317643E-05	-43226E-04	-51826E+02	-123652E+04	-414090E-07	-270104E-05
22	-1977211E-03	-48027E-01	-134227E+04	-243457E+05	-359587E-04	-310624E-02
23	-1252555E+06	-86707E-01	-107149E-04	-860077E-04	-293041E+04	-439459E-05
24	-134225E+04	-111616E-02	-612005E-03	-337672E-02	-717176E-05	-2414656E+05
25	-4584272E+00	-130255E-05	-636111E-06	-35322E-06	-502407E-07	-4646057E+01
26	-7849049E+05	-8049049E+01	-197717E+01	-142341E+01	-7135959E+00	-749554E+04
27	-42197E-05	-246016E-04	-546291E+20	-464653E+01	-319552E-07	-174639E-05
28	-1972515E-03	-64006E-01	-221940E+02	-173119E+03	-353037E-03	-320056AE-02
29	-1253325E+05	-370526E+06	-106073E+74	-839035E+74	-296149E+01	-612241E+05
30	-2721543E+02	-146409E-02	-401659E-03	-327527E-02	-991876E+05	-173038E+04

	7	8	9	10	11	12
1	-139707E+07	-110511E-06	-20128AE-05	-592341E-05	-361770E-06	-107429E+09
2	-295430E-05	-140656E+04	-341724E+06	-681152E-06	-160909E-06	-427721E-05
3	-171677E+05	-176227E+05	-39709E+07	-1076229E+07	-1076229E+06	-811740E+05
4	-464721E-03	-410155E-01	-102191E+00	-39800AE+11	-161310E-02	-464721E-04
5	-291032E+06	-667247E-05	-195657C-06	-421557E-01	-757281E+11	-324219E-03
6	-107119E+01	-116737E-05	-716111E-05	-458871E-06	-537321E-03	-388733AE+11
7	-767315E+07	-860647E-03	-890647E-03	-715172E-03	-30000E-01	-147312E+06
8	-826172E+05	-355122E+06	-470070E-06	-530000E-01	-1273953E-04	-1750E+06
9	-739000E+03	-870707E+04	-757116E+07	-142341E+06	-7047500E-01	-10132E+04
10	-1716703E+04	-570500E+01	-423137E+06	-315630E+11	-102620E+02	-62000E+00
11	-195000E+01	-120063E+04	-617800E+11	-102520E+02	-774637E+11	-191673E+04
12	-141623E+05	-121275E+04	-613070E+06	-557200E+00	-770147E+11	-175570E+11
13	-738963E+07	-625374E+06	-645374E+06	-525710E+02	-655148E-05	-104630E+00
14	-5555457E-04	-186230E+06	-212871E+01	-923691E+01	-102620E+02	-210575E+02
15	-175511E+07	-102765E+07	-110810E+17	-108600E+09	-771511E+05	-767746E+03
16	-375512E+01	-625163E+07	-104557E+00	-608024E+11	-152746E-02	-146031E+00
17	-121611E+01	-625163E+07	-277110E+06	-197637E+02	-371226E+11	-570275E+03
18	-109557E+03	-141639E+02	-105191E+02	-164391E+02	-767070E+03	-603074E+11
19	-160011E+05	-221266E+01	-705156E+11	-141639E+02	-516020E+00	-5486729E+06
20	-295417E+02	-322032E+04	-122711E+20	-606731E+01	-171639E+04	-113016AE+00
21	-233577E+03	-857612E+03	-168911E+15	-856771E+03	-553037E+02	-100471E+02
22	-276454E+01	-470070E+01	-705517E+03	-104171E+04	-104171E+04	-104171E+04

22 \* 274664E+00 + 6 10557E+01 \* 46537E+01  
 23 \* 26950E-01 \* 377613E-02 \* 76408E-02 \* 286956E+00 \* 740136E+05 \* 101076E-01  
 24 - 74516E+05 \* 152764E+00 \* 257809E+10 \* 109613E+02 \* 590066E-03 \* 398066E+04  
 25 - 405010E+01 \* 170618E+01 \* 302611E+03 \* 116795E-01 \* 64137E-05 \* 156557E+05  
 26 \* 10046E-02 \* 526474E+01 \* 120506E+00 \* 66958E+01 \* 962410E-04 \* 116077E+00  
 27 - 15180E-01 \* 369550E+02 \* 605015E+03 \* 156550E+05 \* 400999E-05 \* 586719E-02  
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 29 - 27361E+01 \* 506380E+02 \* 762795E+02 \* 266451E+04 \* 257345E+03 \* 106615E+01  
 30 - 153070E+05 \* 157779E+00 \* 277075E+00 \* 105874E+02 \* 171507E+02 \* 593301E+04

13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30

1 - 111107E+05 \* 857147E+07 \* 109300E+05 \* 552035E+05 \* 246372E+05 \* 253990E+04  
 2 - 212900E+06 \* 257809E+05 \* 111107E+06 \* 539001E+06 \* 566492E+05 \* 156371E-04  
 3 - 131272E+05 \* 351064E+05 \* 111107E+05 \* 539001E+05 \* 350748E+05 \* 527326E-05  
 4 \* 122675E+05 \* 282578E+05 \* 239112E+05 \* 131865E+05 \* 60567E+04  
 5 - 644692E+07 \* 2657720E+04 \* 206084E+06 \* 4480566E+05 \* 515720E+06 \* 274654E+05  
 6 \* 560892E+05 \* 804601E+06 \* 661019E+04 \* 365494E+04 \* 791610E+05 \* 249112E+06  
 7 - 1837571E+07 \* 555557E+05 \* 196210E+09 \* 457366E+01 \* 121507E+06 \* 308553E+04  
 8 - 453264E+04 \* 196210E+09 \* 108553E+09 \* 277100E+04 \* 194345E+02 \* 377378E+02  
 9 - 845196E+04 \* 242801E+02 \* 3805379E+07 \* 626175E+01 \* 672328E+03 \* 282750E+00  
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 12 - 104501E+03 \* 210504E+02 \* 124046E+02 \* 146311E+00 \* 121507E+02 \* 404974E+11  
 13 - 933797E+07 \* 272564E+07 \* 326552E+07 \* 156537E+00 \* 151008E+00 \* 980251E+05  
 14 - 232541E+02 \* 345003E+04 \* 997120E+01 \* 428175E+01 \* 672328E+03 \* 282750E+00  
 15 - 126892E+02 \* 907120E+01 \* 137925E+07 \* 980246E+06 \* 202505E+01 \* 154197E+00  
 16 - 1545737E+00 \* 6270817E+01 \* 8080246E+05 \* 100745E+12 \* 237811E+01 \* 550460E+01  
 17 - 150261E+00 \* 674332E+03 \* 202750E+01 \* 212619E+01 \* 795254E+11 \* 329345E+02  
 18 - 150261E+06 \* 202750E+00 \* 154307E+00 \* 550400E+01 \* 920354E+02 \* 1004615E+12  
 19 - 6467262E+07 \* 211622E+01 \* 154241E+01 \* 706450E+01 \* 231652E+02 \* 102909E+06  
 20 - 121704E+00 \* 211230E+04 \* 522194E+01 \* 283180E+03 \* 356490E+01 \* 543225E+01  
 21 - 163544E+02 \* 248639E+00 \* 447254E+07 \* 102939E+09 \* 208398E+02 \* 429613E+00  
 22 - 2113157E+02 \* 326511E+04 \* 110073E+09 \* 674951E+11 \* 175755E+01 \* 506778E+03  
 23 - 1726775E+01 \* 309712E+00 \* 708016E+00 \* 137049E+02 \* 250115E+11 \* 660219E+00  
 24 - 1691921E+04 \* 288781E+01 \* 114561E+02 \* 526177E+03 \* 52110E+00 \* 474961E+11  
 25 - 1651922E+05 \* 266053E+02 \* 124613E+01 \* 555585E+00 \* 266812E+02 \* 765176E+04  
 26 - 124075E+00 \* 266101E+05 \* 531067E+01 \* 237545E+03 \* 505965E+01 \* 553392E+04  
 27 - 250505E+02 \* 191361E+00 \* 166194E+05 \* 78585E+00 \* 157090E+02 \* 279052E+00  
 28 - 1117277E+02 \* 225107E+01 \* 296190E+00 \* 296190E+01 \* 175585E+01 \* 505119E+01  
 29 - 1713103E+01 \* 108010E+00 \* 107455E+00 \* 131360E+02 \* 161147E+02 \* 665832E+00  
 30 - 1316114E+05 \* 761029E+01 \* 113163E+02 \* 507561E+03 \* 4666604E+00 \* 298001E+06

21 22 23 24 25 26 27 28 29 30

1 - 1351275E+02 \* 4271102E+05 \* 337490E+03 \* 3977115E+03 \* 2526650E+04  
 2 - 1712611E+05 \* 2027013E+01 \* 426100E+01 \* 465100E+01 \* 651812E+04 \* 114164E+02  
 3 - 655214E+05 \* 196267L+03 \* 515252E+03 \* 196227E+04 \* 107146E+04 \* 612066E+03  
 4 - 650714E+05 \* 146580E+02 \* 1717852E+04 \* 216767E+05 \* 460037E+05 \* 335767E+02  
 5 - 677715E+07 \* 772003E+06 \* 6160070E+07 \* 45505787E+06 \* 293061E+05 \* 713758E+05  
 6 - 1213652E+04 \* 762150E+04 \* 270104E+05 \* 310628E+02 \* 439459E+05 \* 243666E+05  
 7 - 169111E+05 \* 205415E+02 \* 211777E+03 \* 276665E+00 \* 256655E+01 \* 745159E+05  
 8 - 2272055E+01 \* 202012E+05 \* 557472E+02 \* 653055E+01 \* 527630E+02 \* 152240E+00  
 9 - 345167E+01 \* 127211E+01 \* 164811E+05 \* 2745378E+05 \* 404915E+02 \* 284243E+00  
 10 - 149551E+01 \* 450711E+01 \* 6499627E+04 \* 1980715E+04 \* 266956E+00 \* 106618E+02  
 11 - 2113093E+07 \* 577003E+06 \* 500715E+07 \* 105041E+02 \* 790136E+00 \* 790056E+03  
 12 - 649572E+02 \* 111163E+00 \* 36179E+02 \* 472051E+01 \* 107555E+01 \* 115973E+00  
 13 - 745167E+02 \* 121777E+01 \* 211777E+01 \* 411073E+01 \* 106731E+00 \* 116561E+02  
 14 - 611350E+01 \* 522100E+01 \* 467263E+01 \* 107073E+01 \* 130910E+00 \* 520717E+02  
 15 - 159261E+01 \* 231100E+00 \* 107073E+01 \* 173807E+01 \* 221107E+00 \* 115973E+01  
 16 - 701650E+00 \* 107073E+01 \* 107073E+01 \* 173807E+01 \* 221107E+00 \* 115973E+01

21 22 23 24 25 26 27 28 29 30

19	+5725555E+07	+105426E+00	+467969E-01	+518543E+02	+850100E+00	+517037E+07
20	+5055426E+00	+293723E+02	+151160E+02	+170995E+05	+162105E+02	+412834E+03
21	+657067E-01	+191160E+02	+674555E+07	+517139E+07	+111075E+01	+325770E+02
22	+518543E+02	+170995E+05	+517139E+07	+560771E+11	+101531E+06	+341096E+05
23	+8890500E+00	+162105E+02	+311075E+01	+301571E+04	+567665E+11	+104085E+03
24	+517037E+07	+412834E+02	+325770E+02	+391096E+05	+104085E+07	+560759E+11
25	+233095E+02	+465664E+00	+370532E+01	+670141E+02	+945292E+00	+122891E+09
26	+515777E+00	+6422381E+07	+1539915E+02	+174194E+05	+165140E+02	+420594E+03
27	+310139E-01	+100215E+02	+213096E+02	+122891E+09	+746921E+00	+212058E+02
28	+517882E+02	+170884E+05	+102902E+08	+628143E+10	+100703E+04	+381459E+05
29	+9933957E+07	+1617791E+02	+7104741E+01	+101370E+03	+142647E+11	+104081E+03
30	+102892E+09	+600159E+03	+316365E+02	+371411E+05	+583589E+02	+628027E+10

	25	26	27	28	29	30
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1	+584274E+00	+637004E-05	+218027E-06	+397665E-03	+258955E-05	+221653E+02
2	+139250E-05	+403950E+01	+205815E-04	+449969E-01	+462864E-04	+114499E-02
3	+6435511E+00	+187717E+03	+584281E+00	+6221809E+02	+105973E+04	+401658E+03
4	+851220E-05	+152790E-02	+464053E+01	+173139E+03	+839006E-04	+327527E-02
5	+502407E-07	+735050E-05	+319552E-07	+353097E-06	+295144E+01	+991574E-05
6	+9889977E+01	+369367E+00	+1770688E+05	+320054E+02	+932261E+05	+173039E+03
7	+405010E+03	+300046E-02	+1518025E+03	+274965E+00	+271613E+03	+151970E+05
8	+179418E+03	+526474E+03	+369550E+02	+630146E+01	+596380E+02	+147528E+00
9	+302411E+03	+123853E+00	+6406015E+03	+154056E+05	+742770E+02	+277076E+00
10	+116775E-01	+499854E+01	+156550E+05	+503634E+06	+286461E+00	+106874E+02
11	+641767E-05	+942630E-04	+400999E-05	+454744E-02	+257395E+03	+123607E+02
12	+158997E+09	+1160777E+00	+5884719E+02	+106035E+02	+104635E+01	+591101E+06
13	+155102E+05	+124075E+00	+626005E-02	+113273E+02	+177839E-01	+636314E+06
14	+929053E-02	+2784101E+05	+191361E+00	+326302E+03	+305819E+00	+763924E+01
15	+1294913E+01	+5310675E+01	+166194E+05	+676668E+06	+707495E+02	+113605E+02
16	+555583E+09	+237546E+03	+745785E+06	+298159E+08	+135803E+02	+507543E+03
17	+2464912E-02	+361539E+01	+157049E+02	+173589E+01	+151147E+07	+485604E+00
18	+7489374E+09	+5651392E+01	+279005E+00	+305319E+03	+665832E+00	+293001E+03
19	+233075E+07	+615730E+00	+310135E+01	+517889E+02	+459957E+00	+102492E+03
20	+4955611E+00	+422791E+07	+100216E+02	+170894E+05	+161751E+02	+400058E+03
21	+3705537E+01	+1570911E+02	+233096E+07	+102907E+08	+104551E+01	+315355E+02
22	+4051161E+02	+174194E+05	+1228915E+09	+628143E+10	+101370E+04	+371411E+05
23	+345202E+00	+165140E+02	+746921E+00	+100703E+04	+142647E+11	+583589E+02
24	+12289115889	+628094E+03	+212054E+02	+381459E+05	+104031E+03	+628027E+10
25	+231475E+07	+695608E+00	+265559E+01	+607353E+02	+997500E+00	+956513E+07
26	+405603E+00	+425160E+07	+1020915E+02	+174043E+05	+164776E+02	+407519E+07
27	+2458375E+01	+1020915E+02	+231475E+07	+966900E+07	+191000E+00	+205523E+02
28	+5077351E+02	+174033E+05	+665900E+07	+585247E+10	+100510E+04	+371777E+05
29	+3975075E+00	+164776E+02	+819000E+00	+100510E+04	+142663E+11	+587245E+02
30	+7555333E+07	+407319E+03	+205523E+02	+371777E+05	+5877245E+02	+586112E+10

## WATFIV

## READA.RCN

4 2 3 4 5 6

1	* 271475E+07	- 695704E+00	+ 245555E+01	* 407363E+02	* 771500E+00	- 966831E+07
2	- 625402E+00	* 425150E+07	- 1020915E+02	- 174038E+05	* 144776E+02	* 407510E+01
3	- 265957E+01	- 1020701E+02	- 21475E+07	- 955000E+07	- 100500E+00	- 205523E+02
4	* 407363E+04	* 56400E+07	* 586248E+04	* 100510E+04	- 371777E+05	
5	* 997010E+00	- 164776E+02	* 56400E+07	* 10510E+04	* 142666E+11	- 587245E+02
6	= 195547E+07	- 807010E+01	- 203312E+02	- 371777E+05	- 587245E+02	* 585172E+10
7	- 616710E+02	- 616710E+01	- 1655210E+02	- 517406E+02	- 959055E+00	* 102892E+08
8	* 195556E+00	- 622710E+07	* 10215E+02	* 170894E+05	* 161751E+02	- 400058E+03
9	- 170577E+01	- 153001E+02	- 2710701E+07	- 1020202E+05	- 10510E+01	* 116155E+02
10	* 404141E+02	* 176194E+05	- 128091E+04	- 52813E+10	* 10370E+06	* 371611E+05
11	* 245203E+00	* 155149E+02	- 76194E+02	- 10070E+04	- 142667E+11	* 583549E+02
12	- 1222401E+09	* 627050E+04	- 2710701E+02	* 781653E+05	* 100881E+01	* 8240273E+10
13	* 65121E+05	- 1247075E+00	* 627050E+02	- 113273E+02	* 17439C+01	- 636314E+06
14	- 220841E+02	- 296101E+05	* 19313E+00	* 324102E+03	* 106919E+00	* 753924E+01
15	* 126551E+01	- 571010E+01	* 161919E+115	* 535655E+05	* 30745E+00	* 113605E+02
16	- 555549E+00	* 155149E+02	- 76194E+02	- 298159E+08	* 156010E+02	* 507543E+01
17	* 245412E+02	- 76194E+01	- 167040E+02	* 173585E+01	- 161147E+07	* 466604E+00
18	- 745175E+05	- 2710701E+01	* 2710701E+00	* 805032E+00	* 555832E+00	* 294001E+04
19	- 650161E+01	* 200404E+02	- 151602E+03	- 276965E+00	* 271313E-03	* 151970E+05
20	- 164141E+01	* 224947E+01	- 360556E+02	- 694913E+00	* 695360E-02	* 147524E+00
21	- 202881E+02	- 320302E+00	- 602015E+03	- 165056E+05	- 762795E+02	* 277074E+00
22	- 158255E+01	- 440495E+01	- 166555E+05	* 503634E+06	* 285461E+00	* 106874E+02
23	- 159141E+05	* 626430E+04	- 400000E+05	* 547674E+02	- 2571615E+03	* 121507E+02
24	- 155555E+05	* 1161777E+00	- 5516177E+02	* 106055E+02	* 1046155E+01	* 593301E+06
25	- 542244E+00	* 352254E+05	- 262061E+05	- 17475E+04	* 258495E+06	* 221687E+02
26	* 442441E+05	* 640495E+01	- 221064E+05	- 103650E+04	- 662864E+04	* 14439E+02
27	- 533911E+06	- 187717E+01	- 552918E+04	- 221919E+02	- 105971E+04	* 401558E+01
28	* 363220E+05	- 152300E+02	* 440495E+01	* 173135E+01	* 33000E+04	* 327527E+02
29	- 502671E+07	* 710500E+04	- 10552E+07	- 55200E+07	- 608149E+01	* 301874E+05
30	- 535555E+01	- 307565E+04	- 176584E+05	- 32000E+07	- 632226E+01	* 173038E+04

20	* 223264E-01	- 327072E+05	* 657412E-02	* 610557E+01	* 597611E-01
21	* 745157E-01	- 127211E+00	* 15911E+05	* 74537E+05	* 286243E+00
22	* 144556E-01	- 90571E+01	- 548673E+95	- 108073E+09	* 245095E+00
23	* 18020E-05	- 911656E-04	- 57612E-05	* 46321KE-02	* 109574E+02
24	* 584572E+01	- 113064E+00	* 200871C-02	* 105041E+02	* 878006E+01
25	* 575729E+02	- 477107E+01	* 47220E-04	* 49296E-01	* 398059E+00
26	* 171167E-05	- 201115E+01	* 32E20E+01	* 14227E+04	* 118164E-02
27	* 567529F-04	- 186267E-01	* 51522E+02	- 14227E+04	* 412006E-03
28	- 5650774E+05	- 15549E+07	- 174152E+06	- 2763657E+07	* 335767E+02
29	* 471135E-07	- 727700E-05	* 616090E-97	* 358597E-01	* 711766E-05
30	* 121657E+04	- 747104E-06	* 270104E-97	* 31962AE-02	* 241666E+05

11 14 15 16 17 18 19

15 16 17 18 19

1	* 1166192E+05	* 929164E-02	* 124611E-01	* 555545E+00	* 265912E-02	* 785376E+05
2	- 51740749F+00	- 2901019E+00	- 277957E+01	- 315159E+01	- 9553372E+01	
3	* 122071E-02	* 101151E+00	* 166194E+05	* 705166E+06	* 157049E-02	* 270005E+00
4	* 1113274E+02	* 32E20E+01	* 636669E+06	- 209150E+08	* 173549E+01	
5	* 1113193E+01	- 3290191E+00	- 307285E+00	- 21176501F+02	- 151147E+07	
6	* 536314E+05	- 763107E+01	* 113F05E+02	* 507513E+04	* 655832E+00	
7	- 667261E+07	- 115102E-01	- 158294E-01	* 231652E+02	* 290001E+00	
8	* 121294E+00	* 211230E+00	* 213189E+01	* 356949E+01	* 543725E+01	
9	- 311531E-02	- 249E17E+00	- 467263E+07	- 109299E+C	- 429613E+00	
10	- 1113157E+02	- 32E20E+01	- 47691E+11	- 175366E+01	- 504778E+01	
11	- 6175297E+01	- 329014E+00	- 3137059E+02	- 125011E+11	- 5E-219E+00	
12	- 1160716E+09	- 788191E+01	- 520717E+01	- 151149E+00	- 474961E+11	
13	- 913792E+07	- 237264E-02	- 325552E+02	- 154637E+07	* 980251E+06	
14	- 949849E+02	- 9498093E+09	- 9297120E+01	- 9291779E+01	- 202790E+00	
15	* 3255567E-02	* 1071210E+01	* 93792E+07	* 900415E+05	* 202500E+01	
16	* 156617E+01	- 67817E+01	* 90245E+05	* 100415E+12	* 232410E+01	
17	- 151101E+00	- 678228E+07	- 202500E+01	- 212410E+01	- 705259E+11	
18	- 196031E+06	- 202750F+00	* 154397E+00	- 559400E+01	* 104495E+12	
19	- 1805731E+07	- 156167E-06	- 44101AE-04	* 175607E-02	- 570225E-03	
20	- 1889794E+04	- 1180791E+00	- 192069E+02	* 889738E+01	* 198789E+02	
21	- 945101E-06	- 2429091E-02	- 349513E+07	* 104553E+09	- 22710DE-04	
22	* 125711E-02	* 176661E-01	- 104607E+07	- 404097E+11	- 146341E+00	
23	- 156501E+03	- 215794E+00	- 152111E+07	- 152111E+07	- 371226E+11	
24	* 109501E+03	* 210596E-02	- 124045E-02	* 144031E+00	- 504974E+11	
25	* 111107E+05	- 856147E-07	- 109270E-06	* 552051E-05	* 539901E+05	
26	- 147407E+06	- 242970E+00	- 193860E+07	* 687770F+04	* 159371E+04	
27	- 131747E-05	- 3511664E-07	* 111302E+05	* 539001E+06	* 350769E-05	
28	* 122671F-05	* 245771E-06	- 45892E+11	* 293112E+09	* 131864E-04	
29	+ 508691E+07	- 21765779E+05	- 2169094E+05	- 458054E+05	* 515720E+05	
30	* 560492E+05	- 804001E-04	- 923812E-05	* 157544E+04	* 791610E-05	

19 20 21 22 23

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1	- 4056013E+03	- 176619E+03	- 702071E+03	* 116795E+01	* 664367E-05	* 156557E+05
2	* 300016E-02	* 526876E+01	* 124613E+00	- 600854F+01	* 626430E-04	* 116077E+00
3	- 51575050F+03	- 35705650E+07	- 705015E+01	- 158739E+05	- 586719E+02	
4	- 2740567E+01	- 530164E+01	* 156055E+15	* 393614E+06	* 4564764E+02	
5	- 278617E-01	- 504790E-02	* 74273E+02	* 284513E+00	* 4257385E+01	
6	- 1513771E+03	- 216757E+00	* 777075E+01	* 105974E+02	- 105155E+01	
7	* 168611E+05	- 221046E+01	* 748157E+01	* 144551E+01	* 501801E+06	
8	- 295611E+02	- 3290132E+00	* 127721E+00	* 405721E+01	- 31364E+00	
9	* 777617E+04	- 867012F+00	- 1686112E+05	* 5885737E+05	- 205974E+02	
10	* 276557E+04	* 870072E+01	* 7467179E+05	- 108773E+04	* 453216E+02	
11	* 283650E-03	* 57731E+02	- 7446191E+12	- 245051E+00	* 103074E+01	
12	* 2766750F+05	- 215672E+00	- 2946276E+00	* 109053E+02	* 398053E+00	
13	- 183211E+07	* 45734E+04	* 325721E+02	- 155114E+03	* 104503E+01	
14	- 1556507E+07	- 106273E+00	- 262601E+02	* 215366E+02	* 326955E+02	
15	- 1556507E+07	- 106273E+00	- 262601E+02	- 105071E+02	- 327111E+02	

25 26 27 28 29

24

25 26 27 28 29

25 26 27 28 29

16	* 121465E-04	- 625180E-05	- 277100E-04	* 107463E-02	- 371220E-11
17	- 121465E-04	- 625180E-05	- 177110E-02	* 14343E+00	- 408970E+11
18	- 10855E+01	- 921725E-05	- 90525E-01	- 746705E-01	- 905005E-01
19	- 76213E+07	- 921725E-05	- 716702E-04	- 905005E-01	- 142132E+05
20	- 60222155E-05	- 67074E-06	- 610000E-01	- 121205E+00	- 121205E+00
21	* 40852E-04	- 870070E-06	- 78777165E-07	* 142121E-02	- 631012E-04
22	- 71572E-04	- 87000E-01	- 142112E+05	* 93101E-01	* 402620E-02
23	- 90500E-01	- 120865E-04	- 105373E-05	- 402620E-02	- 67200E+00
24	- 37566E-05	- 121205E-05	- 513105E-05	- 5747E-04	- 79147E-04
25	- 107050E+07	- 110515E-06	- 201212E-06	- 5694E-04	- 429791E-05
26	- 37566E-05	- 10864E-06	- 604962E-05	- 11525E-04	- 13746E-05
27	- 107050E+05	- 107270E-05	- 403800E-05	- 107629E-04	- 854215E-04
28	- 654791E-05	- 610154E-06	- 10492E-01	* 101302E-02	* 324219E-01
29	- 21882E-04	- 667274E-05	- 1054E-01	* 1557E-01	* 361281E+11
30	- 111765E-05	- 111765E-05	- 716111E-05	- 6388750E-06	- 394988E+11
1	- 25457975E10	- 110270E-05	- 610111E-15	* 753220E-05	- 502407E-07
2	- 435094E-05	- 674850E+01	- 147717E-11	- 152310E-02	* 715959E-06
3	- 219022E-04	- 265114E-04	- 5947281E+00	- 499493E+01	- 135552E-07
4	- 25457975E-04	- 674850E-01	- 227180E-02	- 3531975E-06	- 320059E-07
5	- 2545794E-05	- 467866E-04	- 106072E-04	- 300067E-06	* 298144E+01
6	- 221583E+02	- 116600E-02	- 401154E-01	- 27577E-02	- 991474E-05
7	- 545214E-02	- 177057E-05	- 767520E-05	- 152072E-05	* 173103E+03
8	- 42144E-05	- 202014E-01	- 149589E-02	- 727500E-06	- 121552E+04
9	* 137687E-05	* 437620E-04	* 525126E-01	* 243652E+04	- 34315E-04
10	* 107217E-01	* 68707E-01	* 142277E-06	* 2673657E+05	* 319629E-02
11	* 252517E-04	* 657912E-04	* 107146E-06	- 440092E-06	* 433459E-05
12	- 138225E+04	- 119164E+02	- 412005E-03	* 135757E-02	* 263666E+05
13	- 111107E+05	- 317240E-05	- 111767E-05	- 122476E-05	* 540922E+05
14	- 6556167E-07	- 257800E+05	- 351064E-05	- 265730E-05	- 804901E-06
15	- 103100E-05	- 146045E-04	- 140702E+05	- 540932E+06	- 921612E-06
16	- 35205E-05	* 58777E-05	- 299801E05	- 299801E05	* 367594E-05
17	- 2464725E-05	- 566639E-06	- 35074E-05	- 535720E+05	* 791619E-05
18	- 5110601E+06	- 351371E-05	- 52725E-05	- 6405647E-04	- 299112E+06
19	- 5110601E+06	- 204705E-07	- 121426E-15	- 6566701E-05	* 281082E-05
20	- 110515E-05	- 140564E+08	- 164270E-16	- 410154E-06	* 662875E-05
21	- 201205E-05	- 361121E-05	- 383053E+07	- 1091919E+00	* 180567E-04
22	- 537791E-05	- 8481157E-04	* 107479E-17	- 409000E+11	- 716111E-05
23	- 161777E-04	- 148045E-04	* 109463E-04	* 101392E-02	- 151281E+11
24	- 107472E+03	- 670771E-05	- 817464E-05	* 656235E-04	* 324219E-03
25	- 117657E+01	- 204705E-05	- 3281422E-02	- 582092E-05	- 34000E-01
26	- 204694E-06	- 544750E+04	- 746010E-07	- 700000E-02	- 560245E-01
27	- 124912E-07	- 716370E-07	- 117647E+08	- 313249E+06	- 144255E+00
28	- 537791E-05	- 700000E-02	- 332319E10	- 175021E+12	* 254854E-01
29	- 170000E-01	- 170000E-04	- 146256E+10	* 268029E+12	- 353516E-01
30	- 111765E+05	- 550000E-01	- 161011E-05	* 866155E+00	* 136023E+17

## FLEXIBILITY MATRIX

	1	2	3	4	5	6
1	.324370E-05	-.204005E-13	.201764E-14	.172221E-14	-.135249E-16	-.107032E-07
2	-.204005E-13	.418022E-05	-.109008E-11	.70417EE-12	.272004E-15	-.164378E-13
3	.201764E-14	-.300000E-11	.328370E-05	-.107013E-07	-.211055E-16	-.322521E-14
4	-.172221E-14	.70417EE-12	.107013E-07	.248155E-09	-.122380E-15	.109245E-14
5	-.135249E-16	.272005E-15	-.211055E-16	-.122390E-16	.161831E-09	.628642E-15
6	-.107032E-07	-.211055E-13	-.322115E-14	.109245E-14	.628642E-18	-.248155E-09
7	.224202E-05	-.351630E-14	.649215E-14	.254554E-15	.148642E-16	-.763176E-08
8	.315072E-17	.183122E-05	-.527E00E-14	.161940E-16	.617611E-19	-.372403E-15
9	.527E00E-14	-.182979E-12	.224202E-05	.783376E-08	-.140690E-16	-.258923E-15
10	.305334E-16	.105475E-14	.114094E-07	.765373E-10	-.194679E-19	.151815E-17
11	.265541E-15	-.222749E-18	-.360835E-15	-.103577E-19	.917378E-10	-.716679E-19
12	-.1114034E-07	-.21730121E-16	-.329371E-16	.140094E-17	-.246457E-19	.765323E-10
13	.145952E-05	.722325E-16	.363727E-14	.826852E-17	.129722E-15	-.413099E-09
14	.943354E-16	.136306E-06	-.440F95E-15	-.466166E-16	-.217067E-19	.122182E-17
15	.182722E-14	-.357064E-18	.1859972E-05	-.423098E-08	-.240802E-16	-.795791E-17
16	.247691E-16	-.331028E-16	.320867E-08	.569584E-10	-.155057E-18	-.153908E-18
17	.223972E-15	-.910032E-20	-.252031E-16	-.825687E-19	.682135E-19	-.872784E-19
18	-.1990957E-03	.7779430E-18	-.246709E-15	.151779E-19	-.323959E-19	.569584E-10
19	.716310E-05	-.920736E-17	.1683315E-14	.661457E-17	.801912E-17	-.151574E-09
20	.523011E-15	.827471E-07	-.3494945E-15	.315640E-17	-.165270E-20	.234725E-19
21	-.1494774E-14	-.191697E-19	.714310E-05	-.191774E-04	-.113837E-18	-.854394E-17
22	.173527E-15	-.284645E-17	.697246E-08	.344093E-10	-.111182E-19	-.742467E-19
23	.150152E-15	-.587810E-20	-.142767E-16	-.477336E-19	.412775E-10	-.431966E-19
24	-.5972743E-03	-.247177E-19	-.177334E-16	-.767928E-13	-.339235E-19	.344033E-10
25	.168019E-05	.331955E-17	.404354E-15	.148205E-17	.233028E-17	-.173525E-09
26	.244259E-15	.271442E-07	-.115018E-15	.95451E-15	-.151505E-20	.173771E-19
27	.2403545E-15	-.215394E-16	.2154090E-05	.173575E-03	-.282953E-17	-.145437E-17
28	.547770E-17	-.936072E-18	.262858E-08	.113392E-10	-.418729E-19	-.271715E-19
29	.505433E-17	-.176877E-20	-.607068E-17	-.161151E-17	.137538E-10	-.144455E-19
30	-.262858E-03	.1111985E-19	-.656771E-17	-.273895E-17	-.166518E-19	.113392E-10

	7	8	9	10	11	12
1	.224202E-05	-.018075E-17	.1520430E-14	.1308386E-16	-.1245412E-15	-.1116074E-07
2	-.151630E-14	.133122E-05	-.152075E-12	.105475E-14	-.222784E-19	-.235021E-16
3	.483235E-14	-.527500E-14	.224200E-05	.114094E-07	.340836E-15	-.329319E-16
4	-.258959E-19	.161940E-18	-.753354E-08	.765373E-10	-.103577E-18	-.148094E-17
5	.148542E-16	.617611E-19	-.340630E-16	-.194679E-19	.917378E-10	-.246457E-19
6	-.763363E-05	.372401E-16	-.258923E-15	.151815E-17	-.715579E-19	.765323E-10
7	.155303E-05	.327237E-15	-.615905C-14	.215531E-15	.233137E-19	-.761509E-08
8	.305230E-16	.183424E-05	-.820188E-15	-.144648E-17	.621051E-20	-.255226E-14
9	.415905E-14	-.820188E-15	.195303E-15	.761657E-09	-.252170E-16	-.214730E-16
10	-.2119511E-15	-.144648E-17	.751608E-08	.755518E-10	-.113785E-14	-.111191E-14
11	.233137E-15	-.420051E-20	-.252130E-15	-.118795E-19	.217405E-10	-.680727E-19
12	-.761657E-08	-.255226E-19	.214630E-15	-.111191E-19	.590327E-19	.766618E-10
13	.1255154E-03	.3379145E-16	-.275E02E-16	.135953E-15	.187203E-15	-.413144E-08
14	.724440E-16	.136229E-05	-.389004E-15	-.137844E-17	-.426290E-20	-.435751E-14
15	.277444E-14	-.263051E-15	.125464E-05	.613144E-09	-.165066E-15	-.175574E-16
16	-.1451605E-15	-.332225E-17	.703146E-08	-.2589551E-17	-.105194E-15	-.982398E-19
17	.213331E-15	.625057E-20	-.195175E-15	-.833222E-19	.621717E-10	-.531041E-19
18	-.208346E-03	-.623756E-19	-.195061E-16	.283300E-19	-.704792E-19	-.559551E-10
19	.5611225E-05	.1205565E-16	-.1259557E-16	-.637320E-17	.107505E-16	-.151575E-08
20	.5350345E-15	.823671E-07	-.240756E-15	-.216111E-17	.2505375E-20	-.393501E-18
21	.125731E-14	-.102148E-15	.641130E-16	-.151575E-09	-.2589550E-17	-.535105E-17

27	+139880E-16	-+257635E-20	-+194003E-15	-+512459E-19	-+412774E-10	-+409742E-14
24	-+526575E-03	-+377032E-15	-+170352E-15	-+577051E-19	-+503445E-19	-+364093E-10
25	+159444E-06	+621197E-14	+304565E-15	+146157E-17	+207278E-17	-+171525E-09
26	+185115E-15	+271562E-07	-+824678E-16	-+674066E-18	-+870492E-21	-+118043E-18
27	+708005E-15	-+156415E-15	+159484E-06	+173525E-09	-+196456E-17	-+145504E-17
28	-+487777E-17	-+787651E-15	-+785615E-08	-+113392E-10	-+284642E-19	-+250850E-19
29	-+670561E-17	-+856345E-21	-+357642E-17	-+173059E-19	-+137538E-10	-+136050E-19
30	-+205611E-05	-+110055E-19	-+687058E-17	-+251255E-19	-+264252E-19	-+113392E-10

13	14	15	16	17	18	
1	+145057E-05	-+943357E-15	+352722E-14	+247641E-16	-+228470E-15	-+990857E-09
2	-+722325E-15	-+136308E-05	-+367054E-14	-+331128E-15	-+610932E-20	-+779430E-18
3	-+353727E-14	-+440585E-15	-+165052E-95	-+900557E-09	-+252031E-16	-+246709E-16
4	-+925962E-17	-+456155E-15	-+413098E-08	-+569584E-10	-+825487E-19	-+151330E-18
5	-+129722E-15	-+217057E-19	-+280702E-16	-+155057E-18	-+532134E-10	-+329949E-19
6	-+613034E-09	-+122192E-17	-+795791E-17	-+153908E-19	-+672784E-19	-+569544E-10
7	-+125454E-05	-+728440E-16	-+274648E-14	-+186166E-16	-+213391E-16	-+708346E-09
8	-+115154E-15	-+137290E-06	-+263051E-15	-+339757E-17	-+625853E-20	-+423767E-18
9	-+274610E-14	-+388004E-15	-+125454E-06	-+708346E-08	-+186175E-16	-+185861E-15
10	-+135957E-15	-+333846E-17	-+413144E-08	-+559551E-10	-+883292E-19	-+983009E-19
11	-+185243E-15	-+426229E-20	-+175065E-15	-+106194E-18	-+682134E-10	-+7064752E-19
12	-+613154E-09	-+675751E-18	-+115574E-16	-+952398E-19	-+631041E-13	-+569551E-10
13	-+103912E-05	-+474299E-16	-+178719E-14	-+120537E-16	-+171206E-16	-+412668E-08
14	-+474277E-15	-+136380E-06	-+271159E-15	-+255327E-17	-+118170E-20	-+597777E-19
15	-+178719E-14	-+231598E-15	-+103912E-05	-+612668E-09	-+121450E-16	-+120286E-16
15	-+129537E-16	-+285727E-17	-+412668E-08	-+569953E-10	-+739569E-19	-+855415E-19
17	-+171288E-15	-+318170E-20	-+4121450E-15	-+789559E-19	-+582134E-10	-+649077E-19
18	-+412668E-08	-+507777E-18	-+120245E-16	-+855415E-19	-+649077E-19	-+569953E-10
19	-+562307E-05	-+182254E-15	-+807744E-15	-+566035E-17	-+999402E-17	-+151572E-08
20	-+415633E-15	-+827676E-07	-+146081E-15	-+178692E-17	-+193505E-20	-+498580E-18
21	-+1077324E-15	-+909019E-16	-+562307E-05	-+151572E-08	-+550684E-17	-+563455E-17
22	-+544877E-17	-+181319E-17	-+347F50E-08	-+364894E-10	-+560442E-19	-+591649E-19
23	-+1133077E-15	-+192272E-20	-+655988E-17	-+455755E-19	-+612775E-10	-+417656E-19
24	-+347651E-08	-+484292E-18	-+847F81E-17	-+591979E-19	-+556535E-19	-+344094E-10
25	-+150458E-06	-+145074E-17	-+208527E-15	-+130556E-17	-+277048E-17	-+173524E-09
25	-+1211917E-15	-+271562E-07	-+649331E-15	-+590355E-19	-+652808E-21	-+150015E-18
27	-+200244E-15	-+127354E-16	-+150460E-06	-+173525E-09	-+143752E-17	-+130030E-17
28	-+1145911E-17	-+607774E-18	-+147651E-08	-+113392E-10	-+209291E-19	-+220196E-19
29	-+7811331E-17	-+150723E-21	-+239795E-17	-+156157E-19	-+1375345E-10	-+139537E-19
30	-+147651E-08	-+145840E-18	-+314242E-17	-+220417E-19	-+244356E-19	-+113392E-10

19	20	21	22	23	24	
1	-+716312E-05	-+827011E-16	-+168175E-14	-+173523E-15	-+150169E-16	-+697246E-08
2	-+120774E-17	-+823742E-07	-+131149E-15	-+284635E-17	-+587910E-20	-+247177E-10
3	-+1543311E-14	-+6260055E-15	-+716310E-15	-+697246E-09	-+142757E-15	-+1733344E-15
4	-+561457E-17	-+31F440E-17	-+1F1E74E-15	-+344093E-19	-+477363E-19	-+747928E-19
5	-+301312E-17	-+456270E-20	-+113657E-15	-+111152E-18	-+412775E-10	-+330234E-19
5	-+1515745E-04	-+230727E-19	-+656434E-17	-+742457E-19	-+631155E-19	-+344093E-10
7	-+641120E-05	-+675076E-16	-+126731E-14	-+130606E-16	-+179809E-16	-+526576E-08
8	-+125454E-15	-+827471E-17	-+107580E-15	-+210720E-17	-+297475E-20	-+377932E-18
9	-+1253537E-14	-+249365E-15	-+641130E-15	-+526574E-03	-+104009E-15	-+130752E-16
10	-+637320E-17	-+2041118E-17	-+151073E-15	-+346093E-19	-+512469E-19	-+677051E-19
11	-+107505E-15	-+269537E-20	-+768056E-17	-+755675E-19	-+612775E-10	-+503445E-19
12	-+181173E-04	-+230737E-17	-+636371E-17	-+676924E-19	-+406742E-19	-+344093E-10
13	-+562307E-05	-+417460E-16	-+907324E-15	-+844077E-17	-+111037E-16	-+347656E-09
14	-+122245E-15	-+622672E-07	-+903719E-15	-+181319E-17	-+197720E-20	-+484272E-18
15	-+307774E-13	-+1350071E-15	-+1502787E-15	-+387559E-03	-+5000010E-17	-+3435591E-17
16	-+565035E-17	-+1749375E-17	-+151572E-09	-+346094E-10	-+455785E-19	-+591070E-19
17	-+109460E-17	-+127505E-20	-+120684E-17	-+560664E-19	-+412775E-10	-+5566435E-19
17	-+111173E-08	-+400773E-19	-+636371E-17	-+501169E-19	-+612660E-19	-+344093E-10

13	+1623597E+02	+1E	-1909319E-16	+181314E-17	+1
14	+182245E-15	.827475E-07	-1557307E-05	-347559E+08	-2343551E-17
15	+107777E+13	+1155071E-15	+151572E-03	+344094E-10	-455755E-19
15	+545035E-17	-179437E-17	+150684E-17	+560442E-19	-591975E-19
17	+109402E-17	+191505E-20	+150684E-17	+591649E-19	-555535E-19
18	-111572E-03	+490507E-19	+567485E-17	+591649E-19	-417455E-19
19	+674447E-05	+165035E-16	+136215E-15	+391547E-17	+684283E-17
20	+165035E-16	+824253E-17	+576767E-16	+115760E-17	+116939E-20
21	+115215E-15	+576767E-14	+474887E-06	+151113E-03	+270098E-17
22	+701561E-17	+115760E-17	+151113E-03	+344470E-10	+317172E-19
23	+584253E-17	+116009E-20	+270098E-17	+317172E-19	+412779E-10
24	+191113E-03	+472159E-14	+390682E-17	+6410104E-19	+361584E-19
25	+140513E-06	+146836E-17	+882373E-15	+910484E-19	+192742E-17
26	+459594E-17	+271442E-07	+1911134E-15	+392971E-18	+400393E-21
27	+381655E-15	+701705E-17	+150517E-16	+173646E-09	+754061E-18
28	+142931E-17	+289242E-18	+827349E-09	+113392E-10	+115155E-19
29	+232245E-17	+398705E-21	+108856E-17	+107994E-19	+137534E-10
30	+9277341E-03	+120172E-18	+142874E-17	+152931E-19	+161575E-19

29      28      27      26      25      30

1	+1159020E-03	+208260E-10	+807504E-19	+547704E-17	+805439E-17	+262858E-08
2	+331855E-17	+271642E-07	+215394E-16	+934072E-19	+196877E-20	+111336E-13
3	+404354E-15	+115914E-15	+158090E-26	+262458E-08	+497053E-17	+647335E-17
4	+1149207E-17	+106488E-12	+173525E-09	+113332E-10	+161761E-19	+273335E-19
5	+2133024E-17	+151505E-20	+232937E-17	+418729E-19	+137538E-10	+164518E-19
6	+171525E-03	+173771E-12	+146437E-17	+271715E-19	+146455E-19	+113392E-10
7	+189049E-04	+190114E-14	+108005E-19	+697339E-17	+670661E-17	+208615E-09
8	+521197E-15	+271442E-07	+154415E-16	+707651E-18	+866355E-21	+110068E-18
9	+704565E-15	+824674E-16	+159484E-06	+206615E-08	+367682E-17	+467058E-17
10	+188157E-17	+674066E-19	+173525E-19	+113332E-10	+171059E-19	+251266E-19
11	+297277E-17	+870642E-21	+126646E-17	+284642E-19	+137534E-10	+264252E-19
12	+173525E-09	+118043E-18	+145559E-17	+250850E-19	+136050E-19	+113392E-10
13	+180457E-05	+121819E-16	+200284E-19	+310790E-17	+391183E-17	+147551E-05
14	+145074E-17	+271642E-07	+127358E-16	+507774E-19	+650723E-21	+145940E-18
15	+200527E-15	+487318E-16	+150450E-05	+147651E-09	+239796E-17	+314242E-17
16	+1130766E-17	+1290394E-19	+173725E-19	+113322E-10	+154162E-19	+220417E-19
17	+277049E-17	+692809E-21	+143752E-17	+209291E-19	+137534E-10	+244356E-19
18	+173526E-09	+150015E-19	+130840E-17	+220173E-19	+139687E-19	+113392E-10
19	+1409313E-04	+499494E-17	+494155E-19	+142831E-17	+232246E-17	+827349E-09
20	+146937E-17	+271642E-07	+401705E-17	+388242E-18	+394794E-21	+126132E-18
21	+8A2377E-14	+191134E-16	+140513E-06	+827349E-09	+105459E-17	+142574E-17
22	+1108137E-11	+1320715E-11	+173444E-19	+113322E-10	+107984E-19	+152931E-19
23	+192742E-17	+400893E-21	+754061E-18	+115155E-19	+137534E-10	+161575E-19
24	+1735245E-03	+127409E-19	+207654E-18	+152863E-19	+121003E-19	+113392E-10
25	+129163E-04	+316774E-19	+342663E-16	+140108E-18	+581261E-19	+164604E-09
26	+165773E-18	+271623E-07	+266302E-17	+129371E-18	+132532E-21	+293356E-19
27	+142663E-15	+255302E-17	+129107E-06	+164604E-09	+422101E-18	+339193E-19
28	+140104E-14	+217039E-19	+164604E-09	+113507E-10	+405548E-20	+572060E-20
29	+541251E-14	+139532E-21	+422101E-18	+405548E-20	+137546E-10	+543334E-20
30	+164604E-03	+200850E-19	+339137E-19	+572060E-20	+547334E-20	+113507E-19

STIFFNESS MATRIX (ZEROS HAVE BEEN INSERTED TO THE ORIGINAL REDUCED STIFFNESS MATRIX  
AT WHICH ZERO STIFFNESSES ARE NOT PUNCHED OUT)

*Cross section  
(Cracked)*

	1	2	3	4	5	6
1	+114750E+07	+262666E+07	-921975E-03	+295875E-03	+114000E+00	-614940E+07
2	+252555E+07	+202403E+07	-995094E+04	+904756E+01	.312500E-03	-121711E+00
3	-921975E-03	+996004E-04	+114360E+07	+414940E+07	.110000E+00	-147705E-03
4	+206475E+07	+904756E+01	+616080E+07	+277734E+10	+226000E+00	+145246E+01
5	-+114000E+00	+312500E+03	+110000E+00	+226000E+00	+145246E+01	
6	-+614940E+07	+121711E+00	+147705E-03	+146246E+01	+313089E+00	+277744E+10
7	+114594E+07	+245209E+07	+138293E-07	+175734E-05	+127411E-05	+420806E+07
8	+382055E-07	+282071E+07	+518566E-07	+334811E-05	+684554E-05	+614941E-05
9	+614941E-05	+883037E-07	+114744E+07	+420806E+07	+274658E-06	+777678E-06
10	+752177E-05	+601492E-05	+606069E+08	+297673E+10	+339111E-03	+722750E-04
11	+875401E-05	+731364E-05	+773457E-06	+130005E+03	+712902E+10	+155177E-03
12	+6050375E+03	+1086417E-04	+258064E-05	+210910E-04	+139941E-03	+297671E+10
13	+217423E+04	+354472E-09	+767235E-19	+337603E-07	+149822E-07	+556346E+05
14	+567525E-03	+3786139E+04	+250525E-19	+318767E-07	+175750E-07	+345008E-07
15	+467035E-10	+810440E+09	+217423E+04	+566346E+05	+654161E-08	+625781E-09
16	+175630E-07	+342177E-07	+142144E+06	+373796E+07	+374794E-06	+340491E-06
17	+385150E-07	+342177E-07	+332708E+07	+538593E-05	+6833357E+05	+962551E-05
18	+142144E+05	+223809E-07	+155403E-08	+518247E-06	+412941E-05	+373796E+07
19	+622800E+02	+305733E-11	+427899E-11	+277443E-09	+214786E-10	+155269E+04
20	+327155E-10	+8842891E+02	+227810E-11	+344037E-09	+271248E-09	+113250E-09
21	+711592E-11	+236605E-10	+622839E+02	+166269E+04	+311052E-09	+249590E-09
22	+171571E-09	+174000E-11	+272172E+04	+679237E+05	+964575E-08	+266669E-08
23	+255137E-04	+796085E-09	+315272E-09	+788494E-08	+473916E+02	+660670E-07
24	+272172E+04	+110014E-08	+43562115-29	+262055E-07	+410154E-08	+679297E+05
25	+257724E+01	+159053E-11	+158365E-12	+753721E-11	+775799E-11	+642940E+02
26	+177715E-11	+4560749E+01	+2800734E-13	+209920E-10	+204153E-10	+745564E-10
27	+754653E-12	+157297E-11	+257724E+01	+642940E+02	+452565E-11	+170409E-10
28	+922193E-11	+690845E-11	+133472E+03	+333071E+04	+503345E-09	+189470E-09
29	+777191E-10	+787888E-11	+280725E-10	+702645E+09	+366150E+00	+233578E-09
30	+133472E+03	+F19605E-10	+161041E-10	+574190E-10	+865245E-09	+333071E+04

	7	8	9	10	11	12
1	+114584E+07	+382055E-07	+519855E-04	+762177E-05	+436481E-05	+606069E+08
2	+785204E+07	+202071E+07	+883037E-07	+601492E-05	+513649E-05	+105417E-04
3	+138273E+07	+519855E-07	+114584E+07	+576059E+08	+794575E+05	+258064E+05
4	+1275381E-05	+334611E-05	+520805E+07	+297673E+10	+130005E-03	+390930E-04
5	+1276115E-05	+680153E-05	+274658E-06	+339111E-03	+712902E+10	+189941E-03
6	+620000E+07	+F19605E+03	+277727E-06	+722750E+04	+155177E+03	+297573E+10
7	+315727E+07	+223672E-04	+8046475E-03	+382912E-03	+750000E-02	+121820E+07
8	+223672E-04	+125721E+08	+649212E-14	+433013E-01	+140625E-03	+387332E-01
9	+986592E-03	+469071D-06	+335729E+07	+121829E+07	+217500E-01	+325074E-04
10	+342911E-03	+433013E-01	+121829E+07	+328176E+11	+500000E-03	+864891E+00
11	+760000E-02	+140625E-03	+212500E-31	+500000E-03	+283577E+11	+502996E-01
12	+6121927E+07	+3971337E+01	+825074E-04	+954831E+00	+502996E-01	+720176E+11
13	+221414E+07	+536003E+07	+433022E+07	+428963E+05	+962910E-05	+592707E+08
14	+578821E-07	+105452E+08	+232706E+06	+723117E+05	+223160E-05	+124512E-04
15	+1132009E+07	+105398E+06	+221614E+07	+592707E+08	+152588E+05	+578303E+05
16	+340962AE-05	+233008E+06	+560784E+08	+237313E+11	+332031E-04	+920312E-03
17	+403933E-05	+127020E+05	+146484E+04	+484641E-03	+212279E+11	+882011E-03
18	+544778E+03	+115120E+05	+257727E-05	+673337E+03	+828613E+03	+217711E+11
19	+190522E+04	+102741E+04	+994649E+00	+719015E+02	+452214E+02	+112995E+06
20	+392027E+03	+526803E+04	+194774E+00	+264021E+02	+104979E+05	+400747E+07
21	+676785E+03	+162420E+03	+130720E+04	+112500E+04	+125500E+02	+403071E+04
22	+561782E+03	+711100E+03	+110767E+02	+110767E+02	+110767E+02	+403071E+04

22	.561347E-07	.311695E-07	.+103424E+06	-.799024E+07	-.334167E-07	.164432E-06
23	.325823E-07	-.380846E-07	-.111056E-07	-.490673E-06	-.924768E+04	.411386E-05
24	.103424E+06	.218105E-07	.357828E-09	-.606537E-06	-.972748E-06	.799024E+07
25	.343511E+02	-.172111E-10	.295404E-10	.126229E-08	-.975025E-09	.410205E+04
26	.541622E-10	-.222003E+03	.107124E-09	.162451E-08	-.291178E-09	.439534E-09
27	-.153035E-10	.3566703E+00	-.880715E-02	.510205E-04	.3500922E+08	.172491E-05
28	.153035E-04	.229792E-09	-.460773E-14	.+213051E+06	-.101805E-06	.184476E-07
29	.307915E-03	.740110E-09	.941789E-09	.468875E-07	.329290E+03	.145821E-06
30	.410705E-05	-.238972E+00	.105015E-18	.138643E-07	.159979E-05	.213051E+06

	13	14	15	16	17	18
1	.217422E+04	-.667625E+00	.2047035E+10	-.176630E-07	.386350E-07	.142144E+06
2	.356472E-03	-.375630E+04	.910440E-07	-.342177E-07	-.399851E-07	.223808E-07
3	.767235E-09	-.250326E-09	.217423E+04	-.142144E+06	-.332705E-07	.165403E-04
4	.337803E-07	-.318747E+07	.5653345E+02	-.373795E+07	-.8335934E+06	.518247E+06
5	.149225E-07	-.175750E-07	.564161E-07	.374794E-06	-.483357E+06	.412941E-06
6	.556716E+05	-.346008E-07	.625331E-10	.340493E-06	-.962551E-06	.373796E+07
7	.221911E+07	-.2779310E+07	.119209E-07	.309426E-05	.408936E+05	.549784E+08
8	.596073E-07	-.105452E+08	.165338E-06	.233006E-04	-.127029E-05	.165129E-05
9	.433922E-07	-.232755E-05	.221414E+07	.549784E+08	-.146484E-04	.257874E-05
10	-.929991E-03	-.323117E+08	.922707E+09	-.237313E+11	.484619E+03	.733799E+03
11	.962430E-05	.223150E-05	.152588E-04	.332031E-04	-.212279E+11	.828613E-03
12	.592707E-03	-.124512E-04	.578303E-05	.820312E-03	.989011E-03	.237313E+11
13	.6413631E+07	-.719707E+07	.917E-00E-04	-.297181E-05	.2895000E+01	.320110E+06
14	.719707E-07	-.197577E+08	.169203E-06	.152000E+00	.571010E-06	.217500E-01
15	.937500E-06	-.169203E-06	.413631E+07	.320110E+06	-.175000E-02	.235591E-05
16	-.297191E+08	.185200E+00	.320110E+16	.502024E+11	-.715062E+04	.640000E+01
17	-.895000E-01	.671010E-06	.175000E-02	-.715062E-04	.397689E+11	.124210E-02
18	-.320110E+06	-.217E-00E-01	.235891E-05	.640000E-01	.124210E-02	.502024E+11
19	.192345E+07	-.367722E+07	.3276249E-07	-.549316E+06	.762939E+06	.547174E+08
20	.646710E-09	-.920798E+07	.152260E-06	.155029E-04	.235031E-06	.366211E-05
21	.310523E-08	-.189547E-06	.192556E+07	.547174E+05	-.971985E-05	.241049E-05
22	.781470E+06	-.186898E+05	.9872849E+08	-.204456E+11	-.419922E+04	.140425E+03
23	.393677E-05	-.177265E-05	.540869E-05	.254313E-03	.185398E+11	.104962E-02
24	.547248E+08	.5240025E-05	.305174E-05	-.25300E-03	.917480E-03	.204656E+11
25	.122509E+00	-.228025E+00	.307735E-09	.645220E-08	.116229E-08	.703146E+05
26	.592721E-09	-.672181E+04	.729226E-09	.488162E-07	-.215067E-07	.441074E-08
27	.317351E-10	.357162E+00	.122594E+04	.703146E+05	.286996E-07	.118464E-07
28	.2191033E+07	-.347470E+07	.818615E+05	.503630E+07	-.183010E+05	.297545E-06
29	.675432E-07	.361244E-08	.142455E+07	.695010E-06	-.592775E+06	.185335E-05
30	.1116415E+05	-.174110E-09	.110209E-09	-.343323E-06	-.116375E-05	.603630E+07

	19	20	21	22	23	24
1	.522894E+02	.227155E-10	-.711589E-11	.171357E+09	.265137E-04	.272172E+04
2	-.305733E-11	-.8227091E+02	.2366855E-10	-.174996E-11	-.704965E+09	.110014E-03
3	.472091E-11	.227091E-11	.622899E+02	-.272172E+04	-.315272E-09	.836211E-09
4	.277647E-09	-.346097E-09	.155269E+04	-.679297E+05	-.788694E-08	.252055E-07
5	.214744E+10	-.2771249E+09	-.311062E+09	.988575E+05	-.673915E+02	.410154E+02
6	.155251E+04	-.113260E-08	.260540E-09	-.266669E-04	.660620E-07	.679297E+05
7	.190520E+04	.892070E-09	.747652E-10	.4E-1340E-07	.896826E-07	.103424E+06
8	.102341E+09	-.1536803E+04	.167628E-09	.311595E-07	.338584E-07	.218106E-07
9	.194682E-09	.194774E-09	.190520E+04	.103424E+06	.131056E-07	.357620E-09
10	.3130014E-07	.264601E-07	.112885E+06	.799024E+07	.430577E-05	.605537E-05
11	.4542214E+07	-.1007072E+05	.375500E+07	-.3301075E+05	.820759E+05	.922748E+05
12	.112394E+06	.400547E-07	-.403921E-14	.154032E-16	-.411345E-05	.700024E+07
13	.102580E+07	-.645710E-09	.810E23E-09	.341672E-06	-.113677E-05	.547248E+04
14	.434322E+07	-.3200323E+02	-.180563E-15	.145648E-07	-.177255E-05	.547248E+05
15	.324247E-07	.192260E-04	-.132258E+17	.547248E+04	.640869E-05	.305176E-06
16	.549315E-05	.155020E-04	.547174E+08	.204456E+11	.259113E+03	.253906E+03
17	.220211E-06	.123014E-06	.271048E-09	-.613022E-06	-.116375E+11	.212430E-03

14	-0.147161E+01	-0.147161E+01	-0.147161E+01	-0.147161E+01	-0.147161E+01	-0.147161E+01	-0.147161E+01
19	* 140524E+07	* 140524E+07	* 140524E+07				
20	-* 142610E-07	-* 142610E-07	-* 142610E-07				
21	-* 143500E-01	-* 143500E-01	-* 143500E-01				
22	* 107815E-04	* 107815E-04	* 107815E-04				
23	* 174000E+01	* 174000E+01	* 174000E+01				
24	-* 472372E+05	-* 492925E+05	-* 492925E+05	-* 492925E+05	-* 492925E+05	-* 492925E+05	-* 492925E+05
25	-* 1846651E+07	-* 121084E-07	-* 121084E-07	-* 121084E-07	-* 121084E-07	-* 121084E-07	-* 121084E-07
26	-* 131075E+07	-* 131075E+07	-* 131075E+07				
27	* 526454E-04	* 511261E-04	* 511261E-04	* 511261E-04	* 511261E-04	* 511261E-04	* 511261E-04
28	-* 174364E-05	-* 611623E-05	-* 611623E-05	-* 611623E-05	-* 611623E-05	-* 611623E-05	-* 611623E-05
29	* 483071E-05	* 411606E-05	* 411606E-05	* 411606E-05	* 411606E-05	* 411606E-05	* 411606E-05
30	+ 547752E+09	-* 643549E-05	-* 643549E-05	-* 643549E-05	-* 643549E-05	-* 643549E-05	-* 643549E-05
25	26	27	28	29	30		
1	* 262724E+01	* 170715E-11	* 7546453E-12	* 82103E-11	* 937190E-10	* 133672E+01	
2	-* 153057E-11	-* 665000E+01	* 152205E-11	* 60656E-11	* 60780E-11	-* 610605E-10	
3	-* 153355E+17	-* 200000E-11	-* 151913E-10	-* 117672E+11	* 280725E-10	-* 16108E-11	
4	-* 753721E-11	-* 200000E-10	* 562060E-02	-* 333071F+04	* 702645E-09	* 674190E-10	
5	-* 753741E-11	-* 204163E-10	-* 652665E-11	* 50346E-01	* 366160E+01	* 865246E-09	
6	* 3582063E+07	-* 757673E-10	-* 170600E+10	-* 165670E-01	-* 231578E+08	-* 333071E+04	
7	* 43151F+02	* 461422E+10	-* 153045E+10	* 160873E-0A	* 307916E-0A	* 440706E+04	
8	-* 172131E-10	-* 222000E+01	* 356703E+10	* 224725E-0A	* 440110E-09	-* 289972E-09	
9	-* 295604E+10	-* 197125E+00	-* 864151E+02	-* 64076E+05	* 96170E-09	* 105916E-0A	
10	-* 129423E+04	-* 16205E+04	-* 610205E+04	-* 213051E+06	* 468075E-07	* 136432E-07	
11	-* 376024E+09	-* 291174E+0A	-* 350225E+04	-* 104055E+06	* 320290E+03	-* 159979E-06	
12	-* 610205E+04	-* 639036E+04	-* 177641E+0W	-* 166476E-07	-* 148821E+06	-* 213051E+04	
13	-* 122503E+04	-* 592721E+09	* 917351E+10	* 191033E-07	* 478392E-07	* 616415E+05	
14	-* 120024E+03	-* 472191E+04	* 357152E+09	* 347410E+07	* 41344E-07	-* 176110E-06	
15	-* 107713E+09	-* 7702725E+09	-* 121915E+05	-* 811915E+05	* 162455E-07	* 119200E-09	
16	* 645220F+09	-* 488162E+07	* 703146E+05	-* 603674E+07	* 665110E-06	-* 134323E-06	
17	-* 116237E+01	-* 216057E+07	* 745905E+07	-* 1813010E-05	-* 602775E+06	-* 114637E-05	
18	-* 707104E+05	-* 610107E+04	-* 1718954E+07	-* 297546E+06	-* 145335E+05	-* 603670E+07	
19	-* 149557E+07	-* 111054E+07	-* 625855E+04	-* 174354E+05	* 469971E-05	* 547769E+05	
20	-* 104157E+07	-* 600055E+07	-* 231266E+06	-* 561523E+05	-* 146347E+05	-* 463647E+05	
21	-* 157827E+07	-* 151013E+07	-* 198820E+07	-* 5567759E+08	-* 2158775E+05	-* 171957E+05	
22	-* 179190E-06	-* 214864E+04	* 545316E+05	-* 109429E+11	-* 20160AF+04	-* 142559E+01	
23	-* 522650E+05	-* 266147E+05	-* 111810E+05	-* 563123E+04	-* 181430E+11	* 833946E+01	
24	-* 194541E+05	-* 1450000E+00	-* 760346E+16	* 660196E+11	* 656916E+06	* 210674E+00	
25	-* 374646E+07	-* 900079E+04	-* 742637E+04	-* 1040549E+05	* 500000E+01	* 760346E+06	
26	-* 191024E+04	-* 274754E+05	-* 7456303E+17	-* 146000E+00	* 751641E+05	-* 557715E+01	
27	-* 762074E+04	-* 757738E+07	-* 576464E+07	-* 702016E+05	* 657814E+01	-* 15620AE+05	
28	-* 194541E+05	-* 1450000E+00	-* 760346E+16	* 660196E+11	* 656916E+06	* 210674E+00	
29	-* 5070071E+01	-* 357431E+05	-* 457341E+01	-* 563123E+04	-* 146347E+11	* 543674E+03	
30	-* 770046E+05	-* 547195E+01	-* 3556209E+05	-* 210674E+00	-* 547195E+01	* 840199E+11	

## FLEXIBILITY MATRIX

	1	2	3	4	5	6
1	-650914E-05	-634889E-14	-224818E-13	.846671E-16	.295203E-15	-215900E-07
2	-534999E-14	.861736E-06	-394215E-14	-516369E-16	-984012E-19	.526050E-16
3	-224919E-13	-639621E-14	-550815E-14	.215900E-07	-215855E-15	-851905E-16
4	-146671E-16	-516760E-16	.215900E-07	.515691E-09	-578471E-18	-59945AE-14
5	-295203E-15	-984012E-14	-215900E-07	-678471E-18	.123944E-09	-910991E-18
6	-215900E-07	.526050E-16	-550815E-14	.599455E-18	.910991E-14	.515691E-09
7	-449275E-03	-30E116E-14	.131865E-13	.507540E-16	.212958E-15	-152817E-07
8	-220751E-14	.367985E-05	-265808E-14	-275403E-15	-479597E-19	.288152E-16
9	-131911E-13	-224023E-14	-499275E-09	.182917E-07	-147740E-15	-511443E-16
10	.818157E-15	-235357E-15	.229002E-17	.153805E-03	-751671E-14	-354597E-18
11	.183473E-15	-602747E-19	-116730E-15	-361104E-18	.183585E-09	-575309E-19
12	-223000E-07	-280480E-15	-231978E-15	-351676E-18	-997757E-15	-153805E-09
13	.292431E-05	-170257E-14	.821369E-14	.307755E-15	.145940E-15	-826909E-08
14	-170531E-14	-273494E-05	-229065E-14	-222348E-15	-356655E-19	.217520E-16
15	-922099E-14	-183191E-14	-292433E-15	.826909E-08	-957388E-15	-310460E-16
16	.572239E-15	-195439E-16	-198757E-17	.11429AE-09	-650956E-18	-284024E-18
17	.152052E-15	-447076E-19	-977404E-16	-270639E-18	.136585E-09	-458890E-18
18	-134737E-07	-195446E-15	-573235E-16	-282751E-19	-884997E-19	-114299E-09
19	.163764E-05	-742755E-15	.390560E-14	.139685E-16	.751935E-15	-302145E-08
20	-104031E-14	-165104E-08	-156117E-14	-142651E-15	-215295E-19	.137916E-16
21	-792119E-14	-650173E-15	-143741E-15	.307214E-08	-4855244E-16	-141033E-16
22	.649993E-15	-128470E-15	.139766E-07	.690009E-10	-458629E-18	-185114E-18
23	.951231E-15	-270918E-19	-548264E-16	-157154E-18	.826560E-10	-284493E-18
24	-133787E-07	-1275127E-15	-840303E-18	-124410E-19	-643551E-18	.690009E-10
25	.338155E-06	-125042E-15	.501704E-15	.253044E-17	.152947E-16	-336801E-09
26	-765123E-15	-642843E-07	-561294E-15	-461145E-17	-709066E-20	.444695E-17
27	.192465E-15	-6919614E-15	.338155E-06	.336801E-07	-119225E-16	-286780E-17
28	.163473E-15	-441258E-17	.526261E-08	.226491E-10	-173944E-18	-653009E-19
29	.113467E-16	-602059E-20	-186822E-15	-561194E-19	.275493E-10	-944641E-19
30	-526291E-09	-431777E-17	-163005E-16	-653389E-19	-249716E-18	-226891E-10

	7	8	9	10	11	12
1	-650275E-03	-220701E-14	-131911E-13	.518157E-15	.15943AE-15	-2229002E-07
2	-305115E-14	.367985E-06	-280236E-14	-235357E-16	-602747E-19	.249459E-16
3	.131865E-13	-265808E-14	-499275E-15	.229002E-07	.116730E-15	-851905E-16
4	-507540E-15	-275007E-15	-152817E-17	.153805E-03	-361708E-15	.353535E-15
5	.212954E-15	-479597E-19	-147740E-15	.751671E-19	.136585E-09	-907757E-18
6	-152917E-07	.288133E-15	-511445E-15	-354887E-18	.576309E-18	.153805E-09
7	.173447E-05	-1155025E-15	.716545E-14	.4855244E-16	.139272E-15	-152752E-07
8	-155025E-15	.358171E-05	-186822E-14	-155411E-16	.314745E-19	.127337E-15
9	.716545E-14	-149000E-14	-373467E-05	.152752E-07	.789059E-15	-487375E-16
10	-4855244E-15	-6355611E-15	-152752E-17	.15943AE-15	.603221E-15	-302395E-15
11	.179272E-15	-314745E-19	-789059E-15	-403221E-18	.183683E-09	-625498E-10
12	-142754E-07	-1275127E-15	-640275E-15	-302395E-19	.625498E-18	-153805E-09
13	.2251417E-05	-602059E-15	-6350235E-14	.302395E-15	.979044E-16	.826887E-09
14	-1132011E-14	-277490E-06	-154794E-14	.137169E-16	.234133E-19	.979036E-17
15	.535207E-14	-131911E-14	.251417E-05	.826491E-04	.519321E-16	.302395E-16
16	-1902037E-15	-6355611E-15	-1420556E-07	.114300E-09	.347702E-18	.268629E-18
17	.113246E-15	-233820E-13	-635372E-15	.301508E-18	.135585E-09	-495475E-14
18	-1420551E-07	.1000982E-10	-301208E-15	.246847E-18	.561052E-19	-114300E-07
19	.173447E-05	-6355611E-15	-260137E-14	.142537E-15	.515690E-16	.302146E-09
20	-762989E-15	.165104E-06	-112591E-14	.880251E-17	.141331E-19	.616817E-17
21	.2045655E-14	-445173E-15	.128467E-05	.302169E-08	.265801E-15	-143132E-16
22	.266465E-14	-502059E-15	.1000982E-12	.600083E-10	.245174E-19	-166291E-17

24	-105547E-07	+885698E-17	+256055E-16	+166002E-18	+615251E-11	+540010E-10
25	+721571E-03	+609444E-16	+623060E-15	+109436E-17	+127129E-16	+336749E-09
26	-253474E-15	+5404843E-07	+192197E-15	+104124E-17	+465861E-20	+207449E-17
27	+426532E-15	+603050E-16	+321450E-15	+336800E-09	+671F91E-17	+311770E-17
28	+715957E-17	+316004E-17	+613703E-08	+225891E-10	+934704E-19	+604429E-17
29	+274271E-16	+470133E-20	+129157E-15	+523456E-19	+275493E-10	+101441E-18
30	+413703E-03	+227109E-17	+917801E-17	+603153E-19	+161615E-18	+226891E-10

	13	14	15	16	17	18
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1	+292437E-05	+170477E-14	+822095E-14	+67227AE-15	+152052E-15	+194757E-07
2	+178257E-15	+277405E-06	+153191E-14	+195495E-15	+44797AE-19	+195446E-16
3	+921367E-14	+229065E-14	+292433E-15	+194757E-07	+877404E-15	+673235E-16
4	+307755E-16	+222748E-15	+826009E-08	+114795E-09	+270639E-15	+282751E-18
5	+163746E-15	+3056555E-10	+2967746E-15	+6507555E-18	+135555E-09	+884997E-18
6	+325900E-03	+217520E-15	+310450E-16	+284024E-18	+458880E-18	+114238E-09
7	+251617E-05	+1109115E-14	+636245E-14	+390293E-16	+113244E-15	+142056E-07
8	+7055555E-15	+277405E-06	+111189E-15	+135555E-15	+233829E-19	+100937E-16
9	+435127E-14	+164794E-14	+251417E-05	+142066E-07	+595323E-16	+301208E-16
10	+302547E-15	+1331605E-16	+826887E-08	+114700E-09	+301509E-15	+244435E-18
11	+279004E-16	+214133E-14	+219321E-15	+347920E-19	+135555E-09	+561052E-13
12	+425937E-09	+979036E-17	+303643E-16	+248628E-18	+495455E-18	+114300E-09
13	+204348E-05	+703158E-15	+263352E-14	+241445E-16	+809054E-16	+926597E-04
14	+6783158E-15	+277405E-06	+976277E-15	+117757E-15	+171932E-19	+756142E-17
15	+263352E-14	+976277E-15	+208346E-05	+826597E-05	+393872E-16	+242153E-16
16	+741446E-16	+117767E-16	+926597E-08	+114332E-09	+260386E-18	+203049E-18
17	+809054E-16	+173032E-19	+219372E-15	+267733E-15	+136587E-09	+447531E-18
18	+925937E-09	+786182E-17	+242153E-15	+203049E-19	+447531E-15	+114332E-09
19	+112741E-05	+291052E-15	+124290E-16	+113247E-16	+432122E-15	+302129E-08
20	+450571E-15	+1E5104E-08	+657675E-15	+79527EE-17	+104992E-19	+498427E-17
21	+124420E-14	+382029E-15	+112741E-05	+302129E-08	+204761E-15	+113599E-16
22	+157277E-16	+803051E-17	+696625E-08	+690021E-10	+184064E-15	+134940E-18
23	+513821E-15	+105077E-19	+252221E-15	+160949E-19	+826560E-10	+277624E-18
24	+596625E-03	+518816E-17	+157F495-15	+135841E-14	+335033E-18	+690021E-10
25	+303934E-05	+457762E-16	+256409E-15	+243231E-17	+107258E-16	+336744E-09
26	+154267E-15	+542781E-07	+228184E-15	+273552E-17	+746375E-20	+168580E-17
27	+255105E-15	+515086E-16	+103934E-06	+336734E-09	+528950E-17	+244654E-17
28	+563095E-17	+273725E-17	+235720E-08	+226891E-10	+705903E-17	+485678E-19
29	+153311E-15	+3449324E-20	+877377E-17	+540514E-17	+275473E-10	+921750E-19
30	+295720E-03	+178842E-17	+5664075E-17	+459021E-19	+131295E-18	+226891E-10

	19	20	21	22	23	24
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1	+147441E-03	+109039E-14	+391182E-14	+449993E-15	+251281E-16	+139765E-07
2	+742755E-13	+155106E-06	+651555E-15	+123470E-15	+270916E-19	+125129E-16
3	+330557E-15	+2156112E-19	+167461E-05	+130766E-07	+545254E-15	+450301E-15
4	+132655E-16	+142661E-15	+302146E-08	+590009E-10	+157154E-18	+184107E-18
5	+7E131E-15	+215205E-19	+648F264E-15	+458629E-18	+826560E-10	+643551E-18
6	+302145E-03	+111015E-18	+3410113E-15	+6185114E-19	+286403E-18	+590020E-10
7	+124455E-05	+762084E-15	+204555E-14	+255645E-15	+713058E-16	+105542E-07
8	+375158E-15	+145106E-06	+446134E-15	+907852E-17	+141323E-19	+555408E-17
9	+204107E-14	+112501E-15	+124455E-15	+105542E-07	+375008E-15	+256065E-16
10	+142637E-15	+898251E-17	+102146E-09	+690010E-10	+195835E-18	+165002E-19
11	+515869E-15	+141331E-19	+255691E-15	+265174E-18	+826560E-10	+415261E-18
12	+302146E-03	+518842E-17	+1413112E-15	+1665251E-19	+305827E-19	+590011E-10
13	+112741E-15	+458F211E-15	+124420E-14	+157273E-15	+511821E-15	+506625E-08
14	+291052E-15	+107106E-05	+389029E-15	+803051E-17	+105077E-19	+51383E-17
15	+124290E-15	+878553E-15	+112761E-05	+6956625E-09	+252221E-15	+157544E-16
16	+113767E-15	+795275E-17	+102120E-08	+690021E-10	+160949E-18	+134931E-18
17	+432122E-15	+104993E-20	+204761E-15	+184064E-18	+826560E-10	+33533E-18
18	+302121E-15	+498627E-17	+113503E-15	+134094E-19	+275473E-10	+530021E-10
19	+330557E-15	+147462E-15	+612040E-15	+738903E-17	+291013E-15	+301046E-09

19	+954133E-05	-1874670E-15	+612040E-15	-738999E-17	+291011E-16	+361000E-09
20	-197657E-15	+155166E-06	-277821E-15	-559152E-17	-634218E-20	+335239E-17
21	+512040E-15	-277721E-15	+95137E-05	+301845E-08	+135845E-15	-741472E-17
22	+738999E-17	-559152E-17	+301845E-08	+500307E-10	+114759E-14	+890400E-12
23	+291011E-15	-1874670E-20	-176845E-15	-514759E-15	+265590E-15	+209537E-15
24	-6301449E-09	-336230E-17	-277821E-17	+890300E-19	+299537E-19	+90307E-10
25	+294611E-05	-207227E-16	+126845E-15	-157578E-17	+698350E-17	+336505E-09
26	+559152E-15	+562843E-07	-558475E-15	-199210E-17	+209690E-20	+114922E-17
27	+277721E-15	+258991E-15	+295813E-05	+336505E-09	+359530E-17	+158193E-17
28	+265590E-17	-200787E-17	+156826E-18	+226892E-10	+446751E-19	+322102E-19
29	+105921E-17	-210495E-20	-5497150E-17	+78655AE-19	+275493E-10	+694418E-19
30	+2105925E-08	+119058E-17	+257605E-17	+321873E-19	+863014E-19	+225932E-10

26 27 28 29 30

1	+379153E-05	-2685128E-15	+85205E-15	+163836E-16	+313452E-15	+526241E-08
2	-125062E-15	-542884E-07	-91014E-15	-441285E-17	-902068E-20	+431773E-17
3	+850170E-15	-561294E-15	-339155E-06	+526241E-08	+186822E-15	+163905E-16
4	+293044E-17	-1911145E-17	-335801E-19	-226891E-10	+561194E-19	+653098E-19
5	+182047E-15	-700056E-20	-119225E-16	-173946E-15	+275493E-10	+249716E-19
6	-376891E-03	-4464696E-17	-256780E-17	-558009E-19	+944541E-19	+226891E-10
7	-121199E-05	-252833E-15	-920632E-15	-916052E-17	+276239E-15	+413703E-05
8	-500946E-16	-542884E-07	-603050E-16	-314025E-17	+470133E-20	+227189E-17
9	+423047E-15	-392197E-15	-721450E-05	-413703E-08	-129167E-15	+917891E-17
10	-703047E-17	-380128E-17	-336800E-03	-226891E-10	+623455E-19	+603153E-19
11	+127124E-15	-4559561E-20	-671593E-17	-914704E-19	+275493E-10	+167616E-18
12	-135707E-09	-207460E-17	-311770E-17	-604429E-19	-101841E-19	+226891E-10
13	-103033E-08	-2109289E-19	-2909139E-19	-803059E-17	-169019E-19	+295720E-05
14	-157752E-15	-542884E-07	-515086E-18	-277256E-17	-349724E-20	+178342E-17
15	+254401E-15	-218136E-15	-103034E-16	-295720E-08	-877377E-17	+564075E-17
16	-263221E-17	-2776627E-17	-336784E-19	-226891E-10	-540514E-19	+488023E-19
17	+107259E-15	-356375E-20	-524955E-17	-705903E-19	-275493E-10	+133295E-19
18	-1335784E-03	-168780E-17	-246454E-17	-488678E-19	-921750E-19	+226891E-10
19	-284612E-08	-650719E-16	-127083E-15	-266844E-17	-908975E-17	+165825E-05
20	-2572273E-15	-562884E-07	-358911E-15	-200797E-17	-210485E-20	+118059E-17
21	+125062E-15	-591475E-16	-284612E-05	-16502E-03	-497159E-17	+267605E-17
22	-1575784E-17	-179210E-17	-336530E-03	-226891E-10	-385558E-13	+321493E-17
23	+604360E-17	-200690E-20	-365530E-17	-446751E-19	-275493E-10	+843014E-19
24	-735605E-03	-114022E-17	-155393E-17	-322102E-19	-5046815E-19	+226892E-10
25	-2284717E-05	-110081E-16	-232556E-15	-556019E-19	-204600E-17	+331239E-09
26	-104603E-15	-563065E-07	-135613E-16	-780358E-19	-633430E-21	+435158E-18
27	-232556E-15	-135613E-15	-254312E-05	-331239E-09	-154770E-17	+568571E-18
28	-565017E-13	-1740088E-13	-331239E-09	-226891E-10	-152904E-19	+116415E-19
29	-204603E-17	-699305E-21	-154770E-17	-152904E-19	-275516E-10	+277453E-19
30	-131223E-09	-425158E-19	-558571E-19	-115915E-19	-277453E-19	+225930E-10

STIFFNESS MATRIX (ZEROS HAVE BEEN INSERTED TO THE ORIGINAL REDUCED STIFFNESS MATRIX  
AT WHICH ZERO STIFFNESSES ARE NOT PUNCHED OUT)

# Internal Structures

1      2      3      4      5      6

1	.448341E+07	-.987466E+05	.502498E+05	-.516302E+07	.118246E+08	.538242E+08
2	-.987466E+05	.200263E+08	.841060E+05	-.728406E+08	-.583594E+06	-.211145E+09
3	.502498E+05	.841060E+05	.279921E+07	-.390901E+08	.220804E+08	-.431746E+07
4	-.516302E+07	-.728406E+08	-.390901E+08	.220518E+11	-.296973E+09	.237431E+10
5	.118246E+08	-.583594E+06	.220804E+08	-.296973E+09	.728194E+10	-.570774E+08
6	.538242E+08	-.211145E+09	-.431746E+07	.237431E+10	-.570774E+08	.159643E+11
7	-.451114E+07	.987466E+05	-.528161E+05	-.515796E+07	.120116E+08	.540006E+08
8	.100457E+06	-.200154E+08	-.818639E+05	.728534E+08	.575399E+06	.210869E+09
9	-.505002E+05	-.896904E+05	.284180E+07	.394509E+08	-.226261E+08	.436153E+07
10	-.638337E+07	-.651569E+07	-.557948E+08	-.204423E+11	-.445270E+09	-.142060E+10
11	.573275E+07	.103645E+07	.520700E+07	-.603211E+08	.708120E+10	.221542E+09
12	.984458E+08	.127744E+08	.512216E+07	-.148906E+10	.461077E+09	.120843E+11
13	.264495E+05	-.393199E+02	.272794E+04	-.998436E+04	.184288E+06	.165963E+06
14	-.159099E+04	-.103979E+05	-.245713E+04	.773309E+04	-.389780E+04	.274988E+06
15	.200522E+03	.493850E+04	.404389E+05	-.355979E+05	.504771E+05	-.339269E+05
16	-.512302E+05	.551000E+05	.101015E+07	-.159540E+08	.133349E+08	-.185895E+07
17	.251114E+06	-.411534E+05	-.808407E+05	-.100025E+07	.559469E+08	.902692E+06
18	-.204305E+06	.113346E+06	.303722E+03	-.152312E+07	-.285111E+07	-.509571E+07

7      8      9      10      11      12

1	-.451114E+07	.100457E+06	-.505009E+05	-.638337E+07	.573276E+07	.984458E+08
2	.987466E+05	-.200154E+08	-.896904E+05	-.651559E+07	.103686E+07	.127744E+08
3	-.528161E+05	-.818639E+05	-.284180E+07	-.557948E+08	.520700E+07	.512216E+07
4	-.515794E+07	.728534E+08	.394509E+08	-.204423E+11	-.603211E+08	-.148906E+10
5	-.120116E+08	.575399E+06	-.226261E+08	-.445270E+09	.708120E+10	.461077E+09
6	-.540006E+08	.210869E+09	.436153E+07	-.142060E+10	.221542E+09	-.120843E+11
7	.163399E+08	.103123E+06	.690787E+05	.100632E+08	-.565864E+08	.106623E+09
8	.103123E+06	.675753E+08	-.138960E+05	.190325E+09	-.207683E+08	-.453388E+09
9	.690787E+05	-.138960E+06	.114622E+06	-.118777E+09	.971434E+08	.109674E+08
10	.100532E+05	.190325E+09	-.118777E+09	.629835E+11	-.214656E+10	.141877E+10
11	-.565864E+06	-.207683E+08	.971434E+08	-.214656E+10	.276010E+11	.114528E+09
12	.105523E+09	-.453388E+09	.109674E+08	.141877E+10	-.114528E+09	.697139E+11
13	-.119621E+08	-.213892E+06	-.210160E+05	-.350730E+07	.514449E+08	-.207211E+09
14	-.192543E+06	-.475503E+08	.215341E+06	-.183114E+09	.197483E+08	.440422E+09
15	-.212190E+05	.221951E+06	-.877758E+07	.177584E+09	-.106351E+09	.170642E+08
16	-.257457E+07	.101259E+09	-.710878E+08	-.345513E+11	-.974769E+09	.317064E+10
17	-.187504E+08	.179259E+08	-.569611E+08	.108211E+10	-.197860E+11	-.129449E+10
18	-.131073E+09	.180329E+09	-.147080E+08	-.105660E+10	-.149210E+10	-.460718E+11

13      14      15      16      17      18

1	.264495E+05	-.169099E+04	.200522E+03	-.812302E+05	-.251114E+06	-.204306E+08
2	-.393199E+02	.103979E+05	.493850E+04	.551000E+05	-.411534E+05	.113346E+05
3	.272794E+04	-.245713E+04	.404389E+05	.101015E+07	-.808407E+05	.303722E+03
4	-.998475E+04	.773309E+04	-.355979E+06	-.159540E+05	-.100025E+07	-.152312E+07
5	.184284E+05	-.389780E+04	.504771E+06	.133349E+08	.559469E+08	-.285111E+07
6	.165951E+06	.274000E+05	-.339259E+05	-.185005E+07	.902692E+05	-.509571E+07
7	-.119621E+05	-.192543E+06	.212190E+05	-.257457E+07	-.197504E+08	.131073E+09
8	.213892E+06	-.475503E+08	.221951E+06	-.101259E+09	.172529E+08	.180329E+09
9	.210160E+05	-.215341E+06	-.877758E+07	-.710878E+08	-.569611E+08	-.147080E+09
10	-.350730E+07	-.163399E+09	.177584E+09	-.345513E+11	.108211E+10	-.105660E+10
11	.514449E+05	-.197483E+08	-.106351E+09	-.974210E+10	-.149210E+10	-.140210E+10
12	-.207211E+09	.440422E+00	-.170642E+08	-.317064E+10	-.460718E+11	-.317064E+10

## FLEXIBILITY MATRIX

	1	2	3	4	5	6
1	+507190E-06	-+565096E-07	+882832E-08	+197759E-09	-+227542E-09	+389899E-08
2	-+565096E-07	+111282E-06	-+540486E-08	+162898E-10	+218527E-10	+155251E-08
3	+882832E-05	-+540486E-08	+838537E-06	+390816E-08	-+288104E-08	-+178536E-09
4	+197759E-09	+162898E-10	+390816E-08	+986399E-10	-+256688E-12	-+843380E-11
5	-+227542E-09	+218527E-10	-+288104E-08	-+256688E-12	+242237E-13	+982862E-12
6	-+389899E-08	+155251E-08	-+178536E-09	-+843380E-11	+982862E-12	+123144E-09
7	+271044E-05	-+222025E-07	+236181E-08	+895060E-10	+508250E-09	-+143055E-08
8	-+197472E-07	+456129E-07	-+169348E-07	-+263085E-09	+503043E-11	+327766E-09
9	+600032E-03	-+313106E-08	+333501E-06	+151485E-08	-+780771E-09	-+104921E-09
10	+191999E-09	-+964738E-10	+325534E-08	+511921E-10	-+162813E-12	-+302618E-11
11	+152295E-09	-+429078E-11	-+176925E-08	-+182293E-12	+100486E-09	-+855437E-12
12	-+299363E-08	+766095E-09	-+200475E-09	-+303041E-11	-+862493E-12	+462502E-10
13	+110240E-05	-+432985E-08	+198952E-08	+244848E-10	-+165280E-10	-+335067E-09
14	+248910E-08	+182618E-07	+254899E-09	+100735E-11	-+572161E-11	-+266028E-10
15	+704418E-09	-+537713E-09	+115304E-06	+269171E-09	+102747E-09	-+550110E-11
16	+137151E-09	-+745830E-10	+174832E-09	+236419E-10	-+715002E-14	-+179731E-11
17	+526777E-10	-+851356E-11	-+612219E-09	+386941E-14	+467956E-10	-+552629E-13
18	-+188745E-08	+356566E-09	-+116571E-09	+179641E-11	-+779737E-13	+247735E-10
7	8	9	10	11	12	
1	+271044E-06	-+197472E-07	+600032E-08	+191999E-09	-+152295E-09	-+299363E-08
2	-+222025E-07	+456129E-07	-+313106E-08	-+964738E-10	-+429078E-11	+766095E-09
3	-+236181E-08	-+169348E-07	+333501E-06	+325534E-08	-+176925E-08	-+200475E-09
4	+895060E-10	-+263085E-09	+151485E-08	+511921E-10	-+182293E-12	-+303041E-11
5	+508250E-09	+501043E-11	-+780771E-09	-+162813E-12	+100486E-09	-+862493E-12
6	-+143065E-08	+327766E-09	-+104921E-09	-+302618E-11	-+855437E-12	+462502E-10
7	+223975E-05	-+852509E-08	-+495020E-09	+894790E-10	+505011E-09	-+142974E-08
8	-+462503E-03	+434418E-07	-+793951E-08	-+262993E-09	+469322E-11	+327524E-09
9	-+496020E-09	-+793951E-08	+272543E-06	+151342E-08	-+779861E-09	-+105592E-09
10	+594790E-10	-+262993E-09	+151342E-08	+511998E-10	-+171198E-12	-+302953E-11
11	+505011E-09	+499322E-11	-+779861E-09	-+171198E-12	+100054E-09	-+850624E-12
12	-+142974E-08	+327524E-09	-+105592E-09	-+302953E-11	-+850624E-12	+462555E-10
13	+987931E-07	-+116361E-08	+923563E-09	+244780E-10	-+165468E-10	-+735031E-09
14	+156594E-05	-+185173E-07	+166821E-09	+102342E-11	-+574676E-11	-+266000E-10
15	+910554E-09	-+151797E-08	+187098E-06	+269042E-09	+182285E-09	-+549200E-11
16	+762447E-10	-+147432E-09	+947393E-09	+236449E-10	-+492015E-14	-+179735E-11
17	+259955E-09	-+608901E-11	-+157312E-09	+435083E-14	+467815E-10	-+553947E-13
18	-+104824E-08	+122603E-09	-+564648E-10	+179645E-11	-+779737E-13	+247740E-10



13	.110240E-06	-.432985E-09	.190952E-08	.244848E-10	-.100470E-10	-.310000E-09
14	-.248970E-07	.182618E-07	.258899E-09	.108735E-11	-.572161E-11	-.266028E-10
15	.705418E-09	-.537713E-09	.115304E-06	.269171E-09	.102747E-09	-.550110E-11
16	.137151E-09	-.743830E-10	.174832E-09	.236419E-10	-.715002E-14	-.179731E-11
17	.926777E-10	-.651356E-11	-.612219E-09	.396941E-14	.467956E-10	-.552629E-13
18	-.188745E-08	.356566E-09	-.116571E-09	.179641E-11	-.779737E-13	.247735E-10

7	8	9	10	11	12
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1	.271044E-06	-.197472E-07	.600032E-08	.191990E-09	.152295E-09	-.299363E-08
2	-.222025E-07	.456129E-07	-.311106E-08	-.964738E-10	-.429078E-11	.766096E-09
3	-.235181E-08	-.169345E-07	.333501E-06	.325534E-08	-.178925E-08	-.200475E-13
4	.595060E-10	-.263085E-09	.151485E-08	.511921E-10	-.182293E-12	-.303041E-11
5	.508250E-09	.503043E-11	-.780771E-09	-.162813E-12	.100486E-09	-.862493E-12
6	-.143055E-08	.327766E-09	-.104921E-09	-.302678E-11	-.855437E-12	.452602E-10
7	.223975E-06	-.862509E-08	-.496020E-09	.894790E-10	.505011E-09	-.142974E-08
8	-.962509E-05	.434418E-07	-.793951E-08	-.262994E-09	.489322E-11	.327524E-09
9	-.496020E-09	-.793951E-08	.272543E-06	.151342E-08	-.779861E-09	-.105592E-09
10	.594790E-10	-.262993E-09	.151342E-08	.511998E-10	-.171198E-12	-.302951E-11
11	.505011E-09	.489322E-11	-.779861E-09	-.171198E-12	.100054E-09	-.850624E-12
12	-.142974E-05	.327524E-09	-.105592E-09	-.302953E-11	-.850624E-12	.462655E-10
13	.987931E-07	-.116351E-08	.923563E-09	.244780E-10	-.165468E-10	-.335031E-09
14	.156594E-05	.185173E-07	.166821E-09	.102342E-11	-.574675E-11	.266000E-10
15	.910554E-09	-.151797E-08	.107090E-06	.269042E-09	.102285E-09	-.549200E-11
16	.762447E-10	-.147432E-09	.947393E-09	.236449E-10	-.492015E-14	-.179735E-11
17	.259955E-09	-.608901E-11	-.157312E-09	.435053E-14	.467815E-10	-.553947E-13
18	-.104824E-08	.122403E-09	-.564648E-10	-.179645E-11	-.777128E-13	.247740E-10

13	14	15	16	17	18
----	----	----	----	----	----

1	.110240E-06	.248930E-08	.704418E-09	.137151E-09	.826777E-10	-.188745E-08
2	-.432985E-09	.182618E-07	-.517713E-09	-.743830E-10	-.661356E-11	.356566E-09
3	.190952E-08	.258899E-09	.115304E-06	.174832E-08	-.612219E-09	-.116571E-09
4	-.824484E-10	.102342E-11	.269171E-09	.236419E-10	-.386941E-14	-.179641E-11
5	-.165290E-10	-.572161E-11	.102747E-09	-.715002E-14	.467956E-10	-.779737E-13
6	-.715067E-09	-.236028E-10	-.550110E-11	.179731E-11	-.552629E-13	.247735E-10
7	-.957931E-07	.156594E-08	.910554E-09	.762447E-10	.259956E-09	-.104824E-08
8	-.116351E-05	.185173E-07	-.151797F-08	-.147432E-09	-.608901E-11	-.122403E-09
9	.923563E-09	.166821E-09	.107090E-06	.947393E-09	-.157312E-09	-.564648E-10
10	.244780E-10	.102342E-11	.269042E-09	.236449E-10	.435053E-14	-.179645E-11
11	-.165464E-10	-.574675E-11	.102285E-09	-.492015E-14	.467815E-10	-.777128E-13
12	-.335031E-09	-.266000E-10	-.549200E-11	.179731E-11	-.553947E-13	.247740E-10
13	.912957E-07	.841798E-09	.121894E-09	.248769E-10	-.163752E-10	-.334774E-09
14	.841794E-09	.186758E-07	.740563E-10	.122790E-11	-.545219E-11	-.267075E-10
15	.121894E-09	.740563E-10	.952201E-07	.268497E-09	.908170E-10	-.653429E-11
16	.248769E-10	.122790E-11	.268497E-09	.236583E-10	.429292E-14	-.179244E-11
17	-.163752E-10	-.546219E-11	.908170E-10	.429292E-14	.463318E-10	-.681337E-13
18	-.334774E-08	-.267075E-10	-.653429E-11	-.179244E-11	-.581337E-13	.247757E-10

Gibbs &amp; Hill Job No. 11-2323-001

Client TUST

Originator : EB

Date 05/14/81

Checker KKB

Date 5/14/81

Calculation Number

Sheet No.

of

	Revision									
Original Issue	1	2	3	4	5	6	7	8	9	10
Checking Method #	/									

Subject

REACTOR BUILDING  
SEISMIC FORCES FROM DYNAMIC ANALYSIS

CONTAINMENT BUILDING & INTERNAL STRUCTURE

UNCRACKED CONTAINMENT WITH BEST ESTIMATE SOIL-SPRING CONSTANT

SSE-Z-E8 - EL. 769.17 FT OF COMMON MAT

LESS FORCE (KIP) / MOMENT (KIP-FT.)

FORCE X	2.80 E3
Y	5.38 E2
Z	2.39 E4
MOMENT X	4.06 E6
Y	2.50 E5
Z	4.15 E5

Checking Method #

- 1 Line by line checking
- 2 Alternative Calculation/Results compared
- 3 Identical Calculation/Results compared

E-16F 3-80

GIBBS &amp; HILL, INC.

Gibbs &amp; Hill Job No. 11-2323-001

Originator ADB

Date 05/14/81

Client TUSI

Calculation Number

Checker JRS

Date 5/14/81

Sheet No.

of

		Revision									
	Original Issue	1	2	3	4	5	6	7	8	9	10
Checking Method #	/										

Subject

AUXILIARY & ELECTRICAL BUILDING  
SEISMIC FORCES FROM DYNAMIC ANALYSISAUXILIARY & ELECTRICAL BUILDING  
DYNAMIC MODEL WITH BEST ESTIMATE (K) SOIL-SPRING CONSTANT  
SSE-Z-80 AT ELEV. 831.50 FT. DUE TO MASSES 1,2,6,7&8  
LESS FORCE(KIP)/MOMENT(KIP-FT)

FORCE X 3.03 E3

Y 5.82 E2

Z 2.27 E4

MOMENT X 1.11 E6

Y 7.37 E5

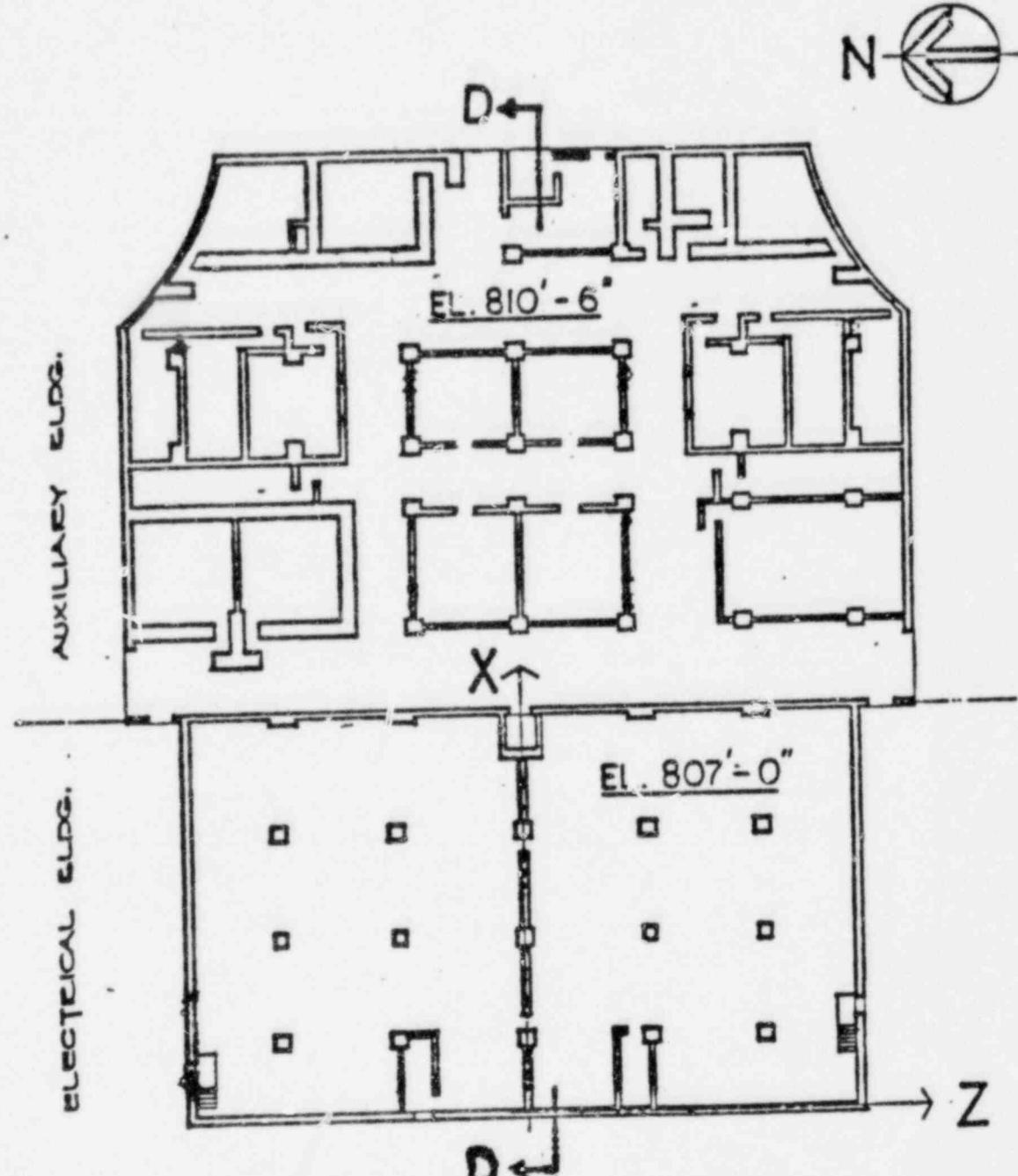
Z 1.59 E5

Checking Method #

- 1 Line by line checking
- 2 Alternative Calculation/Results compared
- 3 Identical Calculation/Results compared

F-166.3-80

ATTACHMENT 2

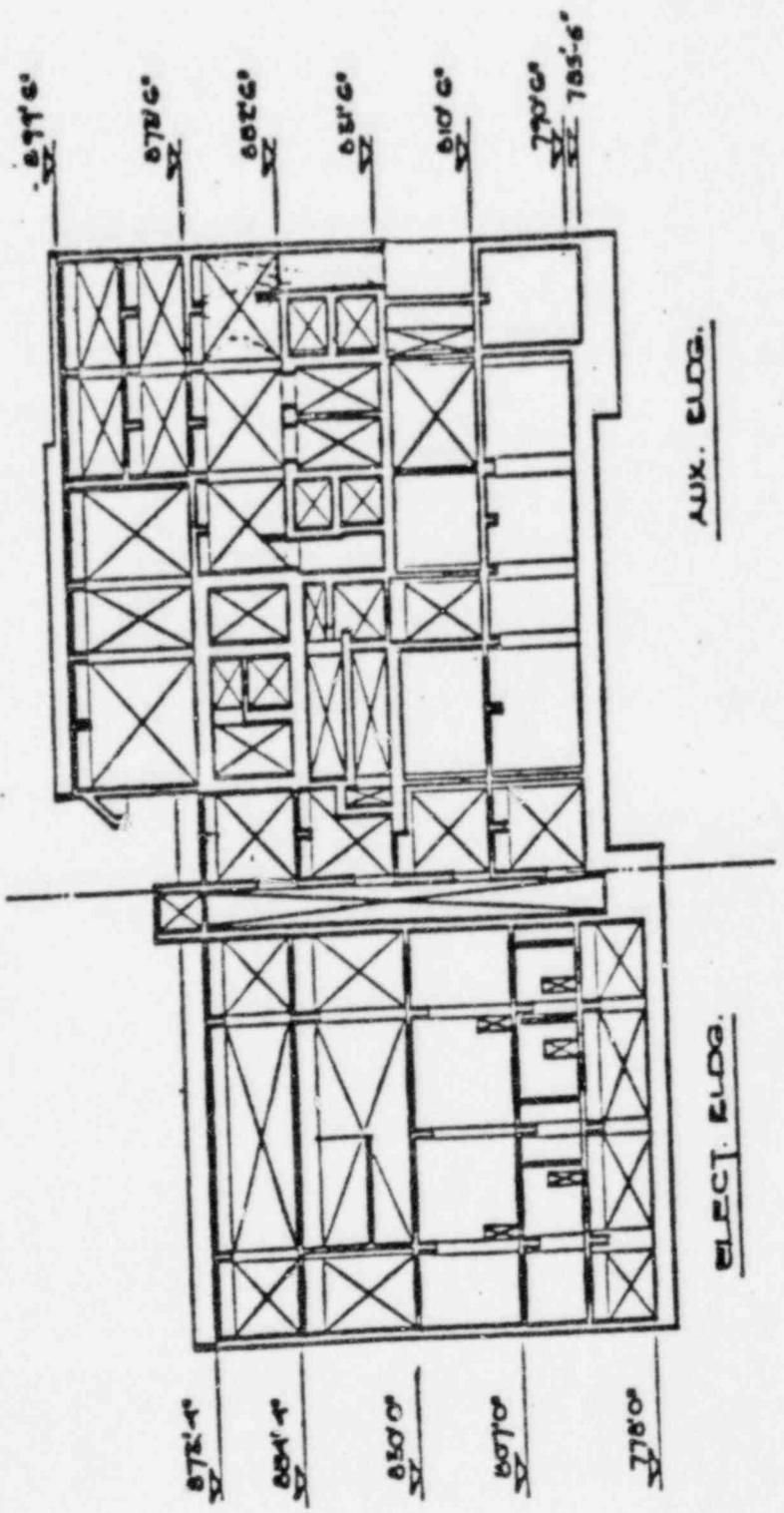


NOTE: ORIGIN OF COORDINATES IS  
AT EL 0.00

COMANCHE PEAK S.E.S.  
FINAL SAFETY ANALYSIS REPORT  
UNITS 1 and 2

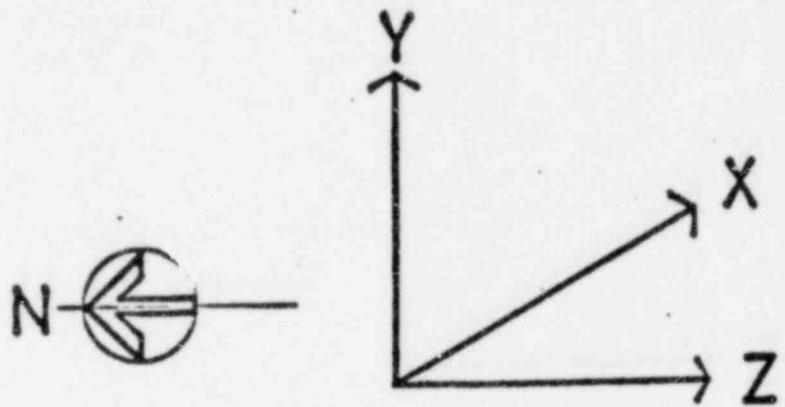
PLAN VIEW  
ELECTRICAL & AUXILIARY  
BUILDINGS

FIGURE 3.7B-23

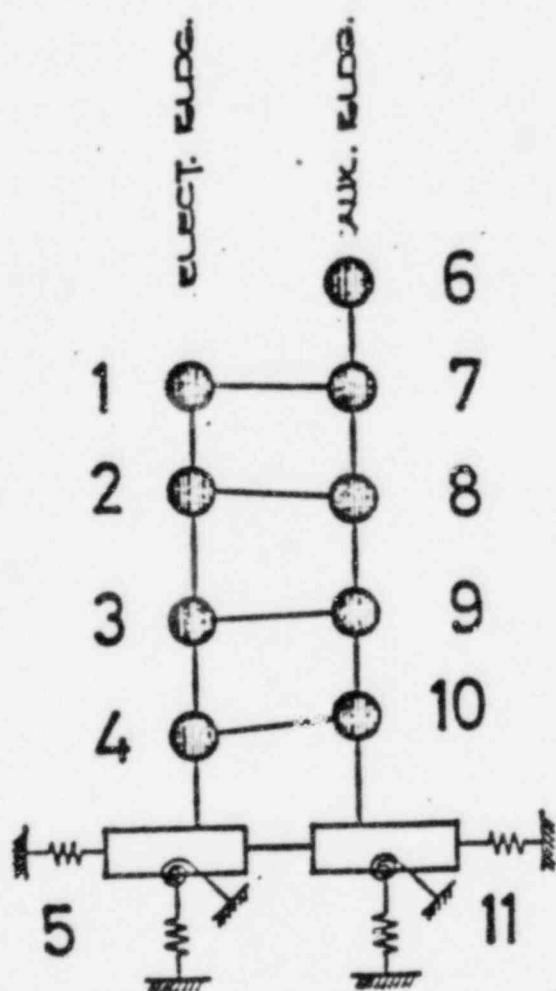


## SECTION D-D

COMANCHE PEAK S.E.S.  
 FINAL SAFETY ANALYSIS REPORT  
 UNITS 1 and 2  
 ELEVATION VIEW  
 ELECTRICAL & AUXILIARY  
 BUILDINGS



COORDINATE SYSTEM



DYNAMIC MODEL

COMANCHE PEAK S.E.S.  
FINAL SAFETY ANALYSIS REPORT  
UNITS 1 and 2

DYNAMIC MODEL  
ELECTRICAL & AUXILIARY  
BUILDINGS

FIGURE 3.7B-36

AUXILIARY AND ELECTRICAL BUILDING

LOWER BOUND  
SOIL SPRING  
(K/4)

BEST ESTIMATE  
SOIL SPRING  
(K)

UPPER BOUND  
SOIL SPRING  
(2K)

LOWER BOUND, BEST ESTIMATE AND UPPER BOUND MODELS

CPSES/FSAR  
TABLE 3.7B-11

ELECTRICAL AND AUXILIARY BUILDINGS  
MASS POINT NODAL COORDINATES

<u>Mass Point</u>	<u>X</u> <u>(ft)</u>	<u>Y</u> <u>(ft)</u>	<u>Z</u> <u>(ft)</u>
1	59.31	871.29	-1.12
2	55.47	852.50	-0.18
3	46.31	829.55	0.15
4	53.78	805.63	0.75
5	57.20	776.79	-0.14
6	179.37	893.85	-0.22
7	166.49	872.32	3.47
8	172.92	849.55	0.40
9	174.87	831.15	-2.09
10	178.11	811.46	1.58
11	162.22	791.36	-3.30

Foundation spring

(See Tables 3.7B-26 and 3.7B-27.)

- 
- NOTES: a. The origin of coordinates is at elevation 0 ft 0 in.  
 b. For orientation of coordinate axes, see Figure 3.7B-28.  
 c. For structure dynamic model showing the mass point numbers, see Figure 3.7B-36.

CPSES/FSAP  
TABLE 3.7B-16ELECTRICAL AND AUXILIARY BUILDINGS  
MASS POINT MASS DATA

Mass Point	Mass (kip-sec <sup>2</sup> /ft)			Mass Moment of Inertia (kip-sec <sup>2</sup> -ft)		
	M <sub>x</sub>	M <sub>y</sub>	M <sub>z</sub>	I <sub>x</sub>	I <sub>y</sub>	I <sub>z</sub>
1	191	191	191	352,578	621,762	273,288
2	371	371	371	1,029,267	1,540,460	525,576
3	335	335	335	935,606	1,329,372	413,593
4	404	404	404	1,232,237	1,789,889	585,062
5	570	570	570	1,475,049	2,636,970	1,184,607
6	373	373	373	1,170,341	1,756,542	611,452
7	530	530	530	1,543,630	2,372,764	859,910
8	860	860	860	2,390,334	3,484,584	1,151,946
9	710	710	710	2,110,568	3,065,440	989,810
10	663	663	663	2,193,210	2,996,694	859,967
11	1022	1022	1022	2,877,228	5,305,467	2,585,200
5A	310	2065	310	7,211,000	3,355,000	2,046,000
11A	623	4153	623	18,830,000	9,913,000	8,046,000

NOTES: a. Mass points 1 through 11 are for the structures. Mass points 5A and 11A are for the foundation material.

b. The origin of coordinates is at elevation 0 ft 0 in. For orientation of coordinate axes, see Figure 3.7B-28.

c. For structure dynamic model showing the mass point numbers, see Figure 3.7B-16.

CPSES/FSAR  
 TABLE 3.7B-21  
 (Sheet 1 of 4)

ELECTRICAL AND AUXILIARY BUILDINGS  
DEGREES OF FREEDOM

<u>Mass Point</u>	<u>Degree of Freedom</u>	<u>Direction of Motion</u>	
1	1	Translation	x
1	2	Translation	y
1	3	Translation	z
1	4	Rotation	$\theta_x$
1	5	Rotation	$\theta_y$
1	6	Rotation	$\theta_z$
2	7	Translation	x
2	8	Translation	y
2	9	Translation	z
2	10	Potation	$\theta_x$
2	11	Rotation	$\theta_y$
2	12	Potation	$\theta_z$
3	13	Translation	x
3	14	Translation	y
3	15	Translation	z
3	16	Rotation	$\theta_x$
3	17	Rotation	$\theta_y$
3	18	Rotation	$\theta_z$
4	19	Translation	x

CPSES/FSAR  
 TABLE 3.7B-21  
 (Sheet 2 of 4)

ELECTRICAL AND AUXILIARY BUILDINGS  
DEGREES OF FREEDOM

<u>Mass Point</u>	<u>Degree of Freedom</u>	<u>Direction of Motion</u>	
4	20	Translation	Y
4	21	Translation	Z
4	22	Potation	$\theta_x$
4	23	Potation	$\theta_y$
4	24	Potation	$\theta_z$
5	25	Translation	X
5	26	Translation	Y
5	27	Translation	Z
5	28	Rotation	$\theta_x$
5	29	Rotation	$\theta_y$
5	30	Potation	$\theta_z$
6	31	Translation	X
6	32	Translation	Y
6	33	Translation	Z
6	34	Rotation	$\theta_x$
6	35	Rotation	$\theta_y$
6	36	Rotation	$\theta_z$
7	37	Translation	X
7	38	Translation	Y

CPSES/FSAR  
 TABLE 3.7B-2  
 (Sheet 3 of 4)

ELECTRICAL AND AUXILIARY BUILDINGS  
DEGREES OF FREEDOM

<u>Mass Point</u>	<u>Degree of Freedom</u>	<u>Direction of Motion</u>	
7	39	Translation	z
7	40	Rotation	$\theta_x$
7	41	Rotation	$\theta_y$
7	42	Rotation	$\theta_z$
8	43	Translation	x
8	44	Translation	y
8	45	Translation	z
8	46	Rotation	$\theta_x$
8	47	Rotation	$\theta_y$
8	48	Rotation	$\theta_z$
9	49	Translation	x
9	50	Translation	y
9	51	Translation	z
9	52	Rotation	$\theta_x$
9	53	Rotation	$\theta_y$
9	54	Rotation	$\theta_z$
10	55	Translation	x
10	56	Translation	y
10	57	Translation	z

CPSES/FSAR  
TABLE 3.7B-21  
(Sheet 4 of 4)

ELECTRICAL AND AUXILIARY BUILDINGS  
DEGREES OF FREEDOM

<u>Mass Point</u>	<u>Degree of Freedom</u>	<u>Direction of Motion</u>	
10	58	Rotation	$\theta_x$
10	59	Rotation	$\theta_y$
10	60	Rotation	$\theta_z$
11	61	Translation	x
11	62	Translation	y
11	63	Translation	z
11	64	Rotation	$\theta_x$
11	65	Rotation	$\theta_y$
11	66	Rotation	$\theta_z$

- NOTES:
- a. The origin of coordinates is at elevation 0 ft 0 in.
  - b. For orientation of coordinate axes, see Figure 3.7B-28.
  - c. For structure dynamic model showing the mass point numbers, see Figure 3.7B-36.

CPSES/FSAR  
TABLE 3.7B-26  
(Sheet 1 of 3)

ELECTRICAL BUILDING  
FOUNDATION SPRING CONSTANTS

Mass No.	<u>Spring Location</u>			<u>Lower Bound Foundation Spring Constants</u>					
	X ftl	Y ftl	Z ftl	Translation Along X Axis (kip/ftl)	Translation Along Y Axis (kip/ftl)	Translation Along Z Axis (kip/ftl)	Rotation About X Axis (kip-ft/rad)	Rotation About Y Axis (kip-ft/rad)	Rotation About Z Axis (kip-ft/rad)
5	98.75	778.50	0.0	$0.1587 \times 10^7$	0.0	$0.1195 \times 10^7$	0.0	$0.3626 \times 10^{10}$	0.0
5	48.75	772.25	0.0	$0.7970 \times 10^7$	$0.9632 \times 10^7$	$0.7970 \times 10^7$	$2.1985 \times 10^{10}$	$2.4830 \times 10^{10}$	$0.8027 \times 10^{10}$
5	48.75	787.875	-82.75	$0.1225 \times 10^7$	0.0	$0.1615 \times 10^7$	0.0	$0.1345 \times 10^{10}$	0.0
5	48.75	787.875	82.75	$0.1225 \times 10^7$	0.0	$0.1615 \times 10^7$	0.0	$0.1345 \times 10^{10}$	0.0

CPSES/FSAP  
TABLE 3.7B-26  
(Sheet 2 of 3)

ELECTRICAL BUILDING  
FOUNDATION SPRING CONSTANTS

Mass No.	<u>Spring Location</u>			Translation		Translation		Translation		Rotation		Rotation	
	X (ft)	Y (ft)	Z (ft)	Along X Axis (kip/ft)	Along Y Axis (kip/ft)	Along Z Axis (kip/ft)	About X Axis (kip-ft/rad)	About Y Axis (kip-ft/rad)	About Z Axis (kip-ft/rad)	Rotation (kip-ft/rad)	Rotation (kip-ft/rad)	Rotation (kip-ft/rad)	Rotation (kip-ft/rad)
5	98.75	778.50	0.0	$0.6355 \times 10^7$		0.0	$0.4782 \times 10^7$		0.0	$1.4506 \times 10^{10}$		0.0	
5	98.75	772.25	0.0	$3.1880 \times 10^7$	$3.8530 \times 10^7$	$3.1880 \times 10^7$	$8.7940 \times 10^{10}$	$9.9320 \times 10^{10}$	$3.2110 \times 10^{10}$				
5	98.75	787.875	-82.75	$0.4900 \times 10^7$		0.0	$0.6460 \times 10^7$		0.0	$0.5382 \times 10^{10}$		0.0	
5	98.75	787.875	82.75	$0.4900 \times 10^7$		0.0	$0.6460 \times 10^7$		0.0	$0.5382 \times 10^{10}$		0.0	

CPSSES/FSAR  
TABLE 3.7B-26  
(Sheet 3 of 3)

ELECTRICAL BUILDING  
FOUNDATION SPRING CONSTANTS

Mass No.	Spring Location			Upper Bound Foundation Spring Constants					
	X ft	Y ft	Z ft	Translation Along X Axis kip/ft	Translation Along Y Axis kip/ft	Translation Along Z Axis kip/ft	Rotation About X Axis kip-ft/rad	Rotation About Y Axis kip-ft/rad	Rotation About Z Axis kip-ft/rad
5	98.75	778.50	0.0	$1.2700 \times 10^7$	0.0	$0.9564 \times 10^7$	0.0	$2.9012 \times 10^{10}$	0.0
5	98.75	772.25	0.0	$6.3760 \times 10^7$	$7.7060 \times 10^7$	$6.3760 \times 10^7$	$1.7588 \times 10^{11}$	$19.8640 \times 10^{10}$	$6.4220 \times 10^{10}$
5	98.75	787.875	-82.75	$0.9800 \times 10^7$	0.0	$1.2920 \times 10^7$	0.0	$1.0764 \times 10^{10}$	0.0
5	98.75	787.875	82.75	$0.9800 \times 10^7$	0.0	$1.2920 \times 10^7$	0.0	$1.0764 \times 10^{10}$	0.0

NOTES: a. The origin of coordinates is at elevation 0 ft 0 in.  
b. For orientation of coordinate axes, see Figure 3.7B-28.

CPSSES/FSAR  
TABLE 3.7B-27  
(Sheet 1 of 3)

AUXILIARY BUILDING  
FOUNDATION SPRING CONSTANTS

Mass No.	Spring Location			Lower Bound Foundation Spring Constants					
	X (ft)	Y (ft)	Z (ft)	Translation Along X Axis (kip/ft)	Translation Along Y Axis (kip/ft)	Translation Along Z Axis (kip/ft)	Rotation About X Axis (kip-ft/rad)	Rotation About Y Axis (kip-ft/rad)	Rotation About Z Axis (kip-ft/rad)
11	167.25	784.75	0.0	$1.0060 \times 10^7$	$1.2160 \times 10^7$	$1.0060 \times 10^7$	$3.7550 \times 10^{10}$	$6.6800 \times 10^{10}$	$1.9015 \times 10^{10}$
11	235.75	795.00	0.0	$0.2117 \times 10^7$		0.0	$0.1650 \times 10^7$	0.0	$0.6535 \times 10^{10}$

CPSES/FSAP  
TABLE 3.7B-27  
(Sheet 2 of 3)

AUXILIARY BUILDING  
FOUNDATION SPRING CONSTANTS

Mass No.	Spring Location			Best Estimate Foundation Spring Constants					
	X ft	Y ft	Z ft	Translation Along X Axis (kip/ft)	Translation Along Y Axis (kip/ft)	Translation Along Z Axis (kip/ft)	Rotation About X Axis (kip-ft/rad)	Rotation About Y Axis (kip-ft/rad)	Rotation About Z Axis (kip-ft/rad)
11	167.25	788.75	0.0	$4.0240 \times 10^7$	$4.8640 \times 10^7$	$4.0240 \times 10^7$	$15.0200 \times 10^{10}$	$1.8720 \times 10^4$	$7.6060 \times 10^{10}$
11	235.75	795.00	0.0	$0.9966 \times 10^7$	0.0	$0.6604 \times 10^7$	0.0	$2.6139 \times 10^{10}$	0.0

CPSES/PSAP  
TABLE 3.7B-27  
(Sheet 3 of 3)

AUXILIARY BUILDING  
FOUNDATION SPRING CONSTANTS

Mass No.	<u>Spring Location</u>			Translation			Upper Bound Foundation Spring Constants			Rotation kip-ft/rad)
	X (ft)	Y (ft)	Z (ft)	Along X Axis (kip/ft)	Along Y Axis (kip/ft)	Along Z Axis (kip/ft)	About X Axis (kip-ft/rad)	About Y Axis (kip-ft/rad)	About Z Axis (kip-ft/rad)	
11	187.25	784.75	0.0	$8.0480 \times 10^7$	$9.7280 \times 10^7$	$8.0480 \times 10^7$	$3.0040 \times 10^{11}$	$3.7440 \times 10^{11}$	$1.5212 \times 10^{11}$	
11	235.75	795.00	0.0	$1.6940 \times 10^7$		0.0	$1.3200 \times 10^7$	0.0	$5.2280 \times 10^{10}$	0.0

NOTES: a. The origin of coordinates is at elevation 0 ft 0 in.  
b. For orientation of coordinate axes, see Figure 3.7B-28.

## MASS ORDER IN STARDYNE STIFFNESS MATRIX

9

## REARRANGED STIFFNESS MATRIX

	1	2	3	4	5	6	7	8
C 1	+101253E+09	+261474E+05	+104777E+06	+293303E+05	+579305E+07	+452179E+06		
C 2	+261474E+05	+300899E+05	+837463E-08	+249617E+07	+293303E+05	+247769E+09		
C 3	+106774E-08	+377453E-08	+10254E+08	+615923E+08	+491376E+08	+996049E-06		
C 4	+293311E+05	+24351.7E+07	+615923E+08	+102291E+12	+370366E+09	+178404E+10		
C 5	+579305E+07	+93183E+05	+691376E+08	+370366E+09	+547303E+11	+771175E+08		
C 6	+452173E+08	+247759E+09	+996049E-06	+178404E+10	+271175E+08	+680268E+11		
C 7	+602453E+07	+983819E-07	+249205E+07	+249205E+07	+560517E+07	+509201E+08		
C 8	+1423515E-06	+390563E+04	+111759E-07	+249205E+07	+387430E-06	+247897E+09		
C 9	+423515E-21	+149812E-07	+465145E+07	+64513AE+08	+194646E+08	+107268E-05		
C 10	+162233E-06	+342743E+06	+90469E+03	+101059E+12	+220592E+09	+201692E+10		
C 11	+159021E+08	+119209E+05	+17570E+06	+102586E+03	+412514E+11	+110596E+09		
C 12	+773671E+08	+975037E+01	+655651E-06	+179347E+19	+107495E+09	+661014E+11		
C 13	-0	-0	-0	-0	-0	-0		
C 14	-0	-0	-0	-0	-0	-0		
C 15	-0	-0	-0	-0	-0	-0		
C 16	-0	-0	-0	-0	-0	-0		
C 17	-0	-0	-0	-0	-0	-0		
C 18	-0	-0	-0	-0	-0	-0		
C 19	-0	-0	-0	-0	-0	-0		
C 20	-0	-0	-0	-0	-0	-0		
C 21	-0	-0	-0	-0	-0	-0		
C 22	-0	-0	-0	-0	-0	-0		
C 23	-0	-0	-0	-0	-0	-0		
C 24	-0	-0	-0	-0	-0	-0		
C 25	-0	-0	-0	-0	-0	-0		
C 26	-0	-0	-0	-0	-0	-0		
C 27	-0	-0	-0	-0	-0	-0		
C 28	-0	-0	-0	-0	-0	-0		
C 29	-0	-0	-0	-0	-0	-0		
C 30	-0	-0	-0	-0	-0	-0		
C 31	-0	-0	-0	-0	-0	-0		
C 32	-0	-0	-0	-0	-0	-0		
C 33	-0	-0	-0	-0	-0	-0		
C 34	-0	-0	-0	-0	-0	-0		
C 35	-0	-0	-0	-0	-0	-0		
C 36	-0	-0	-0	+372529E-06	+293303E+05	+369212E+07	+570227E+07	
C 37	+329554E+07	+261474E+05	+367430E+04	+411508E+04	+291303E+05	+127836E+06		
C 38	+261474E+05	+367430E+04	+491127E-10	+292156E+07	+686021E+08	+325963E-04		
C 39	+232871E-09	+127519E+05	+150662E+07	+148469E+08	+1544424E+09	+443591E+06		
C 40	+904715F+05	+904715E+05	+786555E+08	+8808495E+08	+604327E+10	+19769E+08		
C 41	+114390E+05	+904715E+05	+16265E-04	+279056E+07	+572720E+07	+941085E+06		
C 42	+511354E+07	+279056E+07	+0	+0	+0	+0		
C 43	+0	+0	+0	+0	+0	+0		
C 44	+0	+0	+0	+0	+0	+0		
C 45	+0	+0	+0	+0	+0	+0		
C 46	+0	+0	+0	+0	+0	+0		
C 47	+0	+0	+0	+0	+0	+0		
C 48	+0	+0	+0	+0	+0	+0		
C 49	+0	+0	+0	+0	+0	+0		
C 50	+0	+0	+0	+0	+0	+0		
C 51	+0	+0	+0	+0	+0	+0		
C 52	+0	+0	+0	+0	+0	+0		
C 53	+0	+0	+0	+0	+0	+0		
C 54	+0	+0	+0	+0	+0	+0		
C 55	+0	+0	+0	+0	+0	+0		

Aux. of Elect. Bldg.  
Lower Bound (K/4)

20	.0	.0	.0	.0	.0	.0
57	.0	.0	.0	.0	.0	.0
58	.0	.0	.0	.0	.0	.0
59	.0	.0	.0	.0	.0	.0
60	.0	.0	.0	.0	.0	.0
61	.0	.0	.0	.0	.0	.0
62	.0	.0	.0	.0	.0	.0
63	.0	.0	.0	.0	.0	.0
64	.0	.0	.0	.0	.0	.0
65	.0	.0	.0	.0	.0	.0
66	.0	.0	.0	.0	.0	.0
7	8	9	10	11	12	
1	-652851E+07	-103497E+06	-423516E-21	-162233E-06	-159840E+08	-773874E+08
2	-933819E-07	-390563E+08	-149012E-07	-342490E+08	-119209E-05	-978057E+08
3	-105873E-21	-111759E-07	-865145E+07	-988469E+08	-137570E+08	-655651E-06
4	-284827E-05	-247205E+07	-645135E+08	-101059E+12	-102586E+09	-179347E+10
5	-948517E+07	-387430E-06	-194646E+08	-220592E+09	-12514E+11	-107695E+09
6	-509231E+08	-247897E+09	-107288E-05	-201692E+10	-118596E+09	-661014E+11
7	-162545E+08	-359040E-06	-384171E-08	-639071E+05	-142073E+08	-449135E+08
8	-355040E+06	-745652E+08	-654836E-09	-278450E+08	-639071E+05	-407830E+09
9	-384171E-05	-654836E-09	-192152E+08	-813387E+07	-139238E+08	-225380E-05
10	-639071E+05	-278430E+08	-813387E+07	-233693E+12	-113972E+09	-182960E+10
11	-142073E+08	-539071E+05	-139238E+08	-113972E+09	-187586E+12	-186085E+09
12	-449135E+08	-687810E+09	-225380E-06	-182960E+10	-186085E+09	-131191E+12
13	-535172E+07	-717959E-07	-423516E-21	-491950E-07	-963309E+06	-553020E+08
14	-505559E-07	-355412E+08	-931323E-09	-539724E+07	-295823E-06	-312376E+09
15	-0	-223517E-07	-885297E+07	-914822E+08	-918265E+08	-357628E-06
16	-852461E+04	-533113E+07	-111694E+09	-128542E+12	-115853E+10	-468564E+08
17	-802754E+05	-178814E-06	-107332E+05	-110912E+09	-513102E+11	-829530E+07
18	-675277E+05	-131713E+08	-357628E-05	-237102E+07	-121536E+08	-597333E+11
19	.0	.0	.0	.0	.0	.0
20	.0	.0	.0	.0	.0	.0
21	.0	.0	.0	.0	.0	.0
22	.0	.0	.0	.0	.0	.0
23	.0	.0	.0	.0	.0	.0
24	.0	.0	.0	.0	.0	.0
25	.0	.0	.0	.0	.0	.0
26	.0	.0	.0	.0	.0	.0
27	.0	.0	.0	.0	.0	.0
28	.0	.0	.0	.0	.0	.0
29	.0	.0	.0	.0	.0	.0
30	.0	.0	.0	.0	.0	.0
31	.0	.0	.0	.0	.0	.0
32	.0	.0	.0	.0	.0	.0
33	.0	.0	.0	.0	.0	.0
34	.0	.0	.0	.0	.0	.0
35	.0	.0	.0	.0	.0	.0
36	.0	.0	.0	.0	.0	.0
37	.0	.0	.0	.0	.0	.0
38	-.0	.0	.0	.0	.0	.0
39	-.0	-.0	.0	.0	.0	.0
40	-.0	.0	.0	.0	.0	.0
41	-.0	.0	.0	.0	.0	.0
42	-.0	-.0	.0	.0	.0	.0
43	-107425E+07	-355040E+06	-279397E-08	-639071E+05	-733365E+08	-228281E+08
44	-355040E+06	-176619E+05	-145519E-09	-678275E+04	-639071E+05	-235193E+07
45	-372529E-09	-232431E-09	-171082E+07	-156923E+07	-919932E+08	-111759E-07
46	-142016E+05	-150728E+05	-661614E+07	-120439E+09	-719480E+09	-940772E+06
47	-162973E+07	-142016E+06	-108942E+09	-117569E+10	-648034E+10	-913123E+07
48	-685229E+07	-102645E+07	-653360E-08	-184761E+06	-123341E+07	-612435E+08
49	.0	-.0	-.0	-.0	-.0	-.0
50	.0	-.0	-.0	-.0	-.0	-.0
51	.0	-.0	-.0	-.0	-.0	-.0

13	14	15	16	17	18	
-535172E+07	.60555E-07	-.0	.0	.0	.0	
.717059E-07	-.305402E+08	-.223517E-07	-.533103E+07	-.178814E-06	-.131724E+08	
.423516E+21	.931323E-09	-.885297E+07	-.111694E+09	-.107332E+08	-.357628E-06	
.491958E-07	.639724E+17	.914822E+08	-.128542E+12	-.110912E+09	.237102E+07	
.963303E-06	.298023E-16	-.918265E+08	-.115853E+10	-.513102E+11	.121536E+08	
-.551020E+09	.312376E+09	.357628E-06	.468564E+08	.829530E+07	-.597333E+11	
.169541E+08	.291627E+06	-.232831E-08	.437440E+05	-.254312E+07	.289453E+08	
.231627E+05	.754937E+08	-.192085E-07	.113106E+05	-.437440E+05	.255676E+07	
-.232431E-05	-.192085E-07	.181523E+08	.299187E+08	-.831753E+08	-.444707E-05	
.437440E+05	.113106E+08	.299187E+08	.259080E+12	-.103053E+10	.383514E+06	
-.254312E+07	-.437440E+05	-.831753E+08	-.207053E+10	.121840E+12	-.434180E+07	
.299453E+08	.255676E+07	-.444707E-06	.383514E+06	-.434180E+07	.124052E+12	
-.751291E+07	.110335E-07	.0	-.178814E-06	.112694E+07	-.830177E+08	
.372529E-04	-.398359E+08	-.838190E-08	-.597539E+07	.238419E-06	.119995E+08	
-.0	.74501E-08	-.758637E+07	-.838294E+08	-.138902E+08	.178814E-06	
0	-.298769E+08	-.976366E+08	-.125886E+12	-.178766E+09	.899964E+07	
1	.5634659E+07	-.417213E-06	-.705683E+08	-.515635E+11	.622633E+08	
2	-.956912E+01	-.303574E+09	-.208616E-06	-.464361E+08	-.145037E+08	-.606812E+11
3	.0	.0	.0	.0	.0	
4	.0	.0	.0	.0	.0	
5	.0	.0	.0	.0	.0	
6	.0	.0	.0	.0	.0	
7	.0	.0	.0	.0	.0	
8	.0	.0	.0	.0	.0	
9	.0	.0	.0	.0	.0	
10	.0	.0	.0	.0	.0	
11	.0	.0	.0	.0	.0	
12	.0	.0	.0	.0	.0	
13	.0	.0	.0	.0	.0	
14	.0	.0	.0	.0	.0	
15	.0	.0	.0	.0	.0	
16	.0	.0	.0	.0	.0	
17	.0	.0	.0	.0	.0	
18	.0	.0	.0	.0	.0	
19	.0	.0	.0	.0	.0	
20	.0	.0	.0	.0	.0	
21	.0	.0	.0	.0	.0	
22	.0	.0	.0	.0	.0	
23	.0	.0	.0	.0	.0	
24	.0	.0	.0	.0	.0	
25	.0	.0	.0	.0	.0	
26	.0	.0	.0	.0	.0	
27	.0	.0	.0	.0	.0	
28	.0	.0	.0	.0	.0	
29	.0	.0	.0	.0	.0	
30	.0	.0	.0	.0	.0	
31	.0	.0	.0	.0	.0	
32	.0	.0	.0	.0	.0	
33	.0	.0	.0	.0	.0	
34	.0	.0	.0	.0	.0	
35	.0	.1	.0	.0	.0	
36	.0	.0	.0	.0	.0	
37	.0	.0	.0	.0	.0	
38	.0	.0	.0	.0	.0	
39	.0	.0	.0	.0	.0	
40	.0	.0	.0	.0	.0	
41	.0	.0	.0	.0	.0	
42	.0	.0	.0	.0	.0	
43	.0	.0	.0	.0	.0	
44	.0	.0	.0	.0	.0	
45	.0	.0	.0	.0	.0	

1	-408983E+07	-291627E+06	.419095E-08	-437440E+05	.613424E+06
2	-291627E+06	-275480E+05	-174623E-09	-413220E+04	.437440E+05
3	.279337E-09	.378350E-09	-171295E+07	-205450E+07	.187799E+09
4	.609500E+05	.595753E+05	.685224E+06	.828515E+08	.39883E+07
5	-609500E+06	-609500E+06	-112419E+09	.748234E+09	.530888E+10
6	-609500E+07	.175008E+08	.169115E+07	.253657E+06	.262511E+07
7					
8					
9					
10					
11					
12					
13					
14					
15					
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17					
18					
19					
20					
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25					
26					
27					
28					
29					
30					
31					
32					
33					
34					
35					
36					
37					
38					
39					

	19	20	21	22	23	24
1	.0	.0	.0	.0	.0	.0
2	.0	.0	.0	.0	.0	.0
3	.0	.0	.0	.0	.0	.0
4	.0	.0	.0	.0	.0	.0
5	.0	.0	.0	.0	.0	.0
6	.0	.0	.0	.0	.0	.0
7	.0	.0	.0	.0	.0	.0
8	.0	.0	.0	.0	.0	.0
9	.0	.0	.0	.0	.0	.0
10	.0	.0	.0	.0	.0	.0
11	.0	.0	.0	.0	.0	.0
12	.0	.0	.0	.0	.0	.0
13	-.751291E+07	.372529E-06	.0		.583468E+07	.966912E+08
14	-.130339E-07	-.398359E+04	.745058E-08	-.298789E+08	-.417233E-06	.309574E+09
15	.0	.831190E-08	-.758637E+07	-.976366E+08	-.705603E+08	-.208616E-06
16	-.175814E-06	-.597539E+07	.838294E+08	-.125885E+12	.779692E+09	.464361E+08
17	-.112634E+07	.238419E-05	-.138902E+08	-.178766E+09	-.515632E+11	-.145037E+08
18	-.530177E+08	.110995E+08	-.178814E-06	.899964E+07	.622633E+08	-.606812E+11
19	.175054E+03	.369091E+06	.738775E+03	.143592E+07	-.191801E+05	-.136791E+08
20	.769091E+05	.838091E+05	.346833E+04	.746726E+05	-.138018E+07	-.323743E+08
21	.718775E+03	.346833E+04	.195966E+08	.812860E+07	-.147542E+09	-.124086E+06
22	.143592E+07	.746726E+05	.812860E+07	.269756E+12	-.149279E+10	-.498066E+09
23	-.131501E+08	-.138018E+07	-.147542E+09	-.149279E+10	.120598E+12	-.386976E+08
24	-.136791E+08	-.323743E+08	-.124086E+06	-.498066E+09	-.336976E+08	-.139561E+12
25	-.464879E+07	-.845928E+05	-.738692E+03	-.122223E+07	.953683E+07	-.588380E+08
26	-.139031E+06	-.256134E+04	-.346800E+04	-.310247E+05	.120799E+07	-.536723E+09
27	-.738767E+03	-.345842E+04	-.365563E+07	-.491461E+05	-.175325E+09	-.124089E+06
28	-.116133E+07	-.932845E+07	-.554259E+08	-.902523E+11	-.264725E+10	-.402162E+09
29	.519654E+07	.107925E+07	-.147747E+09	-.253782E+10	-.367263E+11	-.411590E+08
30	.7436133E+08	.671393F+03	.157263E+06	-.102168E+10	-.185063E+09	-.378326E+11
31	.0	.0	.0	.0	.0	.0
32	.0	.0	.0	.0	.0	.0
33	.0	.0	.0	.0	.0	.0
34	.0	.0	.0	.0	.0	.0
35	.0	.0	.0	.0	.0	.0
36	.0	.0	.0	.0	.0	.0
37	.0	.0	.0	.0	.0	.0
38	.0	.0	.0	.0	.0	.0
39	.0	.0	.0	.0	.0	.0

	25	26	27	28	29	30	
0	0	0	0	0	0	0	
1	-395544E+07	-654154E+06	-118188E+05	-186285E-05	-493623E+06	-296661E+07	-241673E+06
2	-654154E+06	-118188E+05	-465661E-09	-871409E+05	-493623E+06	-439147E+07	
3	-419035E-05	-698412E-09	-169399E+07	-528295E+07	-939516E+08	-138385E-07	
4	-103970E+07	-183577E+06	-459299E+07	-337930E+09	-173917E+10	-551307E+10	-381843E+08
5	-624956E+07	-183990E+07	-116662E+09	-163007E+10	-6259514E+08	-236667E+09	
6	-345018E+09	-621707E+07	-186265E-07	-466281E+07	-104197E+07	-681308E+04	
7	-138922E+07	-373655E+06	-828904E-01	-279936E+06	-321432E+06	-809531E+09	
8	-428074E+06	-182637E+06	-251312E+08	-136838E+08	-299476E+09	-368844E+01	
9	-799661E-02	-903633E-01	-666059E+07	-856449E+08	-197902E+10	-267151E+18	
10	-141229E+07	-682027E+04	-492550E+08	-487440E+11	-173020E+11	-378711E+05	
11	-4559438E+07	-123351E+07	-422879E+09	-269445E+10	-189672E+08	-513939E+11	
12	-252577E+08	-115825E+10	-158795E+02	-868751E+09			

	25	26	27	28	29	30	
0	0	0	0	0	0	0	
1	0	0	0	0	0	0	
2	0	0	0	0	0	0	
3	0	0	0	0	0	0	
4	0	0	0	0	0	0	
5	0	0	0	0	0	0	
6	0	0	0	0	0	0	
7	0	0	0	0	0	0	
8	0	0	0	0	0	0	
9	0	0	0	0	0	0	
10	0	0	0	0	0	0	
11	0	0	0	0	0	0	
12	0	0	0	0	0	0	
13	0	0	0	0	0	0	
14	0	0	0	0	0	0	
15	0	0	0	0	0	0	
16	0	0	0	0	0	0	
17	0	0	0	0	0	0	
18	-464879E+07	-139081E+05	-718767E+03	-116138E+07	-539688E+07	-743633E+08	
19	-965924E+05	-258134E+08	-346842E+04	-832844E+07	-107925E+07	-631993E+09	
20	-738632E+07	-345808E+04	-355563E+07	-564254E+08	-187747E+09	-157263E+06	
21	-122223E+07	-310267E+08	-471461E+08	-902523E+11	-253782E+10	-102166E+10	
22	-9536933E+07	-120739E+07	-175325E+09	-264725E+10	-367263E+11	-185063E+09	
23	-555397E+08	-536723E+09	-124089E+05	-402162E+09	-411590E+08	-378325E+11	
24	-145251E+04	-108243E+05	-738684E+03	-116640E+07	-345401E+07	-825198E+08	
25	-100293E+06	-508477E+04	-346817E+04	-339459E+07	-107743E+07	-354589E+09	
26	-739594E+07	-346817E+04	-258046E+08	-130323E+09	-172471E+09	-157267E+06	
27	-115542E+07	-333459E+07	-130323F+09	-178014E+12	-222408E+09	-601746E+09	
28	-345601E+07	-107743E+07	-172471E+09	-222408E+09	-104393E+12	-117182E+09	-958579E+11
29	-525173E+08	-354598E+09	-157267E+05	-501786E+09	-117182E+09		
30							
31	0	0	0	0	0	0	
32	0	0	0	0	0	0	
33	0	0	0	0	0	0	
34	0	0	0	0	0	0	

	31	32	33	34	35	36
1	.0	-0	-0	-0	-0	-0
2	.0	.0	-0	-0	-0	-0
3	.0	.0	.0	-0	-0	-0
4	.0	.0	.0	-0	-0	-0
5	.0	.0	.0	-0	-0	-0
6	.0	.0	.0	-0	-0	-0
7	.0	.0	.0	-0	-0	-0
8	.0	.0	.0	-0	-0	-0
9	.0	.0	.0	-0	-0	-0
10	.0	.0	.0	-0	-0	-0
11	.0	.0	.0	-0	-0	-0
12	.0	.0	.0	-0	-0	-0
13	.0	.0	.0	-0	-0	-0
14	.0	.0	.0	-0	-0	-0
15	.0	.0	.0	-0	-0	-0
16	.0	.0	.0	-0	-0	-0
17	.0	.0	.0	-0	-0	-0
18	.0	.0	.0	-0	-0	-0
19	.0	.0	.0	-0	-0	-0
20	.0	.0	.0	-0	-0	-0
21	.0	.0	.0	-0	-0	-0
22	.0	.0	.0	-0	-0	-0
23	.0	.0	.0	-0	-0	-0
24	.0	.0	.0	-0	-0	-0
25	.0	.0	.0	-0	-0	-0
26	.0	.0	.0	-0	-0	-0
27	.0	.0	.0	-0	-0	-0
28	.0	.0	.0	-0	-0	-0
29	.0	.0	.0	-0	-0	-0

	31	32	33	34	35	36
1	-187027E+07	-187179E+03	-28933E-01	-510514E+04	-261894E+05	-144883E+08
2	-156904E+05	-256023E+08	-251325E+08	-358529E+07	-181948E+04	-106797E+10
3	-79094E+02	-903535E-01	-975350E+07	-722323E+08	-405186E+09	-376996E+01
4	-514215E+05	-844591E+08	-697294E+08	-625503E+11	-289150E+10	-352425E+10
5	-617194E+07	-127355E+08	-619046E+09	-661034E+10	-230462E+11	-477640E+08
6	-122925E+08	-162511E+16	-158803E+02	-227569E+09	-174498E+07	-678357E+11

	37	38	39	40	41	42	
$4.03555E+01$	$-1.61987E-05$	$+9.31323E-09$	$+4.71569E-06$	$+8.90318E+06$	$+3.00141E+08$		
$+1.41057E-05$	$-3.45537E+08$	$-2.16861E-07$	$-4.868174E+07$	$-3.12924E-06$	$-2.42261E+09$		
$-1.31323E-08$	$-2.18951E-07$	$+10.6960E+06$	$+7.70724E+08$	$+1.3715E+08$	$+1.93715E+08$		
$+4.71559E-05$	$-9.68174E+07$	$+31.2924E-06$	$+1.57933E+12$	$+1.00681E+09$	$+5.3301AE+08$		
$+8.04341E+06$	$-31.2924E+09$	$+137254E+06$	$+1.00681E+09$	$+5.90082E+11$	$+6.60310E+07$		
$-3.00141E+08$	$+2.42261E+09$	$+193715E-06$	$+5.3301AE+08$	$+6.60310E+07$	$+6.631279E+11$		
$-4.71559E+07$	$+1.86265E-08$	$+186265E-06$	$+5.33173E-06$	$+6.698381E+06$	$+3.00141E+08$		
$+1.39910E-05$	$-1.86265E+08$	$+651926E-08$	$+8.48174E+07$	$+4.17233E-06$	$+2.42261E+09$		
$+1.86265E-09$	$+2.60770E-07$	$+10.48660E+08$	$+7.70724E+08$	$+1.37254E+08$	$+2.386419E-06$		
$+4.70663E-05$	$+1.33780E+09$	$+14.8692E+09$	$+1.56243E+12$	$+1.94626E+09$	$+8.60715E+09$		
$+1.41679E+08$	$+5.06619E-05$	$+12.1335E+09$	$+8.91811E+09$	$+5.86281E+11$	$+1.04149E+09$		
$+5.79047E+08$	$-2.56286E+09$	$+5.96646E-07$	$+5.59829E+08$	$+1.27390E+08$	$+6.645611E+11$		
2	3	4	5	6	7	8	
9	10	11	12	13	14	15	
16	17	18	19	20	21	22	
23	24	25					

	37	38	39	40	41	42	
$1.329674E+07$	$+2.66879E+05$	$-2.32031E-09$	$+9.08719E+05$	$+1.14390E+08$	$+9.11366E+07$		
$-2.51875E+05$	$-1.67490E+04$	$+4.91127E-18$	$+1.27519E+05$	$+9.08715E+05$	$+2.390666E+06$		
$+372529E-04$	$+7.65508E-10$	$+1.137391E+07$	$+1.50642E+07$	$+7.66555E+08$	$+1.66265E+08$		
$+2.93713C+05$	$+4.1158AE+04$	$+2.92156E+07$	$+1.44490E+08$	$+2.66775E+08$			
$-3.69212E+07$	$+2.93303E+05$	$+6.96021E+06$	$+1.54424E+09$	$+6.04327E+10$	$+5.72724E+07$		
$+5.70227E+07$	$-1.27635E+06$	$+3.254963E-08$	$+4.63591E+06$	$+1.978569E+08$	$+9.1085E+06$		
7	8	9	10	11	12	13	
14	15	16	17	18	19	20	
21	22	23	24	25			



1	0	0	0	0	0	0
2	0	0	0	0	0	0
3	0	0	0	0	0	0
4	0	0	0	0	0	0
5	0	0	0	0	0	0
6	0	0	0	0	0	0
7	-158063E+08	-198921E-06	-279397E-08	-536442E-06	-269260E+09	-201835E+09
8	+219792E-06	-568972E+08	+223517E-07	+804965E+09	+506639E-06	+234030E+09
9	+232331E-05	-372579E-08	-202793E+08	-272756E+09	+124778E+09	-149012E+06
0	+174814E-05	+544330E+09	+199033E+09	+237894E+12	+116293E+10	-156898E+11
1	+223191E+09	+596046E-07	+255173E+09	+343288E+10	-101473E+12	+380191E+10
2	+139859E+09	-311859E+09	+298023E-06	+112324E+11	+250950E+10	+974301E+11
3	+334688E+04	+369222E+06	+558923E+06	+182246E+07	+145917E+09	+803499E+08
4	+369222E+05	+152754E+09	+226307E+05	+257350E+09	+375930E+06	+175516E+09
5	+551923E+04	+226317E+05	+473101E+08	+935048E+08	+106249E+09	+138687E+07
6	+182246E+07	+257350E+09	+935048E+08	+566910E+12	+596835E+09	+419989E+10
7	+145917E+09	+175930E+08	+106249E+09	+596835E+09	+214695E+12	+456674E+10
8	+203499E+09	+175516E+09	+136607E+07	+419989E+10	+456674E+10	+220429E+12
9	+143992E+08	+141829E+05	+558923E+04	+196448E+07	+121713E+09	+114673E+09
10	+141827E+05	+978134E+08	+226307E+05	+547599E+09	+517946E+06	+595406E+08
11	+553923E+04	+226307E+05	+253200E+08	+185867E+09	+904134E+08	+136607E+07
12	+149605E+07	+304446E+09	+279965E+09	+315411E+12	+883779E+09	+207812E+11
13	+858972E+08	+599181E+08	+410532E+08	+420988E+09	+934425E+11	+659680E+09
14	+150093E+09	+130736E+07	+217117E+11	+129808E+10	+114834E+12	
15	0	0	0	0	0	0
16	0	0	0	0	0	0
17	0	0	0	0	0	0
18	0	0	0	0	0	0
19	0	0	0	0	0	0
20	0	0	0	0	0	0
21	0	0	0	0	0	0
22	0	0	0	0	0	0
23	0	0	0	0	0	0
24	0	0	0	0	0	0
25	0	0	0	0	0	0
26	0	0	0	0	0	0
27	0	0	0	0	0	0
28	0	0	0	0	0	0
29	0	0	0	0	0	0
30	0	0	0	0	0	0
31	0	0	0	0	0	0
32	0	0	0	0	0	0
33	0	0	0	0	0	0
34	0	0	0	0	0	0
35	0	0	0	0	0	0
36	0	0	0	0	0	0
37	0	0	0	0	0	0
38	0	0	0	0	0	0
39	0	0	0	0	0	0
40	0	0	0	0	0	0
41	0	0	0	0	0	0
42	0	0	0	0	0	0
43	0	0	0	0	0	0
44	0	0	0	0	0	0
45	0	0	0	0	0	0
46	0	0	0	0	0	0
47	0	0	0	0	0	0
48	0	0	0	0	0	0
49	0	0	0	0	0	0
50	0	0	0	0	0	0
51	0	0	0	0	0	0
52	0	0	0	0	0	0
53	0	0	0	0	0	0
54	0	0	0	0	0	0

	49	50	51	52	53	54
1	0	0	0	0	0	0
2	0	0	0	0	0	0
3	0	0	0	0	0	0
4	0	0	0	0	0	0
5	0	0	0	0	0	0
6	0	0	0	0	0	0
7	0	0	0	0	0	0
8	0	0	0	0	0	0
9	0	-0.3	0	0	0	0
10	0	0	0	0	0	0
11	0	0	0	0	0	0
12	0	-0.9	0.3	-0.609500E+36	-0.854704E+07	+175008E+08
13	-0.438363E+07	+291527E+05	-279397E-08	+5707531+05	+509500E+05	+169105E+07
14	-291527E+05	+275480E+05	+170350E-09	+8912241+06	+112412E+03	+149012E+07



	F1	F2	F3	F4	F5	F6
0	0	0	0	0	0	0
1	-395545E+07	-558156E+06	419098E-08	-103998E+07	+624986E+07	+346018E+08
2	-558154E+06	-115118E+06	-608442E-09	-183577E+06	+103990E+07	+621707E+07
3	-186265E-05	-465661E-09	-169399E+07	-459299E+07	-116662E+09	-186265E-07
4	-493623E+05	-871409E+05	-528295E+07	-337938E+09	+163007E+10	+466251E+07
5	-295551E+07	493573E+06	939516E+08	+173917E+10	+551307E+10	+259514E+08
6	-241677E+08	-439147E+07	-130385E-07	-693852E+07	381843E+08	+236667E+09
7	0	0	0	0	0	0
8	0	0	0	0	0	0
9	0	0	0	0	0	0
10	0	0	0	0	0	0
11	0	0	0	0	0	0
12	0	0	0	0	0	0
13	0	0	0	0	0	0
14	0	0	0	0	0	0
15	0	0	0	0	0	0
16	0	0	0	0	0	0
17	0	0	0	0	0	0
18	0	0	0	0	0	0
19	0	0	0	0	0	0
20	0	0	0	0	0	0
21	0	0	0	0	0	0
22	0	0	0	0	0	0
23	0	0	0	0	0	0
24	0	0	0	0	0	0
25	0	0	0	0	0	0
26	0	0	0	0	0	0
27	0	0	0	0	0	0
28	0	0	0	0	0	0
29	0	0	0	0	0	0
30	0	0	0	0	0	0
31	0	0	0	0	0	0
32	0	0	0	0	0	0
33	0	0	0	0	0	0
34	0	0	0	0	0	0
35	0	0	0	0	0	0
36	0	0	0	0	0	0
37	0	0	0	0	0	0
38	0	0	0	0	0	0
39	0	0	0	0	0	0
40	0	0	0	0	0	0
41	0	0	0	0	0	0
42	0	0	0	0	0	0
43	0	0	0	0	0	0
44	0	0	0	0	0	0
45	0	0	0	0	0	0
46	0	0	0	0	0	0
47	0	0	0	0	0	0
48	0	0	0	0	0	0
49	-149135E+08	569480E-06	279397E-08	.745058E-05	.117184E+09	.142275E+09
50	-572753E-06	-759084E+08	130385E-07	-367226E+09	.739098E-05	.239754E+09
51	+232831E-08	-8	-152776E+08	-145749E+09	.291236E+08	-298023E-06
52	+494717E-05	-946715E+08	+155058E+09	-277129E+12	-204255E+09	+149358E+11
53	+624517E+09	-506679E-05	.696231E+08	.664205E+09	.975679E+11	-595789E+09
54	-151772E+09	-616310E+07	-119209E-05	.146259E+11	.118942E+10	-112296E+12
55	-371570E+08	.111222E+07	-931323E-08	-558392E+05	-176742E+09	.470458E+08
56	-111222E+07	.158013E+09	.131258E-07	.113651E+10	.558392E+05	-490641E+09
57	-931323E-05	.131258E-07	.137341E+08	-447884E+05	.343881E+08	-216439E-05
58	-558392E+05	.113651E+10	.447884E+08	.642930E+12	-215383E+10	-414264E+11
59	-176742E+09	.558392E+05	.343881E+08	-215383E+10	.230792E+12	.644537E+09
60	-473434E+08	-490641E+09	-216439E-05	.414264E+11	.644537E+09	.239886E+12
61	-182740E+08	-454052E+06	.598492E-08	.109574E+07	.533077E+05	-223923E+09
62	-454052E+06	-919935E+08	-38190F-08	-769096E+09	-109574E+07	.244670E+09
63	-594432E-08	-204831E-07	-157625E+08	.185944E+09	.130926E+09	.166893E-05
64	-331151E+07	-320153E+09	-150983E+09	-353729E+12	.228773E+10	.244069E+11
65	-353729E+09	-331151E+07	.397292E+09	-329853E+10	-114657E+12	.564670E+09
66	-135452E+12	-128903E+10	.715256E-08	.133580E+11	-563823E+09	-15288E+12

	F1	F2	F3	F4	F5	F6
1	0	0	0	0	0	0
2	0	0	0	0	0	0
3	0	0	0	0	0	0
4	0	0	0	0	0	0

	$\cdot 0$				
1	$-138922E+07$	$.428074E+06$	$-.790661E-02$	$-.141229E+07$	$-.458438E+07$
2	$.371555E+05$	$-.182617E+08$	$.903663E-01$	$.602027E+08$	$.123351E+07$
3	$-.828914E-01$	$-.251312E+00$	$-.466059E+07$	$-.492550E+08$	$-.422879E+09$
4	$.279936E+06$	$-.136838E+08$	$.456449E+08$	$-.487440E+11$	$.269445E+10$
5	$-.104137E+07$	$-.721432E+06$	$.299476E+09$	$.197982E+10$	$.173020E+11$
6	$-.581338E+04$	$-.809531E+09$	$-.358844E+01$	$.267151E+10$	$-.370711E+05$
7	$-.187027E+07$	$-.156904E+05$	$.790948E-02$	$.514215E+05$	$-.617194E+07$
8	$.347179E+05$	$-.256023E+08$	$-.903535E-01$	$.844391E+08$	$.127355E+06$
9	$-.828933E-01$	$.251325E+00$	$-.975350E+07$	$.697294E+08$	$-.619046E+09$
10	$-.510514E+04$	$.358539E+07$	$-.722323E+08$	$-.625503E+11$	$-.461034E+10$
11	$-.261994E+06$	$-.181948E+04$	$.405188E+09$	$-.289150E+10$	$.230462E+11$
12	$.144663E+09$	$-.106797E+10$	$.376996E+01$	$.352425E+10$	$-.477640E+08$
13	$0$	$0$	$0$	$0$	$0$
14	$0$	$0$	$0$	$0$	$0$
15	$0$	$0$	$0$	$0$	$0$
16	$0$	$0$	$0$	$0$	$0$
17	$0$	$0$	$0$	$0$	$0$
18	$0$	$0$	$0$	$0$	$0$
19	$0$	$0$	$0$	$0$	$0$
20	$0$	$0$	$0$	$0$	$0$
21	$0$	$0$	$0$	$0$	$0$
22	$0$	$0$	$0$	$0$	$0$
23	$0$	$0$	$0$	$0$	$0$
24	$0$	$0$	$0$	$0$	$0$
25	$0$	$0$	$0$	$0$	$0$
26	$0$	$0$	$0$	$0$	$0$
27	$0$	$0$	$0$	$0$	$0$
28	$0$	$0$	$0$	$0$	$0$
29	$0$	$0$	$0$	$0$	$0$
30	$0$	$0$	$0$	$0$	$0$
31	$0$	$0$	$0$	$0$	$0$
32	$0$	$0$	$0$	$0$	$0$
33	$0$	$0$	$0$	$0$	$0$
34	$0$	$0$	$0$	$0$	$0$
35	$0$	$0$	$0$	$0$	$0$
36	$0$	$0$	$0$	$0$	$0$
37	$0$	$0$	$0$	$0$	$0$
38	$0$	$0$	$0$	$0$	$0$
39	$0$	$0$	$0$	$0$	$0$
40	$0$	$0$	$0$	$0$	$0$
41	$0$	$0$	$0$	$0$	$0$
42	$0$	$0$	$0$	$0$	$0$
43	$0$	$0$	$0$	$0$	$0$
44	$0$	$0$	$0$	$0$	$0$
45	$0$	$0$	$0$	$0$	$0$
46	$0$	$0$	$0$	$0$	$0$
47	$0$	$0$	$0$	$0$	$0$
48	$0$	$0$	$0$	$0$	$0$
49	$0$	$0$	$0$	$0$	$0$
50	$0$	$0$	$0$	$0$	$0$
51	$0$	$0$	$0$	$0$	$0$
52	$0$	$0$	$0$	$0$	$0$
53	$0$	$0$	$0$	$0$	$0$
54	$0$	$0$	$0$	$0$	$0$
55	$-.182880E+05$	$-.454052E+06$	$.698492E-08$	$.331151E+07$	$-.359379E+08$
56	$-.456052E+05$	$-.919965E+05$	$-.204891E-07$	$-.320153E+09$	$-.331151E+07$
57	$-.994632E-08$	$-.938190E-08$	$-.167E25E+08$	$-.150943E+09$	$.397282E+09$
58	$.015746F+07$	$-.769096E+09$	$.105944E+09$	$-.353729E+12$	$.329853E+10$
59	$.513077E+04$	$-.109574E+07$	$.130026E+09$	$.728773E+10$	$-.114657E+12$
60	$-.223927E+03$	$.246467E+09$	$.166893E-05$	$.244069E+11$	$-.554670E+09$
61	$.337245E+08$	$.415685E+05$	$-.287506E-05$	$-.195055E+07$	$.868783E+08$
62	$.416645E+05$	$.148012E+09$	$-.121355E-04$	$.135333E+09$	$-.195065E+07$
63	$-.247515E-05$	$-.127955E-04$	$.448866E+08$	$.700176E+08$	$-.472717E+09$
64	$-.135056E+07$	$.135333E+09$	$.700176E+08$	$.506459E+12$	$-.587388E+10$
65	$.855751E+04$	$.125055F+07$	$.472717E+09$	$-.587388E+10$	$.254348E+12$
66	$-.401107E+04$	$-.151417E+11$	$.811784E-03$	$-.102702E+11$	$.212864E+09$

# aux 8 elect. bca Best Estimate (K)

MASS DOPF IN STAR-DYNE STIFFNESS MATRIX

REARRANGED STIFFNESS MATRIX

	1	2	3	4	5	6	
1	611250E+09	261978E+05	-104774E-08	291303E+05	-579305E+07	652179E-08	
2	+251375E+05	*390890E+03	.837463E-08	*249617E+07	*293303E+05	*24769E+06	
3	*104774E-08	+39163E-09	-100254E+08	-615923E+08	-631376E+08	*99609E+06	
4	+2233103E+05	-249617E+07	-615923E+06	*102294E+12	*370366E+09	*178404E+10	
5	-579305E+07	+291303E+05	-615923E+08	-370366E+09	-547303E+11	-771175E+08	
6	-452179E+05	-24769E+06	-936049E+03	-179404E+10	-71175E+08	*680268E+11	
7	-682850E+07	*983813E-07	-105879E-21	-284829E-06	-948517E+01	-509201E+08	
8	+10497E-06	*39063E+08	-111759E-07	*249205E+07	*387430E-06	47897E+09	
9	-423516E-21	-149012E-07	-865145E+07	-645138E+08	-196646E+08	*07288E-05	
10	+152233E+06	-362490E+08	-1980469E+08	*101059E+12	*220592E+09	*201692E+10	
11	-153040E+06	-119203E+05	-137570E+08	-102586E+09	-412514E+11	*110596E+09	
12	-773474E+03	-378057E+08	-655651E-06	-173347E+10	-107495E+09	*661014E+11	
13	-0	-0	-0	-0	-0	-0	
14	-0	-0	-0	-0	-0	-0	
15	-0	-0	-0	-0	-0	-0	
16	-0	-0	-0	-0	-0	-0	
17	-0	-0	-0	-0	-0	-0	
18	-0	-0	-0	-0	-0	-0	
19	-0	-0	-0	-0	-0	-0	
20	-0	-0	-0	-0	-0	-0	
21	-0	-0	-0	-0	-0	-0	
22	-0	-0	-0	-0	-0	-0	
23	-0	-0	-0	-0	-0	-0	
24	-0	-0	-0	-0	-0	-0	
25	-0	-0	-0	-0	-0	-0	
26	-0	-0	-0	-0	-0	-0	
27	-0	-0	-0	-0	-0	-0	
28	-0	-0	-0	-0	-0	-0	
29	-0	-0	-0	-0	-0	-0	
30	-0	-0	-0	-0	-0	-0	
31	-0	-0	-0	-0	-0	-0	
32	-0	-0	-0	-0	-0	-0	
33	-0	-0	-0	-0	-0	-0	
34	-0	-0	-0	-0	-0	-0	
35	-0	-0	-0	-0	-0	-0	
36	-0	-0	-261974E+07	-372529E-08	-291303E+05	-570227E+07	
37	-323654E+07	-367430E+04	-365608E-10	-41158E+04	-233303E+05	-127836E+06	
38	-261978E+05	-491127E-10	-137393E+07	-292156E+07	-646021E+08	-325963E-08	
39	-232331E-03	-127512E+05	-150542E+07	-144490E+08	-154424E+09	-443591E+06	
40	-904715E+03	-308715E+05	-786555E+08	-804935E+09	-604327E+10	-197869E+08	
41	-114390E+05	-239066E+05	-186265E-08	-267754E+06	-572728E+07	-941885E+06	
42	-511364E+07	-0	-0	-0	-0	-0	
43	-0	-0	-0	-0	-0	-0	
44	-0	-0	-0	-0	-0	-0	
45	-0	-0	-0	-0	-0	-0	
46	-0	-0	-0	-0	-0	-0	
47	-0	-0	-0	-0	-0	-0	
48	-0	-0	-0	-0	-0	-0	
49	-0	-0	-0	-0	-0	-0	
50	-0	-0	-0	-0	-0	-0	
51	-0	-0	-0	-0	-0	-0	
52	-0	-0	-0	-0	-0	-0	
53	-0	-0	-0	-0	-0	-0	
54	-0	-0	-0	-0	-0	-0	

20	.0	.0	.0	.0	.0
57	.0	.0	.0	.0	.0
58	.0	.0	.0	.0	.0
59	.0	.0	.0	.0	.0
60	.0	.0	.0	.0	.0
61	.0	.0	.0	.0	.0
62	.0	.0	.0	.0	.0
63	.0	.0	.0	.0	.0
64	.0	.0	.0	.0	.0
65	.0	.0	.0	.0	.0
66	.0	.0	.0	.0	.0

	7	8	9	10	11	12
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1	-682350E+07	-100437E-06	-423516E-21	.162233E-06	.159040E+08	.773874E+08
2	.383813E-07	-.390863E+09	-.143012E-07	-.342490E+08	-.119209E-15	.978057E+08
3	-.105373E-21	-.111759E-07	-.855145E+07	-.980469E+08	.137570E+08	.655651E-06
4	-.284829E-06	.243205E+07	.645138E+08	.101059E+12	.102586E+09	.179347E+10
5	.945517E+07	-.387430E-06	-.194646E+08	-.220592E+09	.412514E+11	.107495E+09
6	-.503201E+04	.247897E+03	.107288E-05	.201692E+10	.118596E+09	.661014E+11
7	.162545E+04	-.355040E+06	-.394171E-08	.633071E+05	-.142073E+08	-.449135E+08
8	-.355040E+06	.746642E+03	.654836E-09	.278450E+08	-.639071E+05	-.407830E+09
9	-.334171E-08	.654836E-03	.192152E+08	.813387E+07	-.139238E+08	-.225380E-06
10	.633071E+05	.278450E+03	.813387E+07	.231693E+12	-.113972E+09	.182960E+10
11	-.142073E+03	-.633071E+05	-.133238E+08	-.113972E+09	.110756E+12	.186085E+09
12	-.449135E+08	-.407931E+03	-.225380E-06	-.182960E+10	.185085E+09	.131191E+12
13	-.535172E+07	.717969E-07	.423516E-21	.491958E-07	-.363309E+06	.553020E+08
14	-.605553E-07	-.355040E+03	.931323E-09	.633071E+07	.298023E-06	.312376E+09
15	.0	.223517E-07	-.885297E+07	.914822E+08	.318265E+08	.357628E-06
16	-.552468E-08	-.533103E+07	-.111694E+09	-.123542E+12	-.115853E+10	.468564E+08
17	.802758E+06	.179814E-06	-.107732E+08	.110912E+09	-.513102E+11	.829530E+07
18	.675200E+08	-.131724E+01	-.357628E-06	.237102E+07	.121536E+08	-.597333E+11
19	.0	.0	.0	.0	.0	.0
20	.0	.0	.0	.0	.0	.0
21	.0	.0	.0	.0	.0	.0
22	.0	.0	.0	.0	.0	.0
23	.0	.0	.0	.0	.0	.0
24	.0	.0	.0	.0	.0	.0
25	.0	.0	.0	.0	.0	.0
26	.0	.0	.0	.0	.0	.0
27	.0	.1	.0	.0	.0	.0
28	.0	.0	.0	.0	.0	.0
29	.0	.0	.0	.0	.0	.0
30	.0	.0	.0	.0	.0	.0
31	.0	.0	.0	.0	.0	.0
32	.0	.0	.0	.0	.0	.0
33	.0	.0	.0	.0	.0	.0
34	.0	.0	.0	.0	.0	.0
35	.0	.0	.0	.0	.0	.0
36	.0	.0	.0	.0	.0	.0
37	.0	.0	.0	.0	.0	.0
38	-.0	.0	.0	.0	.0	.0
39	-.0	-.0	.0	.0	.0	.0
40	.0	.0	.0	.0	.0	.0
41	-.0	.0	.0	.0	.0	.0
42	-.0	-.0	.0	.0	.0	.0
43	-.407425E+07	-.355040E+05	-.273337E-08	-.633071E+05	-.7333165E+06	.228281E+08
44	.355040E+05	-.375113E+05	-.145513E-09	.673275E+04	.633071E+05	-.235193E+07
45	.372529E-01	-.232431E-01	-.171032E+07	-.156923E+07	.919932E+09	-.111753E-07
46	.1420165E+06	-.150725E+03	-.561614E+07	-.120439E+09	-.713408E+09	-.940772E+06
47	.162470E+07	-.1420165E+06	-.103342E+09	-.117509E+10	.643034E+10	-.913123E+07
48	-.685229E+07	-.102545E+07	-.605360E-08	-.134761E+06	-.123341E+07	.612435E+08
49	.0	-.0	.0	.0	.0	.0
50	.0	-.0	.0	n	n	.0

51	.0	.0	.0	.0	.0	.0
52	.0	.0	.0	.0	.0	.0
53	.0	.0	.0	.0	.0	.0
54	.0	.0	.0	.0	.0	.0
55	.0	.0	.0	.0	.0	.0
56	.0	.0	.0	.0	.0	.0
57	.0	.0	.0	.0	.0	.0
58	.0	.0	.0	.0	.0	.0
59	.0	.0	.0	.0	.0	.0
60	.0	.0	.0	.0	.0	.0
61	.0	.0	.0	.0	.0	.0
62	.0	.0	.0	.0	.0	.0
63	.0	.0	.0	.0	.0	.0
64	.0	.0	.0	.0	.0	.0
65	.0	.0	.0	.0	.0	.0

	13	14	15	16	17	18
--	----	----	----	----	----	----

1	.0	.0	.0	.0	.0	.0
2	.0	.0	.0	.0	.0	.0
3	.0	.0	.0	.0	.0	.0
4	.0	.0	.0	.0	.0	.0
5	.0	.0	.0	.0	.0	.0
6	.0	.0	.0	.0	.0	.0
7	-535172E+07	-605559E-07	-0	.852460E-08	.802758E+06	.675200E+08
8	.717363E-07	-355402E+08	.223517E-07	-533103E+07	.179814E-06	-131724E+08
9	.423516E-21	.331323E-03	-.885297E+07	-.111694E+09	-.107332E+08	-357628E-06
10	.491353E-07	.639724E+07	.914822E+08	.125542E+12	.110912E+09	.237102E+07
11	-.363009E+06	.295023E-36	-.918265E+08	-.115853E+10	.513102E+11	.121536E+08
12	-.553028E+09	.312376E+03	.357628E-06	.468564E+08	.829530E+07	.597333E+11
13	.169541E+08	.291627E+06	-.232831E-08	.437440E+05	.254312E+07	.289453E+08
14	.231627E+06	.754037E+08	-.192085E-07	.113106E+08	-.437440E+05	.255676E+07
15	-.232831E-08	-.192085E-07	.181523E+08	.293187E+08	-.831753E+08	-.444707E-06
16	.437440E+05	-.113106E+03	.293187E+08	.253080E+12	-.103053E+10	.383514E+06
17	-.254312E+07	-.437440E+05	-.831753E+08	-.103053E+10	.121840E+12	-.434180E+07
18	.283453E+08	.255676E+07	-.644670E-06	.383514E+06	-.434180E+07	.124052E+12
19	-.751291E+07	.130385E-07	.0	-.178814E-06	.112694E+07	-.830177E+08
20	.372529E-08	-.398359E+09	.0	-.597539E+07	.238419E-06	.119995E+08
21	.0	.745054E-04	-.758637E+07	.838294E+08	-.138902E+08	.178814E-06
22	.0	-.238753E+03	-.976366E+08	-.125886E+12	-.178766E+09	.899954E+07
23	.563468E+07	-.417233E-06	-.705603E+08	.773692E+09	-.515632E+11	.622633E+08
24	.356912E+08	.303574E+09	-.20816E-06	.464361E+08	-.145037E+08	-.606812E+11
25	.0	.0	.0	.0	.0	.0
26	.0	.0	.0	.0	.0	.0
27	.0	.0	.0	.0	.0	.0
28	.0	.0	.0	.0	.0	.0
29	.0	.0	.0	.0	.0	.0
30	.0	.0	.0	.0	.0	.0
31	.0	.0	.0	.0	.0	.0
32	.0	.0	.0	.0	.0	.0
33	.0	.0	.0	.0	.0	.0
34	.0	.0	.0	.0	.0	.0
35	.0	.0	.0	.0	.0	.0
36	.0	.0	.0	.0	.0	.0
37	.0	.0	.0	.0	.0	.0
38	.0	.0	.0	.0	.0	.0
39	.0	.0	.0	.0	.0	.0
40	.0	.0	.0	.0	.0	.0
41	.0	.0	.0	.0	.0	.0
42	.0	.0	.0	.0	.0	.0
43	.0	.0	.0	.0	.0	.0
44	-.0	-.0	-.0	-.0	-.0	-.0





36	.0	.0	.0	.0	.0	
37	.0	.0	.0	.0	.0	
38	.0	.0	.0	.0	.0	
39	.0	.0	.0	.0	.0	
40	.0	.0	.0	.0	.0	
41	.0	.0	.0	.0	.0	
42	.0	.0	.0	.0	.0	
43	.0	.0	.0	.0	.0	
44	.0	.0	.0	.0	.0	
45	.0	.0	.0	.0	.0	
46	.0	.0	.0	.0	.0	
47	.0	.0	.0	.0	.0	
48	.0	.0	.0	.0	.0	
49	.0	.0	.0	.0	.0	
50	.0	.0	.0	.0	.0	
51	.0	.0	.0	.0	.0	
52	.0	.0	.0	.0	.0	
53	.0	.0	.0	.0	.0	
54	.0	.0	.0	.0	.0	
55	.0	.0	.0	.0	.0	
56	-.0	.0	.0	.0	.0	
57	-.0	.0	.0	.0	.0	
58	-.0	.0	.0	.0	.0	
59	-.0	.0	.0	.0	.0	
60	-.0	-.0	.0	.0	.0	
61	-.1870275E+07	.387179E+05	.823055E-01	-.510494E+04	-.261894E+06	-.144683E+08
62	-.156902E+05	-.256023E+05	-.251021E+00	-.358539E+07	-.181561E+04	-.106797E+10
63	.804353E-02	-.903687E-01	-.975350E+07	-.722323E+08	-.405186E+09	-.376677E+01
64	.514171E+05	.844891E+03	.637294E+08	-.625503E+11	-.289150E+10	-.352425E+10
65	-.617191E+07	.127355E+06	-.613046E+09	-.461034E+10	-.230462E+11	-.477640E+08
66	-.122328E+08	.162501E+10	-.158610E+02	-.227569E+09	-.174523E+07	-.678357E+11

	31	32	33	34	35	36
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1	.0	-.0	-.0	.0	-.0	-.0
2	.0	.0	.0	.0	.0	.0
3	.0	.0	.0	.0	.0	.0
4	.0	.0	.0	.0	.0	.0
5	.0	.0	.0	.0	.0	.0
6	.0	.0	.0	.0	.0	.0
7	.0	.0	.0	.0	.0	.0
8	.0	.0	.0	.0	.0	.0
9	.0	.0	.0	.0	.0	.0
10	.0	.0	.0	.0	.0	.0
11	.0	.0	.0	.0	.0	.0
12	.0	.0	.0	.0	.0	.0
13	.0	.0	.0	.0	.0	.0
14	.0	.0	.0	.0	.0	.0
15	.0	.0	.0	.0	.0	.0
16	.0	.0	.0	.0	.0	.0
17	.0	.0	.0	.0	.0	.0
18	.0	.0	.0	.0	.0	.0
19	.0	.0	.0	.0	.0	.0
20	.0	.0	.0	.0	.0	.0
21	.0	.0	.0	.0	.0	.0
22	.0	.0	.0	.0	.0	.0
23	.0	.0	.0	.0	.0	.0
24	.0	.0	.0	.0	.0	.0
25	.0	.0	.0	.0	.0	.0
26	.0	.0	.0	.0	.0	.0
27	.0	.0	.0	.0	.0	.0
28	.0	.0	.0	.0	.0	.0
29	.0	.0	.0	.0	.0	.0

3000141E+08

31	+408355E+07	-141957E-07	-931323E-09	+571559E-06	-300141E+08
32	-141367E-05	+385533E+03	-218861E-07	+843174E+07	-312924E-06
33	-31323E-05	+210561E-07	+104660E+06	+770724E+08	-137254E+08
34	+471563E-05	-848174E+07	-770724E+08	+157933E+12	-100611E+09
35	+838381E+06	-312924E-06	+137254E+08	+100611E+09	+590062E+11
36	+300141E+05	-242281E+03	-133715E-06	+533018E+09	+660310E+07
37	+408355E+07	+142403E+05	+186265E-08	+531173E-06	+300141E+08
38	+139310E-05	+385533E+09	+651926E-08	+848174E+07	+417233E-06
39	+186265E-08	+2607770E-07	-104860E+08	+770724E+08	+137254E+08
40	+470863E-05	+133760E+09	-148692E+09	+156243E+12	-134626E+09
41	+141593E+08	+5056633E-05	+121335E+09	+891811E+09	+588281E+11
42	+573047E+09	+254286E+03	+55046E-07	+559429E+08	+127390E+08
43	-0	-0	-0	-0	-0
44	-0	-0	-0	-0	-0
45	-0	-0	-0	-0	-0
46	-0	-0	-0	-0	-0
47	-0	-0	-0	-0	-0
48	-0	-0	-0	-0	-0
49	-0	-0	-0	-0	-0
50	-0	-0	-0	-0	-0
51	-0	-0	-0	-0	-0
52	-0	-0	-0	-0	-0
53	-0	-0	-0	-0	-0
54	-0	-0	-0	-0	-0
55	-0	-0	-0	-0	-0
56	-0	-0	-0	-0	-0
57	-0	-0	-0	-0	-0
58	-0	-0	-0	-0	-0
59	-0	-0	-0	-0	-0
60	-0	-0	-0	-0	-0
61	-0	-0	-0	-0	-0
62	-0	-0	-0	-0	-0
63	-0	-0	-0	-0	-0
64	-0	-0	-0	-0	-0
65	-0	-0	-0	-0	-0
66	-0	-0	-0	-0	-0
37	-261678E+07	-232831E-09	-908715E+05	-114390E+08	+511364E+07
38	+323654E+07	+367490E+05	+91127E-10	+127519E+05	+908715E+05
39	+251378E+05	+345604E+04	+1505642E+07	+1505642E+07	+766555E+08
40	+372529E-08	+115848E+04	+137393E+07	+137393E+07	+80495E+06
41	+235303E+05	+293303E+05	+144424E+08	+144424E+08	+267754E+06
42	+369212E+07	+696021E+05	+154424E+09	+154424E+09	+572728E+07
43	+570227E+07	+127436E+01	+325363E+05	+443591E+06	+197869E+08
44	-0	-0	-0	-0	-0
45	-0	-0	-0	-0	-0
46	-0	-0	-0	-0	-0
47	-0	-0	-0	-0	-0
48	-0	-0	-0	-0	-0
49	-0	-0	-0	-0	-0
50	-0	-0	-0	-0	-0
51	-0	-0	-0	-0	-0
52	-0	-0	-0	-0	-0
53	-0	-0	-0	-0	-0
54	-0	-0	-0	-0	-0
55	-0	-0	-0	-0	-0
56	-0	-0	-0	-0	-0
57	-0	-0	-0	-0	-0
58	-0	-0	-0	-0	-0
59	-0	-0	-0	-0	-0
60	-0	-0	-0	-0	-0
61	-0	-0	-0	-0	-0
62	-0	-0	-0	-0	-0
63	-0	-0	-0	-0	-0
64	-0	-0	-0	-0	-0
65	-0	-0	-0	-0	-0
66	-0	-0	-0	-0	-0



21	.0	.0	.0	.0	.0	.0
22	.0	.0	.0	.0	.0	.0
23	.0	.0	.0	.0	.0	.0
24	.0	.0	.0	.0	.0	.0
25	.0	.0	.0	.0	.0	.0
26	.0	.0	.0	.0	.0	.0
27	.0	.0	.0	.0	.0	.0
28	.0	.0	.0	.0	.0	.0
29	.0	.0	.0	.0	.0	.0
30	.0	.0	.0	.0	.0	.0
31	.0	.0	.0	.0	.0	.0
32	.0	.0	.0	.0	.0	.0
33	.0	.0	.0	.0	.0	.0
34	.0	.0	.0	.0	.0	.0
35	.0	.0	.0	.0	.0	.0
36	.0	.0	.0	.0	.0	.0
37	-150063E+05	-190921E-05	-279397E-08	-536442E-06	-269260E+09	-201835E+09
38	-219792E-05	-848972E+01	-223517E-07	-804965E+09	-506639E-06	-234030E+09
39	-232831E-08	-372529E-01	-202793E+08	-272756E+09	-124778E+09	-149012E-06
40	-178314E-06	-544330E+01	-189003E+09	-237894E+12	-116293E+10	-156898E+11
41	-221191E+09	-596046E-07	-255173E+09	-341208E+10	-101473E+12	-300191E+10
42	-133859E+09	-311859E+01	-298023E-06	-112324E+11	-250950E+10	-974301E+11
43	-334685E+08	-364222E+06	-555923E+04	-182246E+07	-145917E+09	-803499E+08
44	-359222E+06	-182754E+01	-225307E+05	-425735E+09	-375930E+06	-175516E+09
45	-558923E+04	-226307E+05	-473101E+08	-935048E+12	-106249E+09	-136607E+07
46	-182246E+07	-257350E+01	-935048E+08	-566910E+12	-596835E+09	-419989E+10
47	-145917E+09	-375930E+06	-106249E+09	-596835E+09	-214695E+12	-456674E+10
48	-803499E+08	-175516E+03	-136607E+07	-419989E+10	-456674E+10	-220429E+12
49	-143882E+09	-141829E+05	-555923E+04	-196448E+07	-121713E+09	-114633E+09
50	-141829E+05	-978134E+03	-226307E+05	-547599E+09	-517946E+06	-595406E+08
51	-558923E+04	-226307E+05	-253200E+08	-185867E+09	-904134E+08	-136607E+07
52	-159695E+07	-304446E+03	-273965E+09	-315411E+12	-883779E+09	-207812E+11
53	-858372E+08	-509131E+05	-410532E+08	-420988E+09	-934425E+11	-659680E+09
54	-150083E+09	-130946E+01	-130736E+07	-217117E+11	-129808E+10	-114634E+12
55	.0	.0	.0	.0	.0	.0
56	.0	.0	.0	.0	.0	.0
57	.0	.0	.0	.0	.0	.0
58	.0	.0	.0	.0	.0	.0
59	.0	.0	.0	.0	.0	.0
60	.0	.0	.0	.0	.0	.0
61	.0	.0	.0	.0	.0	.0
62	.0	.0	.0	.0	.0	.0
63	.0	.0	.0	.0	.0	.0
64	.0	.0	.0	.0	.0	.0
65	.0	.0	.0	.0	.0	.0
66	.0	.0	.0	.0	.0	.0

43	50	51	52	53	54
----	----	----	----	----	----

1	.0	.0	.0	.0	.0	
2	.0	.0	.0	.0	.0	
3	.0	.0	.0	.0	.0	
4	.0	.0	.0	.0	.0	
5	.0	.0	.0	.0	.0	
6	.0	.0	.0	.0	.0	
7	.0	.0	.0	.0	.0	
8	-0	.0	.0	.0	.0	
9	-0	-0	.0	.0	.0	
10	-0	.0	.0	.0	.0	
11	-0	.0	.0	.0	.0	
12	-0	-0	.0	.0	.0	
13	-408343E+07	-291627E+05	-273737E-08	-603500E+06	-454704E+07	-175008E+08
14	-231627E+06	-275480E+03	-375350E-09	-575753E+05	-509500E+06	-169105E+07
15	-413095E-04	-174623E-01	-171235E+07	-685226E+06	-112419E+03	-149012E-07

46	-1195449E+09	* 517366E+06	* 904134E+07	* 863779E+09	- 934425E+11	- 129000E+10
47	-121713E+03	* 517366E+06	* 904134E+07	* 863779E+09	- 934425E+11	- 114636E+12
48	-114633E+09	* 595406E+04	* 136607E+11	* 659680E+09	- 659680E+09	- 114636E+12
49	-333312E+01	* 277464E+05	* -558923E+04	* 128745E+07	- 139802E+09	- 162112E+08
50	-177464E+05	* 173747E+07	* 226307E+05	* 393059E+09	- 1003E+06	- 126674E+09
51	-556323E+06	* 226307E+05	* 23106E+06	* 124211E+09	- 1742E+11	- 130736E+07
52	-12975E+07	* 393059E+03	* 124211E+09	* 593745E+12	* 555E+09	- 360547E+11
53	-139402E+03	* 100369E+06	* 174222E+07	* 555918E+09	* 2104E+12	* 251361E+09
54	-152112E+08	* 126674E+03	* 13073E+07	* 360547E+11	* 251361E+09	* 233052E+12
55	-149135E+08	* 572763E+06	* 232831E+08	* 494719E+05	* 624517E+08	- 151372E+09
56	-543480E+06	* 759046E+03	* 8	* 866715E+08	* 506639E+05	- 616300E+07
57	-279397E+04	* 130195E+07	- 152776E+08	* 155068E+09	* 696231E+06	- 119209E+06
58	-745058E+05	* 367226E+09	* 145749E+09	* 277129E+12	* 664205E+09	* 146259E+11
59	-117154E+03	* 739098E+05	* 201236E+06	* 204255E+09	* 975679E+11	* 110942E+10
60	-142275E+03	* 239754E+01	* 239023E+06	* 143358E+11	* 595789E+09	- 1122996E+12
61	-6	0	0	0	0	0
62	-0	0	0	0	0	0
63	-0	0	0	0	0	0
64	-0	0	0	0	0	0
65	-0	0	0	0	0	0
66	-0	0	0	0	0	0
59						
60						
57						
58						
59						
60						
55						
56						
57						
58						
59						
60						
21	-0	-0	-0	-0	-0	-0
22	-0	-0	-0	-0	-0	-0
23	-0	-0	-0	-0	-0	-0
24	-0	-0	-0	-0	-0	-0
25	-0	-0	-0	-0	-0	-0
27	-0	-0	-0	-0	-0	-0
28	-0	-0	-0	-0	-0	-0
29	-0	-0	-0	-0	-0	-0
30	-0	-0	-0	-0	-0	-0
31	-0	-0	-0	-0	-0	-0
32	-0	-0	-0	-0	-0	-0
33	-0	-0	-0	-0	-0	-0
34	-0	-0	-0	-0	-0	-0
35	-0	-0	-0	-0	-0	-0
36	-0	-0	-0	-0	-0	-0
37	-150063E+09	- 190921E+05	- 279397E+06	- 536442E+06	- 269260E+09	- 201035E+09
38	-219792E+06	- 668972E+04	- 223517E+07	- 604965E+09	- 506639E+06	- 234030E+09
39	-232831E+06	- 372529E+01	- 202793E+08	- 2272756E+09	- 124776E+09	- 149030E+06
40	-178914E+06	* 544330E+01	* 169003E+09	* 237894E+12	- 116293E+10	- 156696E+11
41	-223191E+03	* 596046E+07	* 255173E+09	* 341208E+10	- 101473E+12	- 300191E+10
42	-133653E+09	- 311859E+01	* 298023E+06	* 112324E+11	- 250950E+10	- 974301E+11
43	-316689E+08	- 364222E+05	- 555923E+06	- 182246E+07	- 145917E+09	- 803499E+08
44	-558223E+06	* 182754E+01	* 226307E+05	- 257350E+09	- 375930E+06	- 175516E+09
45	-558923E+06	* 226307E+05	* 673101E+08	* 935048E+08	- 106229E+09	- 24136607E+07
46	-182246E+07	* 257350E+03	* 935048E+08	* 5666910E+12	* 596835E+09	- 419389E+10
47	-145917E+09	* 375930E+06	- 106249E+09	* 596835E+09	* 456679E+12	- 220429E+12
48	-603493E+06	- 175516E+03	- 136680E+07	- 419989E+10	- 456679E+10	- 221713E+09
49	-143882E+04	* 161829E+05	* 558923E+04	* 196468E+07	- 121713E+07	- 114633E+09

16	-637440E+05	-13740E+01	-205450E+01	-826515E+00	-1748234E+09	-253687E+06
17	-613424E+04	-13740E+05	-107793E+09	-833863E+09	-930668E+12	-262511E+07
18	-134476E+08	-138392E+07	-176951E-07	-289239E+07	-281055E+08	-851943E+08
19	-0	-0	-0	-0	-0	-0
20	-0	-0	-0	-0	-0	-0
21	-0	-0	-0	-0	-0	-0
22	-0	-0	-0	-0	-0	-0
23	-0	-0	-0	-0	-0	-0
24	-0	-0	-0	-0	-0	-0
25	-0	-0	-0	-0	-0	-0
26	-0	-0	-0	-0	-0	-0
27	-0	-0	-0	-0	-0	-0
28	-0	-0	-0	-0	-0	-0
29	-0	-0	-0	-0	-0	-0
30	-0	-0	-0	-0	-0	-0
31	-0	-0	-0	-0	-0	-0
32	-0	-0	-0	-0	-0	-0
33	-0	-0	-0	-0	-0	-0
34	-0	-0	-0	-0	-0	-0
35	-0	-0	-0	-0	-0	-0
36	-0	-0	-0	-0	-0	-0
37	-0	-0	-0	-0	-0	-0
38	-0	-0	-0	-0	-0	-0
39	-0	-0	-0	-0	-0	-0
40	-0	-0	-0	-0	-0	-0
41	-0	-0	-0	-0	-0	-0
42	-0	-0	-0	-0	-0	-0
43	-143982E+04	-141029E+05	-558923E+06	-189695E+07	-856972E+08	-150083E+09
44	-141823E+05	-97619E+04	-226307E+05	-304446E+09	-509131E+06	-130736E+07
45	-538923E+04	-225307E+05	-253200E+08	-279965E+09	-410532E+08	-130736E+07
46	-196448E+07	-547593E+03	-105867E+09	-315411E+12	-420988E+09	-217417E+11
47	-121713E+03	-517346E+06	-904134E+08	-663779E+09	-9336425E+11	-129808E+10
48	-114633E+09	-595408E+04	-136607E+07	-207612E+11	-659568E+09	-114634E+12
49	-313312E+03	-277644E+05	-555923E+06	-126745E+07	-139602E+09	-162112E+08
50	-277444E+06	-173747E+03	-226307E+05	-393059E+09	-100369E+06	-126474E+09
51	-556323E+04	-226307E+05	-23106E+06	-124211E+09	-174222E+07	-130736E+07
52	-128745E+07	-393059E+03	-126211E+09	-593745E+12	-555918E+09	-360547E+11
53	-139402E+03	-100365E+06	-174222E+07	-555918E+07	-174222E+07	-251493E+12
54	-152112E+08	-126474E+03	-130736E+07	-360547E+11	-251361E+09	-235052E+12
55	-149135E+03	-232631E-06	-494719E-05	-624517E+06	-151372E+09	-151372E+09
56	-563480E-06	-75900E+03	-75900E+03	-886715E+08	-506639E-05	-616300E+07
57	-273397E-08	-130195E-07	-1529776E+06	-155068E+09	-696231E+08	-119209E-06
58	-745058E-05	-367226E+03	-145749E+09	-277129E+12	-664205E+11	-146259E+11
59	-117194E+03	-739036E-05	-2n1236E+06	-204255E+09	-975679E+11	-116942E+10
60	-142275E+03	-239754E+03	-2395023E-06	-149358E+11	-535789E+09	-112296E+12
61	-0	-0	-0	-0	-0	-0
62	-0	-0	-0	-0	-0	-0
63	-0	-0	-0	-0	-0	-0
64	-0	-0	-0	-0	-0	-0
65	-0	-0	-0	-0	-0	-0
66	-0	-0	-0	-0	-0	-0

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18 -.0 395548E+07 650164E+05 19095E-08 103990E+07 624966E+07 346018E+00  
19 -.0 59164E+06 116188E+05 636432E-09 183577E+06 103990E+07 621707E+07  
20 -.0 656265E+05 465661E-03 163399E+07 459299E+07 116662E+09 186265E+07  
21 -.0 493623E+05 671469E+05 528295E+07 337930E+09 163007E+10 166201E+07  
22 -.0 236666E+07 493623E+06 439147E+07 173917E+10 551307E+10 259514E+08  
23 -.0 241673E+04 439147E+07 130385E-07 693052E+07 361043E+06 236667E+09  
24 -.0  
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47 .0  
48 -.0 143135E+03 549490E-05 279397E-06 117184E+09 142275E+09  
49 -.0 572763E-06 753004E+01 130385E-07 367226E+09 739098E-05 239754E+09  
50 -.0 232331E-08 0 152776E+06 145749E+09 201236E+08 296023E+06  
51 .0 404713E-05 0 155060E+09 277129E+12 204255E+09 149354E+11  
52 .0 624517E+08 506639E+05 696231E+06 146259E+09 975679E+11 595769E+09  
53 .0 151172E+03 616300E+07 113209E+06 553392E+05 16742E+09 70450E+08  
54 .0 371570E+09 111222E+07 931323E+07 13651E+10 558392E+05 490641E+09  
55 .0 111222E+07 168013E+01 337381E+08 447884E+08 33861E+06 216439E+05  
56 .0 931123E-08 1315651E+07 447884E+08 662930E+12 15383E+10 414264E+11  
57 .0 558192E+05 1135651E+10 343661E+08 215303E+10 207932E+12 644537E+09  
58 .0 176742E+03 553392E+05 343661E+08 414264E+11 644537E+09 239686E+12  
59 .0 470450E+08 490641E+01 216439E+05 1135651E+10 533077E+08 223923E+09  
60 .0 182480E+08 454052E+06 538432E+06 103574E+07 109574E+07 244670E+09  
61 .0 534052E+06 913755E+04 819130E-08 763036E+09 130926E+09 166893E-05  
62 .0 538432E+04 204931E-07 167625E+06 185944E+09 28773E+10 244069E+11  
63 .0 331151E+07 320153E+03 150983E+09 351729E+12 14657E+12 564670E+09  
64 .0 153373E+04 331151E+07 37262E+09 323853E+10 14657E+12 560823E+07  
65 .0 136452E+07 120401E+10 715256E-06 133590E+11 560823E+09 115288E+12  
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6	0
7	0
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9	0
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19	-1.38322E+07
20	+3735655E+05
21	-+823026E-01
22	+273336E+06
23	+104197E+07
24	+681297E+04
25	-+187027E+07
26	+357179E+05
27	+823055E-01
28	+510494E+04
29	+261634E+06
30	+1446683E+06
31	0
32	0
33	0
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44	0
45	0
46	0
47	0
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49	0
50	0
51	0
52	0
53	0
54	0
55	-+82860E+09
56	-+454052E+05
57	+638492E-05
58	-+103574E+07
59	+533077E+04
60	-+223323E+03
61	+702575E+05
62	+416685E+05
63	-+297275E+05
64	-+135065E+07
65	+297437E+03
66	+136254E+07
1	0
2	0
3	0
4	0
5	0
6	0
7	0
8	0
9	0
10	0
11	0
12	0
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14	0
15	0
16	0
17	0
18	0
19	+628074E+06
20	-+182617E+04
21	-+25108E+09
22	+136418E+06
23	-+321436E+05
24	-+809534E+01
25	-+156902E+05
26	+256023E+04
27	-+251021E+00
28	+355394E+04
29	+181561E+04
30	+106737E+10
31	0
32	0
33	0
34	0
35	0
36	0
37	0
38	0
39	0
40	0
41	0
42	0
43	0
44	0
45	0
46	0
47	0
48	0
49	0
50	0
51	0
52	0
53	0
54	+454052E+06
55	-+919765E+03
56	-+619130E-04
57	-+6763036E+03
58	-+106692E+05
59	+646655E+03
60	-+103574E+07
61	+244670E+01
62	+166692E+05
63	+106692E+07
64	-+149402E+01
65	+195065E+07
66	-+127437E+04
67	-+130574E+10
68	-+136254E+09
69	-+166692E+03
70	-+297274E-05
71	-+143692E+08
72	-+111654E+09
73	-+603096E+08
74	+111454E+03
75	-+630620E+08
76	-+614531E+10
77	+462277E+12
78	+794866E+09
79	+393236E+12
80	+734868E+07
81	-+101158E+11
82	+11165E-03
83	+111654E+06
84	-+108759E+11
85	-+619531E+10
86	-+715256E-06
87	-+329853E+09
88	+133580E+11
89	-+560823E+09
90	-+116657E+12
91	-+223735E+10
92	-+244669E+11
93	-+353729E+12
94	-+564670E+09
95	+207437E+09
96	-+136254E+09
97	-+113057E+10
98	-+111654E+08
99	-+430520E+08
100	+136452E+09
101	-+320151E+07
102	-+331151E+07
103	-+320153E+09
104	-+331153E+07
105	-+320152E+09

MASS ORDER IN STARDYNE STIFFNESS MATRIX

REARRANGED STIFFNESS MATRIX

1      2      3      4      5      6

	1	2	3	4	5	6
1	+101251E+09	+261897E+09	+104774E+09	+293303E+09	+579305E+09	+652179E+09
2	+261897E+09	+300895E+09	+837463E+09	+249617E+09	+293303E+09	+247769E+09
3	+104774E+09	+103254E+09	+615923E+09	+49137KE+09	+996049E+09	+996049E+09
4	+837463E+09	+103254E+09	+615923E+09	+102294E+12	+370366E+09	+178404E+10
5	+293303E+09	+615923E+09	+49137KE+09	+370366E+09	+547303E+11	+771175E+09
6	+652179E+09	+496049E+09	+496049E+09	+178404E+10	+771175E+09	+680260E+11
7	+680260E+11	+284629E+06	+968517E+07	+968517E+07	+509201E+08	+509201E+08
8	+680260E+11	+249205E+07	+284629E+06	+387430E+08	+247697E+09	+247697E+09
9	+423514E+21	+111759E+07	+645138E+08	+194645E+08	+107248E+05	+107248E+05
10	+162273E+05	+162273E+05	+950469E+08	+101059E+12	+220592E+09	+201692E+10
11	+159040E+09	+119289E+05	+137570E+08	+102548E+09	+412514E+11	+116596E+09
12	+773874E+09	+978057E+06	+6555651E+06	+179347E+10	+107495E+09	+661014E+11
13	+0	+0	+0	+0	+0	+0
14	+0	+0	+0	+0	+0	+0
15	+0	+0	+0	+0	+0	+0
16	+0	+0	+0	+0	+0	+0
17	+0	+0	+0	+0	+0	+0
18	+0	+0	+0	+0	+0	+0
19	+0	+0	+0	+0	+0	+0
20	+0	+0	+0	+0	+0	+0
21	+0	+0	+0	+0	+0	+0
22	+0	+0	+0	+0	+0	+0
23	+0	+0	+0	+0	+0	+0
24	+0	+0	+0	+0	+0	+0
25	+0	+0	+0	+0	+0	+0
26	+0	+0	+0	+0	+0	+0
27	+0	+0	+0	+0	+0	+0
28	+0	+0	+0	+0	+0	+0
29	+0	+0	+0	+0	+0	+0
30	+0	+0	+0	+0	+0	+0
31	+0	+0	+0	+0	+0	+0
32	+0	+0	+0	+0	+0	+0
33	+0	+0	+0	+0	+0	+0
34	+0	+0	+0	+0	+0	+0
35	+0	+0	+0	+0	+0	+0
36	+0	+0	+0	+0	+0	+0
37	+520851E+07	+261897MF+05	+372529E+04	+293301E+05	+579212E+07	+579227E+07
38	+261897MF+05	+16760CE+04	+16560CE+04	+41150ME+04	+293303E+05	+127436E+06
39	+232471E+04	+19117E+10	+17739C7	+29215E+07	+696021E+05	+325963E+08
40	+939715E+05	+127519E+05	+150625E+07	+166690E+08	+154424E+09	+443591E+06
41	+114371E+09	+104755E+08	+840949E+08	+604327E+10	+197859E+08	+941885E+06
42	+511354E+07	+239066E+06	+14625KE+08	+267754E+06	+57272AE+07	+40
43	+0	+0	+0	+0	+0	+0
44	+0	+0	+0	+0	+0	+0
45	+0	+0	+0	+0	+0	+0
46	+0	+0	+0	+0	+0	+0
47	+0	+0	+0	+0	+0	+0
48	+0	+0	+0	+0	+0	+0
49	+0	+0	+0	+0	+0	+0
50	+0	+0	+0	+0	+0	+0
51	+0	+0	+0	+0	+0	+0
52	+0	+0	+0	+0	+0	+0
53	+0	+0	+0	+0	+0	+0
54	+0	+0	+0	+0	+0	+0
55	+0	+0	+0	+0	+0	+0

AUX & ELED. BLDG.  
Upper Bound (2k)

(P)

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SPEC  
114455  
+ 6335

6	.5	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
7	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
8	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
9	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
10	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
11	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
12	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
13	7	8	9	10	11	12						
1	-682850E+07	+100497E-06	+423516E-21	+162233E-06	+159040E+08	+773874E+08						
2	+983817E-07	+390863E+08	+149012E-07	+342490E+08	+119209E+05	+978057E+08						
3	-105879E-21	+111759E-07	+865145E+07	+980469E+08	+137570E+08	+655651E-06						
4	+284829E-05	+249205E+07	+645138E+09	+101059E+12	+102586E+09	+179347E+10						
5	+944517E+07	+387430E-06	+194646E+08	+220592E+09	+412514E+11	+107495E+09						
6	+509201E+08	+247979E+09	+107288E-05	+201692E+10	+118596E+09	+661014E+11						
7	+162545E+08	+355040E+06	+384171E-08	+639071E+05	+142073E+08	+449135E+08						
8	+4355040E+05	+746642E+08	+654835E-09	+278450E+08	+639071E+05	+407830E+09						
9	+384171E-09	+654836E-09	+192152E+08	+813387E+07	+139238E+08	+225380E-06						
10	+619071E+05	+278450E+04	+813387E+07	+233693E+12	+113972E+09	+182960E+10						
11	+142073E+08	+679071E+05	+139238E+08	+113972E+09	+110756E+12	+186085E+09						
12	+449135E+09	+407830E+09	+225380E+05	+182960E+10	+186085E+09	+131191E+12						
13	+535172E+07	+717959E-07	+423516E-21	+491958E-07	+963309E+06	+553820E+08						
14	+685559E-07	+355402E+08	+931323E-09	+639724E+07	+298023E+06	+312376E+09						
15	+0	+223517E+07	+485297E+07	+914822E+08	+918265E+08	+357628E-06						
16	+852460E-08	+513103E+07	+111694E+09	+128542E+12	+115853E+10	+468564E+08						
17	+802758E+06	+174514E-06	+107332E+08	+110912E+09	+513102E+11	+829530E+07						
18	+675230E+08	+131724E+08	+357628E-06	+237102E+07	+121535E+08	+597333E+11						
19	.0	.0	.0	.0	.0	.0						
20	.0	.0	.0	.0	.0	.0						
21	.0	1.0	.0	.0	.0	.0						
22	.0	.0	.0	.0	.0	.0						
23	.0	.0	.0	.0	.0	.0						
24	.0	.1	.0	.0	.0	.0						
25	.0	.0	.0	.0	.0	.0						
26	.0	.0	.0	.0	.0	.0						
27	.0	.0	.0	.0	.0	.0						
28	.0	.0	.0	.0	.0	.0						
29	.0	.0	.0	.0	.0	.0						
30	.0	.0	.0	.0	.0	.0						
31	.0	.0	.0	.0	.0	.0						
32	.0	.0	.0	.0	.0	.0						
33	.0	.0	.0	.0	.0	.0						
34	.0	.0	.0	.0	.0	.0						
35	.0	.0	.0	.0	.0	.0						
36	.0	.0	.0	.0	.0	.0						
37	.0	.0	.0	.0	.0	.0						
38	-.0	.0	.0	.0	.0	.0						
39	-.0	-.0	.0	.0	.0	.0						
40	.0	.0	.0	.0	.0	.0						
41	-.0	.0	.0	.0	.0	.0						
42	-.0	-.0	.0	.0	.0	.0						
43	-407425E+07	+355040E+06	+279397E-05	+639971E+05	+7333655E+06	+228251E+08						
44	+355042E+05	+3758L2E+05	+145519E-02	+678275E+04	+639871E+05	+235193E+07						
45	+372529E-04	+232831E+02	+171002E+07	+156023E+07	+919932E+08	+111759E-07						
46	+142J16E+06	+150728E+05	+516164E+07	+120479E+09	+719408E+09	+940772E+06						
47	+152972E+07	+142016E+06	+108042E+07	+117509E+10	+648034E+10	+913127E+07						
48	+685229E+07	+1075N5E+07	+605360E+08	+184761E+06	+123341E+07	+612435E+08						
49	.0	.0	.0	.0	.0	.0						
50	.0	.0	.0	.0	.0	.0						

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1	-150863E+08	-198921E-06	-279397E-08	-536442E-06	-269260E+09
2	-219792E-06	-848972E+08	-223517E-07	-804985E+09	-506639E-06
3	-232831E-05	-372529E-05	-202793E+08	-272756E+09	-124778E+09
4	-178814E-05	-544110E+09	-189003E+09	-237894E+12	-116293E+10
5	-223131E+03	-596046E-07	-255173E+09	-343208E+10	-101473E+12
6	-179859E+03	-311859E+09	-298023E-08	-112324E+11	-250950E+10
7	-334658E+03	-769222E+08	-558923E+08	-182246E+07	-145917E+09
8	-369222E+05	-182754E+09	-226307E+05	-257350E+09	-375930E+06
9	-559923E+04	-225397E+05	-473101E+08	-935048E+08	-106249E+09
10	-182246E+07	-257350E+09	-935048E+08	-566910E+12	-596835E+09
11	-145917E+09	-375930E+05	-106249E+09	-596835E+09	-214695E+12
12	-803439E+05	-175516E+09	-136607E+07	-619980E+10	-456674E+10
13	-143832E+08	-141829E+05	-558923E+04	-196448E+07	-121713E+09
14	-141823E+05	-978194E+08	-226307E+05	-547599E+09	-517946E+06
15	-559923E+04	-225307E+05	-253200E+08	-185867E+09	-904134E+08
16	-189695E+07	-104446E+09	-279965E+09	-315411E+12	-883779E+09
17	-559923E+04	-593131E+06	-410532E+08	-420988E+09	-934425E+11
18	-150863E+09	-138946E+09	-130736E+07	-217117E+11	-129808E+10
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12	0	0	0	0	0
13	-408367E+07	-291527E+05	-279397E-08	-609580E+06	-854704E+07
14	-291527E+05	-275448E+05	-378350E-09	-575751E+05	-400500E+05
15	-419225E-03	-178523E-09	-171295E+07	-684722E+06	-112412E+02
16	-178523E-09	-171295E+07	-171295E+07	-112412E+02	-149012E-07
17	-171295E+07	-171295E+07	-171295E+07	-171295E+07	-253657E+06

0	613624E+96	637840E+95	107799E+99	839583E+09	530888E+18
1	-134476E+05	-138392E+07	-176951E-07	-289239E+07	-281855E+08
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9	0	0	0	0	0
10	0	0	0	0	0
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12	0	0	0	0	0
13	-143592E+08	-141829E+09	-558923E+04	-189595E+07	-858972E+08
14	-141829E+05	-975194E+08	-226307E+05	-304446E+09	-509131E+06
15	-558923E+04	-226307E+05	-253200E+08	-279965E+09	-410532E+08
16	-196448E+07	-547599E+09	-185867E+09	-315411E+12	-420988E+09
17	-121713E+09	-517946E+05	-304134E+08	-883779E+09	-934425E+11
18	-114637E+09	-595406E+08	-136607E+07	-207812E+11	-659680E+09
19	-333912E+04	-277444E+06	-558923E+04	-128745E+07	-139802E+09
20	-277444E+06	-173767E+09	-226307E+05	-393059E+09	-100369E+06
21	-558923E+04	-226307E+05	-423105E+08	-124211E+09	-174222E+07
22	-128745E+07	-193059E+09	-124211E+09	-599745E+12	-555918E-09
23	-139812E+09	-100369E+06	-174222E+07	-555918E+09	-210493E+12
24	-162112E+09	-124474E+09	-130736E+07	-360547E+11	-251361E+09
25	-149135E+08	-572763E-05	-232631E-08	-494719E-05	-251361E+09
26	-549450E-06	-759804E+08	-0	-886715E+08	-506639E-05
27	-279397E-09	-110345E-07	-152775E+08	-155068E+09	-696231E+08
28	-745054E-05	-167226E+09	-145749E+09	-277129E+12	-664205E+09
29	-117154E+02	-7739094E-05	-201236E+08	-204255E+09	-975679E+11
30	-142275E+09	-239754E+09	-298023E-06	-149358E+11	-595789E+09
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55 55 57 58 59 60

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8	0	0	0	0	0	0	0	0	0	0	0
9	-149135E+00	569420E-06	279397E-06	745058E-06	117104E+09	142275E+09	1	0	0	0	0
10	-572753F-005	-759004E+004	-130305E-07	-367226E+009	-173909E-05	-239754E+09	0	0	0	0	0
11	-232031E-005	-150666E+009	-1556715E+008	-165749E+009	-1021336E+008	-296023E+06	0	0	0	0	0
12	496110E-005	-506619E-005	-596231E+008	-664205E+009	-975679E+11	-595749E+09	0	0	0	0	0
13	-624517E+005	-616300E+005	-119203E-004	-146259E+011	-118942E+10	-122296E+12	0	0	0	0	0
14	-151377E+004	-11222E+007	-931323E-004	-558392E+005	-176742E+009	-470456E+008	0	0	0	0	0
15	-171570E+004	-11222E+007	-131259E-007	-113651E+010	-558392E+005	-490641E+009	0	0	0	0	0
16	-111227E+007	-168013E+009	-337341E+006	-447684E+014	-343681E+006	-216439E+005	0	0	0	0	0
17	-931323E-006	-13250E-007	-113551E+010	-447684E+008	-647930E+012	-215303E+10	-414264E+11	0	0	0	0
18	-555933E+005	-558192E+005	-363881E+006	-616264E+008	-215103E+010	-239886E+12	-644537E+09	-223923E+09	-130926E+12	0	0
19	-176747E+004	-166459E+004	-496641E+009	-216639E-005	-416264E+011	-644537E+09	-531077E+008	-223923E+009	-244069E+11	-156693E+005	0
20	-470459E+004	-454052E+006	-504492E+006	-100574E+007	-109574E+007	-244670E+009	-109574E+007	-244670E+009	-5646670E+009	-115288E+12	0
21	-192880E+004	-109664E+004	-9109664E+004	-838190E+008	-769096E+009	-130926E+009	-130926E+009	-130926E+009	-244069E+11	-244069E+11	0
22	-454472E+005	-46591E+007	-166725E+006	-166725E+007	-163729E+012	-223973E+10	-223973E+10	-223973E+10	-5646670E+009	-5646670E+009	0
23	-699472E+004	-170153E+009	-150981E+009	-150981E+009	-329853E+012	-114655E+12	-114655E+12	-114655E+12	-115288E+12	-115288E+12	0
24	-331151E+007	-131151E+007	-107262E+009	-137580E+011	-137580E+011	-560623E+009	-560623E+009	-560623E+009	-560623E+009	-560623E+009	0
25	-151527E+004	-151527E+004	-1201313E+010	-715259E+010	-715259E+010	-135139E+009	-135139E+009	-135139E+009	-135139E+009	-135139E+009	0
26	-151527E+004	-151527E+004	-1201313E+010	-715259E+010	-715259E+010	-135139E+009	-135139E+009	-135139E+009	-135139E+009	-135139E+009	0

65      66

63      64

60      61

62      63

64      65

65      66



	19	20	21	22	23	24
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3	-0	-0	-0	-0	-0	-0
4	-0	-0	-0	-0	-0	-0
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11	-0	-0	-0	-0	-0	-0
12	-0	-0	-0	-0	-0	-0
13	-751221E+07	-372529E-08	-0	-0	-563468E+07	-966912E+06
14	-130385E+07	-298359E+08	-745058E-08	-298769E+08	-417233E-06	-309574E+09
15	-0	-388190E-08	-758637E+07	-976366E+04	-705603E+08	-208616E-06
16	-174414E+06	-597539E+07	-838294E+08	-125886E+12	-779692E+09	-464361E+08
17	-112634E+07	-235419E-06	-138902E+08	-78766E+09	-515632E+11	-145037E+06
18	-830177E+08	-119995E+08	-178814E-06	-9964E+07	-622633E+08	-606812E+11
19	-175054E+08	-759031E+06	-738775E+03	-3592E+07	-191801E+08	-136791E+08
20	-359071E+06	-838031E+08	-346833E+04	-5726E+08	-138018E+07	-323743E+08
21	-738775E+03	-346833E+04	-195966E+08	-12860E+07	-147542E+09	-124036E+06
22	-143512E+07	-745726E+08	-912860E+07	-269756E+12	-149279E+10	-498066E+09
23	-191901E+08	-118018E+07	-147542E+09	-149279E+10	-120598E+12	-386976E+08
24	-136771E+08	-723743E+04	-124081E+06	-498766E+09	-386976E+09	-139561E+12
25	-456874E+07	-945928E+05	-738692E+03	-122223E+07	-953683E+07	-588380E+08
26	-139031E+06	-255134E+08	-746809E+04	-310247E+08	-120799E+07	-536723E+09
27	-734767E+07	-346842E+04	-355563E+07	-491461E+08	-175325E+09	-124089E+06
28	-116132E+07	-942846E+07	-564259E+08	-982523E+11	-254725E+10	-402162E+09
29	-530698E+07	-107015E+07	-187747E+09	-253722E+10	-367263E+11	-411590E+08
30	-743637E+09	-531993E+09	-157263E+06	-102166E+10	-195063E+09	-378326E+11
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12	-0	-0	-0	-0	-0	-0
13	-751221E+07	-372529E-08	-0	-0	-563468E+07	-966912E+06
14	-130385E+07	-298359E+08	-745058E-08	-298769E+08	-417233E-06	-309574E+09
15	-0	-388190E-08	-758637E+07	-976366E+04	-705603E+08	-208616E-06
16	-174414E+06	-597539E+07	-838294E+08	-125886E+12	-779692E+09	-464361E+08
17	-112634E+07	-235419E-06	-138902E+08	-78766E+09	-515632E+11	-145037E+06
18	-830177E+08	-119995E+08	-178814E-06	-9964E+07	-622633E+08	-606812E+11
19	-175054E+08	-759031E+06	-738775E+03	-3592E+07	-191801E+08	-136791E+08
20	-359071E+06	-838031E+08	-346833E+04	-5726E+08	-138018E+07	-323743E+08
21	-738775E+03	-346833E+04	-195966E+08	-12860E+07	-147542E+09	-124036E+06
22	-143512E+07	-745726E+08	-912860E+07	-269756E+12	-149279E+10	-498066E+09
23	-191901E+08	-118018E+07	-147542E+09	-149279E+10	-120598E+12	-386976E+08
24	-136771E+08	-723743E+04	-124081E+06	-498766E+09	-386976E+09	-139561E+12
25	-456874E+07	-945928E+05	-738692E+03	-122223E+07	-953683E+07	-588380E+08
26	-139031E+06	-255134E+08	-746809E+04	-310247E+08	-120799E+07	-536723E+09
27	-734767E+07	-346842E+04	-355563E+07	-491461E+08	-175325E+09	-124089E+06
28	-116132E+07	-942846E+07	-564259E+08	-982523E+11	-254725E+10	-402162E+09
29	-530698E+07	-107015E+07	-187747E+09	-253722E+10	-367263E+11	-411590E+08
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35	-0	-0	-0	-0	-0	-0
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.514213E+05	.544591E+08	.597294E+08	-.625503E+11	-.289150E+10	.352425E+10
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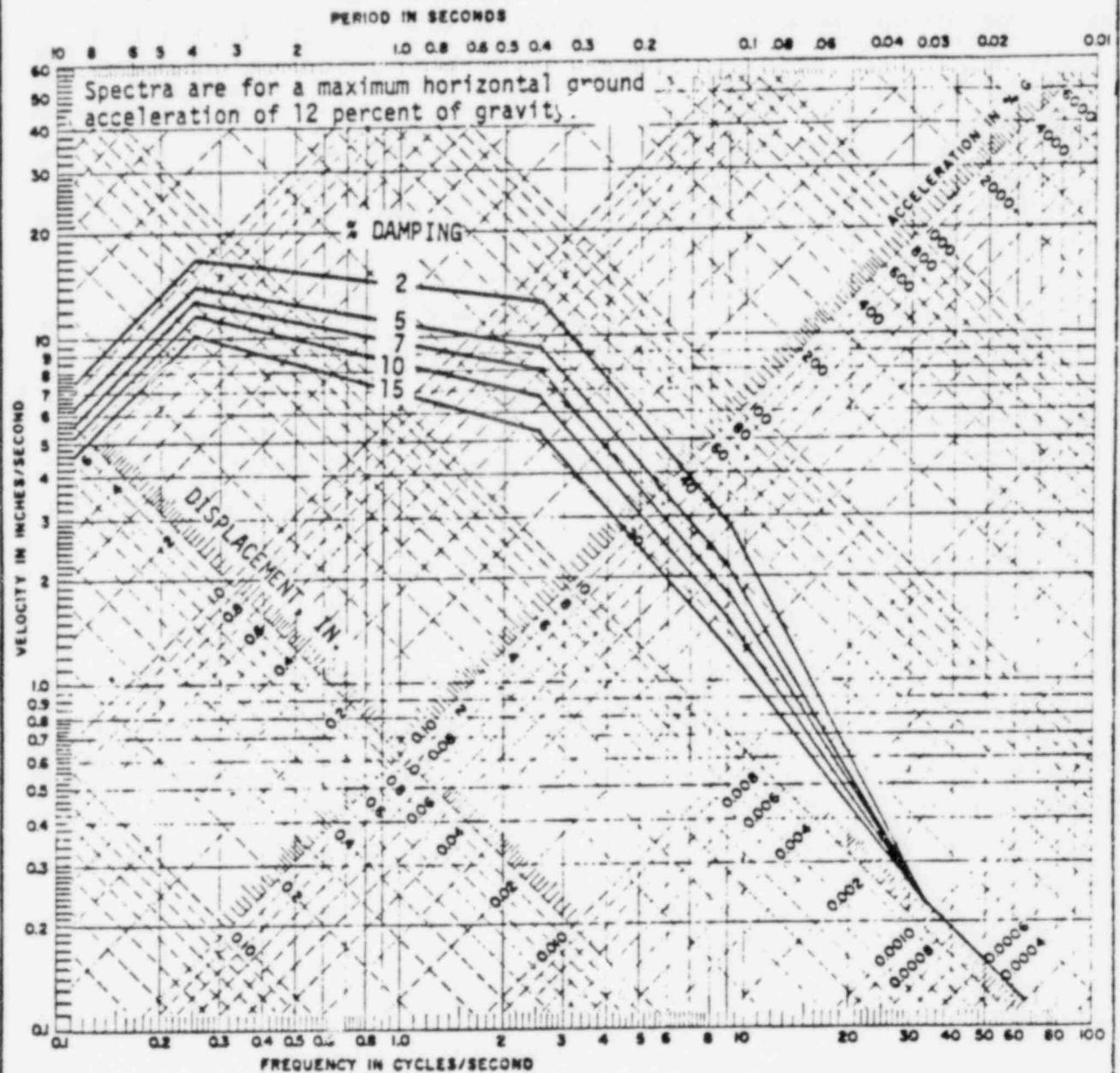
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34	.471557E-06	-.348174E+07	-.770724E+08	.157933E+12	-.100881E+09	.533018E+08
35	.898381E+06	-.312914E-06	.137254E+08	-.100881E+09	.590082E+11	.660310E+07
36	.330141E+08	-.242281E+09	-.193715E-06	.533018E+08	.560310E+07	.683279E+11
37	-.408355E+07	.142419E-05	.186265E-08	-.531173E-06	-.898381E+06	-.300141E+08
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41	.141699E+05	-.506619E-05	.121335E+09	-.891811E+09	-.588281E+11	.104149E+09
42	.579047E+08	-.254286E+09	.596046E-07	.559429E+08	.127390E+08	-.645611E+11
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3	.372529E-05	.745508E-10	-.137393E+07	-.150642E+07	-.786555E+05	-.186265E-08
4	.233393E+05	.411588E+04	-.292156E+07	-.144490E+04	-.880495E+08	-.267754E+06
5	-.359212E+07	-.207303E+05	.686021E+08	-.154424E+09	-.604327E+10	.572728E+07
6	.570227E+07	-.127836E+06	.325963E-08	-.443591E+06	-.197869E+08	.941885E+06
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29	0	0	0	0	0	0	0
30	0	0	0	0	0	0	0
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32	-1.42619E-05	-1.95533E+08	+260770E-07	-1.13760E+09	+506619E-05	+254286E+05	+0
33	+1.46265E-04	+651192E+08	+10460C+08	+1.48612E+09	+12135E+09	+596042E-07	+0
34	+531173E-05	+46174E+07	+77024E+08	+1.56243E+12	+891011E+09	+559429E+08	+0
35	-8.98391E+05	+1.17231E-05	+1.37256E+08	+1.96626E+09	+588281E+11	+127390E+08	+0
36	+3.00141E+01	+247281E+09	+236419E-06	+840715E+05	+104149E+09	+645611E+11	+0
37	+2.23954E+04	+26187AE+05	+279397E-08	+908715E+05	+197582E+09	+768405E+08	+0
38	+2.516879E+05	+1.27456E+09	+311674E-07	+610537E+09	+908715E+05	+565906E+09	+0
39	+2.79437E+04	+31074E-07	+321392E+08	+388042E+08	+297853E+09	+806758E-06	+0
40	+9.03715E+05	+4.610537E+09	+384042E+08	+40047E+12	+664304E+09	+130713E+11	+0
41	+1.97592E+05	+0.08715E+05	+297853E+09	+664304E+09	+177398E+12	+229881E+10	+0
42	+7.65405E+04	+565306E+09	+806758E+08	+130713E+11	+229881E+10	+171722E+12	+0
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78	+3.55041E+06	+1.75819E+05	+232631E+09	+15072AE+05	+142016E+06	+102645E+07	+0
79	+2.73137E+04	+1.65510E+05	+171082E+07	+661514E+07	+108942E+09	+605360E+08	+0
80	+6.39071E+05	+578275E+04	+156027E+07	+120439E+09	+117509E+10	+184761E+06	+0
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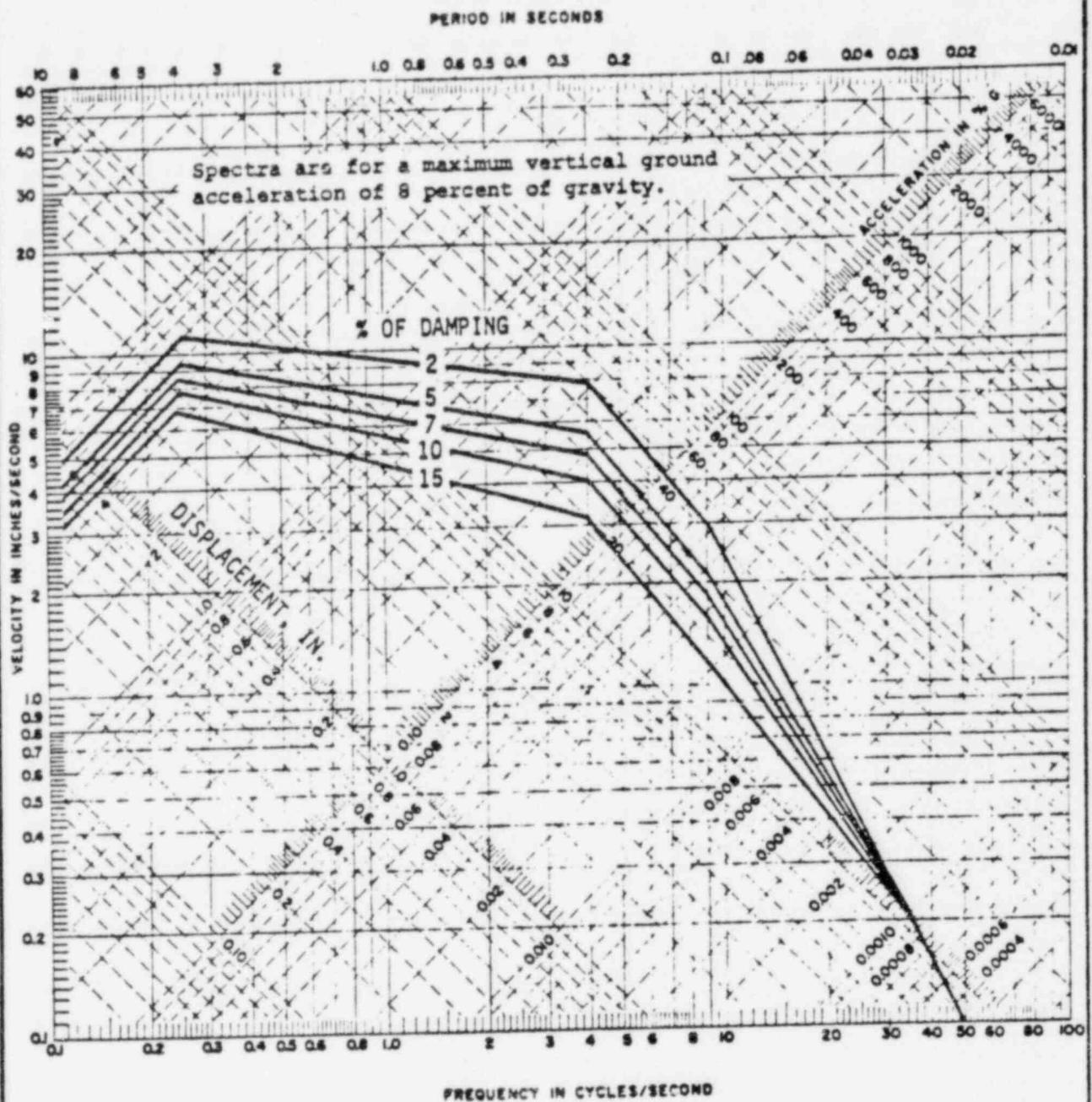
ATTACHMENT 3



COMANCHE PEAK S.E.S.  
FINAL SAFETY ANALYSIS REPORT  
UNITS 1 and 2

DESIGN RESPONSE SPECTRA  
FOR HORIZONTAL SAFE  
SHUTDOWN EARTHQUAKE

FIGURE 3.7B-1



COMANCHE PEAK S.E.S.  
FINAL SAFETY ANALYSIS REPORT  
UNITS 1 and 2

DESIGN RESPONSE SPECTRA  
FOR VERTICAL SAFE  
SHUTDOWN EARTHQUAKE

FIGURE 3.7B-7

MATERIAL PROPERTIES

SOIL	-	Shear Modulus	=	$9.53 \times 10^4$ KSF
		Specific Weight	=	0.145 K/CFT
		Damping (SSE & OBE)	=	10% in translation 5% in rotation
CONCRETE	-	Damping	=	7% for SSE 4% for OBE

ATTACHMENT 4

QUESTION - INFORMATION TO BE USED  
FOR INDEPENDENT ANALYSIS CAT. I STRUCTURE

(General) Confirmatory, independent seismic/structural analysis of the containment and the auxiliary building shall be performed by the NRC staff. Additional data to those presented in the FSAR are required. It is requested that the following data be forwarded to NRC for the structures mentioned above.

1. Lump mass models
2. Stiffness value for each member
3. Mass at each mode point
4. Spring constants used in the analysis
5. Seismic inputs
6. Finite element models
7. Detail drawings
8. Material properties
9. Actual loading applied to finite element models for all load combinations investigated
- ✓ 10. Soil properties in the area of containment and auxiliary building.
11. Some Results