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NAVAL AIR DEVELOPMENT CENTER

WARMINSTER, PA. 18974

REPORT NO. NADC 73235-30

15 NOVEMBER 1973

NAVAIRDEVCCN GRAPHITE-EPOXY COMPOSITE WING
FOR BQM-34E; STRESS AND VIBRATION ANALYSIS

FINAL REPORT

AIRTASK NO. A320000/001B/4F41422206
WORK UNIT HJ 202

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DEPARTMENT OF THE NAVY
NAVAL AIR DEVELOPMENT CENTER
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A weight saving of 54 percent has been achieved in the in-house design and fabrication of a composite wing for the BQM-34E aerial target vehicle. Design criteria are identical to those of the 5g production metal wing. Results of the stress analyses indicate adequate margins of safety.

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INTRODUCTION

The Naval Air Development Center (NAVAIRDEVCON) has recently completed the design, analysis, fabrication and static testing of a graphite-epoxy composite wing for the unmanned BQM-34E aircraft. A weight saving of 54 percent has been achieved while meeting all static strength and static and dynamic aeroelastic requirements.

The BQM-34E is a high-altitude, supersonic, recoverable aerial target vehicle. The wing has a 9-foot span and an aspect ratio of 2.5. Other dimensions are shown in Figure 1. The main panel of the production design consists of chem-milled stainless steel skins bonded to an aluminum honeycomb core. The outboard panels are made of fiberglass-reinforced plastic. With the exception of the outboard panels, the entire wing is factory-assembled by adhesive bonding and riveting. Its total weight is 157 pounds, about 30 percent of the structural weight of the aircraft.

In the composite wing design, emphasis was placed on reducing the weight and the number of major subassemblies while maintaining the original airfoil shape and planform. The development was initiated under Independent Research (reference (a)) as an in-house effort whose objectives were to exploit the improved material properties of advanced filamentary reinforced composites, to obtain an optimum design with minimum weight and to allow acquisition of service experience on a primary structural component of a high performance vehicle with no risk to human life. The final design, analysis, fabrication and testing of the wing were carried out entirely in-house under reference (b). Following the successful static testing at NAVAIRDEVCON, flight testing commenced at the Naval Missile Center (NAVMLSCEN), Point Mugu, Ca.

Results of static and flutter analyses of a preliminary wing design have been reported previously in references (c) and (d). The static aeroelastic and flutter analyses and static test of the final design are described and their results presented in references (e) and (f). This report presents the procedure and results of the final stress and vibration analyses and includes the following:

- a. composite and core material characteristics including material stiffness properties and allowable stresses;
- b. descriptions of the wing structure and the finite element model used for the analyses;
- c. results of the stress and vibration analyses;
- d. computation of critical stresses and margins of safety for the skins and core.

DESIGN CRITERIA

The flight conditions for the composite wing are the same as for the production metal wing, and are described in reference (g), in which the critical flight conditions and the resulting shear, torque and bending loads are presented. The equivalent static test loads are specified in reference (h).

The exposed planform and aerodynamic profile of the composite wing are identical to those of the metal wing. Size and location of fuselage attachment bolts are the same to allow installation of the wing without modification of the fuselage. In addition, the maximum airfoil section depth is limited to 1.62 inches. Finally, to facilitate manufacture, reduce vulnerability to accidental damage, and maintain balance of the laminate, the minimum composite skin thickness has been set at five plies (0.030 in.).

Sufficient stiffness of the wing is required to preclude static and dynamic aeroelastic instabilities throughout the flight envelope. A discussion and analyses of these effects are contained in reference (e).

Stiffness and strength properties of the unidirectional graphite-epoxy material and of the several laminate constructions used in the wing, as well as those of the core materials are listed in Table I. Since, in general, advanced composites exhibit little static yielding, strength calculations for the laminated skins are based solely on ultimate stresses. For the unmanned aircraft, ultimate loads are 25 percent over limit.

DESCRIPTION OF WING STRUCTURE

The principal features of the composite wing construction are shown in Figure 2. Laminated graphite-epoxy skins, varying in thickness from 5 to 30 plies (.030 to .180 in.), are adhesive bonded to the aluminum honeycomb core. The laminate construction varies over the planform. The number of plies of each orientation is varied to meet local stiffness and strength requirements and to maintain balanced construction. In the center section and in the outboard two-thirds of the exposed span, the core density is 4.5 lb./ft.³. Inboard, where shear loads are higher, and particularly in the vicinity of the attachments, higher density core materials (6.1, 8.1 and 23.0 lb./ft.³) are used. The leading edge is a molded solid section of chopped fiber covered by a four-ply, $\pm 45^\circ$ laminated skin.

To close out the center section and the fuselage interface, and to distribute the attachment bolt reaction loads, channel sections of $\pm 45^\circ$ construction are placed in the core. Attachment bolt loads are transferred to the adjoining structure by means of titanium flanges bonded

inside the skins and spool-shaped aluminum fittings inserted into the core. Across the aft end of the center section, where the bending moment is highest and the attachment bolt load is most critical, the graphite-epoxy laminated skins are replaced by titanium plates, step-lap bonded to the adjoining laminates. Finally to accommodate electrical wiring for the wing tip antenna, a fiberglass conduit is enclosed within the core between the forward edge of the center section and the wing tip, where mounting holes for the tip antenna pod are provided.

FINITE ELEMENT MODELLING AND ANALYSIS

A diagram of the finite element model assembled for analysis using NASTRAN is shown in Figure 3. Triangular and quadrilateral orthotropic plate elements are used to represent the skins and core. The stiffness (bending and transverse shear) and mass properties of each element are derived from the local laminate construction, number of plies, core properties, and the airfoil thickness. The remaining structural elements - leading edge, conduit, channel section ribs and tip antenna pod - are represented by bar elements. In order to accurately simulate the mass distribution of the wing for the vibration analysis, additional lumped masses are placed along the leading edge and tip. A listing of the NASTRAN bulk data deck is reproduced in Appendix A.

For the static analysis, the test loads from reference (h) were distributed over the finite element model as concentrated forces applied to the grid points. To simulate the boundary condition for the critical load condition (5g symmetric pull-up), vertical displacements were constrained for the grid points located at the fuselage attachment bolts, and rotations about the longitudinal axis were constrained along the aircraft center line. The results of the static analysis, including the deflected shape, deflections at selected points, and reaction loads are shown in Figure 4 and Tables II and III. A complete listing of the NASTRAN output data is reproduced in Appendix B.

To provide vibration frequency and mode data for the modal flutter analysis described in reference (e), the real eigenvalue analysis option available in NASTRAN was used. Both symmetric and antisymmetric modes were computed by altering the constraints at the fuselage centerline. Similar frequencies, generalized masses and generalized stiffness resulted for the two cases. These data are listed in Table IV for the first five modes of each case. The mode shapes of the first three symmetric modes are shown in Figures 5, 6 and 7, and of the first three antisymmetric modes in Figures 8, 9 and 10. A complete listing of the NASTRAN output data for the symmetric modes is reproduced in Appendix C.

STRESS ANALYSIS

To determine the ply stresses in the graphite-epoxy skins, element stresses computed by NASTRAN are first transformed into the local laminate coordinates. The stresses in laminate coordinates are shown for two streamwise sections in Figures 11 and 12. Laminate stiffness properties are used to calculate the resulting strains, which are subsequently transformed for each of the ply orientations of the local laminate construction. Unidirectional material stiffness coefficients are then used to compute the ply stresses. To account for the combined-stress state of the material in determining margins of safety, the interaction formula below is applied:

$$\left(\frac{\sigma_1}{X_1}\right)^2 + \left(\frac{\sigma_2}{X_2}\right)^2 + \left(\frac{\sigma_6}{X_6}\right)^2 - \frac{\sigma_1 \sigma_2}{X_1 X_2} = R_0^2$$

$$\left|\frac{\sigma_i}{X_i}\right| = R_i \quad \text{Ult. M.S.} = \frac{1}{1.25 \times R_{\max}} - 1.$$

$i = 1, 2, 6$

where $\sigma_1, \sigma_2, \sigma_6$ are the inplane normal and shear stresses in the ply and X_i are the allowable stresses. The margin of safety of the element is the lowest of the margins for the individual ply orientations. The critical elements of the finite element model and the stresses and margins of safety resulting from the static analysis are listed in Table V.

Depending upon the ratio of the skin thickness to the section depth ($0 \leq t/H \leq 0.5$) the core shear stress varies from 1.0 to 1.5 times the average shear stress (force/area), but may be conservatively approximated by the relation

$$\tau \leq \frac{1}{H} \left(1 + 1.15 \frac{t}{H}\right) \times \text{shear force per unit width}$$

To determine the core shear stresses and margins of safety, the element shear forces (per unit width) from NASTRAN and the skin thickness and section depth at the element centroid are used in the formula above. The resulting stresses are transformed into the ribbon and transverse directions of the core, and the strength criterion below is applied:

$$\frac{\tau_L}{X_L} + \left(\frac{\tau_W}{X_W} \right)^{1.575} = R''$$

$$\text{Ult. M. S.} = \frac{1}{1.25 \times R''} - 1.$$

where the subscripto L and W refer to the ribbon and transverse directions respectively. Shear stresses and margins of safety for the critical elements of the model are shown in Table VI.

The minimum ultimate margins of safety calculated for skins and core are 0.14 and 0.32 respectively. Therefore, the wing is considered safe for flight.

CONCLUSIONS

1. Based on the static aerodynamic loads prescribed, adequate margins of safety have been provided for the skins and core of the graphite-epoxy composite wing designed and fabricated for the BQM-34E target vehicle.
2. Static and dynamic aeroelastic (flutter) analyses, reviewed in reference (e), indicate that the stiffness and mass distribution of the composite wing are sufficient to avoid any instabilities throughout the flight envelope.

REFERENCES

- (a) Independent Research R011-01-01, Work Unit ME-9-02, Structural Research Program
- (b) AIRTASK No. A320000/001B/4F41422206, Work Unit HJ 202
- (c) Neu, T. F.: Graphite-Epoxy Composite Wing for BQM-34E; Design Criteria and Analysis. NAVAIRDEVCON Report No. AM-7023, 21 October 1970.
- (d) Somoroff, A. R.: Graphite-Epoxy Composite Wing for BQM-34E; Flutter and Stress Analysis. NAVAIRDEVCON Report No. AM-7024, 28 September 1970.
- (e) Somoroff, A. R. and Rubin, H.: NAVAIRDEVCON Graphite-Epoxy Composite Wing for BQM-34E: Aeroelastic Analysis. NAVAIRDEVCON Report No. 73233-30 of 12 November 1973.
- (f) Minecci, J. and Libeskind, M.: NAVAIRDEVCON Graphite-Epoxy Composite Wing for BQM-34E: Static Test Results. NAVAIRDEVCON Report No. 73244-30 of 3 December 1973.
- (g) Krzyzanowski, A. and Lambert, C. G.: Wing Structural Analysis Report for BQM-34E Supersonic Aerial Target. Ryan Aeronautical Company Report No. TRA 16642-12, 6 January 1971.
- (h) Thompson, R. W.: Static Test Program for XBQM-34E Supersonic Aerial Target. Ryan Aeroamutical Company Report No. TRA 16642-4, 2 January 1967.

TABLE I

(a) Composite Material and Laminate Properties

Laminate Construction*				Stiffness Coefficients psi x 10 ⁶			
L	M	N	α	Q_{11}	Q_{12}	Q_{22}	Q_{66}
1	0	0	-	22.12	0.386	1.21	0.60
1	0	4	45°	9.07	3.99	5.30	3.94
2	0	4	45°	10.93	3.39	4.65	3.70
4	0	6	45°	11.86	3.09	4.32	3.40
8	0	2	45°	17.43	1.29	2.34	1.60
2	0	4	22½°	16.88	1.89	1.70	2.20

*L = No. of 0° plies; M = No. of 90° plies; N = No. of $\pm\alpha$ plies.

Unidirectional material allowable ultimate stresses:

$$X_1 = 81.0 \text{ ksi} \quad X_2 = 3.6 \text{ ksi} \quad X_6 = 4.05 \text{ ksi}$$

based on average results of specimen tests reduced by 55%: 20% for statistical variation; 20% for possible required repair; and 15% for environmental degradation.

(b) Honeycomb Core Properties

Density, lb./ft. ³	Shear Modulus, ksi		Shear Strength, psi	
	Long.	Transv.	Long.	Transv.
4.5	70	28	350	205
6.1	102	38	525	305
8.1	143	51	740	440

TABLE II

STATIC DEFLECTION AT SELECTED POINTS

<u>GRID PT.</u>	<u>DEFLECTION (IN.)</u>
1	0.01
6	0.87
10	5.13
11	-0.01
18	1.11
22	5.41
35	-0.05
42	1.64
46	5.98
59	-0.10
66	2.15
70	6.51
81	-0.03
85	1.91
90	7.16

TABLE III

(a) Attachment Bolt Loads

<u>Grid Pt.</u>	<u>Load (lb.)</u>
13	- 331.2
25	- 277.0
37	106.7
49	2163.5
61	<u>3204.7</u>
TOTAL	4866.7

(b) Centerline Bending Moment

<u>Grid Pt.</u>	<u>Moment (in.-lb.)</u>
11	4129.4
23	12770.5
35	25466.2
47	28630.0
59	14849.9
101	<u>18499.0</u>
TOTAL	104345.0

TABLE IV
VIBRATION MODE DATA

	MODE NO.	FREQUENCY (HZ)	GENERALIZED MASS (lb.-in.-sec ²)	GENERALIZED STIFFNESS (lb.-in.)
(a) Symmetric				
	1	20.2	.00476	76.5
	2	69.3	.00281	532.5
	3	85.6	.00250	724.7
	4	135.1	.00344	2479.2
	5	143.4	.00160	1298.8
(b) Antisymmetric				
	1	20.6	.00464	77.4
	2	71.5	.00266	535.7
	3	85.9	.00241	702.9
	4	138.6	.00381	2892.3
	5	144.7	.00206	1703.3

TABLE V

LAMINATE STRESS DATA AT LIMIT LOAD

El. No.	Laminate Stresses, psi			Crit. Ply Orient.	Stresses in Critical Ply, psi			Ult. M.S.
	σ_x	σ_y	τ_{xy}		σ_1	σ_2	σ_6	
52	22228	2290	-2906	0°	46826	-379	-513	.23
53	22614	2567	-4084	0°	47277	-311	-721	.22
54	22442	2098	-2967	0°	47604	-450	-524	.19
55	20732	1636	-3500	0°	44440	-511	-618	.23
56	20558	1264	-1974	0°	44615	-619	-348	.22
57	21406	3254	-5277	0°	49415	-267	-856	.17
73	23369	2933	-4899	0°	48424	-233	-865	.20
74	23681	2951	-3808	0°	49103	-243	-672	.21
75	23793	2669	-4762	0°	49789	-337	-841	.14
76	23329	2571	-3262	0°	48888	-345	-576	.19
77	22371	2105	-4044	0°	47433	-444	-714	.18
78	19743	2503	-2368	0°	46473	-397	-384	.25
79	21514	3554	-5030	0°	49154	-183	-816	.20

TABLE VI

CORE SHEAR STRESS DATA AT LIMIT LOAD

El. No.	Core Density lb./ft. ³	Shear Stresses, psi		Ult. M.S.
		Ribbon Dir.	Transverse	
51	4.5	83.	47.	1.40
52	4.5	102.	28.	1.38
68	6.1	99.	157.	0.49
69	8.1	284.	169.	0.32
70	6.1	164.	46.	1.20
73	4.5	110.	33.	1.16
74	4.5	113.	18.	1.33
75	4.5	111.	21.	1.33
92	6.1	167.	27.	1.35
700	6.1	173.	94.	0.65
900	8.1	206.	116.	0.99

AIRFOIL: NACA 65-003
(MODIFIED) LINEAR TAPER
FROM APPROX. 68C TO
FINITE THICKNESS
TRAILING EDGE

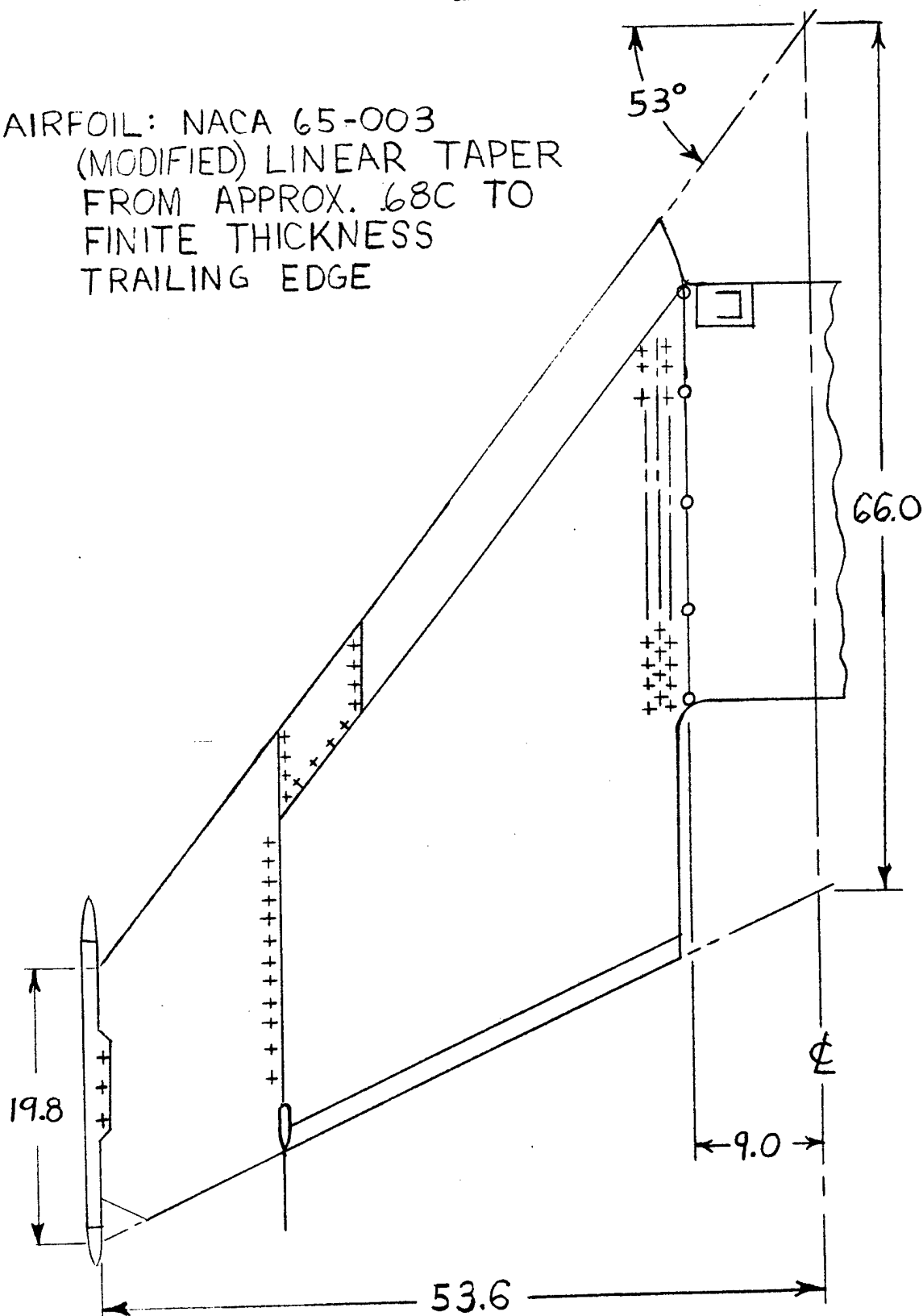


FIGURE 1. BQM-34E METAL WING PLANFORM

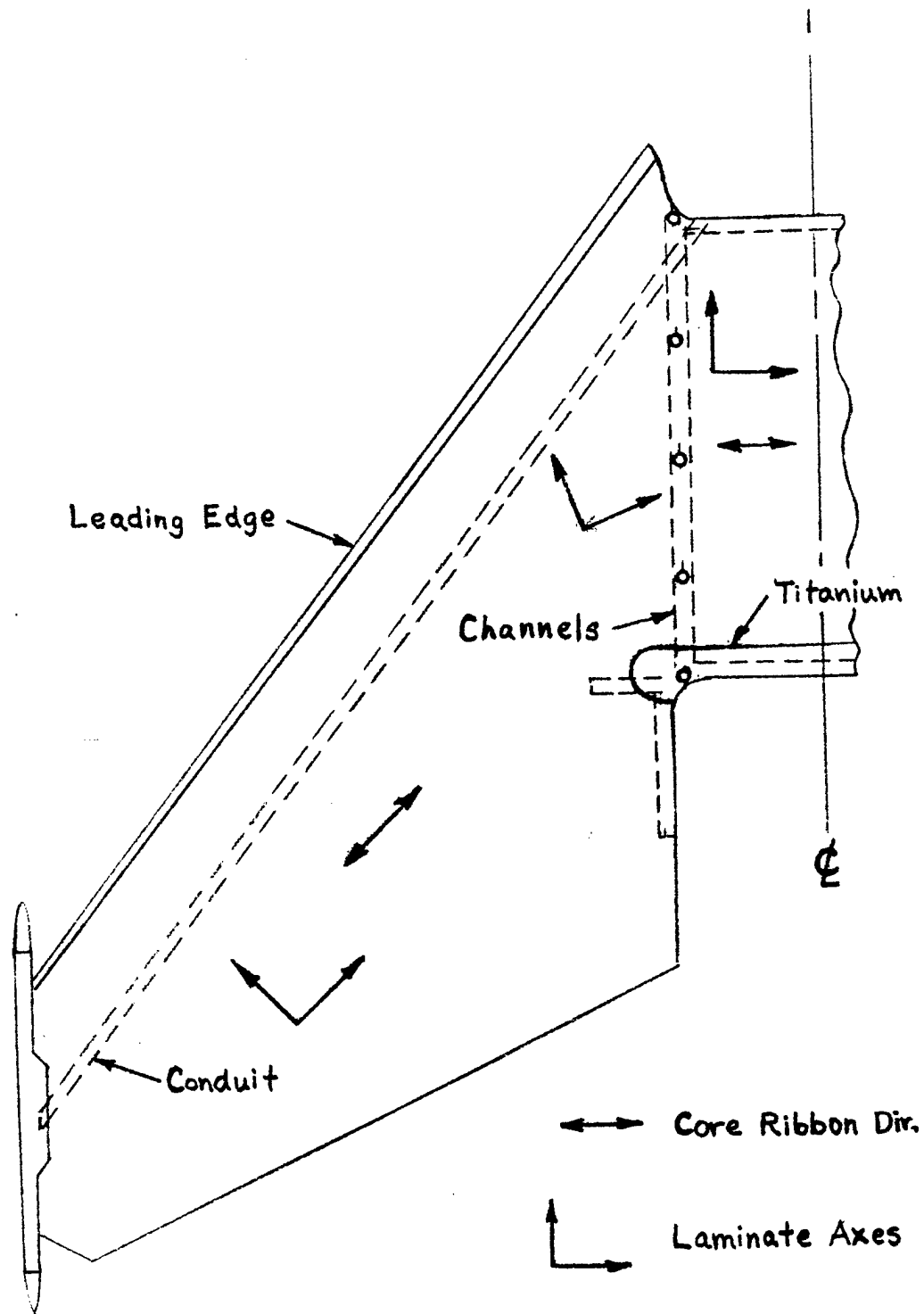


FIGURE 2. COMPOSITE WING CONSTRUCTION

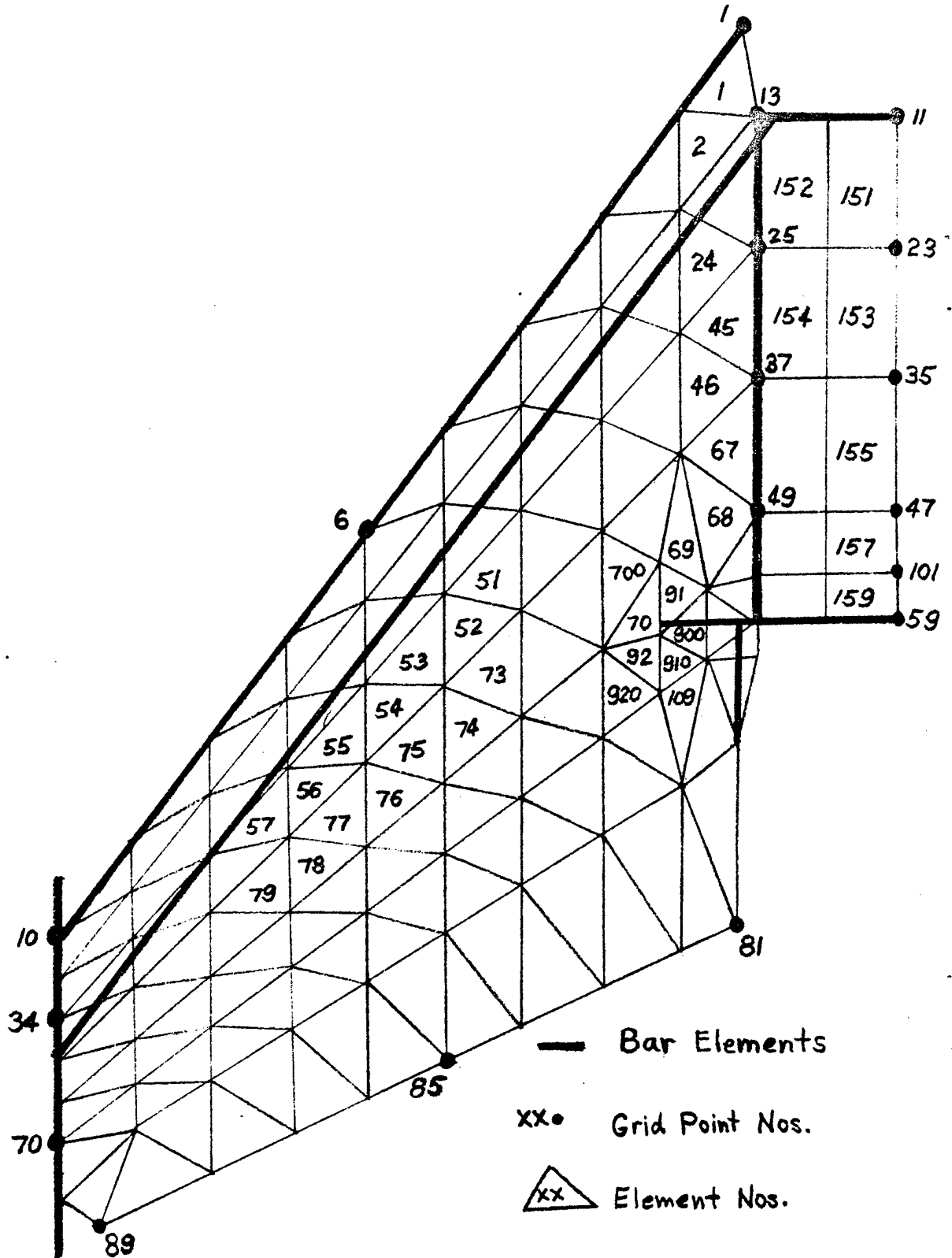


FIGURE 3. NASTRAN FINITE ELEMENT MODEL

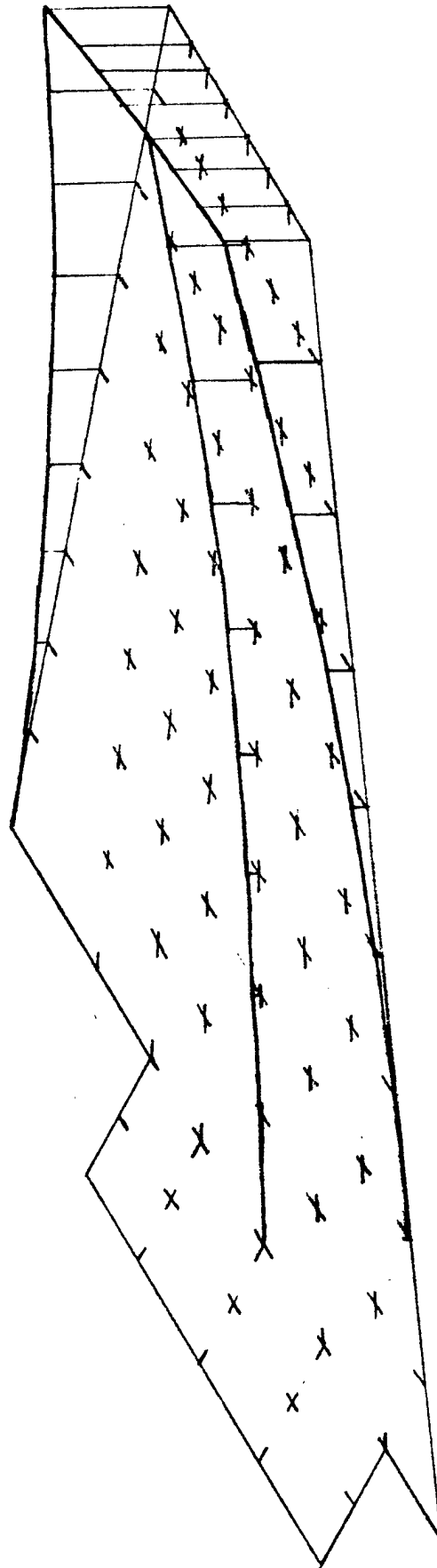


FIGURE 4. STATIC DEFLECTED SHAPE

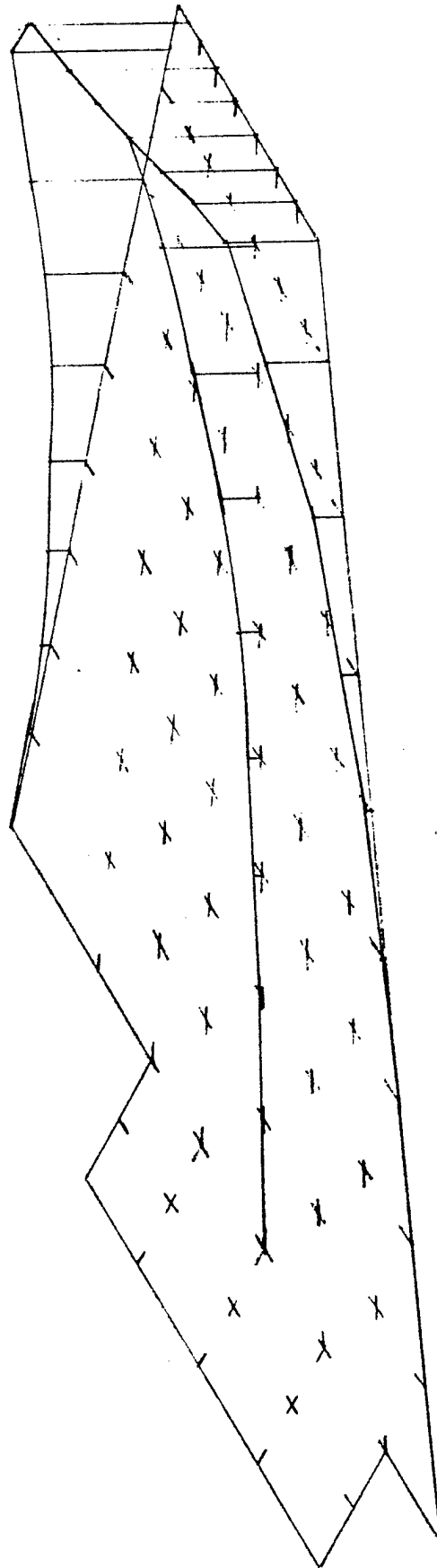


FIGURE 5. FIRST SYMMETRIC MODE, 20.2 HZ

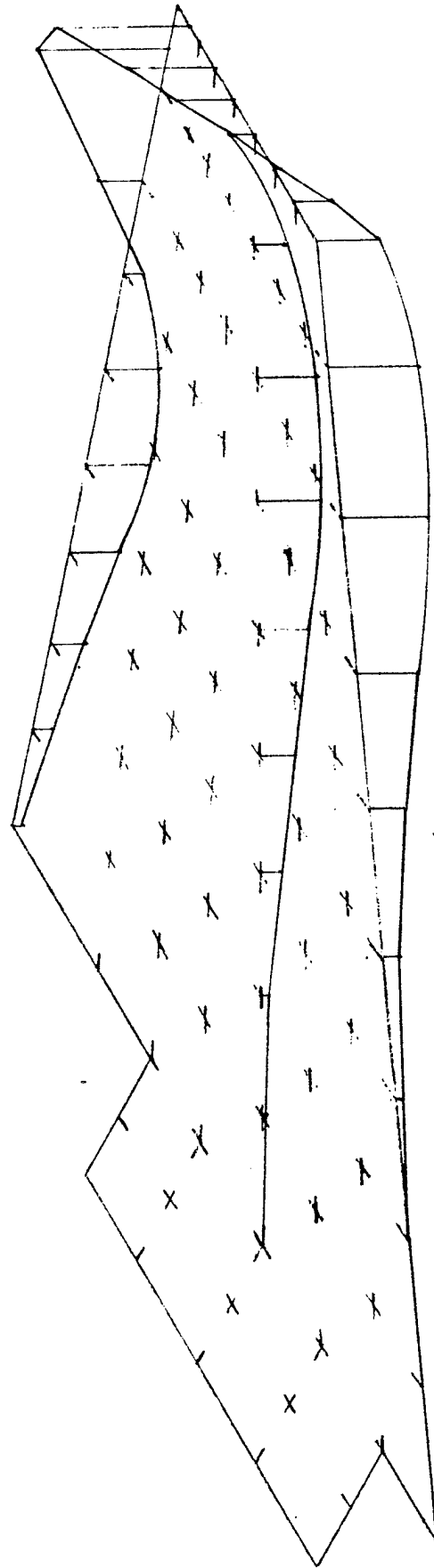


FIGURE 6. SECOND SYMMETRIC MODE, 69.3 HZ

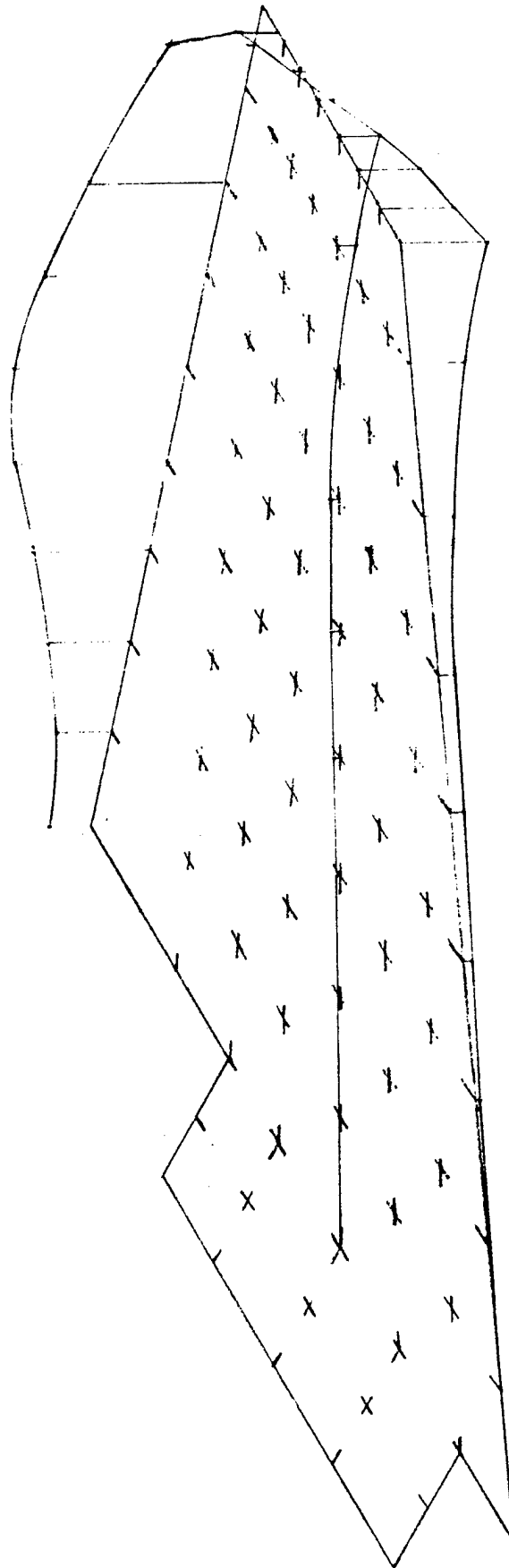


FIGURE 7. THIRD SYMMETRIC MODE, 85.6 HZ

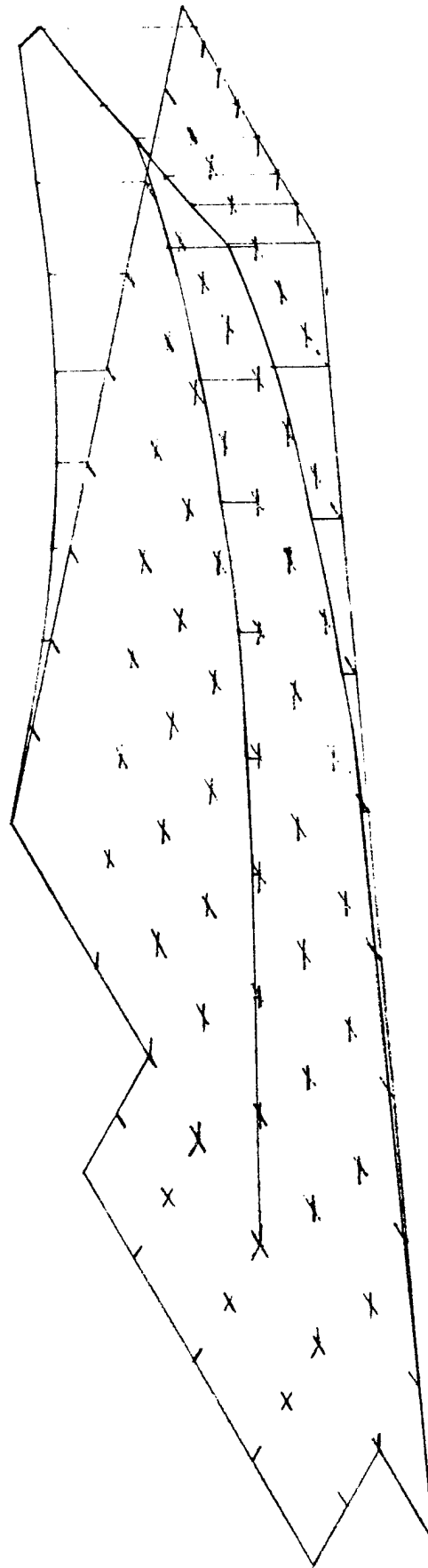


FIGURE 8. FIRST ANTISYMMETRIC MODE, 20.6 HZ

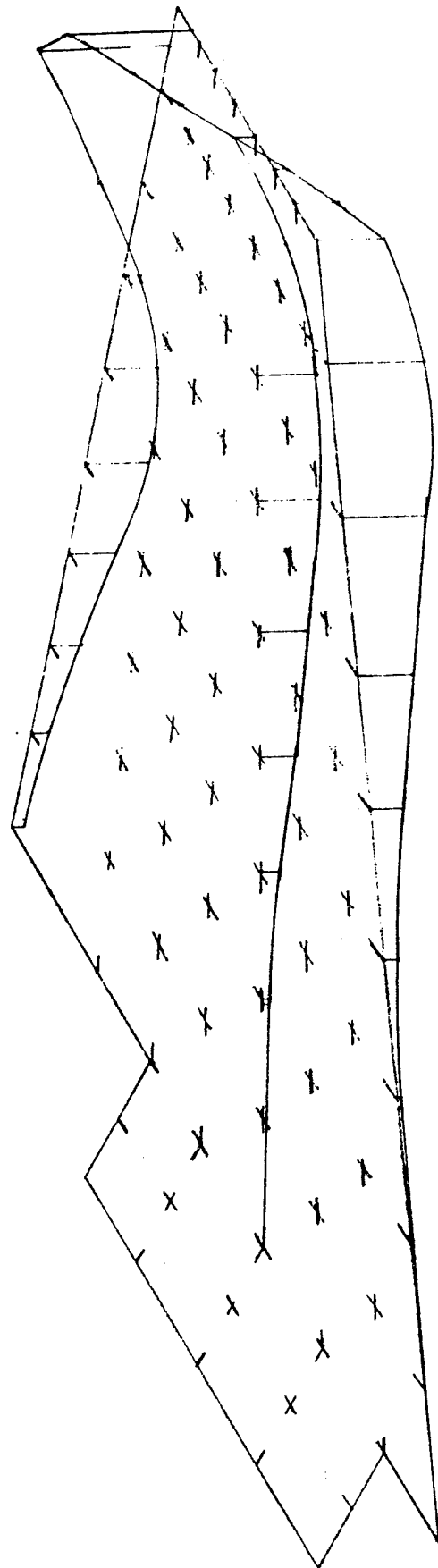


FIGURE 9. SECOND ANTISYMMETRIC MODE, 71.5 HZ

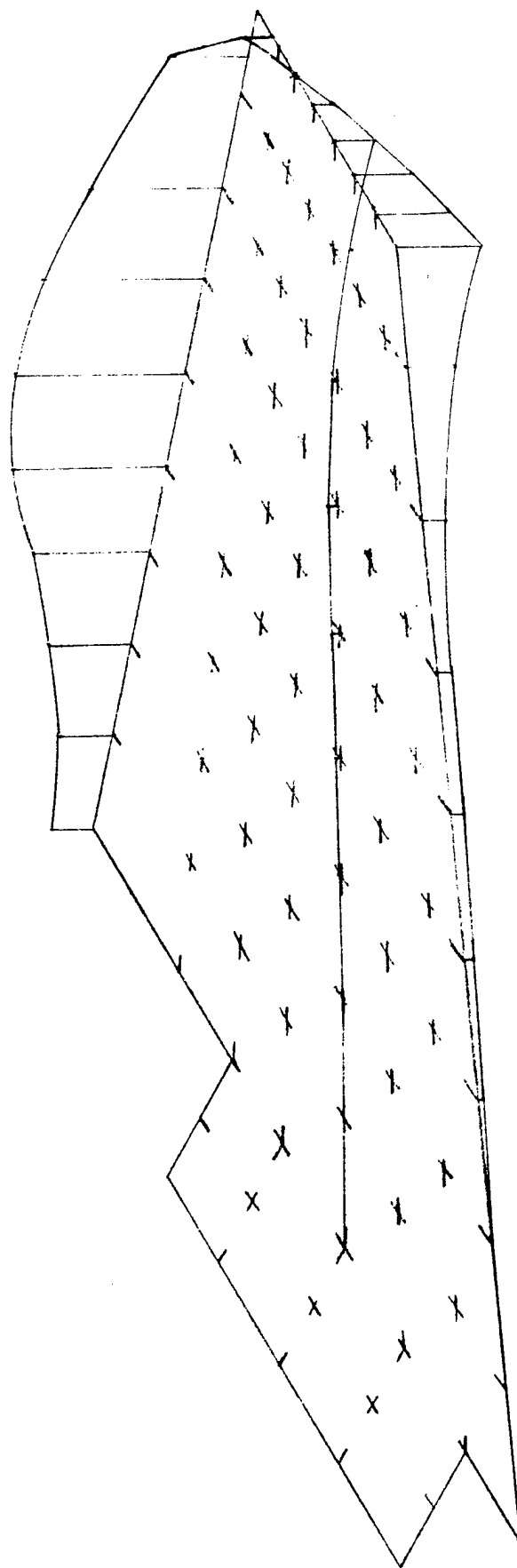
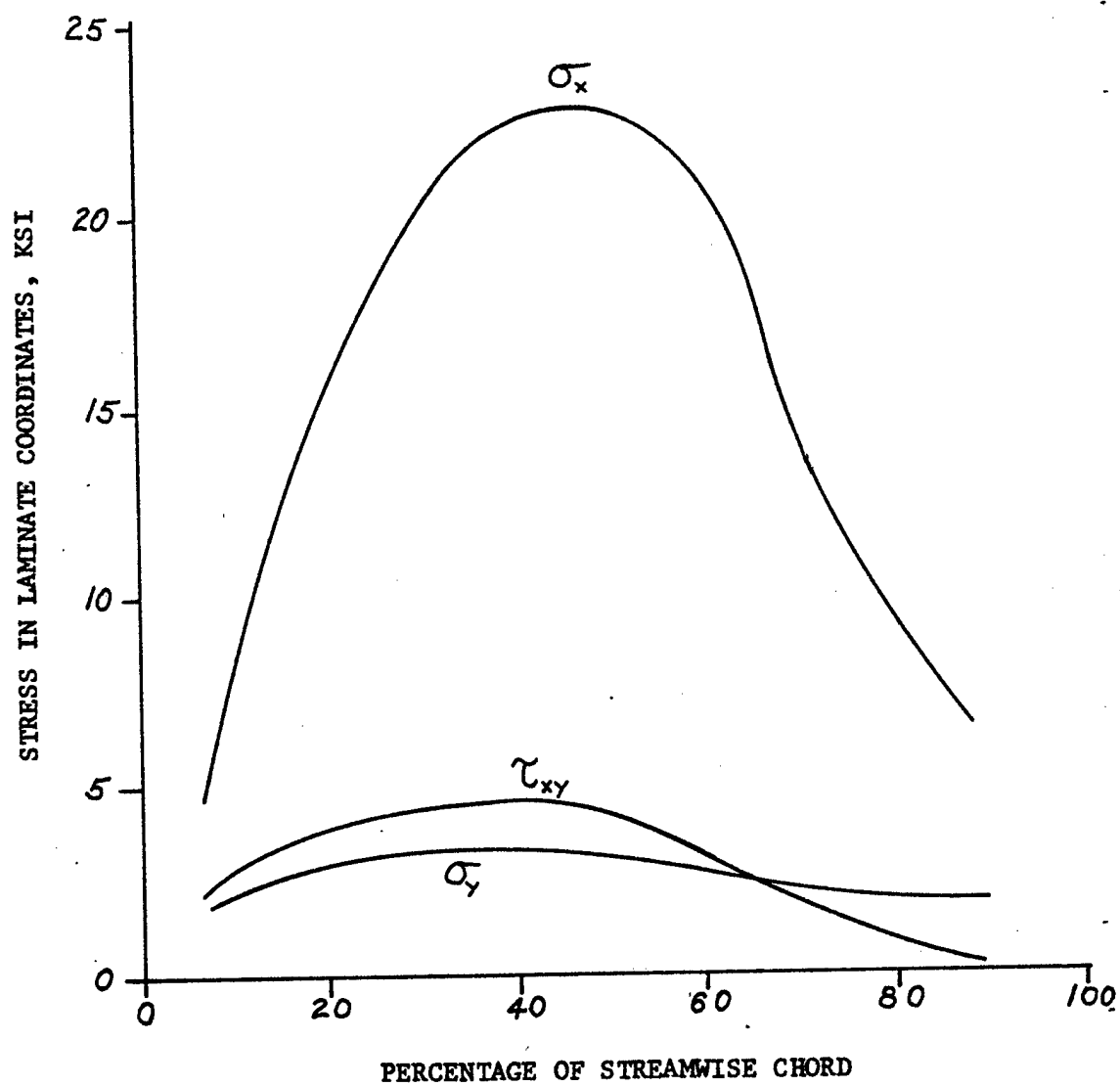
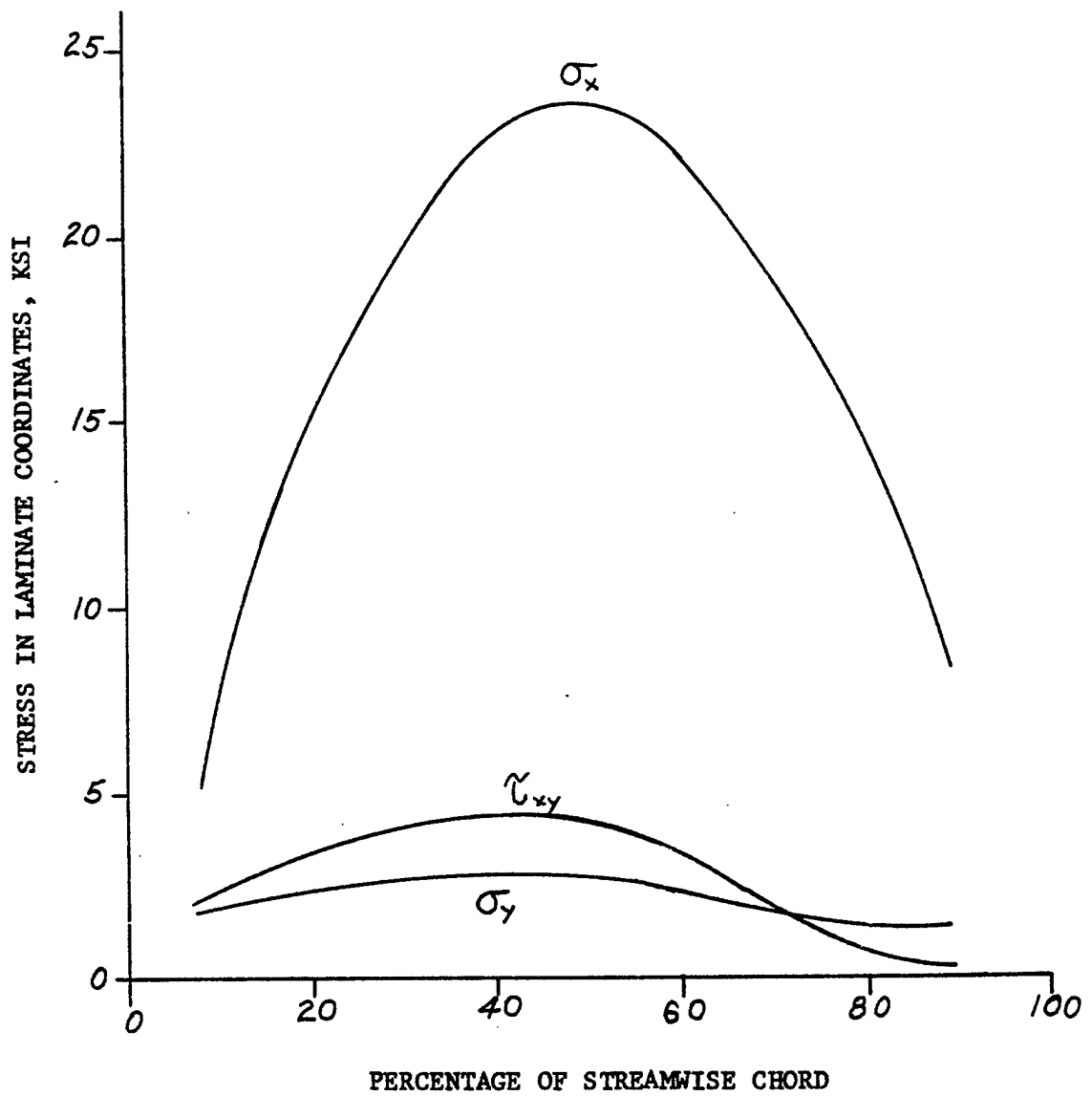


FIGURE 10. THIRD ANTISYMMETRIC MODE, 95.9 HZ

FIGURE 11. LAMINATE STRESSES AT $y_w = 24$

FIGURE 12. LAMINATE STRESSES AT $Y_W = 29$

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A P P E N D I X A
NASTRAN BULK DATA DECK

S O R T E D B U L K D A T A E C H O

CAR	COUNT	1	2	3	4	5	6	7	8	9	10
1-	CBAR	201	201	50	60	0.0	0.0	0.0	1.0	1	RAR201
2-	BAR201										
3-	CBAR	202	202	60	61	0.0	0.0	0.0	1.0	1	RAR202
4-	BAR202										
5-	CBAR	203	203	61	104	0.0	0.0	0.0	1.0	1	RAR203
6-	BAR203										
7-	CBAR	204	204	11	12	0.0	0.0	0.0	1.0	1	RAR204
8-	BAR204										
9-	CBAR	205	205	12	13	0.0	0.0	0.0	1.0	1	BAR205
10-	BAR205										
11-	CBAR	211	211	61	103	0.0	0.0	0.0	1.0	1	RAR211
12-	BAR211										
13-	CBAR	212	212	103	49	0.0	0.0	0.0	1.0	1	RAR212
14-	BAR212										
15-	CBAR	213	213	49	37	0.0	0.0	0.0	1.0	1	RAR213
16-	BAR213										
17-	CBAR	214	214	37	25	0.0	0.0	0.0	1.0	1	BAR214
18-	BAR214										
19-	CBAR	215	215	25	13	0.0	0.0	0.0	1.0	1	RAR215
20-	BAR215										
21-	CBAR	221	221	22	34	0.0	0.0	0.0	1.0	1	RAR221
22-	BAR221										
23-	CBAR	222	222	34	46	0.0	0.0	0.0	1.0	1	RAR222
24-	BAR222										
25-	CBAR	223	223	46	58	0.0	0.0	0.0	1.0	1	RAR223
26-	BAR223										
27-	CBAR	224	224	58	70	0.0	0.0	0.0	1.0	1	RAR224
28-	BAR224										
29-	CBAR	231	231	111	112	0.0	0.0	0.0	1.0	1	RAR231
30-	BAR231										
31-	CBAR	232	232	112	58	0.0	0.0	0.0	1.0	1	RAR232
32-	BAR232										
33-	CBAR	233	233	58	46	0.0	0.0	0.0	1.0	1	RAR233
34-	BAR233										
35-	CBAR	234	234	46	34	0.0	0.0	0.0	1.0	1	RAR234
36-	BAR234										
37-	CBAR	235	235	34	113	0.0	0.0	0.0	1.0	1	RAR235
38-	BAR235										
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40-	BAR236										
41-	CBAR	241	241	1	2	0.0	0.0	0.0	1.0	1	RAR241
42-	BAR241										
43-	CBAR	242	242	2	3	0.0	0.0	0.0	1.0	1	BAR242
44-	BAR242										
45-	CBAR	243	243	3	4	0.0	0.0	0.0	1.0	1	RAR243
46-	BAR243										
47-	CBAR	244	244	4	5	0.0	0.0	0.0	1.0	1	RAR244
48-	BAR244										
49-	CBAR	245	245	5	6	0.0	0.0	0.0	1.0	1	RAR245
50-	BAR245										

NADC-73235-30

SORTED BULK DATA ECHO

CAN COUNT	1	2	3	4	5	6	7	8	9	10
101-	CIRPLT 16	16	9	21	20	0.0	0.0	0.0	0.0	0.0
102-	CIRPLT 17	17	21	9	10	0.0	0.0	0.0	0.0	0.0
103-	CIRPLT 18	18	10	22	21	0.0	0.0	0.0	0.0	0.0
104-	CIRPLT 23	23	25	13	14	0.0	0.0	0.0	0.0	0.0
105-	CIRPLT 24	24	14	26	25	0.0	0.0	0.0	0.0	0.0
106-	CIRPLT 25	25	26	14	15	0.0	0.0	0.0	0.0	0.0
107-	CIRPLT 26	26	15	27	26	0.0	0.0	0.0	0.0	0.0
108-	CIRPLT 27	27	17	15	15	0.0	0.0	0.0	0.0	0.0
109-	CIRPLT 28	28	16	28	27	0.0	0.0	0.0	0.0	0.0
110-	CIRPLT 29	29	28	16	17	0.0	0.0	0.0	0.0	0.0
111-	CIRPLT 30	30	17	29	28	0.0	0.0	0.0	0.0	0.0
112-	CIRPLT 31	31	29	17	18	0.0	0.0	0.0	0.0	0.0
113-	CIRPLT 32	32	18	30	29	0.0	0.0	0.0	0.0	0.0
114-	CIRPLT 33	33	30	18	19	0.0	0.0	0.0	0.0	0.0
115-	CIRPLT 34	34	19	31	30	0.0	0.0	0.0	0.0	0.0
116-	CIRPLT 35	35	31	19	20	0.0	0.0	0.0	0.0	0.0
117-	CIRPLT 36	36	20	32	31	0.0	0.0	0.0	0.0	0.0
118-	CIRPLT 37	37	32	20	21	0.0	0.0	0.0	0.0	0.0
119-	CIRPLT 38	38	21	33	32	0.0	0.0	0.0	0.0	0.0
120-	CIRPLT 39	39	33	21	22	0.0	0.0	0.0	0.0	0.0
121-	CIRPLT 40	40	22	34	33	0.0	0.0	0.0	0.0	0.0
122-	CIRPLT 45	45	37	25	26	0.0	0.0	0.0	0.0	0.0
123-	CIRPLT 46	46	26	38	37	0.0	0.0	0.0	0.0	0.0
124-	CIRPLT 47	47	38	26	27	0.0	0.0	0.0	0.0	0.0
125-	CIRPLT 48	48	27	39	38	0.0	0.0	0.0	0.0	0.0
126-	CIRPLT 49	49	39	27	28	0.0	0.0	0.0	0.0	0.0
127-	CIRPLT 50	50	28	40	39	0.0	0.0	0.0	0.0	0.0
128-	CIRPLT 51	51	40	28	29	0.0	0.0	0.0	0.0	0.0
129-	CIRPLT 52	52	29	41	40	0.0	0.0	0.0	0.0	0.0
130-	CIRPLT 53	53	41	30	30	0.0	0.0	0.0	0.0	0.0
131-	CIRPLT 54	54	30	42	41	0.0	0.0	0.0	0.0	0.0
132-	CIRPLT 55	55	42	30	31	0.0	0.0	0.0	0.0	0.0
133-	CIRPLT 56	56	41	43	42	0.0	0.0	0.0	0.0	0.0
134-	CIRPLT 57	57	43	31	32	0.0	0.0	0.0	0.0	0.0
135-	CIRPLT 58	58	32	44	43	0.0	0.0	0.0	0.0	0.0
136-	CIRPLT 59	59	44	32	44	0.0	0.0	0.0	0.0	0.0
137-	CIRPLT 60	60	33	45	44	0.0	0.0	0.0	0.0	0.0
138-	CIRPLT 61	61	45	33	34	0.0	0.0	0.0	0.0	0.0
139-	CIRPLT 62	62	34	46	45	0.0	0.0	0.0	0.0	0.0
140-	CIRPLT 67	67	49	37	38	0.0	0.0	0.0	0.0	0.0
141-	CIRPLT 68	68	78	50	49	-12.885	0.0	0.0	0.0	0.0
142-	CIRPLT 69	69	78	105	50	12.448	0.0	0.0	0.0	0.0
143-	CIRPLT 70	70	106	105	51	0.0	0.0	0.0	0.0	0.0
144-	CIRPLT 71	71	51	39	40	0.0	0.0	0.0	0.0	0.0
145-	CIRPLT 72	72	40	52	51	0.0	0.0	0.0	0.0	0.0
146-	CIRPLT 73	73	52	40	41	0.0	0.0	0.0	0.0	0.0
147-	CIRPLT 74	74	41	53	52	0.0	0.0	0.0	0.0	0.0
148-	CIRPLT 75	75	53	41	42	0.0	0.0	0.0	0.0	0.0
149-	CIRPLT 76	76	42	54	53	0.0	0.0	0.0	0.0	0.0
150-	CIRPLT 77	77	54	42	43	0.0	0.0	0.0	0.0	0.0

SOURCE: RULK DATA FILE

CARD COUNT	1	2	3	4	5	6	7	8	9	10
151-	CIRPLT 78	78	78	43	55	54	0.0	0.0	0.0	0.0
152-	CIRPLT 79	79	79	55	43	44	0.0	0.0	0.0	0.0
153-	CIRPLT 80	80	80	44	56	55	0.0	0.0	0.0	0.0
154-	CIRPLT 81	81	81	56	44	45	0.0	0.0	0.0	0.0
155-	CIRPLT 82	82	82	45	57	56	0.0	0.0	0.0	0.0
156-	CIRPLT 83	83	83	57	45	46	0.0	0.0	0.0	0.0
157-	CIRPLT 84	84	84	46	58	57	0.0	0.0	0.0	0.0
158-	CIRPLT 89	89	89	103	49	50	0.0	0.0	0.0	0.0
159-	CIRPLT 90	90	90	50	62	61	0.0	0.0	0.0	0.0
160-	CIRPLT 91	91	91	105	106	50	0.0	0.0	0.0	0.0
161-	CIRPLT 92	92	92	107	106	51	0.0	0.0	0.0	0.0
162-	CIRPLT 93	93	93	63	51	52	0.0	0.0	0.0	0.0
163-	CIRPLT 94	94	94	52	64	63	0.0	0.0	0.0	0.0
164-	CIRPLT 95	95	95	64	52	53	0.0	0.0	0.0	0.0
165-	CIRPLT 96	96	96	53	65	64	0.0	0.0	0.0	0.0
166-	CIRPLT 97	97	97	65	53	54	0.0	0.0	0.0	0.0
167-	CIRPLT 98	98	98	54	66	65	0.0	0.0	0.0	0.0
168-	CIRPLT 99	99	99	66	54	55	0.0	0.0	0.0	0.0
169-	CIRPLT 100	100	100	55	67	66	0.0	0.0	0.0	0.0
170-	CIRPLT 101	101	101	67	55	56	0.0	0.0	0.0	0.0
171-	CIRPLT 102	102	102	56	68	67	0.0	0.0	0.0	0.0
172-	CIRPLT 103	103	103	68	56	57	0.0	0.0	0.0	0.0
173-	CIRPLT 104	104	104	57	69	68	0.0	0.0	0.0	0.0
174-	CIRPLT 105	105	105	69	57	58	0.0	0.0	0.0	0.0
175-	CIRPLT 106	106	106	58	70	69	0.0	0.0	0.0	0.0
176-	CIRPLT 107	107	107	104	61	62	0.0	0.0	0.0	0.0
177-	CIRPLT 108	108	108	62	72	71	13.657	13.657	13.657	13.657
178-	CIRPLT 109	109	109	107	72	72	-14.990	-14.990	-14.990	-14.990
179-	CIRPLT 110	110	110	63	73	72	0.0	0.0	0.0	0.0
180-	CIRPLT 111	111	111	73	63	64	0.0	0.0	0.0	0.0
181-	CIRPLT 112	112	112	64	74	73	0.0	0.0	0.0	0.0
182-	CIRPLT 113	113	113	74	64	65	0.0	0.0	0.0	0.0
183-	CIRPLT 114	114	114	65	75	74	0.0	0.0	0.0	0.0
184-	CIRPLT 115	115	115	75	65	66	0.0	0.0	0.0	0.0
185-	CIRPLT 116	116	116	56	76	75	0.0	0.0	0.0	0.0
186-	CIRPLT 117	117	117	75	66	67	0.0	0.0	0.0	0.0
187-	CIRPLT 118	118	118	67	77	76	0.0	0.0	0.0	0.0
188-	CIRPLT 119	119	119	77	67	68	0.0	0.0	0.0	0.0
189-	CIRPLT 120	120	120	68	78	77	0.0	0.0	0.0	0.0
190-	CIRPLT 121	121	121	78	68	69	0.0	0.0	0.0	0.0
191-	CIRPLT 122	122	122	69	79	78	0.0	0.0	0.0	0.0
192-	CIRPLT 123	123	123	79	69	70	0.0	0.0	0.0	0.0
193-	CIRPLT 124	124	124	70	80	79	0.0	0.0	0.0	0.0
194-	CIRPLT 125	125	125	81	71	72	0.0	0.0	0.0	0.0
195-	CIRPLT 126	126	126	72	82	81	0.0	0.0	0.0	0.0
196-	CIRPLT 127	127	127	82	72	73	0.0	0.0	0.0	0.0
197-	CIRPLT 128	128	128	73	83	82	0.0	0.0	0.0	0.0
198-	CIRPLT 129	129	129	83	73	74	0.0	0.0	0.0	0.0
199-	CIRPLT 130	130	130	74	84	83	0.0	0.0	0.0	0.0
200-	CIRPLT 131	131	131	84	74	75	0.0	0.0	0.0	0.0

FINAL VIBRATION MODES ANALYSIS

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SORTED BULK DATA FCH-0

CARD	POINT	1	2	3	4	5	6	7	8	9	10
201-	CTPPLT 132	132	75	85	84	0.0	0.0	0.0	0.0	0.0	0.0
202-	CTPPLT 133	133	85	75	76	0.0	0.0	0.0	0.0	0.0	0.0
203-	CTPPLT 134	134	76	86	85	0.0	0.0	0.0	0.0	0.0	0.0
204-	CTPPLT 135	135	86	76	77	0.0	0.0	0.0	0.0	0.0	0.0
205-	CTPPLT 136	136	77	87	86	0.0	0.0	0.0	0.0	0.0	0.0
206-	CTPPLT 137	137	87	77	78	0.0	0.0	0.0	0.0	0.0	0.0
207-	CTPPLT 138	138	78	88	87	0.0	0.0	0.0	0.0	0.0	0.0
208-	CTPPLT 139	139	88	78	79	0.0	0.0	0.0	0.0	0.0	0.0
209-	CTPPLT 140	140	79	89	88	0.0	0.0	0.0	0.0	0.0	0.0
210-	CTPPLT 141	141	89	79	80	0.0	0.0	0.0	0.0	0.0	0.0
211-	CTPPLT 800	800	105	78	39	12.448	0.0	0.0	0.0	0.0	0.0
212-	CTPPLT 700	700	30	51	105	0.0	0.0	0.0	0.0	0.0	0.0
213-	CTPPLT 890	890	61	103	50	0.0	0.0	0.0	0.0	0.0	0.0
214-	CTPPLT 900	900	62	50	106	0.0	0.0	0.0	0.0	0.0	0.0
215-	CTPPLT 910	910	106	107	62	0.0	0.0	0.0	0.0	0.0	0.0
216-	CTPPLT 920	920	51	63	107	0.0	0.0	0.0	0.0	0.0	0.0
217-	CTPPLT 1070	1070	71	104	62	0.0	0.0	0.0	0.0	0.0	0.0
218-	CTPPLT 1090	1090	72	107	63	-14.990	0.0	0.0	0.0	0.0	0.0
219-	EIGR 4	GIV	0.0	225.							
220-	MONES4	MAX									
221-	GMSFT	1									
222-	GRI 1		-17.1790	-17.1089	0.0						
223-	GRI 2		-8.9523	-15.9725	0.0						
224-	GRI 3		-0.7257	-14.8361	0.0						
225-	GRI 4		7.5009	-13.6906	0.0						
226-	GRI 5		15.7276	-12.5632	0.0						
227-	GRI 6		23.9542	-11.4269	0.0						
228-	GRI 7		32.1809	-10.2904	0.0						
229-	GRI 8		40.4075	-9.1540	0.0						
230-	GRI 9		48.6341	-8.0175	0.0						
231-	GRI 10		56.2026	-6.9721	0.0						
232-	GRI 11		-18.2241	-5.4478	0.0						
233-	GRI 12		-15.0496	-4.5763	0.0						
234-	GRI 13		-11.8732	-3.8247	0.0						
235-	GRI 14		-4.0391	-3.1070	0.0						
236-	GRI 15		3.7049	-2.3390	0.0						
237-	GRI 16		11.6289	-9.5885	0.0						
238-	GRI 17		19.4630	-8.8431	0.0						
239-	GRI 18		27.2970	-8.0977	0.0						
240-	GRI 19		35.1310	-7.3523	0.0						
241-	GRI 20		42.9650	-6.6060	0.0						
242-	GRI 21		50.7991	-5.8614	0.0						
243-	GRI 22		58.6064	-5.1757	0.0						
244-	GRI 23		-12.3147	-4.475	0.0						
245-	GRI 24		-9.1393	-3.7510	0.0						
246-	GRI 25		-5.9633	-3.0305	0.0						
247-	GRI 26		1.4330	-2.3095	0.0						
248-	GRI 27		4.8207	-1.5196	0.0						
249-	GRI 28		16.2255	-0.7097	0.0						
250-	GRI 29		27.6211	-0.6098	0.0						

NADC-73235-30

S-O-R-T-E-D R-U-L-K D-A-T-A F-O-U-N

CARD COUNT	1	2	3	4	5	6	7	8	9	10
251-	GRID	30	31.0200	-4.3898	0.0					
252-	GRID	31	34.4168	-4.0799	0.0					
253-	GRID	32	45.8135	-3.7700	0.0					
254-	GRID	33	53.2103	-3.4601	0.0					
255-	GRID	34	60.0153	-3.1740	0.0					
256-	GRID	35	-6.4479	6.2804	0.0	0				126
257-	GRID	36	-3.2725	3.0319	0.0	0				126
258-	GRID	37	-0.0070	-0.0065	0.0	0				126
259-	GRID	38	6.8656	-0.2100	0.0					
260-	GRID	39	13.8283	-0.3414	0.0					
261-	GRID	40	20.7909	-0.4630	0.0					
262-	GRID	41	27.7536	-0.5863	0.0					
263-	GRID	42	34.7162	-0.7087	0.0					
264-	GRID	43	41.6789	-0.8311	0.0					
265-	GRID	44	48.6415	-0.9536	0.0					
266-	GRID	45	55.6042	-1.0760	0.0					
267-	GRID	46	62.0008	-1.1885	0.0					
268-	GRID	47	-0.5813	12.1230	0.0	0				126
269-	GRID	48	2.5942	8.9348	0.0	0				126
270-	GRID	49	5.7696	5.7461	0.0	0				126
271-	GRID	50	12.0	49.7	0.0					
272-	GRID	51	18.8267	4.6366	0.0					
273-	GRID	52	25.3553	4.0918	0.0					
274-	GRID	53	31.8818	3.5271	0.0					
275-	GRID	54	38.4123	2.9723	0.0					
276-	GRID	55	44.9409	2.4175	0.0					
277-	GRID	56	51.4694	1.8628	0.0					
278-	GRID	57	57.9979	1.3080	0.0					
279-	GRID	58	64.0042	0.7977	0.0					
280-	GRID	59	4.3150	15.9993	0.0	0				126
281-	GRID	60	7.4904	13.8109	0.0	0				126
282-	GRID	61	10.6659	10.6224	0.0	0				126
283-	GRID	62	12.0	53.5	0.0					
284-	GRID	63	22.9984	8.7912	0.0					
285-	GRID	64	29.1645	7.8755	0.0					
286-	GRID	65	35.3308	6.9501	0.0					
287-	GRID	66	41.4971	6.0445	0.0					
288-	GRID	67	47.6633	5.1289	0.0					
289-	GRID	68	53.8295	4.2173	0.0					
290-	GRID	69	59.9958	3.2977	0.0					
291-	GRID	70	65.5687	2.4554	0.0					
292-	GRID	71	11.25	58.53	0.0					
293-	GRID	72	21.5808	14.4361	0.0	0				126
294-	GRID	73	27.3676	13.1426	0.0					
295-	GRID	74	33.1543	11.8491	0.0					
296-	GRID	75	38.9411	10.5556	0.0					
297-	GRID	76	44.7279	9.2621	0.0					
298-	GRID	77	50.5147	7.9685	0.0					
299-	GRID	78	56.3014	6.6751	0.0					

SORTED RULK DATA FCH0

CARD	1	2	3	4	5	6	7	8	9	10
COUNT										
301-	GOIN	80	0	53.6	88.8496	0				
302-	GOIN	81	0	11.25	71.2321	0				
303-	GOIN	82		29.2236	22.0477	0.0				
304-	GOIN	83		34.3997	20.1460	0.0				
305-	GOIN	84		79.5757	18.2443	0.0				
306-	GOIN	85		44.7519	16.7425	0.0				
307-	GOIN	86		49.9278	14.4408	0.0				
308-	GOIN	87		55.1039	12.5391	0.0				
309-	GOIN	88		60.2799	10.6377	0.0				
310-	GOIN	89	0	50.835	89.6461	0	0	126		
311-	GOIN	101	0	0.0	49.3	0.0				
312-	GOIN	102	0	4.5	49.3	0.0				
313-	GOIN	103	0	9.0	49.3	0.0				
314-	GOIN	104	0	9.0	54.3	0.0	0	126		
315-	GOIN	105	0	15.5	47.75	0.0				
316-	GOIN	106	0	15.5	52.0	0.0	0	126		
317-	GOIN	107	0	15.5	56.15	0.0				
318-	GOIN	111	0	53.6	90.55	0.0				
319-	GOIN	112	0	53.6	86.05	0.0				
320-	GOIN	113	0	53.6	72.95	0.0				
321-	GOIN	114	0	53.6	67.55	0.0				
322-	MAT1	2	3.0+4	7.0+4						
323-	HEAD									
324-	MAT1	10	16.0+6	6.2+6						
325-	MAT1	11	10.5+6	.33	.253-3					
326-	MAT1	12	2.5+6	5.166+6	.14245-3					
327-	MAT1	13	2.6+6	1.3+6	.168-3					
328-	MAT1	15	5.0+6	2.0+6	.14245-3					
329-	MAT2	1	9.2875+6	1.915+6	1.571+6	9.2875+6	1.571+6	1.915+6		
330-	MAT2	7	8.9892+6	1.902+6	1.886+6	8.9892+6	1.886+6	1.902+6		
331-	MAT2	4	2.344+6	1.291+6	0.0	1.743+7	0.0	1.6+6		
332-	MAT2	6	9.5272+6	1.6512+6	0.427+6	9.5272+6	1.6512+6	0.427+6		
333-	MAT2	7	3.1732+6	2.6401+6	2.446+6	3.1732+6	2.446+6	2.6401+6		
334-	OMIT1	3	15	17	10	21	26	28	30	30
335-	OROP7	32	39	41	43	45	52	54	56	56
336-	OROP71	63	65	67	69	72	74	76	78	78
337-	OROP72	103	105							
338-	OMIT1	4	11	23	35	47	59	101		
339-	OMIT1	45	1	THRU	10					
340-	OMIT1	45	12	THRU	22					
341-	OMIT1	45	24	THRU	34					
342-	OMIT1	45	36	THRU	46					
343-	OMIT1	45	48	THRU	59					
344-	OMIT1	45	60	THRU	89					
345-	OMIT1	45	102	THRU	107					
346-	OMIT1	45	111	THRU	114					
347-	OROP7	37								
348-	OROP71	201	12	130A	1.3131	1.67	.607E-4	0.0		
349-	OROP72	103	105	105	105	105	105	105		
350-	OROP71A	412A	1.							

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FINAL VIBRATION MODES ANALYSIS

S O R T E D B U L K O A T A F C H O

CAR	1	2	3	4	5	6	7	8	9	10
351-	PRAP	202	12	1304	1.1671	1.	.695F-4	0.0	0.	PRAR202
352-	PRAP	202	0.	-.67	0.	.67	0.	-.67	0.	PRAR202A
353-	PRAP	202A	1.	0.	0.	0.	.697F-4	0.0	0.	PRAR203
354-	PRAP	203	12	1308	1.3131	1.	.697F-4	0.0	0.	PRAR203A
355-	PRAR203	.67	0.	-.67	0.	.68	0.	-.68	0.	PRAR204
356-	PRAR203A	.4128	1.	0.	0.	0.	.7061-4	0.0	0.	PRAR204A
357-	PRAP	204	12	1324	-.9839	1.	.7061-4	0.0	0.	PRAR205
358-	PRAR204	.70	0.	-.70	0.	.63	0.	-.63	0.	PRAR205A
359-	PRAR204A	.4199	1.	0.	0.	0.	.7019-4	0.0	0.	PRAR211
360-	PRAP	205	12	1316	1.0587	1.	.7019-4	0.0	0.	PRAR211A
361-	PRAR205	.69	0.	-.69	0.	.63	0.	-.63	0.	PRAR212
362-	PRAR205A	.4164	1.	0.	0.	0.	.6987-3	0.0	0.	PRAR212A
363-	PRAP	211	12	2910	1.2357	1.	.7012-3	0.0	0.	PRAR213
364-	PRAR211	.67	0.	-.67	0.	.67	0.	-.67	0.	PRAR213A
365-	PRAR211A	.2302	1.	0.	0.	0.	.5962-3	0.0	0.	PRAR214
366-	PRAR	212	12	2925	29059	1.	.5962-3	0.0	0.	PRAR214A
367-	PRAR212	.67	0.	-.67	0.	.655	0.	-.655	0.	PRAR215
368-	PRAR212A	.22825	1.	0.	0.	0.	.3285-3	0.0	0.	PRAR215A
369-	PRAR	213	12	28955	29607	1.	.02661	0.0	0.	PRAR221
370-	PRAR213	.655	0.	-.655	0.	.655	0.	-.655	0.	PRAR221A
371-	PRAR213A	.22625	1.	0.	0.	0.	0.	0.	0.	PRAR231
372-	PRAR	214	12	22145	26377	1.	.3184-3	0.0	0.	PRAR231A
373-	PRAR214	.655	0.	-.655	0.	.68	0.	-.68	0.	PRAR241
374-	PRAR214A	.2412	1.	0.	0.	0.	.02661	0.0	0.	PRAR241A
375-	PRAR	215	12	22245	25345	1.	.3285-3	0.0	0.	PRAR242
376-	PRAR215	.68	0.	-.68	0.	.64	0.	-.64	0.	PRAR242A
377-	PRAR215A	.2446	1.	0.	0.	0.	0.	0.	0.	PRAR243
378-	PRAR	221	13	65625	.769-2	1.	.02682770	0.0	0.	PRAR243A
379-	PRAR221	.1875	0.	-.1875	0.	0.	0.	0.	0.	PRAR244
380-	PRAR221A	.667	0.	0.	0.	0.	0.	0.	0.	PRAR244A
381-	PRAR	231	11	52174	.03225	1.	1.	0.0	0.	PRAR245
382-	PRAR231	0.	0.	0.	0.	0.	0.	0.	0.	PRAR245A
383-	PRAR231A	.5	0.	0.	0.	0.	0.	0.	0.	PRAR246
384-	PRAR	241	15	27125	.0021722	.017306	.019478	0.0	0.	PRAR246A
385-	PRAR241	0.	0.	0.	0.	0.	0.	0.	0.	PRAR247
386-	PRAR241A	.83	0.	0.	0.	0.	0.	0.	0.	PRAR247A
387-	PRAR	242	15	265125	.0021284	.0159155	.01894390	0.0	0.	PRAR248
388-	PRAR242	0.	0.	0.	0.	0.	0.	0.	0.	PRAR248A
389-	PRAR242A	.83	0.	0.	0.	0.	0.	0.	0.	PRAR249
390-	PRAR	243	15	296	.0021611	.02465	.02682770	0.0	0.	PRAR249A
391-	PRAR243	0.	0.	0.	0.	0.	0.	0.	0.	PRAR250
392-	PRAR243A	.83	0.	0.	0.	0.	0.	0.	0.	PRAR250A
393-	PRAR	244	15	289	.0020114	.024083	.02609480	0.0	0.	PRAR251
394-	PRAR244	0.	0.	0.	0.	0.	0.	0.	0.	PRAR251A
395-	PRAR244A	.83	0.	0.	0.	0.	0.	0.	0.	PRAR252
396-	PRAR	245	15	282	.0018688	.0215	.02536880	0.0	0.	PRAR252A
397-	PRAR245	0.	0.	0.	0.	0.	0.	0.	0.	PRAR253
398-	PRAR245A	.83	0.	0.	0.	0.	0.	0.	0.	PRAR253A
399-	PRAR	246	15	275	.0017330	.022915	.024648	0.0	0.	PRAR254
400-	PRAR246	0.	0.	0.	0.	0.	0.	0.	0.	PRAR254A

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S O P T E R B U L K D A T A F C H Q

CARD	1	2	3	4	5	6	7	8	9	10
401- PBAR246A	.83	0.								
402- PBAR	247	15	.264	.0016040	.02233	.02393740				PBAR247
403- PBAR247A	0.	0.	0.	0.	0.	0.	0.	0.	0.	PBAR247A
404- PBAR247A	.83	0.								
405- PBAR	248	15	.224375	.0012964	.0145704	.015867	0.			PBAR248
406- PBAR248A	0.	0.	0.	0.	0.	0.	0.	0.	0.	PBAR248A
407- PBAR248A	.83	0.								
408- PBAR	249	15	.22225	.0011948	.014118	.01537490				PBAR249
409- PBAR249A	0.	0.	0.	0.	0.	0.	0.	0.	0.	PBAR249A
410- PBAR249A	.83	0.								
411- PBAR	253	12	.139392	.024725	1.	.11059-30.0				PBAR253
412- PBAR253A	0.	0.	0.	0.	0.	0.	0.	0.	0.	PBAR253A
413- PBAR253A	.83	0.								
414- PBAR	254	12	.3175	.094966	1.	.1125-2 0.0				PBAR254
415- PBAR254A	0.	0.	0.	0.	0.	0.	0.	0.	0.	PBAR254A
416- PBAR254A	.83	0.								
417- PBAR	151	4	.122	?	1.50	.419-4	.81			
418- PBAR	152	4	.141	2	1.63	.473-4	.81			
419- PBAR	153	4	.120	2	1.60	.419-4	.81			
420- PBAR	154	4	.145	2	1.62	.533-4	.81			
421- PBAR	155	4	.135	2	1.62	.473-4	.81			
422- PBAR	156	4	.171	2	1.60	.128-4	.81			
423- PBAR	157	4	.135	2	1.62	.473-4	.81			
424- PBAR	158	4	.145	2	1.62	.517-4	.81			
425- PBAR	159	10	.141	2	1.60	.473-4	.81			
426- PBAR	160	10	.145	2	3.31	.128-3	.81			
427- PBAR	1	7	.005	2	.734	.186-4	.28			
428- PBAR	2	7	.014	2	1.23	.218-4	.46			
429- PBAR	3	7	.003	2	.644	.176-4	.23			
430- PBAR	4	7	.011	2	1.12	.207-4	.40			
431- PBAR	5	1	.004	2	.7	.180-4	.25			
432- PBAR	6	1	.009	2	1.04	.207-4	.37			
433- PBAR	7	1	.003	2	.46	.167-4	.23			
434- PBAR	8	1	.004	2	.68	.182-4	.34			
435- PBAR	9	1	.003	2	.42	.164-4	.21			
436- PBAR	10	1	.006	2	.52	.173-4	.31			
437- PBAR	11	1	.002	2	.38	.162-4	.19			
438- PBAR	12	1	.005	2	.54	.173-4	.27			
439- PBAR	13	6	.001	2	.32	.141-4	.16			
440- PBAR	14	6	.003	2	.48	.157-4	.24			
441- PBAR	15	6	.001	2	.28	.139-4	.14			
442- PBAR	16	6	.002	2	.40	.147-4	.20			
443- PBAR	17	6	.001	2	.24	.136-4	.12			
444- PBAR	18	6	.002	2	.34	.143-4	.17			
445- PBAR	23	7	.120	2	2.21	.471-4	.76			
446- PBAR	24	7	.109	2	2.03	.467-4	.74			
447- PBAR	25	7	.081	2	1.73	.443-4	.64			
448- PBAR	26	7	.086	2	1.92	.451-4	.65			
449- PBAR	27	3	.061	2	1.64	.383-4	.57			

FINAL VIBRATION MODES ANALYSIS

CARD	1	2	3	4	5	6	7	8	9	10
451- PIRPLT 29	1.04	1.04	1.04	1.04	1.04	1.04	1.04	1.04	1.04	1.04
452- PIRPLT 30	1.10	1.10	1.10	1.10	1.10	1.10	1.10	1.10	1.10	1.10
453- PIRPLT 31	.92	.92	.92	.92	.92	.92	.92	.92	.92	.92
454- PIRPLT 32	.98	.98	.98	.98	.98	.98	.98	.98	.98	.98
455- PIRPLT 33	.82	.82	.82	.82	.82	.82	.82	.82	.82	.82
456- PIRPLT 34	.870	.870	.870	.870	.870	.870	.870	.870	.870	.870
457- PIRPLT 35	.72	.72	.72	.72	.72	.72	.72	.72	.72	.72
458- PIRPLT 36	.76	.76	.76	.76	.76	.76	.76	.76	.76	.76
459- PIRPLT 37	.62	.62	.62	.62	.62	.62	.62	.62	.62	.62
460- PIRPLT 38	.66	.66	.66	.66	.66	.66	.66	.66	.66	.66
461- PIRPLT 39	.52	.52	.52	.52	.52	.52	.52	.52	.52	.52
462- PIRPLT 40	.54	.54	.54	.54	.54	.54	.54	.54	.54	.54
463- PIRPLT 41	2.212	2.212	2.212	2.212	2.212	2.212	2.212	2.212	2.212	2.212
464- PIRPLT 42	2.31	2.31	2.31	2.31	2.31	2.31	2.31	2.31	2.31	2.31
465- PIRPLT 43	2.20	2.20	2.20	2.20	2.20	2.20	2.20	2.20	2.20	2.20
466- PIRPLT 44	2.20	2.20	2.20	2.20	2.20	2.20	2.20	2.20	2.20	2.20
467- PIRPLT 45	2.02	2.02	2.02	2.02	2.02	2.02	2.02	2.02	2.02	2.02
468- PIRPLT 46	2.02	2.02	2.02	2.02	2.02	2.02	2.02	2.02	2.02	2.02
469- PIRPLT 47	1.27	1.27	1.27	1.27	1.27	1.27	1.27	1.27	1.27	1.27
470- PIRPLT 48	1.25	1.25	1.25	1.25	1.25	1.25	1.25	1.25	1.25	1.25
471- PIRPLT 49	1.14	1.14	1.14	1.14	1.14	1.14	1.14	1.14	1.14	1.14
472- PIRPLT 50	1.12	1.12	1.12	1.12	1.12	1.12	1.12	1.12	1.12	1.12
473- PIRPLT 51	1.02	1.02	1.02	1.02	1.02	1.02	1.02	1.02	1.02	1.02
474- PIRPLT 52	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
475- PIRPLT 53	.890	.890	.890	.890	.890	.890	.890	.890	.890	.890
476- PIRPLT 54	.88	.88	.88	.88	.88	.88	.88	.88	.88	.88
477- PIRPLT 55	.76	.76	.76	.76	.76	.76	.76	.76	.76	.76
478- PIRPLT 56	.74	.74	.74	.74	.74	.74	.74	.74	.74	.74
479- PIRPLT 57	.64	.64	.64	.64	.64	.64	.64	.64	.64	.64
480- PIRPLT 58	.62	.62	.62	.62	.62	.62	.62	.62	.62	.62
481- PIRPLT 59	2.31	2.31	2.31	2.31	2.31	2.31	2.31	2.31	2.31	2.31
482- PIRPLT 60	1.74	1.74	1.74	1.74	1.74	1.74	1.74	1.74	1.74	1.74
483- PIRPLT 61	.167	.167	.167	.167	.167	.167	.167	.167	.167	.167
484- PIRPLT 62	.154	.154	.154	.154	.154	.154	.154	.154	.154	.154
485- PIRPLT 63	.132	.132	.132	.132	.132	.132	.132	.132	.132	.132
486- PIRPLT 64	.101	.101	.101	.101	.101	.101	.101	.101	.101	.101
487- PIRPLT 65	.088	.088	.088	.088	.088	.088	.088	.088	.088	.088
488- PIRPLT 66	.069	.069	.069	.069	.069	.069	.069	.069	.069	.069
489- PIRPLT 67	.053	.053	.053	.053	.053	.053	.053	.053	.053	.053
490- PIRPLT 68	.040	.040	.040	.040	.040	.040	.040	.040	.040	.040
491- PIRPLT 69	.031	.031	.031	.031	.031	.031	.031	.031	.031	.031
492- PIRPLT 70	.020	.020	.020	.020	.020	.020	.020	.020	.020	.020
493- PIRPLT 71	.010	.010	.010	.010	.010	.010	.010	.010	.010	.010
494- PIRPLT 72	.010	.010	.010	.010	.010	.010	.010	.010	.010	.010
495- PIRPLT 73	.008	.008	.008	.008	.008	.008	.008	.008	.008	.008
496- PIRPLT 74	.007	.007	.007	.007	.007	.007	.007	.007	.007	.007
497- PIRPLT 75	.006	.006	.006	.006	.006	.006	.006	.006	.006	.006
498- PIRPLT 76	.006	.006	.006	.006	.006	.006	.006	.006	.006	.006
499- PIRPLT 77	.006	.006	.006	.006	.006	.006	.006	.006	.006	.006
500- PIRPLT 78	.006	.006	.006	.006	.006	.006	.006	.006	.006	.006
501- PIRPLT 79	.006	.006	.006	.006	.006	.006	.006	.006	.006	.006
502- PIRPLT 80	.006	.006	.006	.006	.006	.006	.006	.006	.006	.006
503- PIRPLT 81	.006	.006	.006	.006	.006	.006	.006	.006	.006	.006
504- PIRPLT 82	.006	.006	.006	.006	.006	.006	.006	.006	.006	.006
505- PIRPLT 83	.006	.006	.006	.006	.006	.006	.006	.006	.006	.006
506- PIRPLT 84	.006	.006	.006	.006	.006	.006	.006	.006	.006	.006
507- PIRPLT 85	.006	.006	.006	.006	.006	.006	.006	.006	.006	.006
508- PIRPLT 86	.006	.006	.006	.006	.006	.006	.006	.006	.006	.006
509- PIRPLT 87	.006	.006	.006	.006	.006	.006	.006	.006	.006	.006
510- PIRPLT 88	.006	.006	.006	.006	.006	.006	.006	.006	.006	.006
511- PIRPLT 89	.006	.006	.006	.006	.006	.006	.006	.006	.006	.006
512- PIRPLT 90	.006	.006	.006	.006	.006	.006	.006	.006	.006	.006

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S-O-R-T-E-D B-U-L-K D-A-T-A F-O-R-M

CASE	1	2	3	4	5	6	7	8	9	10
PCOUNT	1	2	3	4	5	6	7	8	9	10
501-	PIRPLT 01	1	154	2	2.27	.581-4	.78			
502-	PIRPLT 02	1	.118	2	2.01	.511-4	.69			
503-	PIRPLT 03	3	.072	2	1.77	.381-4	.61			
504-	PIRPLT 04	3	.042	2	1.57	.345-4	.54			
505-	PIRPLT 05	3	.044	2	1.19	.304-4	.55			
506-	PIRPLT 06	3	.029	2	.990	.284-4	.49			
507-	PIRPLT 07	3	.027	2	1.0	.269-4	.50			
508-	PIRPLT 08	1	.020	2	.88	.244-4	.44			
509-	PIRPLT 09	1	.020	2	.88	.244-4	.44			
510-	PIRPLT 100	1	.010	2	.79	.205-4	.39			
511-	PIRPLT 101	1	.010	2	.79	.189-4	.39			
512-	PIRPLT 102	1	.008	2	.68	.182-4	.34			
513-	PIRPLT 103	1	.007	2	.66	.181-4	.33			
514-	PIRPLT 104	1	.005	2	.58	.175-4	.29			
515-	PIRPLT 105	1	.005	2	.56	.174-4	.28			
516-	PIRPLT 106	1	.004	2	.48	.468-4	.24			
517-	PIRPLT 107	10	.159	2	3.31	.128-3	.41			
518-	PIRPLT 108	3	.089	2	1.73	.288-4	.61			
519-	PIRPLT 109	3	.099	2	1.87	.370-4	.64			
520-	PIRPLT 110	1	.022	2	1.15	.293-4	.43			
521-	PIRPLT 111	1	.027	2	1.24	.279-4	.44			
522-	PIRPLT 112	1	.014	2	1.07	.218-4	.37			
523-	PIRPLT 113	1	.015	2	.800	.233-4	.40			
524-	PIRPLT 114	1	.010	2	.660	.107-4	.33			
525-	PIRPLT 115	1	.010	2	.72	.201-4	.36			
526-	PIRPLT 116	1	.007	2	.60	.193-4	.30			
527-	PIRPLT 117	1	.008	2	.64	.196-4	.32			
528-	PIRPLT 118	1	.005	2	.530	.171-4	.26			
529-	PIRPLT 119	1	.005	2	.55	.174-4	.28			
530-	PIRPLT 120	6	.003	2	.46	.167-4	.23			
531-	PIRPLT 121	6	.003	2	.48	.182-4	.24			
532-	PIRPLT 122	6	.002	2	.40	.147-4	.20			
533-	PIRPLT 123	6	.002	2	.40	.147-4	.20			
534-	PIRPLT 124	6	12676.72	2	.40	.147-4	.20			
535-	PIRPLT 125	1	.005	2	.784	.186-4	.28			
536-	PIRPLT 126	6	.001	2	.443	.148-4	.16			
537-	PIRPLT 127	6	.004	2	.728	.166-4	.26			
538-	PIRPLT 128	6	.001	2	.335	.149-4	.17			
539-	PIRPLT 129	6	.002	2	.532	.157-4	.21			
540-	PIRPLT 130	6	.001	2	.308	.139-4	.11			
541-	PIRPLT 131	6	.002	2	.38	.145-4	.19			
542-	PIRPLT 132	6	.004	2	.20	.133-4	.10			
543-	PIRPLT 133	6	.001	2	.34	.143-4	.17			
544-	PIRPLT 134	6	.0003	2	.18	.132-4	.09			
545-	PIRPLT 135	6	.001	2	.30	.140-4	.15			
546-	PIRPLT 136	6	.0003	2	.16	.131-4	.08			
547-	PIRPLT 137	6	.001	2	.28	.139-4	.14			
548-	PIRPLT 138	6	.0002	2	.14	.129-4	.07			
549-	PIRPLT 139	6	.001	2	.24	.136-4	.12			
550-	PIRPLT 140	6	.0007	2	.443	.186-4	.28			
551-	PIRPLT 141	6	.0007	2	.443	.186-4	.28			

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CARD	1	2	3	4	5	6	7	8	9	10
COUNT	1	2	3	4	5	6	7	8	9	10
551-	PIRPLT	141	6	53659.	82	.1871526854.	8	.0931925	.0931925	
552-	PIRPLT	690	7	.147	2	2.22	.465-4	.75	.75	
553-	PIRPLT	700	3	.128	2	2.03	.518-4	.73	.73	
554-	PIRPLT	890	10	.157	2	3.31	.128-3	.81	.81	
555-	PIRPLT	900	3	.159	2	2.31	.583-4	.79	.79	
556-	PIRPLT	910	3	.126	2	3.53	.015-4	.74	.74	
557-	PIRPLT	920	3	.085	2	1.74	.418-4	.62	.62	
558-	PIRPLT	1070	3	.089	2	2.14	.364-4	.73	.73	
559-	PIRPLT	1100	3	.056	2	1.57	.329-4	.54	.54	
560-	SEQGP	101	58.5	102	58.6	103	58.8	104	70.5	
561-	SEQGP	105	46.5	106	50.5	107	52.5			
562-	SEQGP	111	34.2	112	34.4	113	58.3	114	58.4	
563-	SPC1	2	5	11	23	35	47	59	101	

ENDDATA

NO ERRORS FOUND - EXECUTE NASTRAN PROGRAM
 METHOD 2 NI, NBR PASSES = 1, EST. TIME = 3
 METHOD 1 I, NBR PASSES = 1, EST. TIME = .2

A P P E N D I X B

NASTRAN STATIC ANALYSIS OUTPUT DATA

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DISPLACEMENT VECTOR

R3

POINT ID.	TYPE	T1	T2	T3	R1	R2	R3
1	G	0.0	0.0	1.162913E-02	-8.555301E-03	-2.718893E-03	0.0
2	G	0.0	0.0	2.292584E-02	-4.629586E-03	-1.99309E-03	0.0
3	G	0.0	0.0	5.909103E-02	-1.94328E-03	-3.417231E-03	0.0
4	G	0.0	0.0	4.817769E-01	-2.001093E-03	-2.132511E-02	0.0
5	G	0.0	0.0	4.227538E-01	9.401448E-04	-4.091050E-02	0.0
6	G	0.0	0.0	6.222853E-01	-6.241153E-04	-6.873565E-02	0.0
7	G	0.0	0.0	1.576551E+00	-1.039742E-02	-1.07569E-01	0.0
8	G	0.0	0.0	2.527253E+00	-1.542975E-02	-1.355133E-01	0.0
9	G	0.0	0.0	3.775343E+00	-2.614389E-02	-1.703348E-01	0.0
10	G	0.0	0.0	5.128282E+00	-3.62277E-02	-1.325329E-01	0.0
11	G	0.0	0.0	-1.276944E-02	-5.989087E-04	0.0	0.0
12	G	0.0	0.0	-9.331233E-03	-3.272300E-04	-1.445300E-03	0.0
13	G	0.0	0.0	0.0	4.501744E-04	-2.396329E-03	0.0
14	G	0.0	0.0	2.613578E-02	-1.621910E-03	-5.867139E-03	0.0
15	G	0.0	0.0	1.038103E-01	-1.120593E-03	-1.476202E-02	0.0
16	G	0.0	0.0	2.738155E-01	-2.257555E-03	-2.913318E-02	0.0
17	G	0.0	0.0	5.696596E-01	-4.269741E-03	-2.168735E-02	0.0
18	G	0.0	0.0	1.107432E+00	-9.239349E-03	-7.941433E-02	0.0
19	G	0.0	0.0	1.850355E+00	-1.619050E-02	-1.083212E-01	0.0
20	G	0.0	0.0	2.830253E+00	-2.539169E-02	-1.457129E-01	0.0
21	G	0.0	0.0	4.036887E+00	-3.394340E-02	-1.750700E-01	0.0
22	G	0.0	0.0	2.430003E+00	-4.300908E-02	-1.933751E-01	0.0
23	G	0.0	0.0	-2.757547E-02	-1.633880E-03	0.0	0.0
24	G	0.0	0.0	-2.027937E-02	-1.034574E-03	-3.108865E-03	0.0
25	G	0.0	0.0	0.0	0.549030E-04	-5.007381E-03	0.0
26	G	0.0	0.0	5.438302E-02	-4.930603E-03	-1.159895E-02	0.0
27	G	0.0	0.0	1.785164E-01	-5.334709E-03	-2.262200E-02	0.0
28	G	0.0	0.0	4.032144E-01	-6.950502E-03	-3.993163E-02	0.0
29	G	0.0	0.0	7.973260E-01	-1.346993E-02	-6.347387E-02	0.0
30	G	0.0	0.0	1.375921E+00	-1.988470E-02	-9.091190E-02	0.0
31	G	0.0	0.0	2.109333E+00	-2.611020E-02	-1.193344E-01	0.0
32	G	0.0	0.0	3.130579E+00	-3.541980E-02	-1.553400E-01	0.0
33	G	0.0	0.0	4.234122E+00	-4.243920E-02	-1.811734E-01	0.0
34	G	0.0	0.0	5.701991E+00	-5.122333E-02	-1.933440E-01	0.0
35	G	0.0	0.0	-5.28357E-02	-1.950708E-03	0.0	0.0
36	G	0.0	0.0	-3.893830E-02	-1.693089E-03	-6.102519E-03	0.0
37	G	0.0	0.0	0.0	1.242886E-03	-1.107923E-02	0.0
38	G	0.0	0.0	9.135407E-02	-1.059705E-02	-1.775095E-02	0.0
39	G	0.0	0.0	2.047064E-01	-1.209000E-02	-3.11300E-02	0.0
40	G	0.0	0.0	2.605419E-01	-1.749537E-02	-5.095955E-02	0.0
41	G	0.0	0.0	1.012564E+00	-2.37605E-02	-7.65337E-02	0.0
42	G	0.0	0.0	1.645200E+00	-3.054037E-02	-1.02018E-01	0.0
43	G	0.0	0.0	2.472980E+00	-4.030210E-02	-1.309359E-01	0.0
44	G	0.0	0.0	3.521378E+00	-4.51006E-02	-1.647037E-01	0.0
45	G	0.0	0.0	4.707021E+00	-5.004203E-02	-1.853242E-01	0.0
46	G	0.0	0.0	5.905403E+00	-5.19930E-02	-1.93424E-01	0.0
47	G	0.0	0.0	-8.130790E-02	-2.003970E-03	0.0	0.0
48	G	0.0	0.0	-6.000195E-02	-1.252073E-03	-9.33330E-03	0.0
49	G	0.0	0.0	0.0	1.034912E-03	-1.714947E-02	0.0
50	G	0.0	0.0	0.0	-1.350703E-02	-2.178889E-02	0.0

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J I S P - A C E M E N T V E C T O R

POINT ID.	TYPE	T1	T2	T3	R1	R2	R3
51	G	0.0	0.0	3.650310E-01	-2.116717E-02	-4.048197E-02	0.0
52	G	0.0	0.0	7.195601E-01	-2.794744E-02	-6.137873E-02	0.0
53	G	0.0	0.0	1.231322E+00	-3.300065E-02	-6.016320E-02	0.0
54	G	0.0	0.0	1.916954E+00	-4.136048E-02	-1.137235E-01	0.0
55	G	0.0	0.0	2.759998E+00	-4.890761E-02	-1.430034E-01	0.0
56	G	0.0	0.0	3.861301E+00	-5.494075E-02	-1.721793E-01	0.0
57	G	0.0	0.0	5.081534E+00	-5.459017E-02	-1.844355E-01	0.0
58	G	0.0	0.0	6.200187E+00	-5.200419E-02	-1.930075E-01	0.0
59	G	0.0	0.0	-1.500527E-01	-3.850400E-03	0.0	0.0
60	G	0.0	0.0	-7.551442E-02	-3.122082E-03	-1.104308E-02	0.0
61	G	0.0	0.0	0.0	1.498098E-04	-2.411348E-02	0.0
62	G	0.0	0.0	9.670720E-02	-2.059610E-02	-2.579175E-02	0.0
63	G	0.0	0.0	4.455892E-01	-2.952399E-02	-4.714592E-02	0.0
64	G	0.0	0.0	8.525483E-01	-3.768769E-02	-7.098005E-02	0.0
65	G	0.0	0.0	1.441451E+00	-4.535110E-02	-9.650784E-02	0.0
66	G	0.0	0.0	2.149722E+00	-5.140387E-02	-1.242703E-01	0.0
67	G	0.0	0.0	3.160814E+00	-5.586071E-02	-1.500594E-01	0.0
68	G	0.0	0.0	4.144572E+00	-5.915132E-02	-1.783110E-01	0.0
69	G	0.0	0.0	5.352546E+00	-5.775276E-02	-1.923266E-01	0.0
70	G	0.0	0.0	6.592927E+00	-5.320378E-02	-1.960111E-01	0.0
71	G	0.0	0.0	-2.237630E-03	-2.801714E-02	-2.723032E-02	0.0
72	G	0.0	0.0	2.137443E-01	-3.029492E-02	-3.587564E-02	0.0
73	G	0.0	0.0	5.044443E-01	-3.940104E-02	-5.000344E-02	0.0
74	G	0.0	0.0	9.517401E-01	-4.793615E-02	-8.147624E-02	0.0
75	G	0.0	0.0	1.634415E+00	-5.610645E-02	-1.057034E-01	0.0
76	G	0.0	0.0	2.586185E+00	-6.270431E-02	-1.359179E-01	0.0
77	G	0.0	0.0	3.340373E+00	-6.530090E-02	-1.655384E-01	0.0
78	G	0.0	0.0	4.442395E+00	-6.490460E-02	-1.857014E-01	0.0
79	G	0.0	0.0	5.636172E+00	-6.071350E-02	-1.960300E-01	0.0
80	G	0.0	0.0	6.793225E+00	-5.920712E-02	-2.004220E-01	0.0
81	G	0.0	0.0	-2.933883E-02	-4.193504E-02	-3.439023E-02	0.0
82	G	0.0	0.0	2.650258E-01	-4.751697E-02	-4.07281E-02	0.0
83	G	0.0	0.0	6.779411E-01	-5.447203E-02	-7.201400E-02	0.0
84	G	0.0	0.0	1.223975E+00	-6.287840E-02	-9.307332E-02	0.0
85	G	0.0	0.0	1.914317E+00	-7.432585E-02	-1.240785E-01	0.0
86	G	0.0	0.0	2.785605E+00	-7.998418E-02	-1.551048E-01	0.0
87	G	0.0	0.0	3.836742E+00	-7.890045E-02	-1.799461E-01	0.0
88	G	0.0	0.0	4.931131E+00	-7.240572E-02	-1.957979E-01	0.0
89	G	0.0	0.0	6.193360E+00	-6.457051E-02	-2.000930E-01	0.0
90	G	0.0	0.0	7.164142E+00	-6.000740E-02	-2.038138E-01	0.0
91	G	0.0	0.0	-9.097307E-02	-2.036876E-03	0.0	0.0
92	G	0.0	0.0	-5.706512E-02	-8.506398E-03	-6.535922E-03	0.0
93	G	0.0	0.0	2.336570E-03	-1.393426E-02	-1.467113E-02	0.0
94	G	0.0	0.0	4.252695E-03	-2.211714E-02	-2.324073E-02	0.0
95	G	0.0	0.0	1.747274E-01	-1.570595E-02	-2.507308E-02	0.0
96	G	0.0	0.0	2.112535E-01	-1.949390E-02	-3.092390E-02	0.0
97	G	0.0	0.0	2.477339E-01	-2.400115E-02	-3.584151E-02	0.0
98	G	0.0	0.0	7.111504E+00	-5.200419E-02	-1.930075E-01	0.0
99	G	0.0	0.0	6.659225E+00	-5.200419E-02	-1.930075E-01	0.0
100	G	0.0	0.0	9.248596E+00	-5.122316E-02	-1.930075E-01	0.0

044-346 COMPOSITE WING FINAL ANALYSIS
A.J. ZINDEL WING STRUCTURES RESEARCH GROUP

POINT ID.	TYPE	DISPLACEMENT			VECTOR		
		T1	T2	T3	R1	R2	R3
114	3	3.0	1.0	4.73332E+00	-5.12231E-02	-1.93874E-01	0.0

FORCES OF SINGLE-POINT CONSTRAINT

POINT ID.	TYPE	T1	T2	T3	R1	R2	R3
11	G	0.0	0.0	0.0	0.0	4.129380E+03	0.0
13	G	0.0	0.0	3.311551E+02	0.0	0.0	0.0
23	G	0.0	0.0	0.0	0.0	1.27775+E+04	0.0
25	G	0.0	0.0	2.770329E+02	0.0	0.0	0.0
35	G	0.0	0.0	0.0	0.0	2.540515E+04	0.0
37	G	0.0	0.0	-1.067338E+02	0.0	0.0	0.0
47	G	0.0	0.0	0.0	0.0	2.362998E+04	0.0
49	G	0.0	0.0	-2.163495E+03	0.0	0.0	0.0
59	G	0.0	0.0	0.0	0.0	1.484989E+04	0.0
51	G	0.0	0.0	-3.29+001E+03	0.0	0.0	0.0
101	G	0.0	0.0	0.0	0.0	1.849900E+04	0.0

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FORCES IN BENDING TRIANGLES (C T R P L I)

ELEMENT ID.	BEND-MOMENT		BEND-MOMENT		TWIST-MOMENT		SHEAR		SHEAR Y
	X	Y	X	Y	X	Y	X	Y	
1	0.774233E+02	1.762556E+01	3.496164E+00	1.232787E+00	1.232787E+00	1.232787E+00	1.162394E+01	1.162394E+01	
2	3.945259E+01	9.414538E+01	-3.677013E+01	-1.163734E+01	-1.163734E+01	-1.163734E+01	-2.069420E+01	-2.069420E+01	
3	1.367773E+01	3.112332E+01	-1.374228E+01	5.888715E+01	5.888715E+01	5.888715E+01	7.127802E+00	7.127802E+00	
4	6.490935E+01	1.174213E+02	-6.775094E+01	-6.775094E+01	-6.775094E+01	-6.775094E+01	-2.017627E+01	-2.017627E+01	
5	4.966003E+01	6.410377E+01	-2.442492E+01	3.086280E+00	3.086280E+00	3.086280E+00	1.719420E+01	1.719420E+01	
6	1.123222E+02	1.141434E+02	-5.774210E+01	-1.510338E+01	-1.510338E+01	-1.510338E+01	-2.689920E+01	-2.689920E+01	
7	5.428163E+01	1.154374E+01	-6.821254E+01	1.351309E+01	1.351309E+01	1.351309E+01	0.996912E+00	0.996912E+00	
8	1.206050E+02	1.119349E+02	-9.103427E+01	-2.311114E+00	-2.311114E+00	-2.311114E+00	-1.709233E+01	-1.709233E+01	
9	5.615139E+01	7.103454E+01	-4.336930E+01	3.009918E+00	3.009918E+00	3.009918E+00	1.205791E+01	1.205791E+01	
10	9.657233E+01	1.358535E+02	-8.007773E+01	1.389014E+01	1.389014E+01	1.389014E+01	-1.892195E+01	-1.892195E+01	
11	3.335228E+01	6.922132E+01	-3.429226E+01	-2.753486E+00	-2.753486E+00	-2.753486E+00	1.772608E+01	1.772608E+01	
12	7.419533E+01	1.208748E+02	-7.103095E+01	7.062508E+00	7.062508E+00	7.062508E+00	-3.015937E+01	-3.015937E+01	
13	1.210865E+01	3.341135E+01	-1.293593E+01	2.002349E+00	2.002349E+00	2.002349E+00	5.193550E+00	5.193550E+00	
14	3.003590E+01	6.332828E+01	-4.144245E+01	2.555333E+00	2.555333E+00	2.555333E+00	-9.001072E+00	-9.001072E+00	
15	7.695223E+00	2.293161E+01	-1.362239E+01	-1.471402E+00	-1.471402E+00	-1.471402E+00	5.511047E+00	5.511047E+00	
16	1.514721E+01	3.767919E+01	-2.261158E+01	5.941844E+00	5.941844E+00	5.941844E+00	-7.197502E+00	-7.197502E+00	
17	-9.131313E+02	1.899479E+01	-1.636189E+01	-1.083930E+00	-1.083930E+00	-1.083930E+00	6.476965E+00	6.476965E+00	
18	-8.092629E+01	2.586355E+01	-1.516359E+01	1.087939E+01	1.087939E+01	1.087939E+01	-5.056711E+00	-5.056711E+00	
19	3.209413E+02	0.153468E+02	-3.904347E+02	5.227974E+01	5.227974E+01	5.227974E+01	5.183930E+00	5.183930E+00	
20	5.512395E+02	1.073120E+03	-6.381812E+02	-7.513709E+01	-7.513709E+01	-7.513709E+01	5.662724E+00	5.662724E+00	
21	4.715011E+02	7.934700E+02	-5.439335E+02	4.784805E+01	4.784805E+01	4.784805E+01	3.593259E+00	3.593259E+00	
22	6.310406E+02	1.071302E+03	-7.259582E+02	-3.887368E+01	-3.887368E+01	-3.887368E+01	-4.469495E+01	-4.469495E+01	
23	6.365327E+02	3.012351E+02	-5.463359E+02	+981117E+01	+981117E+01	+981117E+01	6.924237E+01	6.924237E+01	
24	6.718443E+02	1.339112E+03	-7.704285E+02	-3.109780E+01	-3.109780E+01	-3.109780E+01	-5.365175E+01	-5.365175E+01	
25	6.052113E+02	7.725415E+02	-5.224334E+02	1.989593E+01	1.989593E+01	1.989593E+01	5.571447E+01	5.571447E+01	
26	0.214775E+02	8.444316E+02	-6.433110E+02	3.236170E+01	3.236170E+01	3.236170E+01	-7.900973E+01	-7.900973E+01	
27	4.641511E+02	7.844432E+02	-5.11507E+02	-1.572627E+01	-1.572627E+01	-1.572627E+01	9.853000E+01	9.853000E+01	
28	+5.31307E+02	0.545330E+02	-4.904109E+02	+173359E+01	+173359E+01	+173359E+01	-7.482742E+01	-7.482742E+01	
29	2.982933E+02	5.452170E+02	-3.651102E+02	-3.448757E+01	-3.448757E+01	-3.448757E+01	8.586376E+01	8.586376E+01	
30	3.424334E+02	4.444136E+02	-3.578709E+02	3.136092E+01	3.136092E+01	3.136092E+01	-7.910590E+01	-7.910590E+01	
31	1.313122E+02	3.329129E+02	-1.621508E+02	-1.539971E+01	-1.539971E+01	-1.539971E+01	2.338547E+01	2.338547E+01	
32	1.012912E+02	3.249332E+02	-1.950751E+02	2.157278E+01	2.157278E+01	2.157278E+01	-3.748405E+01	-3.748405E+01	
33	1.513729E+02	3.207264E+02	-2.583417E+02	-1.901412E+01	-1.901412E+01	-1.901412E+01	4.298251E+01	4.298251E+01	
34	2.390141E+01	1.220931E+02	-1.012740E+02	-2.397336E+01	-2.397336E+01	-2.397336E+01	-2.834971E+01	-2.834971E+01	
35	-5.84741E+00	6.183357E+01	-4.712862E+01	-2.397376E+01	-2.397376E+01	-2.397376E+01	1.110050E+01	1.110050E+01	
36	-2.408929E+01	5.276742E+01	-4.177000E+01	1.980343E+01	1.980343E+01	1.980343E+01	-1.407027E+01	-1.407027E+01	
37	7.441039E+02	1.759317E+03	-9.030363E+02	8.175858E+01	8.175858E+01	8.175858E+01	2.571862E+01	2.571862E+01	
38	1.307549E+03	2.580104E+03	-1.291579E+03	-1.223955E+02	-1.223955E+02	-1.223955E+02	-1.099797E+01	-1.099797E+01	
39	9.951255E+02	2.337740E+03	-1.211822E+03	1.145475E+02	1.145475E+02	1.145475E+02	6.969741E+01	6.969741E+01	
40	1.324292E+03	2.651532E+03	-1.578725E+03	-4.159090E+01	-4.159090E+01	-4.159090E+01	-1.071008E+02	-1.071008E+02	
41	1.355103E+03	1.842765E+03	-1.162628E+03	8.309492E+01	8.309492E+01	8.309492E+01	1.129392E+02	1.129392E+02	
42	1.013035E+03	1.981424E+03	-1.255572E+03	4.024337E+01	4.024337E+01	4.024337E+01	-1.377278E+02	-1.377278E+02	
43	9.314541E+02	1.616947E+03	-9.161574E+02	-2.973949E+01	-2.973949E+01	-2.973949E+01	1.059661E+02	1.059661E+02	
44	8.013347E+02	1.396136E+03	-9.178115E+02	5.141707E+01	5.141707E+01	5.141707E+01	-1.077808E+02	-1.077808E+02	
45	0.508444E+02	1.237129E+03	-7.737620E+02	-4.545043E+01	-4.545043E+01	-4.545043E+01	1.032149E+02	1.032149E+02	
46	0.140935E+02	1.036759E+03	-0.720018E+02	5.004342E+01	5.004342E+01	5.004342E+01	-1.001935E+02	-1.001935E+02	
47	4.240937E+02	8.001930E+02	-5.242093E+02	-4.019050E+01	-4.019050E+01	-4.019050E+01	9.267002E+01	9.267002E+01	
48	4.625935E+02	0.957542E+02	-5.264940E+02	4.600993E+01	4.600993E+01	4.600993E+01	-7.500140E+01	-7.500140E+01	
49	2.037031E+02	5.360150E+02	-2.621910E+02	-3.400973E+01	-3.400973E+01	-3.400973E+01	5.009030E+01	5.009030E+01	
50	1.724400E+02	3.236272E+02	-1.094412E+02	2.147714E+01	2.147714E+01	2.147714E+01	-5.360000E+01	-5.360000E+01	

F O R C E S I N B E N D I N G T R I A N G L E S (C O T R P L T)

ELEMENT ID.	BEND-MOMENT X	BEND-MOMENT Y	TWIST-MOMENT	SHEAR X	SHEAR Y
59	1.317395E+02	2.222146E+02	-1.515990E+02	-2.715066E+01	3.398267E+01
60	4.931052E+01	1.455019E+02	-1.090053E+02	1.193013E+01	-3.340435E+01
61	1.427175E+00	9.792251E+01	-5.702363E+01	-1.092859E+01	1.622305E+01
62	1.427123E+01	6.284331E+01	-3.026088E+01	9.401140E+00	-1.923376E+01
67	1.224934E+03	3.737359E+03	-1.539490E+03	9.821745E+01	5.654615E+01
68	7.759193E+02	4.706948E+03	-9.076778E+02	-1.151357E+02	-2.395276E+02
69	2.190725E+03	2.390010E+03	-2.029476E+03	2.110145E+02	-4.202144E+02
70	1.432655E+03	3.359716E+03	-1.558127E+03	-1.080140E+02	1.957522E+02
71	1.035137E+03	2.398145E+03	-1.026210E+03	-5.070951E+01	1.331400E+02
72	1.150943E+03	2.221551E+03	-1.275070E+03	7.833395E+01	-1.152195E+02
73	8.760313E+02	1.515934E+03	-1.084639E+03	-5.582233E+01	1.213494E+02
74	3.398475E+02	1.512341E+03	-9.155895E+02	7.417981E+01	-1.162754E+02
75	5.040335E+02	1.243352E+03	-7.284000E+02	-5.934593E+01	1.011855E+02
76	5.501691E+02	9.399352E+02	-5.953448E+02	5.470568E+01	-0.142082E+01
77	3.151477E+02	8.202272E+02	-3.897110E+02	-4.505150E+01	5.474422E+01
78	3.047374E+02	5.621435E+02	-3.391557E+02	4.816552E+01	-5.050399E+01
79	1.631239E+02	3.818238E+02	-1.952271E+02	-4.026942E+01	4.170843E+01
80	1.291252E+02	3.398326E+02	-1.717542E+02	2.609768E+01	-3.053616E+01
81	3.523143E+01	1.915174E+02	-1.202329E+02	-2.000103E+01	3.078002E+01
82	5.90279E+01	1.138452E+02	-9.435370E+01	1.494561E+01	-2.664092E+01
83	1.593413E+01	3.369839E+01	-3.385200E+01	-1.900730E+01	1.892070E+01
84	1.730338E+01	7.69796E+01	-1.655701E+01	9.572963E+00	-2.000103E+01
89	1.400533E+03	4.893939E+03	-1.819170E+03	3.476363E+02	2.600070E+02
90	1.514201E+03	4.862157E+03	-2.647275E+03	5.987734E+01	-5.134121E+02
91	1.015351E+03	2.774256E+03	-1.468875E+03	1.840505E+02	-7.373552E+01
92	1.272447E+03	2.699732E+03	-1.358600E+03	-1.200085E+02	1.677799E+02
93	7.324053E+02	2.395358E+03	-1.018474E+03	-8.468121E+01	9.097142E+01
94	6.919735E+02	1.325890E+03	-7.008430E+02	5.500540E+01	-7.800598E+01
95	0.091750E+02	1.384934E+03	-7.268310E+02	-5.529581E+01	3.332844E+01
96	4.747623E+02	8.959735E+02	-7.168420E+02	5.072250E+01	-3.713517E+01
97	4.137735E+02	8.771901E+02	-5.102559E+02	-5.765608E+01	5.818901E+01
98	3.230142E+02	6.134313E+02	-3.512112E+02	3.970017E+01	-2.671000E+01
99	2.895211E+02	6.226714E+02	-3.067509E+02	-4.709850E+01	4.036578E+01
100	1.930995E+02	2.939713E+02	-1.892158E+02	2.761925E+01	-1.999751E+01
101	1.522435E+02	3.995120E+02	-1.790135E+02	-4.501702E+01	3.526240E+01
102	1.071897E+02	1.987214E+02	-1.252963E+02	1.909833E+01	-2.654480E+01
103	5.197465E+01	1.033915E+02	-0.696627E+01	-1.017906E+01	2.320043E+01
104	4.034042E+01	4.435328E+01	-4.749904E+01	1.379859E+01	-1.940659E+01
105	6.930032E+00	-2.723333E+01	-2.021815E+01	-1.382295E+01	1.625197E+01
106	2.113104E+01	-2.510111E+01	-1.059503E+01	4.443080E+00	-9.088071E+00
107	1.516173E+01	5.218452E+01	-3.726432E+01	-1.250745E+02	1.829504E+02
108	6.836807E+02	4.721787E+02	-7.800975E+02	8.650983E+01	5.201470E+01
109	2.393022E+02	2.310372E+03	-4.012795E+02	9.005723E+01	-7.499446E+01
110	2.548321E+02	0.951320E+02	-2.890239E+02	-0.745274E+01	-3.400100E+00
111	2.934713E+02	9.903022E+02	-3.748761E+02	-0.784703E+01	4.083292E+01
112	1.940342E+02	5.332971E+02	-2.210128E+02	4.762335E+01	-1.407443E+00
113	1.919361E+02	5.936337E+02	-2.567735E+02	-3.230200E+01	2.365702E+01
114	1.361127E+02	3.435445E+02	-1.053542E+02	2.293393E+01	1.171634E+00
115	1.247331E+02	3.442412E+02	-1.170788E+02	-2.719750E+01	1.702881E+01

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BQM-34C COMPOSITE WING FINAL ANALYSIS
A.J.ZINDEL AERO STRUCTURES RESEARCH GROUP

ELEMENT NO.	FORCES IN BENDING TRIANGLES			(C T R P L T)			SHEAR		
	BEND-MOMENT X	BEND-MOMENT Y	TWIST-MOMENT	SHEAR X	SHEAR Y		SHEAR X	SHEAR Y	
117	1.00394E+02	2.53870E+02	-1.50785E+02	-2.25081E+01	1.10820E+01		1.10820E+01		
118	3.05123E+01	1.49857E+02	-9.36937E+01	1.59333E+01	-3.34725E+00		-3.34725E+00		
119	5.04724E+01	1.23387E+02	-8.04558E+01	1.23387E+01	1.57650E+01		1.57650E+01		
120	3.48291E+01	2.17222E+01	-3.22094E+01	6.37931E+00	-8.63247E+00		-8.63247E+00		
121	1.86621E+01	2.00373E+01	-2.27482E+01	-3.40259E+00	1.04400E+01		1.04400E+01		
122	8.54643E+00	-7.47137E-01	-1.13040E+01	3.05944E+00	-3.02875E+00		-3.02875E+00		
123	1.36281E+00	-1.69553E+01	-3.08914E+00	-2.50282E+00	2.10545E+01		2.10545E+01		
124	1.01723E+01	-7.14822E+00	-2.70410E+01	-2.63508E+00	-3.49919E+00		-3.49919E+00		
125	1.17432E+01	4.08832E+01	-8.23494E+00	1.39930E+00	3.09000E+01		3.09000E+01		
126	1.05294E+00	1.80334E+01	-3.20411E+01	-5.23501E+00	-1.04002E+01		-1.04002E+01		
127	3.10334E+01	1.24313E+02	-1.07480E+01	2.84725E+00	2.00200E+01		2.00200E+01		
128	7.70075E+00	3.50934E+01	-1.96340E+01	-4.92805E+00	-3.85104E+00		-3.85104E+00		
129	2.33324E+01	7.25058E+01	-9.91404E+00	3.90316E+00	-3.74481E+01		-3.74481E+01		
130	5.37373E+00	3.49979E+01	-2.00942E+01	-5.77514E+00	-1.03570E+01		-1.03570E+01		
131	1.89302E+01	7.26959E+01	-5.40811E+00	1.70503E+00	2.49772E+01		2.49772E+01		
132	4.16433E+00	1.89872E+01	-1.44467E+01	-4.35953E+00	-2.64024E+01		-2.64024E+01		
133	1.00025E+01	3.53033E+01	-1.26209E+01	1.39283E+00	4.09712E+01		4.09712E+01		
134	3.85883E+00	1.23203E+01	-1.26209E+01	-4.70025E+00	8.14960E+01		8.14960E+01		
135	3.21382E+01	2.50237E+01	-1.26209E+01	1.50776E+00	-3.49243E+01		-3.49243E+01		
136	3.41375E+00	7.36059E+00	-1.50032E+01	-4.20259E+00	1.07408E+00		1.07408E+00		
137	1.82049E+01	1.55071E+01	-1.60032E+01	8.74688E+01	-8.01843E+01		-8.01843E+01		
138	1.67397E+00	1.57547E+00	-6.09143E+00	-2.31793E+00	3.47405E+00		3.47405E+00		
139	5.05283E+00	-2.52531E-01	-3.51979E-01	3.00693E+01	-5.18010E+01		-5.18010E+01		
140	1.45214E-01	-3.43837E-01	-1.39766E+00	2.39526E-01	1.03808E-01		1.03808E-01		
141	5.11523E-01	-2.35933E+00	-1.58550E-01	-1.72593E-01	-5.17040E-02		-5.17040E-02		
142	-1.80918E-01	-5.48536E-01	-1.80513E+00	1.20091E+02	1.00759E+02		1.00759E+02		
143	2.00471E+03	2.50542E+03	-1.52188E+03	7.28359E+01	-2.45400E+02		-2.45400E+02		
144	1.41097E+03	2.43725E+03	-2.31047E+03	2.37164E+02	4.00007E+02		4.00007E+02		
145	7.58705E+02	4.44539E+03	-1.50422E+03	-9.33805E+01	3.23930E+02		3.23930E+02		
146	1.31500E+03	3.32665E+03	-1.27590E+03	1.19957E+02	-3.09070E+01		-3.09070E+01		
147	1.31691E+03	2.41632E+03	-9.92149E+02	1.35316E+02	-8.65813E+01		-8.65813E+01		
148	8.23722E+02	3.98289E+03	-7.37850E+02	1.00219E+02	-4.31789E+01		-4.31789E+01		
149	4.02503E+02	9.81734E+02	-2.50180E+02	-7.18458E+01	1.00999E+02		1.00999E+02		
150	1.31765E+02	1.07752E+03	-2.50180E+02						

F O R C E S I N B E N D I N G A U D I R I A L S (C O Q O P L T)

ELEMENT ID.	BEND-MOMENT X	BEND-MOMENT Y	TWIST-MOMENT	SHEAR X	SHEAR Y
151	4.983511E+01	1.259655E+03	-3.907362E+01	2.474742E+01	1.993552E+01
152	5.832333E+01	3.297514E+02	-1.291933E+02	2.446944E+01	6.247358E+01
153	1.531132E+02	2.151127E+03	-6.913795E+01	4.021112E+01	1.519148E+01
154	1.636321E+02	2.360555E+03	-2.351547E+02	4.502294E+01	4.556077E+01
155	2.946238E+02	4.048532E+03	-8.244751E+01	5.457560E+01	-1.636206E-01
156	3.089373E+02	4.214724E+03	-3.055058E+02	5.962795E+01	1.833318E+01
157	3.629045E+02	5.230598E+03	-6.588241E+01	7.080028E+01	-1.692435E+01
158	3.308551E+02	4.396245E+03	-2.407345E+02	1.045715E+02	-0.533615E+00
159	2.625643E+02	5.523585E+03	-2.381573E+02	2.002007E+01	-1.373037E+01
160	3.808701E+02	6.126233E+03	-1.044440E+02	2.079386E+02	-8.147008E+01

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BQ1-34E COMPOSITE WING FINAL ANALYSIS
A.J. ZUIDEL AERO STRUCTURES RESEARCH GROUP

FORCES IN 3 A K ELEMENTS (C B A R)

ELEMENT ID.	BEND-MOMENT END-A		BEND-MOMENT END-B		BEND-MOMENT END-C		SHEAR		AXIAL FORCE		TORQUE
	PLANE 1	PLANE 2	PLANE 1	PLANE 2	PLANE 1	PLANE 2	PLANE 1	PLANE 2	PLANE 1	PLANE 2	
201	0.458416E+03	0.0	6.557115E+03	0.0	-2.413+33E+01	0.0	0.0	0.0	0.0	0.0	6.247327E-02
202	6.402260E+03	0.0	7.277037E+03	0.0	-1.945255E+02	0.0	0.0	0.0	0.0	0.0	2.942332E-01
203	5.907171E+02	0.0	0.6583029E+02	0.0	-2.500337E+01	0.0	0.0	0.0	0.0	0.0	-1.059000E+00
204	0.649503E+02	0.0	0.119733E+02	0.0	1.177258E+01	0.0	0.0	0.0	0.0	0.0	2.437054E-02
205	5.347503E+02	0.0	3.738154E+02	0.0	0.043214E+01	0.0	0.0	0.0	0.0	0.0	0.930511E-02
211	1.590966E+01	0.0	-1.082551E+03	0.0	4.141+6E+02	0.0	0.0	0.0	0.0	0.0	-4.997100E+00
212	7.539721E+01	0.0	-2.557424E+02	0.0	8.400+35E+01	0.0	0.0	0.0	0.0	0.0	-3.206565E+00
213	4.398045E+02	0.0	-4.350333E+02	0.0	1.058072E+02	0.0	0.0	0.0	0.0	0.0	-2.913572E+00
214	3.278343E+02	0.0	-2.431+1E+02	0.0	6.998239E+01	0.0	0.0	0.0	0.0	0.0	-1.235560E+00
215	1.731574E+02	0.0	-1.457593E+02	0.0	3.860212E+01	0.0	0.0	0.0	0.0	0.0	-0.834420E-01
221	-8.357971E+00	0.0	-6.253875E+01	0.0	1.913942E+01	0.0	0.0	0.0	0.0	0.0	-0.804430E+01
222	-7.21437E+00	0.0	-4.357403E+00	0.0	-1.013555E+00	0.0	0.0	0.0	0.0	0.0	-3.393930E+00
223	1.627503E+00	0.0	6.455755E-01	0.0	3.400318E-01	0.0	0.0	0.0	0.0	0.0	-2.6500240E+00
224	1.99000E+01	0.0	-5.927158E+00	0.0	1.099+27E+01	0.0	0.0	0.0	0.0	0.0	-3.634571E+01
231	0.0	0.0	-2.514571E-08	0.0	5.587335E-09	0.0	0.0	0.0	0.0	0.0	0.0
232	-1.430110E-08	0.0	-2.214644E-08	0.0	1.602005E-09	0.0	0.0	0.0	0.0	0.0	-1.882640E-09
233	1.340336E+01	0.0	2.539025E+01	0.0	-4.15+23E+00	0.0	0.0	0.0	0.0	0.0	-3.039930E+01
234	-8.102239E+01	0.0	-1.149933E+02	0.0	1.230753E+01	0.0	0.0	0.0	0.0	0.0	-3.870012E+02
235	1.005820E-07	0.0	7.137279E-08	0.0	6.519250E-09	0.0	0.0	0.0	0.0	0.0	7.425513E-09
236	5.587335E-03	0.0	-4.470348E-08	0.0	2.235174E-08	0.0	0.0	0.0	0.0	0.0	7.425513E-09

BQ1-34L COMPOSITE WING FINAL ANALYSIS
A.J.JANDEL AERO STRUCTURES RESEARCH GROUP

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ELEMENT ID.	FIBRE DISTANCE	STRESSES IN BENDING TRIANGLES (C T R P L T)			PRINCIPAL STRESSES (ZERO SHEAR)			MAX SHEAR
		NORMAL-X	NORMAL-Y	SHEAR-XY	MAJOR	MINOR		
1	-2.80000E-01	-3.793571E+03	-9.870975E+02	-1.957010E+02	3.375439E+01	-1.024036E+03		5.291949E+02
	-2.80000E-01	3.793571E+03	9.870975E+02	1.957010E+02	1.024036E+03	-3.375439E+01		5.291949E+02
2	-4.60000E-01	-1.296300E+03	-3.193381E+03	1.208553E+03	-6.890163E+02	-3.700064E+03		1.505624E+03
	-4.60000E-01	1.296300E+03	3.193381E+03	-1.208553E+03	6.890163E+02	3.700064E+03		1.505624E+03
3	2.30000E-01	-1.148620E+03	-2.386107E+03	1.023575E+03	-4.694890E+02	-2.965304E+03		1.247908E+03
	2.30000E-01	1.148620E+03	2.386107E+03	-1.023575E+03	4.694890E+02	2.965304E+03		1.247908E+03
4	-4.00000E-01	-2.329784E+03	-4.262550E+03	2.403889E+03	-0.495310E+02	-5.942702E+03		2.040605E+03
	-4.00000E-01	2.329784E+03	4.262550E+03	-2.403889E+03	0.495310E+02	5.942702E+03		2.040605E+03
5	2.50000E-01	-3.104312E+03	-4.010610E+03	1.526857E+03	-1.965067E+03	-5.149856E+03		1.592039E+03
	2.50000E-01	3.104312E+03	4.010610E+03	-1.526857E+03	1.965067E+03	5.149856E+03		1.592039E+03
6	3.70000E-01	-4.017690E+03	-4.094243E+03	2.373842E+03	-2.261816E+03	-7.030117E+03		2.374151E+03
	3.70000E-01	4.017690E+03	4.094243E+03	-2.373842E+03	2.261816E+03	7.030117E+03		2.374151E+03
7	2.30000E-01	-4.161515E+03	-3.951840E+03	2.162862E+03	-1.891177E+03	-0.222179E+03		2.165501E+03
	2.30000E-01	4.161515E+03	3.951840E+03	-2.162862E+03	1.891177E+03	0.222179E+03		2.165501E+03
8	3.40000E-01	-5.127880E+03	-4.759360E+03	3.808950E+03	-1.070278E+03	-8.616962E+03		3.873342E+03
	3.40000E-01	5.127880E+03	4.759360E+03	-3.808950E+03	1.070278E+03	8.616962E+03		3.873342E+03
9	2.10000E-01	-3.930597E+03	-5.014424E+03	3.031055E+03	-1.392803E+03	-7.552219E+03		3.079710E+03
	2.10000E-01	3.930597E+03	5.014424E+03	-3.031055E+03	1.392803E+03	7.552219E+03		3.079710E+03
10	3.10000E-01	-4.079002E+03	-5.469602E+03	4.488831E+03	-5.085729E+02	-9.500631E+03		4.506029E+03
	3.10000E-01	4.079002E+03	5.469602E+03	-4.488831E+03	5.085729E+02	9.500631E+03		4.506029E+03
11	1.90000E-01	-2.883406E+03	-0.275025E+03	3.257765E+03	-9.851794E+02	-8.474312E+03		3.744506E+03
	1.90000E-01	2.883406E+03	0.275025E+03	-3.257765E+03	8.474312E+03	9.851794E+02		3.744506E+03
12	2.70000E-01	-4.100051E+03	-6.527233E+03	3.835666E+03	-1.229470E+03	-9.300319E+03		4.037425E+03
	2.70000E-01	4.100051E+03	6.527233E+03	-3.835666E+03	1.229470E+03	9.300319E+03		4.037425E+03
13	1.60000E-01	-1.950189E+03	-4.865816E+03	2.109749E+03	-0.763831E+02	-5.939017E+03		2.531617E+03
	1.60000E-01	1.950189E+03	4.865816E+03	-2.109749E+03	0.763831E+02	5.939017E+03		2.531617E+03
14	-2.40000E-01	-2.082879E+03	-5.545262E+03	3.315396E+03	-6.417213E+02	-7.767420E+03		3.572850E+03
	-2.40000E-01	2.082879E+03	5.545262E+03	-3.315396E+03	6.417213E+02	7.767420E+03		3.572850E+03
15	1.40000E-01	-1.077332E+03	-3.210425E+03	1.972191E+03	4.129930E+01	-4.329057E+03		2.185178E+03
	1.40000E-01	1.077332E+03	3.210425E+03	-1.972191E+03	-4.129930E+01	4.329057E+03		2.185178E+03
16	2.00000E-01	-1.514721E+03	-3.767019E+03	2.201158E+03	-1.665231E+02	-5.113817E+03		2.472647E+03
	2.00000E-01	1.514721E+03	3.767019E+03	-2.201158E+03	1.665231E+02	5.113817E+03		2.472647E+03

804-34E COMPOSITE WING FINAL ANALYSIS
A.J. ZINDEL AERO STRUCTURES RESEARCH GROUP

ELEMENT ID.	FIBRE DISTANCE	STRESSES IN BE N D I N G T R I A N G L E S (C T R P L T)				P R I N C I P A L S T R E S S E S (Z E R O S H E A R)		MAX S H E A R
		NORMAL-X	NORMAL-Y	SHEAR-XY	ANGLE	MAJOR	MINOR	
17	1.230000E-01 -1.230000E-01	1.101976E+01 -1.101976E+01	-2.171371E+03 2.171371E+03	1.243427E+03 -1.243427E+03	24.3654 -65.6346	5.741574E+02 2.734509E+03	-2.734509E+03 -5.741574E+02	1.654333E+03 1.654333E+03
18	1.700000E-01 -1.700000E-01	6.678905E+02 -6.678905E+02	-2.155910E+03 2.155910E+03	1.230605E+03 -1.230605E+03	21.1144 -68.8856	1.186267E+03 2.654287E+03	-2.654287E+03 -1.186267E+03	1.920277E+03 1.920277E+03
23	7.000000E-01 -7.000000E-01	-2.870032E+03 2.070032E+03	-3.397197E+03 3.397197E+03	2.472943E+03 -2.472943E+03	34.8802 -55.1198	-3.477173E+02 5.623111E+03	-5.623111E+03 3.477173E+02	2.036197E+03 2.036197E+03
24	7.400000E-01 -7.400000E-01	-3.735503E+03 3.735503E+03	-7.290192E+03 7.290192E+03	4.332606E+03 -4.332606E+03	33.8477 -56.1523	-6.293521E+02 1.019504E+04	-1.019504E+04 6.293521E+02	4.082396E+03 4.082396E+03
25	5.400000E-01 -5.400000E-01	-3.725496E+03 3.725496E+03	-6.245759E+03 6.245759E+03	4.297746E+03 -4.297746E+03	36.0232 -53.1768	-5.003435E+02 9.46+305E+03	-9.46+305E+03 5.003435E+02	4.478076E+03 4.478076E+03
26	5.500000E-01 -5.500000E-01	-4.769492E+03 4.769492E+03	-8.111588E+03 8.111588E+03	5.466893E+03 -5.466893E+03	36.5558 -53.4452	-7.012821E+02 1.216980E+04	-1.216980E+04 7.012821E+02	5.734250E+03 5.734250E+03
27	5.700000E-01 -5.700000E-01	-5.391583E+03 5.391583E+03	-7.480991E+03 7.480991E+03	5.105106E+03 -5.105106E+03	40.5596 -49.4404	-1.522217E+03 1.185032E+04	-1.185032E+04 1.522217E+03	5.157055E+03 5.157055E+03
28	5.800000E-01 -5.800000E-01	-7.367699E+03 7.367699E+03	-8.780383E+03 8.780383E+03	6.910663E+03 -6.910663E+03	41.9041 -48.0959	-1.523174E+03 1.462291E+04	-1.462291E+04 1.523174E+03	6.543807E+03 6.543807E+03
29	5.200000E-01 -5.200000E-01	-7.748162E+03 7.748162E+03	-1.057162E+04 1.057162E+04	7.149048E+03 -7.149048E+03	39.4147 -50.5853	-1.872789E+03 1.644099E+04	-1.644099E+04 1.872789E+03	7.287102E+03 7.287102E+03
30	5.900000E-01 -5.900000E-01	-8.320063E+03 8.320063E+03	-1.080163E+04 1.080163E+04	8.228259E+03 -8.228259E+03	40.7123 -49.2877	-1.239551E+03 1.788214E+04	-1.788214E+04 1.239551E+03	8.321295E+03 8.321295E+03
31	4.600000E-01 -4.600000E-01	-7.423635E+03 7.423635E+03	-1.202874E+04 1.202874E+04	7.837737E+03 -7.837737E+03	36.8142 -53.1858	-1.557233E+03 1.789515E+04	-1.789515E+04 1.557233E+03	8.168958E+03 8.168958E+03
32	4.900000E-01 -4.900000E-01	-7.330837E+03 7.330837E+03	-1.145391E+04 1.145391E+04	8.982296E+03 -8.982296E+03	39.2009 -50.7991	-9.311613E+02 1.845358E+04	-1.845358E+04 9.311613E+02	8.761211E+03 8.761211E+03
33	4.100000E-01 -4.100000E-01	-6.115012E+03 6.115012E+03	-1.117692E+04 1.117692E+04	7.505299E+03 -7.505299E+03	35.6823 -54.3177	-7.254556E+02 1.655691E+04	-1.655691E+04 7.254556E+02	7.920525E+03 7.920525E+03
34	4.400000E-01 -4.400000E-01	-7.533645E+03 7.533645E+03	-9.772104E+03 9.772104E+03	7.873160E+03 -7.873160E+03	40.9540 -49.0459	-7.005509E+02 1.660919E+04	-1.660919E+04 7.005509E+02	7.952316E+03 7.952316E+03
35	3.600000E-01 -3.600000E-01	-5.908733E+03 5.908733E+03	-1.363033E+04 1.363033E+04	7.297148E+03 -7.297148E+03	31.0593 -56.9417	-1.514050E+03 1.802553E+04	-1.802553E+04 1.514050E+03	8.259022E+03 8.259022E+03
36	3.800000E-01 -3.800000E-01	-5.129066E+03 5.129066E+03	-1.233224E+04 1.233224E+04	7.450855E+03 -7.450855E+03	33.6997 -56.3003	-1.100022E+03 1.730128E+04	-1.730128E+04 1.100022E+03	8.070630E+03 8.070630E+03

STRESSES IN BENDING TRIANGLES (C T R P L T)

ELEMENT ID.	FIBRE DISTANCE	SIXESSES IN ELEMENT COORD SYSTEM	NORMAL-X	NORMAL-Y	SHEAR-XY	ANGLE	PRINCIPAL STRESSES (ZERO SHEAR)	MAJOR	MINOR	MAX SHEAR
37	3.100000E-01	-3.345186E+03	-7.101065E+03	5.277585E+03	-5.277585E+03	35.23+9	3.784025E+02	1.082525E+04	-1.082525E+04	5.601020E+03
	-3.100000E-01	3.345186E+03	7.101065E+03	-5.277585E+03	5.277585E+03	-35.23+9	1.082525E+02	1.082525E+04	-1.082525E+04	5.601020E+03
38	3.300000E-01	-2.541006E+03	-5.793817E+03	4.774344E+03	-4.774344E+03	35.59+3	8.763127E+02	9.211196E+03	-9.211196E+03	5.043754E+03
	-3.300000E-01	2.541006E+03	5.793817E+03	-4.774344E+03	4.774344E+03	-35.59+3	9.211196E+03	8.763127E+02	-8.763127E+02	5.043754E+03
39	2.600000E-01	3.800841E+02	-4.119182E+03	3.000000E+03	-3.000000E+03	27.16+0	1.951732E+03	5.591732E+03	-5.591732E+03	3.771281E+03
	-2.600000E-01	-3.800841E+02	4.119182E+03	-3.000000E+03	3.000000E+03	-27.16+0	5.591732E+03	1.951732E+03	-1.951732E+03	3.771281E+03
40	2.700000E-01	-1.300821E+03	-2.049441E+03	2.255581E+03	-2.255581E+03	23.69+3	2.290623E+03	3.839243E+03	-3.839243E+03	3.064933E+03
	-2.700000E-01	1.300821E+03	2.049441E+03	-2.255581E+03	2.255581E+03	-23.69+3	3.839243E+03	2.290623E+03	-2.290623E+03	3.064933E+03
45	7.900000E-01	-4.290835E+03	-1.014843E+04	5.207116E+03	-5.207116E+03	30.32+0	-1.245361E+03	1.313330E+04	-1.313330E+04	5.974270E+03
	-7.900000E-01	4.290835E+03	1.014843E+04	-5.207116E+03	5.207116E+03	-30.32+0	1.313330E+04	-1.245361E+03	1.313330E+04	5.974270E+03
46	7.800000E-01	-5.204942E+03	-1.257781E+04	6.296445E+03	-6.296445E+03	29.82+3	-1.594042E+03	1.594042E+04	-1.594042E+04	7.296335E+03
	-7.800000E-01	5.204942E+03	1.257781E+04	-6.296445E+03	6.296445E+03	-29.82+3	1.594042E+04	-1.594042E+03	1.594042E+04	7.296335E+03
47	7.400000E-01	-5.460244E+03	-1.116983E+04	0.642581E+03	-0.642581E+03	33.37+7	-1.084980E+03	1.554510E+04	-1.554510E+04	7.230550E+03
	-7.400000E-01	5.460244E+03	1.116983E+04	-0.642581E+03	0.642581E+03	-33.37+7	1.554510E+04	-1.084980E+03	1.554510E+04	7.230550E+03
48	7.400000E-01	-6.852981E+03	-1.372199E+04	8.169628E+03	-8.169628E+03	33.53+1	-1.425283E+03	1.914969E+04	-1.914969E+04	8.862204E+03
	-7.400000E-01	6.852981E+03	1.372199E+04	-8.169628E+03	8.169628E+03	-33.53+1	1.914969E+04	-1.425283E+03	1.914969E+04	8.862204E+03
49	7.000000E-01	-7.614098E+03	-1.329831E+04	7.957111E+03	-7.957111E+03	35.17+2	-2.007155E+03	1.891585E+04	-1.891585E+04	8.449347E+03
	-7.000000E-01	7.614098E+03	1.329831E+04	-7.957111E+03	7.957111E+03	-35.17+2	1.891585E+04	-2.007155E+03	1.891585E+04	8.449347E+03
50	7.600000E-01	-9.578956E+03	-1.444789E+04	9.155214E+03	-9.155214E+03	37.55+5	-2.540000E+03	2.148678E+04	-2.148678E+04	9.473361E+03
	-7.600000E-01	9.578956E+03	1.444789E+04	-9.155214E+03	9.155214E+03	-37.55+5	2.148678E+04	-2.540000E+03	2.148678E+04	9.473361E+03
51	5.300000E-01	-8.391248E+03	-1.543450E+04	9.413323E+03	-9.413323E+03	35.41+5	-2.197225E+03	2.212852E+04	-2.212852E+04	9.965647E+03
	-5.300000E-01	8.391248E+03	1.543450E+04	-9.413323E+03	9.413323E+03	-35.41+5	2.212852E+04	-2.197225E+03	2.212852E+04	9.965647E+03
52	5.300000E-01	-9.352618E+03	-1.515492E+04	9.969332E+03	-9.969332E+03	36.87+1	-1.874489E+03	2.204305E+04	-2.204305E+04	1.038428E+04
	-5.300000E-01	9.352618E+03	1.515492E+04	-9.969332E+03	9.969332E+03	-36.87+1	2.204305E+04	-1.874489E+03	2.204305E+04	1.038428E+04
53	5.700000E-01	-8.506262E+03	-1.667417E+04	1.002373E+04	-1.002373E+04	33.91+6	-1.766630E+03	2.341406E+04	-2.341406E+04	1.082372E+04
	-5.700000E-01	8.506262E+03	1.667417E+04	-1.002373E+04	1.002373E+04	-33.91+6	2.341406E+04	-1.766630E+03	2.341406E+04	1.082372E+04
54	5.600000E-01	-9.302080E+03	-1.523743E+04	1.017175E+04	-1.017175E+04	36.88+6	-1.674443E+03	2.286597E+04	-2.286597E+04	1.059571E+04
	-5.600000E-01	9.302080E+03	1.523743E+04	-1.017175E+04	1.017175E+04	-36.88+6	2.286597E+04	-1.674443E+03	2.286597E+04	1.059571E+04
55	5.100000E-01	-7.683710E+03	-1.468432E+04	9.540097E+03	-9.540097E+03	34.93+6	-1.014537E+03	2.135349E+04	-2.135349E+04	1.016948E+04
	-5.100000E-01	7.683710E+03	1.468432E+04	-9.540097E+03	9.540097E+03	-34.93+6	2.135349E+04	-1.014537E+03	2.135349E+04	1.016948E+04
56	5.000000E-01	-8.356974E+03	-1.288452E+04	9.647052E+03	-9.647052E+03	39.21+5	-1.063850E+03	2.075705E+04	-2.075705E+04	9.846898E+03
	-5.000000E-01	8.356974E+03	1.288452E+04	-9.647052E+03	9.647052E+03	-39.21+5	2.075705E+04	-1.063850E+03	2.075705E+04	9.846898E+03

BQ4-34E COMPOSITE WING FINAL ANALYSIS
A.J.ZINDEL AERO STRUCTURES RESEARCH GROUP

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ELEMENT ID.	FIBRE DISTANCE	STRESSES IN 3 E N D I N G T K I A N G L E S (C T R P L T)			PRINCIPAL STRESSES (ZERO SHEAR)		MAX SHEAR
		NORMAL-X	NORMAL-Y	SHEAR-XY	MAJOR	MINOR	
57	4.500000E-01	-7.052854E+03	-1.760593E+04	9.076018E+03	-1.831014E+03	-2.028777E+04	1.049038E+04
	-4.500000E-01	7.052854E+03	1.760593E+04	-9.076018E+03	2.262777E+04	1.831014E+03	1.049038E+04
58	4.400000E-01	-7.587644E+03	-1.445520E+04	8.333053E+03	-2.000305E+03	-2.030347E+04	9.013390E+03
	-4.400000E-01	7.587644E+03	1.445520E+04	-8.333053E+03	2.000305E+04	2.030347E+03	9.013390E+03
59	3.800000E-01	-3.880490E+03	-8.436557E+03	5.722702E+03	1.101431E+04	-1.231314E+04	6.162375E+03
	-3.800000E-01	3.880490E+03	8.436557E+03	-5.722702E+03	1.231314E+04	-1.101431E+04	6.162375E+03
60	3.700000E-01	-2.011488E+03	-5.082075E+03	4.483797E+03	9.034489E+02	-8.901445E+03	4.902967E+03
	-3.700000E-01	2.011488E+03	5.082075E+03	-4.483797E+03	8.901445E+03	-9.034489E+02	4.902967E+03
61	3.200000E-01	-4.099055E+03	-4.477834E+03	2.609547E+03	1.101747E+03	-5.065537E+03	3.423142E+03
	-3.200000E-01	4.099055E+03	4.477834E+03	-2.609547E+03	5.065537E+03	-1.101747E+03	3.423142E+03
62	3.100000E-01	-7.450953E+02	-3.246904E+03	1.503727E+03	0.499630E+04	-3.998439E+03	2.602499E+03
	-3.100000E-01	7.450953E+02	3.246904E+03	-1.503727E+03	3.998439E+03	-0.499630E+04	2.602499E+03
67	8.000000E-01	-5.050180E+03	-1.718377E+04	7.078113E+03	-2.270726E+03	-2.054322E+04	9.136240E+03
	-8.000000E-01	5.050180E+03	1.718377E+04	-7.078113E+03	2.054322E+04	-2.270726E+03	9.136240E+03
68	8.000000E-01	-3.716933E+03	-2.254825E+04	4.345283E+03	-2.702630E+03	-2.350250E+04	1.036190E+04
	-8.000000E-01	3.716933E+03	2.254825E+04	-4.345283E+03	2.350250E+04	-2.702630E+03	1.036190E+04
69	7.900000E-01	-1.126891E+04	-1.487661E+04	1.041095E+04	-2.500725E+03	-2.363887E+04	1.056007E+04
	-7.900000E-01	1.126891E+04	1.487661E+04	-1.041095E+04	2.363887E+04	-2.500725E+03	1.056007E+04
70	7.300000E-01	-8.197879E+03	-1.692435E+04	8.616913E+03	-2.901393E+03	-2.221083E+04	9.657720E+03
	-7.300000E-01	8.197879E+03	1.692435E+04	-8.616913E+03	2.221083E+04	-2.901393E+03	9.657720E+03
71	7.100000E-01	-7.097705E+03	-1.502025E+04	9.281400E+03	-1.927939E+03	-2.262810E+04	1.039000E+04
	-7.100000E-01	7.097705E+03	1.502025E+04	-9.281400E+03	1.927939E+03	-2.262810E+04	1.039000E+04
72	5.700000E-01	-8.338259E+03	-1.091403E+04	9.757924E+03	-2.061969E+03	-2.339357E+04	1.051420E+04
	-5.700000E-01	8.338259E+03	1.091403E+04	-9.757924E+03	2.339357E+04	-2.061969E+03	1.051420E+04
73	5.500000E-01	-8.252469E+03	-1.304893E+04	1.121818E+04	-1.819157E+03	-2.448224E+04	1.133154E+04
	-5.500000E-01	8.252469E+03	1.304893E+04	-1.121818E+04	2.448224E+04	-1.819157E+03	1.133154E+04
74	5.000000E-01	-9.507708E+03	-1.712310E+04	1.036516E+04	-2.272979E+03	-2.435735E+04	1.104243E+04
	-5.000000E-01	9.507708E+03	1.712310E+04	-1.036516E+04	2.435735E+04	-2.272979E+03	1.104243E+04
75	5.800000E-01	-8.468920E+03	-1.799236E+04	1.026109E+04	-1.044498E+03	-2.448162E+04	1.153500E+04
	-5.800000E-01	8.468920E+03	1.799236E+04	-1.026109E+04	2.448162E+04	-1.044498E+03	1.153500E+04
76	4.400000E-01	-9.688100E+03	-1.021213E+04	1.037923E+04	-2.070550E+03	-2.382918E+04	1.087970E+04
	-4.400000E-01	9.688100E+03	1.021213E+04	-1.037923E+04	2.382918E+04	-2.070550E+03	1.087970E+04

B04-346 COMPOSITE WING FINAL ANALYSIS
A.J.ZINDEL AERO STRUCTURES RESEARCH GROUP

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ELEMENT ID.	FIBRE DISTANCE	STRESSES IN JENJING I K I A N G L E S			PRINCIPAL STRESSES (ZERO SHEAR)			MAX SHEAR
		NORMAL-X	NORMAL-Y	SHEAR-XY	MAJOR	MINOR	ANGLE	
77	5.230000E-01	-8.193844E+03	-1.528179E+04	1.613291E+04	-1.328121E+03	-2.314751E+04	34.1213	1.090960E+04
	-5.230000E-01	8.193844E+03	1.528179E+04	-1.613291E+04	2.314751E+04	1.328121E+03	-55.8737	1.090960E+04
78	4.800000E-01	-8.754898E+03	-1.349144E+04	8.619737E+03	-2.184011E+03	-2.000233E+04	37.3135	8.939159E+03
	-4.800000E-01	8.754898E+03	1.349144E+04	-8.619737E+03	2.000233E+04	2.184011E+03	-52.0815	8.939159E+03
79	4.600000E-01	-7.503977E+03	-1.755412E+04	8.986445E+03	-2.243847E+03	-2.282725E+04	30.3731	1.024952E+04
	-4.600000E-01	7.503977E+03	1.755412E+04	-8.986445E+03	2.282725E+04	2.243847E+03	-59.0259	1.024952E+04
80	4.200000E-01	-8.338324E+03	-1.301297E+04	7.211590E+03	-1.729286E+03	-1.729286E+04	32.5933	7.940367E+03
	-4.200000E-01	8.338324E+03	1.301297E+04	-7.211590E+03	1.729286E+04	1.729286E+03	-57.4157	7.940367E+03
81	3.900000E-01	-3.246028E+03	-7.458799E+03	4.923084E+03	-8.664732E+01	-1.071415E+04	33.3934	5.350742E+03
	-3.900000E-01	3.246028E+03	7.458799E+03	-4.923084E+03	1.071415E+04	8.664732E+01	-56.6050	5.350742E+03
82	3.600000E-01	-3.105126E+03	-5.123032E+03	3.796187E+03	-1.800996E+02	-8.042458E+03	37.5580	3.927979E+03
	-3.600000E-01	3.105126E+03	5.123032E+03	-3.796187E+03	8.042458E+03	1.800996E+02	-52.4429	3.927979E+03
83	3.300000E-01	-7.711805E+02	-1.583024E+03	1.878706E+03	7.549580E+02	-3.394703E+03	38.7179	1.924006E+03
	-3.300000E-01	7.711805E+02	1.583024E+03	-1.878706E+03	3.394703E+03	7.549580E+02	-51.2821	1.924006E+03
84	3.000000E-01	-8.551539E+02	-3.348833E+01	9.178506E+02	5.543038E+02	-1.458440E+03	57.1217	1.003025E+03
	-3.000000E-01	8.551539E+02	3.348833E+01	-9.178506E+02	1.458440E+03	5.543038E+02	-32.8793	1.003025E+03
89	8.100000E-01	-7.535237E+03	-2.524898E+04	9.385528E+03	-3.487370E+03	-2.924965E+04	23.3309	1.290474E+04
	-8.100000E-01	7.535237E+03	2.524898E+04	-9.385528E+03	2.924965E+04	3.487370E+03	-60.6799	1.290474E+04
90	8.100000E-01	-7.760525E+03	-2.508450E+04	1.385757E+04	-2.449721E+02	-3.259530E+04	28.8380	1.617279E+04
	-8.100000E-01	7.760525E+03	2.508450E+04	-1.385757E+04	3.259530E+04	2.449721E+02	-61.1920	1.617279E+04
91	7.800000E-01	-3.181644E+03	-1.403772E+04	7.541050E+03	-3.020125E+03	-1.919492E+04	34.3399	8.089595E+03
	-7.800000E-01	3.181644E+03	1.403772E+04	-7.541050E+03	1.919492E+04	3.020125E+03	-55.0191	8.089595E+03
92	6.900000E-01	-7.440581E+03	-1.778057E+04	7.946540E+03	-2.803794E+03	-2.803794E+04	31.1473	8.975034E+03
	-6.900000E-01	7.440581E+03	1.778057E+04	-7.946540E+03	2.803794E+04	2.803794E+03	-58.8527	8.975034E+03
93	5.100000E-01	-6.205609E+03	-1.775243E+04	8.544014E+03	-1.666725E+03	-2.229078E+04	27.9751	1.031176E+04
	-5.100000E-01	6.205609E+03	1.775243E+04	-8.544014E+03	2.229078E+04	1.666725E+03	-62.0239	1.031176E+04
94	5.400000E-01	-8.377375E+03	-1.704604E+04	9.087982E+03	-2.643322E+03	-2.278080E+04	32.2503	1.006879E+04
	-5.400000E-01	8.377375E+03	1.704604E+04	-9.087982E+03	2.278080E+04	2.643322E+03	-57.7497	1.006879E+04
95	5.500000E-01	-7.514700E+03	-1.731242E+04	9.385395E+03	-1.899608E+03	-2.302751E+04	31.3387	1.056395E+04
	-5.500000E-01	7.514700E+03	1.731242E+04	-9.385395E+03	2.302751E+04	1.899608E+03	-58.0013	1.056395E+04
96	4.900000E-01	-8.556341E+03	-1.549762E+04	9.044735E+03	-2.170117E+03	-2.163585E+04	34.1628	9.732866E+03
	-4.900000E-01	8.556341E+03	1.549762E+04	-9.044735E+03	2.170117E+03	2.163585E+04	-55.0372	9.732866E+03

B24-3-E COMPOSITE WING FINAL ANALYSIS
A.J.ZINDEL AERO STRUCTURES RESEARCH GROUP

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ELEMENT ID.	FIBRE DISTANCE	STRESSES IN 3 E N D I N G T R I A N G L E S (C T R P L T)			PRINCIPAL STRESSES (ZERO SHEAR)			MAX SHEAR
		NORMAL-X	NORMAL-Y	SHEAR-XY	MAJOR	MINOR		
97	5.00000E-01	-7.562556E+03	-1.064315E+04	9.560267E+03	-1.474037E+03	-2.245160E+04	1.047382E+04	
	-5.00000E-01	7.562556E+03	1.064315E+04	-9.560267E+03	2.245160E+04	1.474037E+03	1.047382E+04	
98	4.40000E-01	-7.116321E+03	-1.349543E+04	7.726646E+03	-1.939898E+03	-1.860191E+04	8.361000E+03	
	-4.40000E-01	7.116321E+03	1.349543E+04	-7.726646E+03	1.860191E+04	1.939898E+03	8.361000E+03	
99	4.40000E-01	-6.281461E+03	-1.363557E+04	7.936519E+03	-1.226031E+03	-1.874100E+04	8.757485E+03	
	-4.40000E-01	6.281461E+03	1.363557E+04	-7.936519E+03	1.874100E+04	1.226031E+03	8.757485E+03	
100	3.90000E-01	-7.554282E+03	-1.165891E+04	7.379417E+03	-1.944177E+03	-1.726161E+04	7.058419E+03	
	-3.90000E-01	7.554282E+03	1.165891E+04	-7.379417E+03	1.726161E+04	1.944177E+03	7.058419E+03	
101	3.90000E-01	-5.928801E+03	-1.207059E+04	6.931557E+03	-1.372000E+03	-1.602070E+04	7.627090E+03	
	-3.90000E-01	5.928801E+03	1.207059E+04	-6.931557E+03	1.602070E+04	1.372000E+03	7.627090E+03	
102	3.40000E-01	-4.555556E+03	-8.445560E+03	5.240091E+03	-9.111790E+02	-1.209005E+04	5.589433E+03	
	-3.40000E-01	4.555556E+03	8.445560E+03	-5.240091E+03	9.111790E+02	1.209005E+04	5.589433E+03	
103	3.30000E-01	-2.450234E+03	-4.732740E+03	3.816887E+03	-7.575340E+02	-7.757340E+02	3.993650E+03	
	-3.30000E-01	2.450234E+03	4.732740E+03	-3.816887E+03	7.575340E+02	7.757340E+02	3.993650E+03	
104	2.90000E-01	-2.513746E+03	-2.572765E+03	2.754379E+03	-2.118744E+02	-9.298400E+02	2.755137E+03	
	-2.90000E-01	2.513746E+03	2.572765E+03	-2.754379E+03	9.298400E+02	2.118744E+02	2.755137E+03	
105	2.80000E-01	-3.914451E+02	-9.050663E+02	1.132217E+03	-1.000038E+03	-1.000038E+03	1.319828E+03	
	-2.80000E-01	3.914451E+02	9.050663E+02	-1.132217E+03	1.000038E+03	1.000038E+03	1.319828E+03	
106	2.40000E-01	-1.267863E+03	-1.509007E+03	6.357357E+02	-1.648204E+03	-1.406460E+03	1.527332E+03	
	-2.40000E-01	1.267863E+03	1.509007E+03	-6.357357E+02	1.406460E+03	1.648204E+03	1.527332E+03	
107	8.10000E-01	-6.345383E+03	-1.251759E+04	1.796674E+04	-7.611331E+03	-2.947430E+04	1.854282E+04	
	-8.10000E-01	6.345383E+03	1.251759E+04	-1.796674E+04	2.947430E+04	7.611331E+03	1.854282E+04	
108	6.10000E-01	-4.665381E+03	-3.235281E+03	4.853253E+03	-9.547419E+02	-8.856494E+02	4.905573E+03	
	-6.10000E-01	4.665381E+03	3.235281E+03	-4.853253E+03	8.856494E+02	9.547419E+02	4.905573E+03	
109	6.40000E-01	-1.540539E+03	-1.493357E+03	2.982049E+03	-9.065849E+02	-1.550959E+04	7.331455E+03	
	-6.40000E-01	1.540539E+03	1.493357E+03	-2.982049E+03	1.550959E+04	9.065849E+02	7.331455E+03	
110	4.30000E-01	-4.481320E+03	-1.358608E+04	5.649134E+03	-2.182796E+03	-1.038461E+04	7.100906E+03	
	-4.30000E-01	4.481320E+03	1.358608E+04	-5.649134E+03	2.182796E+03	1.038461E+04	7.100906E+03	
111	4.40000E-01	-4.863977E+03	-1.470937E+04	6.109092E+03	-1.952183E+03	-1.708116E+04	7.864490E+03	
	-4.40000E-01	4.863977E+03	1.470937E+04	-6.109092E+03	1.708116E+04	1.952183E+03	7.864490E+03	
112	3.70000E-01	-5.261783E+03	-1.300142E+04	5.841053E+03	-2.190980E+03	-2.190980E+03	7.090016E+03	
	-3.70000E-01	5.261783E+03	1.300142E+04	-5.841053E+03	2.190980E+03	2.190980E+03	7.090016E+03	

044-346 COMPOSITE WING FINAL ANALYSIS
A.J.ZINDEL AERO STRUCTURES RESEARCH GROUP

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ELEMENT ID.	FIBER DISTANCE	STRESSES IN 3 E R J I N G T R I A N G L E S			PRINCIPAL STRESSES (ZERO SHEAR)			(C T R P L T)			MAX SHLR
		NORMAL-X	NORMAL-Y	SHEAR-XY	ANGLE	MAJOR	MINOR	MAJOR	MINOR	MAX SHLR	
113	4.00000E-01 -4.00000E-01	-5.091629E+03 5.091629E+03	-1.359023E+04 1.359023E+04	0.154113E+03 -0.154113E+03	27.6078 -62.3122	-1.862316E+03 1.861954E+04	-1.081954E+04 1.362316E+03	7.470015E+03 7.470015E+03			
114	3.300000E-01 -3.300000E-01	-4.491721E+03 4.491721E+03	-1.150197E+04 1.150197E+04	5.391619E+03 -5.391619E+03	28.4045 -61.5135	-1.560528E+03 1.442716E+04	-1.442716E+04 1.560528E+03	6.430318E+03 6.430318E+03			
115	3.600000E-01 -3.600000E-01	-4.489512E+03 4.489512E+03	-1.233037E+04 1.233037E+04	6.148370E+03 -6.148370E+03	28.7531 -61.2019	-1.117859E+03 1.570192E+04	-1.570192E+04 1.117859E+03	7.291901E+03 7.291901E+03			
116	3.000000E-01 -3.000000E-01	-5.186726E+03 5.186726E+03	-1.075755E+04 1.075755E+04	5.781690E+03 -5.781690E+03	32.1395 -57.0615	-1.554484E+03 1.554484E+04	-1.554484E+04 1.554484E+03	6.417073E+03 6.417073E+03			
117	3.200000E-01 -3.200000E-01	-4.721574E+03 4.721574E+03	-1.015483E+04 1.015483E+04	6.028614E+03 -6.028614E+03	32.8713 -57.1237	-8.257699E+02 1.405063E+04	-1.405063E+04 8.257699E+02	6.612432E+03 6.612432E+03			
118	-2.600000E-01 2.600000E-01	-4.180609E+03 4.180609E+03	-7.793127E+03 7.793127E+03	4.871910E+03 -4.871910E+03	34.8440 -59.1554	-7.949700E+02 1.118482E+04	-1.118482E+04 7.949700E+02	5.194922E+03 5.194922E+03			
119	2.800000E-01 -2.800000E-01	-3.274456E+03 3.274456E+03	-6.909094E+03 6.909094E+03	4.505528E+03 -4.505528E+03	34.0149 -55.9351	-2.337295E+02 9.959441E+03	-9.959441E+03 2.337295E+02	4.858348E+03 4.858348E+03			
120	-2.300000E-01 2.300000E-01	-2.070237E+03 2.070237E+03	-3.888705E+03 3.888705E+03	2.455399E+03 -2.455399E+03	38.0326 -51.9674	-7.496137E+02 5.809322E+03	-5.809322E+03 7.496137E+02	2.529991E+03 2.529991E+03			
121	2.400000E-01 -2.400000E-01	-1.492970E+03 1.492970E+03	-1.502991E+03 1.502991E+03	1.819857E+03 -1.819857E+03	44.1343 -45.8657	2.727000E+02 3.368609E+03	-3.368609E+03 2.727000E+02	1.820588E+03 1.820588E+03			
122	-2.000000E-01 2.000000E-01	-8.540434E+02 8.540434E+02	7.471374E+01 -7.471374E+01	1.123040E+03 -1.123040E+03	56.2325 -33.7075	8.250044E+02 1.6049934E+03	-1.6049934E+03 8.250044E+02	1.212626E+03 1.212626E+03			
123	-2.000000E-01 2.000000E-01	-1.332613E+02 1.332613E+02	1.695633E+03 -1.695633E+03	5.903957E+02 -5.903957E+02	73.5590 -10.0004	1.872095E+03 2.797191E+02	-2.797191E+02 1.872095E+03	1.075907E+03 1.075907E+03			
124	1.000000E-01 -1.000000E-01	-1.511677E+03 1.511677E+03	1.443721E+03 -1.443721E+03	5.902635E+02 -5.902635E+02	78.4358 -11.5952	1.264843E+03 1.732799E+03	-1.732799E+03 1.264843E+03	1.498821E+03 1.498821E+03			
125	2.800000E-01 -2.800000E-01	-6.425896E+02 6.425896E+02	-2.569462E+03 2.569462E+03	1.547305E+03 -1.547305E+03	29.0007 -60.9433	2.172182E+02 3.429270E+03	-3.429270E+03 2.172182E+02	1.823244E+03 1.823244E+03			
126	1.600000E-01 -1.600000E-01	-2.544709E+02 2.544709E+02	-3.313347E+03 3.313347E+03	1.055925E+03 -1.055925E+03	18.6319 -71.3091	8.803699E+01 3.365855E+03	-3.365855E+03 8.803699E+01	1.720946E+03 1.720946E+03			
127	2.600000E-01 -2.600000E-01	-2.059421E+03 2.059421E+03	-8.380402E+03 8.380402E+03	2.132175E+03 -2.132175E+03	17.4030 -72.5370	-1.338101E+03 8.741722E+03	-8.741722E+03 1.338101E+03	3.671811E+03 3.671811E+03			
128	1.200000E-01 -1.200000E-01	-3.369222E+02 3.369222E+02	-4.263803E+03 4.263803E+03	1.289837E+03 -1.289837E+03	18.7936 -71.2014	-4.946314E+02 4.722869E+03	-4.722869E+03 4.946314E+02	2.114119E+03 2.114119E+03			

BQM-34L COMPOSITE WING FINAL ANALYSIS
A.J.ZINDEL AERO STRUCTURES RESEARCH GROUP

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ELEMENT ID.	FIBRE DISTANCE	STRESSES IN BENDING			TRIAANGLES			PRINCIPAL STRESSES (ZERO SHEAR)			MAX SHEAR	
		NORMAL-X	NORMAL-Y	SHEAR-XY	ANGLE	MAJOR	MINOR	MAJOR	MINOR	MAX	SHEAR	
129	2.133300E-01	-2.449903E+03	-7.613213E+03	2.061640E+03	19.3309	-1.727272E+03	-5.335394E+03	3.303833E+03				
	-2.133300E-01	2.449903E+03	7.613213E+03	-2.061640E+03	-19.3309	8.335394E+03	1.727272E+03	3.303833E+03				
130	1.100000E-01	-5.911113E+02	-3.848661E+03	1.090611E+03	16.9029	-2.596975E+02	-4.180078E+03	1.960190E+03				
	-1.100000E-01	5.911113E+02	3.848661E+03	-1.090611E+03	-16.9029	4.180078E+03	2.596975E+02	1.960190E+03				
131	1.900000E-01	-1.795143E+03	-6.306169E+03	1.908933E+03	18.3803	-1.160850E+03	-7.540462E+03	3.189806E+03				
	-1.900000E-01	1.795143E+03	6.306169E+03	-1.908933E+03	-18.3803	7.540462E+03	1.160850E+03	3.189806E+03				
132	1.000000E-01	-1.041084E+03	-4.745810E+03	1.352028E+03	18.0531	-6.002426E+02	-5.187652E+03	2.293705E+03				
	-1.000000E-01	1.041084E+03	4.745810E+03	-1.352028E+03	-18.0531	5.187652E+03	6.002426E+02	2.293705E+03				
133	1.700000E-01	-1.972438E+03	-6.014653E+03	2.115940E+03	23.1256	-1.007443E+03	-6.919688E+03	2.926103E+03				
	-1.700000E-01	1.972438E+03	6.014653E+03	-2.115940E+03	-23.1256	6.919688E+03	1.007443E+03	2.926103E+03				
134	9.000000E-02	-1.157651E+03	-3.897902E+03	1.894326E+03	23.6370	-5.741420E+02	-4.281410E+03	1.853034E+03				
	-9.000000E-02	1.157651E+03	3.897902E+03	-1.894326E+03	-23.6370	4.281410E+03	5.741420E+02	1.853034E+03				
135	1.500000E-01	-1.820735E+03	-3.873564E+03	1.894326E+03	30.7748	-6.925195E+02	-6.925195E+02	2.154536E+03				
	-1.500000E-01	1.820735E+03	3.873564E+03	-1.894326E+03	-30.7748	6.925195E+02	6.925195E+02	2.154536E+03				
136	8.000000E-02	-9.103351E+02	-1.964349E+03	1.048711E+03	58.3470	-2.630249E+02	-2.630249E+02	1.173817E+03				
	-8.000000E-02	9.103351E+02	1.964349E+03	-1.048711E+03	-58.3470	2.630249E+02	2.630249E+02	1.173817E+03				
137	1.400000E-01	-1.428689E+03	-2.173997E+03	1.513239E+03	38.1037	-2.417035E+02	-3.357933E+03	1.558140E+03				
	-1.400000E-01	1.428689E+03	2.173997E+03	-1.513239E+03	-38.1037	3.357933E+03	2.417035E+02	1.558140E+03				
138	7.000000E-02	-5.858894E+02	-5.514144E+02	6.341800E+02	45.7735	6.575230E+01	-1.203036E+03	6.544142E+02				
	-7.000000E-02	5.858894E+02	5.514144E+02	-6.341800E+02	-45.7735	1.203036E+03	6.575230E+01	6.544142E+02				
139	1.200000E-01	-6.063459E+02	-3.033733E+01	7.309720E+02	56.7001	5.092560E+02	-1.085298E+03	7.972771E+02				
	-1.200000E-01	6.063459E+02	3.033733E+01	-7.309720E+02	-56.7001	1.085298E+03	5.092560E+02	7.972771E+02				
140	5.000000E-02	-8.712679E+01	-5.063202E+02	2.111878E+02	72.2747	5.738013E+02	-1.546099E+02	3.842056E+02				
	-5.000000E-02	8.712679E+01	5.063202E+02	-2.111878E+02	-72.2747	1.546099E+02	5.738013E+02	3.842056E+02				
141	1.000000E-01	-1.278809E+02	-5.898452E+02	3.494214E+02	67.0619	7.318594E+02	-2.698915E+02	5.003772E+02				
	-1.000000E-01	1.278809E+02	5.898452E+02	-3.494214E+02	-67.0619	2.698915E+02	7.318594E+02	5.003772E+02				
142	5.000000E-02	-9.195099E+01	-2.742683E+02	1.792532E+02	58.4774	3.842103E+02	-1.798235E+01	2.010906E+02				
	-5.000000E-02	9.195099E+01	2.742683E+02	-1.792532E+02	-58.4774	1.798235E+01	3.842103E+02	2.010906E+02				
693	7.000000E-01	-1.053427E+04	-1.301297E+04	9.637829E+03	41.3249	-2.000190E+03	-2.146100E+04	9.687433E+03				
	-7.000000E-01	1.053427E+04	1.301297E+04	-9.637829E+03	-41.3249	2.146100E+04	2.000190E+03	9.687433E+03				
700	7.300000E-01	-8.469666E+03	-1.185151E+04	3.679349E+03	35.4630	-1.910092E+03	-2.032206E+04	9.205999E+03				
	-7.300000E-01	8.469666E+03	1.185151E+04	-3.679349E+03	-35.4630	2.032206E+04	1.910092E+03	9.205999E+03				

BQM-34E COMPOSITE WING FINAL ANALYSIS
A.J. LINCOLL AERO STRUCTURES RESEARCH GROUP

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ELEMENT ID.	FIBRE DISTANCE	STRESSES IN BENDING			TRIANGULARS			PRINCIPAL STRESSES (ZERO SHEAR)			MAX SHEAR
		NORMAL-X	NORMAL-Y	SHEAR-XY	ANGLE	MAJOR	MINOR	MAJOR	MINOR		
890	8.100000E-01	-3.314650E+03	-2.313860E+04	1.195124E+04	25.5533	1.800997E+03	-2.890434E+04	1.800997E+03	-2.890434E+04	1.535267E+04	
	-8.100000E-01	3.314650E+03	2.313860E+04	-1.195124E+04	-64.4437	2.890434E+04	-1.800997E+03	2.890434E+04	-1.800997E+03	1.535267E+04	
900	7.900000E-01	-6.488377E+03	-1.502324E+04	7.473940E+03	30.1372	-2.149459E+03	-1.900216E+04	-2.149459E+03	-1.900216E+04	8.600359E+03	
	-7.900000E-01	6.488377E+03	1.502324E+04	-7.473940E+03	-59.0629	1.935216E+04	2.149459E+03	1.935216E+04	2.149459E+03	8.600359E+03	
910	7.400000E-01	-7.734240E+03	-1.419114E+04	7.493807E+03	33.3405	-2.802981E+03	-1.912240E+04	-2.802981E+03	-1.912240E+04	8.159711E+03	
	-7.400000E-01	7.734240E+03	1.419114E+04	-7.493807E+03	-56.0535	1.912240E+04	2.802981E+03	1.912240E+04	2.802981E+03	8.159711E+03	
920	6.200000E-01	-6.052091E+03	-1.457575E+04	7.236850E+03	29.7529	-1.915334E+03	-1.871245E+04	-1.915334E+03	-1.871245E+04	8.398538E+03	
	-6.200000E-01	6.052091E+03	1.457575E+04	-7.236850E+03	-60.2471	1.871245E+04	1.915334E+03	1.871245E+04	1.915334E+03	8.398538E+03	
1070	7.300000E-01	-3.357624E+03	-8.052840E+03	6.051864E+03	35.0535	3.836455E+02	-1.239411E+04	3.836455E+02	-1.239411E+04	8.388878E+03	
	-7.300000E-01	3.357624E+03	8.052840E+03	-6.051864E+03	-54.3455	1.239411E+04	3.836455E+02	1.239411E+04	3.836455E+02	8.388878E+03	
1090	5.400000E-01	-1.261149E+03	-1.017612E+04	2.420051E+03	9.0193	-8.755482E+02	-1.655010E+04	-8.755482E+02	-1.655010E+04	7.842988E+03	
	-5.400000E-01	1.261149E+03	1.017612E+04	-2.420051E+03	-80.9337	1.655010E+04	8.755482E+02	1.655010E+04	8.755482E+02	7.842988E+03	

RAUC-75255-50

B44-34E COMPOSITE WING FINAL ANALYSIS
A.J.ZINDEL AERO STRUCTURES RESEARCH GROUP

ELEMENT NO.	FIBRE DISTANCE	STRESSES IN 3 ELEMENTS		QUADRILATERAL - S		PRINCIPAL STRESSES (ZERO SHEAR)		(CQJPLI)		MAX SHEAR
		NORMAL-X	NORMAL-Y	NORMAL-X	NORMAL-Y	ANGLE	MAJOR	MINOR		
151	8.100000E-01	-3.308791E+02	-7.03541E+03	2.59433E+02	2.2124	-87.7476	-3.200570E+02	-7.045435E+03	3.362289E+03	3.362289E+03
	-8.100000E-01	3.308791E+02	7.03541E+03	-2.59433E+02			7.045435E+03	3.200570E+02		3.362289E+03
152	8.100000E-01	-3.333084E+02	-5.225285E+03	7.42174E+02	6.4379	-81.5021	-2.232117E+02	-5.336383E+03	2.555550E+03	2.555550E+03
	-8.100000E-01	3.333084E+02	5.225285E+03	-7.42174E+02			5.336383E+03	2.232117E+02		2.555550E+03
153	8.100000E-01	-1.033527E+03	-1.452011E+04	4.60011E+02	1.9735	-68.5235	-1.017398E+03	-1.453024E+04	6.759420E+03	6.759420E+03
	-8.100000E-01	1.033527E+03	1.452011E+04	-4.60011E+02			1.453024E+04	-1.017398E+03		6.759420E+03
154	8.100000E-01	-9.140827E+02	-1.151069E+04	1.313623E+03	6.9024	-83.0376	-7.536651E+02	-1.107110E+04	5.458719E+03	5.458719E+03
	-8.100000E-01	9.140827E+02	1.151069E+04	-1.313623E+03			1.107110E+04	-7.536651E+02		5.458719E+03
155	8.100000E-01	-1.707725E+03	-2.429137E+04	4.946850E+02	1.2576	-88.7424	-1.756856E+03	-2.443223E+04	1.127286E+04	1.127286E+04
	-8.100000E-01	1.707725E+03	2.429137E+04	-4.946850E+02			2.443223E+04	-1.756856E+03		1.127286E+04
156	8.100000E-01	-1.463674E+03	-1.996448E+04	1.447133E+03	4.4450	-85.5544	-1.351103E+03	-2.007699E+04	9.362913E+03	9.362913E+03
	-8.100000E-01	1.463674E+03	1.996448E+04	-1.447133E+03			2.007699E+04	-1.351103E+03		9.362913E+03
157	8.100000E-01	-2.297787E+03	-3.138353E+04	3.952944E+02	.7785	-89.2215	-2.292441E+03	-3.138353E+04	1.454324E+04	1.454324E+04
	-8.100000E-01	2.297787E+03	3.138353E+04	-3.952944E+02			3.138353E+04	-2.292441E+03		1.454324E+04
158	8.100000E-01	-1.848281E+03	-2.735144E+04	1.345001E+03	3.0117	-86.9893	-1.777538E+03	-2.742218E+04	1.232232E+04	1.232232E+04
	-8.100000E-01	1.848281E+03	2.735144E+04	-1.345001E+03			2.742218E+04	-1.777538E+03		1.232232E+04
159	8.100000E-01	-1.510649E+03	-3.173123E+04	1.368138E+03	2.5058	-87.4132	-1.448837E+03	-3.179315E+04	1.517210E+04	1.517210E+04
	-8.100000E-01	1.510649E+03	3.173123E+04	-1.368138E+03			3.179315E+04	-1.448837E+03		1.517210E+04
160	8.100000E-01	-4.965412E+03	-3.410922E+04	5.834456E+03	10.8833	-79.1157	-3.843839E+03	-3.531039E+04	1.573368E+04	1.573368E+04
	-8.100000E-01	4.965412E+03	3.410922E+04	-5.834456E+03			3.531039E+04	-3.843839E+03		1.573368E+04

B-19

ELEMENT ID.	STRESSES IN BAK ELEMENTS				(J A R)		M.S.-I	
	SAT SB1	SAT SB2	SAT SB3	SAT SB4	SA-MAX SB-MAX	SA-MIN SB-MIN	M.S.-I M.S.-C	
201	-3.3445E+03 -3.4033E+03	3.3445E+03 3.4033E+03	-3.2953E+03 -3.3508E+03	3.2953E+03 3.3508E+03	3.3445E+03 3.4033E+03	-3.3445E+03 -3.4033E+03		
202	-3.6753E+03 -4.1773E+03	3.6753E+03 4.1773E+03	-3.6753E+03 -4.1773E+03	3.6753E+03 4.1773E+03	3.6753E+03 4.1773E+03	-3.6753E+03 -4.1773E+03		
203	-3.3143E+02 -3.3973E+02	3.3143E+02 3.3973E+02	-3.3143E+02 -3.3973E+02	3.3143E+02 3.3973E+02	3.3143E+02 3.3973E+02	-3.3143E+02 -3.3973E+02		
204	-4.7308E+02 -4.3539E+02	4.7308E+02 4.3539E+02	-4.7308E+02 -4.3539E+02	4.7308E+02 4.3539E+02	4.7308E+02 4.3539E+02	-4.7308E+02 -4.3539E+02		
205	-3.4852E+02 -2.4187E+02	3.4852E+02 2.4187E+02	-3.4852E+02 -2.4187E+02	3.4852E+02 2.4187E+02	3.4852E+02 2.4187E+02	-3.4852E+02 -2.4187E+02		
211	-8.6696E+01 5.8636E+02	8.6696E+01 5.8636E+02	-8.6696E+01 5.8636E+02	8.6696E+01 5.8636E+02	8.6696E+01 5.8636E+02	-8.6696E+01 -5.8636E+02		
212	-1.7383E+02 5.8963E+02	1.7383E+02 5.8963E+02	-1.7383E+02 5.8963E+02	1.7383E+02 5.8963E+02	1.7383E+02 5.8963E+02	-1.7383E+02 -5.8963E+02		
213	-3.7311E+02 3.6693E+02	3.7311E+02 3.6693E+02	-3.7311E+02 3.6693E+02	3.7311E+02 3.6693E+02	3.7311E+02 3.6693E+02	-3.7311E+02 -3.6693E+02		
214	-3.1403E+02 6.1661E+02	3.1403E+02 6.1661E+02	-3.1403E+02 6.1661E+02	3.1403E+02 6.1661E+02	3.1403E+02 6.1661E+02	-3.1403E+02 -6.1661E+02		
215	-4.6457E+02 3.9382E+02	4.6457E+02 3.9382E+02	-4.6457E+02 3.9382E+02	4.6457E+02 3.9382E+02	4.6457E+02 3.9382E+02	-4.6457E+02 -3.9382E+02		
221	2.0376E+02 1.5243E+03	2.0376E+02 1.5243E+03	2.0376E+02 1.5243E+03	2.0376E+02 1.5243E+03	2.0376E+02 1.5243E+03	-2.0376E+02 -1.5243E+03		
222	1.7587E+02 1.0531E+02	1.7587E+02 1.0531E+02	1.7587E+02 1.0531E+02	1.7587E+02 1.0531E+02	1.7587E+02 1.0531E+02	-1.7587E+02 -1.0531E+02		
223	-3.9687E+01 -1.5740E+01	3.9687E+01 1.5740E+01	-3.9687E+01 1.5740E+01	3.9687E+01 1.5740E+01	3.9687E+01 1.5740E+01	-3.9687E+01 -1.5740E+01		
224	-4.8521E+02 1.4451E+02	4.8521E+02 1.4451E+02	-4.8521E+02 1.4451E+02	4.8521E+02 1.4451E+02	4.8521E+02 1.4451E+02	-4.8521E+02 -1.4451E+02		
231	0.0 0.0	0.0 0.0	0.0 0.0	0.0 0.0	0.0 0.0	0.0 0.0		
232	0.0 0.0	0.0 0.0	0.0 0.0	0.0 0.0	0.0 0.0	0.0 0.0		

UC4-34E COMPOSITE WING FINAL ANALYSIS
A.J.ZINDEL AERO STRUCTURES RESEARCH GROUP

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ELEMENT ID.	STRESSES				IN BAR ELEMENTS		(C B A R)		SA-MIN		M.S.-I	
	SA1 SB1	SA2 SB2	SA3 SB3	SA4 SB4	AXIAL STRESS	SA-YAX SB-YAX	SA-MIN SB-MIN	SA-MIN SB-MIN	M.S.-I M.S.-C			
233	3.0 3.0	0.0 3.0	0.0 0.0	0.0 0.0	0.0	0.0 0.0	0.0 0.0	0.0 0.0				
234	0.0 3.0	0.0 3.0	0.0 3.0	0.0 0.0	0.0	0.0 0.0	0.0 0.0	0.0 0.0				
235	3.0 3.0	0.0 0.0	0.0 0.0	0.0 0.0	0.0	0.0 0.0	0.0 0.0	0.0 0.0				
236	0.0 0.0	0.0 3.0	0.0 0.0	0.0 0.0	0.0	0.0 0.0	0.0 0.0	0.0 0.0				

A P P E N D I X C

NASTRAN VIBRATION ANALYSIS OUTPUT DATA

EIGENVALUE = 1.609215E+04

R E A L F I G U R E S N O .

1

POINT NO.	TYPE	T1	T2	T3	R1	R2	R3
1	G	0.0	0.0	2.40688E-05	-6.35474E-05	-5.58904E-05	0.0
2	G	0.0	0.0	2.45285E-04	-7.25093E-05	-3.69945E-05	0.0
3	G	0.0	0.0	2.14113E-04	-2.67427E-04	7.70004E-07	0.0
4	G	0.0	0.0	-1.65572E-03	-7.41492E-04	5.79050E-04	0.0
5	G	0.0	0.0	-1.24146E-02	-1.42147E-03	2.01674E-07	0.0
6	G	0.0	0.0	-4.12420E-02	-2.15031E-03	4.78362E-03	0.0
7	G	0.0	0.0	-9.45949E-03	-7.74151E-07	8.24577E-03	0.0
8	G	0.0	0.0	-1.89930E-01	-3.33547E-03	1.44467E-02	0.0
9	G	0.0	0.0	-3.47379E-01	-7.37340E-03	2.26480E-02	0.0
10	G	0.0	0.0	-5.51940E-01	-3.04124E-03	3.11160E-02	0.0
11	G	0.0	0.0	-4.04027E-05	3.23290E-05	0.0	0.0
12	G	0.0	0.0	-3.74044E-05	2.48294E-05	-1.65358E-05	0.0
13	G	0.0	0.0	0.0	7.31245E-06	-9.81703E-05	0.0
14	G	0.0	0.0	-4.11703E-05	-6.37432E-05	5.41736E-05	0.0
15	G	0.0	0.0	-1.59220E-07	-3.41523E-04	4.76326E-04	0.0
16	G	0.0	0.0	-8.60145E-03	-7.44210E-04	1.44627E-03	0.0
17	G	0.0	0.0	-2.74392E-02	-1.21345E-03	3.20748E-03	0.0
18	G	0.0	0.0	-5.44477E-02	-1.73954E-07	6.10673E-03	0.0
19	G	0.0	0.0	-1.29343E-01	-2.44811E-03	1.01591E-02	0.0
20	G	0.0	0.0	-2.39180E-01	-2.79092E-07	1.72961E-02	0.0
21	G	0.0	0.0	-4.05347E-01	-2.45097E-07	2.46740E-02	0.0
22	G	0.0	0.0	-6.11373E-01	-1.27931E-07	3.11129E-02	0.0
23	G	0.0	0.0	6.01315E-04	8.13840E-05	0.0	0.0
24	G	0.0	0.0	4.72446E-04	5.34444E-05	6.46455E-05	0.0
25	G	0.0	0.0	0.0	-2.52551E-05	9.16447E-05	0.0
26	G	0.0	0.0	-1.32228E-03	-3.86427E-05	4.31544E-04	0.0
27	G	0.0	0.0	-6.80157E-07	-2.76055E-04	1.20375E-03	0.0
28	G	0.0	0.0	-2.07473E-02	-4.21633E-04	2.58264E-03	0.0
29	G	0.0	0.0	-4.73634E-02	-6.46867E-04	4.43445E-03	0.0
30	G	0.0	0.0	-9.63639E-02	-9.28779E-04	8.17657E-03	0.0
31	G	0.0	0.0	-1.74715E-01	-1.35159E-07	1.27453E-02	0.0
32	G	0.0	0.0	-2.95840E-01	-1.32512E-03	1.99937E-02	0.0
33	G	0.0	0.0	-4.77459E-01	-8.39433E-04	2.69415E-02	0.0
34	G	0.0	0.0	-6.73644E-01	5.20702E-04	3.10607E-02	0.0
35	G	0.0	0.0	2.25443E-03	1.51870E-04	0.0	0.0
36	G	0.0	0.0	1.05301E-07	9.22437E-05	2.56663E-04	0.0
37	G	0.0	0.0	0.0	-9.35473E-06	4.76413E-04	0.0
38	G	0.0	0.0	-4.77633E-03	2.85974E-04	1.01034E-03	0.0
39	G	0.0	0.0	-1.48015E-02	1.75230E-04	2.00708E-03	0.0
40	G	0.0	0.0	-3.58233E-02	2.57297E-04	3.09239E-03	0.0
41	G	0.0	0.0	-7.27605E-02	3.00490E-04	5.55935E-03	0.0
42	G	0.0	0.0	-1.77442E-01	2.50236E-04	1.03473E-02	0.0
43	G	0.0	0.0	-2.23431E-01	1.39470E-04	1.54897E-02	0.0
44	G	0.0	0.0	-3.58449E-01	5.24070E-04	2.04044E-02	0.0
45	G	0.0	0.0	-5.40949E-01	5.20252E-04	2.89206E-02	0.0
46	G	0.0	0.0	-7.79060E-01	4.77941E-04	3.22155E-02	0.0
47	G	0.0	0.0	4.83947E-03	2.06590E-04	0.0	0.0
48	G	0.0	0.0	3.56370E-03	1.28642E-04	5.46555E-04	0.0
49	G	0.0	0.0	0.0	-1.04737E-04	9.33045E-04	0.0
50	G	0.0	0.0	-2.21716E-03	1.00249E-03	1.30102E-03	0.0

NADC-73235-30

FITNESS VALUE = 1.6192100E+04

REFLECTION FACTOR NO.

1

POINT ID.	TYPE	T1	T2	T3	01	02	R3
51	G	0.0	0.0	-2.50445E-02	1.044294E-03	7.129785E-07	0.0
52	G	0.0	0.0	-5.374968E-02	1.749743E-03	5.734120E-03	0.0
53	G	0.0	0.0	-1.05810E-01	1.661571E-07	9.490471E-03	0.0
54	G	0.0	0.0	-1.72057E-01	1.859485E-03	1.282445E-02	0.0
55	G	0.0	0.0	-2.765920E-01	1.935237E-07	1.450014E-02	0.0
56	G	0.0	0.0	-4.272485E-01	2.108439E-03	2.573579E-02	0.0
57	G	0.0	0.0	-8.093307E-01	1.615764E-03	3.273847E-02	0.0
58	G	0.0	0.0	-8.093307E-01	1.615764E-03	3.273847E-02	0.0
59	G	0.0	0.0	-8.093307E-01	1.615764E-03	3.273847E-02	0.0
60	G	0.0	0.0	-8.093307E-01	1.615764E-03	3.273847E-02	0.0
61	G	0.0	0.0	-8.093307E-01	1.615764E-03	3.273847E-02	0.0
62	G	0.0	0.0	-8.093307E-01	1.615764E-03	3.273847E-02	0.0
63	G	0.0	0.0	-8.093307E-01	1.615764E-03	3.273847E-02	0.0
64	G	0.0	0.0	-8.093307E-01	1.615764E-03	3.273847E-02	0.0
65	G	0.0	0.0	-8.093307E-01	1.615764E-03	3.273847E-02	0.0
66	G	0.0	0.0	-8.093307E-01	1.615764E-03	3.273847E-02	0.0
67	G	0.0	0.0	-8.093307E-01	1.615764E-03	3.273847E-02	0.0
68	G	0.0	0.0	-8.093307E-01	1.615764E-03	3.273847E-02	0.0
69	G	0.0	0.0	-8.093307E-01	1.615764E-03	3.273847E-02	0.0
70	G	0.0	0.0	-8.093307E-01	1.615764E-03	3.273847E-02	0.0
71	G	0.0	0.0	-8.093307E-01	1.615764E-03	3.273847E-02	0.0
72	G	0.0	0.0	-8.093307E-01	1.615764E-03	3.273847E-02	0.0
73	G	0.0	0.0	-8.093307E-01	1.615764E-03	3.273847E-02	0.0
74	G	0.0	0.0	-8.093307E-01	1.615764E-03	3.273847E-02	0.0
75	G	0.0	0.0	-8.093307E-01	1.615764E-03	3.273847E-02	0.0
76	G	0.0	0.0	-8.093307E-01	1.615764E-03	3.273847E-02	0.0
77	G	0.0	0.0	-8.093307E-01	1.615764E-03	3.273847E-02	0.0
78	G	0.0	0.0	-8.093307E-01	1.615764E-03	3.273847E-02	0.0
79	G	0.0	0.0	-8.093307E-01	1.615764E-03	3.273847E-02	0.0
80	G	0.0	0.0	-8.093307E-01	1.615764E-03	3.273847E-02	0.0
81	G	0.0	0.0	-8.093307E-01	1.615764E-03	3.273847E-02	0.0
82	G	0.0	0.0	-8.093307E-01	1.615764E-03	3.273847E-02	0.0
83	G	0.0	0.0	-8.093307E-01	1.615764E-03	3.273847E-02	0.0
84	G	0.0	0.0	-8.093307E-01	1.615764E-03	3.273847E-02	0.0
85	G	0.0	0.0	-8.093307E-01	1.615764E-03	3.273847E-02	0.0
86	G	0.0	0.0	-8.093307E-01	1.615764E-03	3.273847E-02	0.0
87	G	0.0	0.0	-8.093307E-01	1.615764E-03	3.273847E-02	0.0
88	G	0.0	0.0	-8.093307E-01	1.615764E-03	3.273847E-02	0.0
89	G	0.0	0.0	-8.093307E-01	1.615764E-03	3.273847E-02	0.0
90	G	0.0	0.0	-8.093307E-01	1.615764E-03	3.273847E-02	0.0
91	G	0.0	0.0	-8.093307E-01	1.615764E-03	3.273847E-02	0.0
92	G	0.0	0.0	-8.093307E-01	1.615764E-03	3.273847E-02	0.0
93	G	0.0	0.0	-8.093307E-01	1.615764E-03	3.273847E-02	0.0
94	G	0.0	0.0	-8.093307E-01	1.615764E-03	3.273847E-02	0.0
95	G	0.0	0.0	-8.093307E-01	1.615764E-03	3.273847E-02	0.0
96	G	0.0	0.0	-8.093307E-01	1.615764E-03	3.273847E-02	0.0
97	G	0.0	0.0	-8.093307E-01	1.615764E-03	3.273847E-02	0.0
98	G	0.0	0.0	-8.093307E-01	1.615764E-03	3.273847E-02	0.0
99	G	0.0	0.0	-8.093307E-01	1.615764E-03	3.273847E-02	0.0
100	G	0.0	0.0	-8.093307E-01	1.615764E-03	3.273847E-02	0.0
101	G	0.0	0.0	-8.093307E-01	1.615764E-03	3.273847E-02	0.0
102	G	0.0	0.0	-8.093307E-01	1.615764E-03	3.273847E-02	0.0
103	G	0.0	0.0	-8.093307E-01	1.615764E-03	3.273847E-02	0.0
104	G	0.0	0.0	-8.093307E-01	1.615764E-03	3.273847E-02	0.0
105	G	0.0	0.0	-8.093307E-01	1.615764E-03	3.273847E-02	0.0
106	G	0.0	0.0	-8.093307E-01	1.615764E-03	3.273847E-02	0.0
107	G	0.0	0.0	-8.093307E-01	1.615764E-03	3.273847E-02	0.0
108	G	0.0	0.0	-8.093307E-01	1.615764E-03	3.273847E-02	0.0
109	G	0.0	0.0	-8.093307E-01	1.615764E-03	3.273847E-02	0.0
110	G	0.0	0.0	-8.093307E-01	1.615764E-03	3.273847E-02	0.0
111	G	0.0	0.0	-8.093307E-01	1.615764E-03	3.273847E-02	0.0
112	G	0.0	0.0	-8.093307E-01	1.615764E-03	3.273847E-02	0.0
113	G	0.0	0.0	-8.093307E-01	1.615764E-03	3.273847E-02	0.0
114	G	0.0	0.0	-8.093307E-01	1.615764E-03	3.273847E-02	0.0
115	G	0.0	0.0	-8.093307E-01	1.615764E-03	3.273847E-02	0.0
116	G	0.0	0.0	-8.093307E-01	1.615764E-03	3.273847E-02	0.0
117	G	0.0	0.0	-8.093307E-01	1.615764E-03	3.273847E-02	0.0
118	G	0.0	0.0	-8.093307E-01	1.615764E-03	3.273847E-02	0.0
119	G	0.0	0.0	-8.093307E-01	1.615764E-03	3.273847E-02	0.0
120	G	0.0	0.0	-8.093307E-01	1.615764E-03	3.273847E-02	0.0
121	G	0.0	0.0	-8.093307E-01	1.615764E-03	3.273847E-02	0.0
122	G	0.0	0.0	-8.093307E-01	1.615764E-03	3.273847E-02	0.0
123	G	0.0	0.0	-8.093307E-01	1.615764E-03	3.273847E-02	0.0
124	G	0.0	0.0	-8.093307E-01	1.615764E-03	3.273847E-02	0.0
125	G	0.0	0.0	-8.093307E-01	1.615764E-03	3.273847E-02	0.0
126	G	0.0	0.0	-8.093307E-01	1.615764E-03	3.273847E-02	0.0
127	G	0.0	0.0	-8.093307E-01	1.615764E-03	3.273847E-02	0.0
128	G	0.0	0.0	-8.093307E-01	1.615764E-03	3.273847E-02	0.0
129	G	0.0	0.0	-8.093307E-01	1.615764E-03	3.273847E-02	0.0
130	G	0.0	0.0	-8.093307E-01	1.615764E-03	3.273847E-02	0.0

FINAL VIBRATION MODES ANALYSTS

EIGENVALUE = 1.832874E+05

REAL EIGENVECTORS

POINT NO.	TYPE	T1	T2	T3	R1	R2	R3
1	G	7.0	7.0	-2.337938E-07	4.587J55E-04	-2.261340E-04	0.0
2	G	9.0	9.0	5.619777E-04	2.31391E-04	-3.247045E-04	0.0
3	G	7.0	7.0	6.754257E-03	0.37775E-04	-1.46005E-03	0.0
4	G	0.0	0.0	3.117097E-02	0.554472E-04	-4.62888E-03	0.0
5	G	7.0	7.0	9.020034E-02	1.599096E-04	-9.77377E-03	0.0
6	G	7.0	7.0	1.051002E-01	-2.667834E-03	-1.546705E-02	0.0
7	G	7.0	7.0	3.735887E-01	-9.599925E-03	-1.920575E-02	0.0
8	G	7.0	7.0	4.873212E-01	-1.026019E-02	-1.503768E-02	0.0
9	G	7.0	7.0	2.46044E-01	-3.178165E-02	3.460765E-03	0.0
10	G	7.0	7.0	2.542732E-01	-3.315375E-02	3.414852E-02	0.0
11	G	7.0	7.0	-1.575710E-03	-1.817126E-04	0.0	0.0
12	G	7.0	7.0	-1.175239E-03	-1.200457E-04	-1.702647E-04	0.0
13	G	7.0	7.0	7.692245E-03	4.323831E-05	-2.756095E-04	0.0
14	G	7.0	7.0	1.82210E-02	-2.735295E-05	-1.726138E-07	0.0
15	G	7.0	7.0	5.679392E-02	3.217933E-04	-3.59516E-03	0.0
16	G	7.0	7.0	1.271865E-01	-1.676159E-04	-6.484366E-07	0.0
17	G	7.0	7.0	2.354174E-01	-1.46371E-07	-1.133117E-02	0.0
18	G	7.0	7.0	3.648656E-01	-5.111345E-03	-1.563557E-05	0.0
19	G	7.0	7.0	4.693112E-01	-1.09887E-02	-1.598248E-02	0.0
20	G	7.0	7.0	4.415044E-01	-2.150684E-02	-9.522511E-03	0.0
21	G	7.0	7.0	2.143732E-01	-2.908522E-02	1.272925E-02	0.0
22	G	7.0	7.0	-5.00974E-13	-3.754728E-02	4.47742E-02	0.0
23	G	7.0	7.0	-3.672232E-07	-3.547321E-04	0.0	0.0
24	G	7.0	7.0	1.079814E-02	-2.104693E-04	-5.546564E-04	0.0
25	G	7.0	7.0	3.672870E-02	1.688949E-04	-9.648380E-04	0.0
26	G	7.0	7.0	8.551978E-02	-7.729705E-04	-2.369997E-03	0.0
27	G	7.0	7.0	1.655037E-01	-7.264347E-05	-4.79793E-03	0.0
28	G	7.0	7.0	2.698350E-01	-4.765175E-07	-9.475387E-03	0.0
29	G	7.0	7.0	3.745673E-01	-7.786077E-03	-1.24427E-02	0.0
30	G	7.0	7.0	4.22370E-01	-1.325594E-02	-1.484167E-02	0.0
31	G	7.0	7.0	7.273752E-01	-2.944527E-02	-1.261417E-02	0.0
32	G	7.0	7.0	3.97517E-02	-2.968893E-02	7.147184E-04	0.0
33	G	7.0	7.0	-1.067907E-02	-3.492724E-07	2.20894E-02	0.0
34	G	7.0	7.0	-7.03937E-03	-4.707447E-04	5.716927E-02	0.0
35	G	7.0	7.0	1.879389E-02	-2.46742E-04	0.0	0.0
36	G	7.0	7.0	5.451045E-02	2.841578E-04	-1.247705E-03	0.0
37	G	7.0	7.0	1.141170E-01	-2.196399E-02	-2.240935E-03	0.0
38	G	7.0	7.0	1.971921E-01	-2.674897E-02	-7.66795E-03	0.0
39	G	7.0	7.0	2.900729E-01	-4.163719E-02	-6.367767E-03	0.0
40	G	7.0	7.0	3.013736E-01	-6.163188E-03	-9.900725E-03	0.0
41	G	7.0	7.0	3.433269E-01	-3.294111E-03	-1.258423E-02	0.0
42	G	7.0	7.0	1.732055E-01	-1.316945E-02	-1.252722E-02	0.0
43	G	7.0	7.0	1.473675E-01	-1.378755E-02	-6.325933E-02	0.0
44	G	7.0	7.0	-1.682376E-02	-2.87515E-04	1.213447E-02	0.0
45	G	7.0	7.0	-1.246596E-02	-2.87251E-04	3.823844E-02	0.0
46	G	7.0	7.0	1.63115E-02	2.28571E-04	5.99771E-02	0.0
47	G	7.0	7.0	1.63115E-02	2.28571E-04	0.0	0.0
48	G	7.0	7.0	1.63115E-02	2.28571E-04	-1.925896E-07	0.0
49	G	7.0	7.0	1.63115E-02	2.28571E-04	-3.529345E-03	0.0
50	G	7.0	7.0	1.63115E-02	2.28571E-04	-4.403210E-03	0.0

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LI ENVALUE = 1.835834L+5

POINT NO.	TYPE	T1	T2	T3	R1	P2	P3
51	G	0.0	0.0	7.405825E-02	-4.241519E-03	-8.012070E-03	0.0
52	G	0.0	0.0	1.409997E-01	-5.304302E-03	-1.086360E-02	0.0
53	G	0.0	0.0	2.223264E-01	-6.587653E-03	-1.196446E-02	0.0
54	G	0.0	0.0	2.773440E-01	-8.126989E-03	-9.723950E-03	0.0
55	G	0.0	0.0	3.207053E-01	-1.073454E-02	2.320675E-03	0.0
56	G	0.0	0.0	2.441040E-01	-1.597391E-02	2.442722E-02	0.0
57	G	0.0	0.0	4.691256E-01	-2.515700E-02	5.164830E-02	0.0
58	G	0.0	0.0	-3.453201E-01	-5.097070E-02	6.357643E-02	0.0
59	G	0.0	0.0	-2.005839E-02	-7.321753E-04	0.0	0.0
60	G	0.0	0.0	-1.547521E-02	-5.712305E-04	-2.276073E-03	0.0
61	G	0.0	0.0	0.0	2.025949E-04	-4.957507E-03	0.0
62	G	0.0	0.0	2.007934E-02	-4.046184E-03	-5.410775E-03	0.0
63	G	0.0	0.0	9.215241E-02	-4.768783E-03	-9.2694224E-03	0.0
64	G	0.0	0.0	1.040213E-01	-5.380538E-03	-1.161884E-02	0.0
65	G	0.0	0.0	2.413496E-01	-5.167130E-03	-1.089417E-02	0.0
66	G	0.0	0.0	2.257010E-01	-4.380139E-03	-4.309445E-03	0.0
67	G	0.0	0.0	2.409633E-01	-6.355109E-03	1.146153E-02	0.0
68	G	0.0	0.0	1.339762E-01	-1.085735E-02	7.507532E-02	0.0
69	G	0.0	0.0	-1.562348E-01	-2.070232E-02	6.165852E-02	0.0
70	G	0.0	0.0	-5.170185E-01	-3.23502E-02	6.897650E-02	0.0
71	G	0.0	0.0	2.127624E-02	-4.944143E-03	-6.717363E-03	0.0
72	G	0.0	0.0	5.196270E-02	2.380935E-03	-9.297575E-03	0.0
73	G	0.0	0.0	1.168452E-01	-5.01275E-03	-1.125007E-02	0.0
74	G	0.0	0.0	1.948306E-01	-3.659963E-03	-1.256007E-02	0.0
75	G	0.0	0.0	2.663610E-01	-1.126144E-03	-0.339789E-03	0.0
76	G	0.0	0.0	2.927100E-01	1.534695E-03	1.772670E-03	0.0
77	G	0.0	0.0	2.221704E-01	1.545274E-03	2.230744E-03	0.0
78	G	0.0	0.0	1.203275E-02	-4.527451E-03	5.002567E-02	0.0
79	G	0.0	0.0	-3.336506E-01	-1.575421E-02	6.890048E-02	0.0
80	G	0.0	0.0	-7.773900E-01	-2.437339E-02	7.914667E-02	0.0
81	G	0.0	0.0	6.823249E-02	-2.559722E-03	-1.116106E-02	0.0
82	G	0.0	0.0	1.060436E-01	-3.741309E-03	-1.422435E-02	0.0
83	G	0.0	0.0	2.017854E-01	-0.210425E-04	-1.937277E-02	0.0
84	G	0.0	0.0	2.933730E-01	4.837431E-03	-1.735697E-02	0.0
85	G	0.0	0.0	3.571206E-01	1.524950E-02	-9.303379E-03	0.0
86	G	0.0	0.0	3.031037E-01	2.232707E-02	1.535746E-02	0.0
87	G	0.0	0.0	1.069307E-01	1.917035E-02	4.563732E-02	0.0
88	G	0.0	0.0	-2.420757E-01	1.545853E-03	7.255017E-02	0.0
89	G	0.0	0.0	-7.742320E-01	-1.636751E-02	8.035294E-02	0.0
90	G	0.0	0.0	-1.891326E-02	-3.649794E-04	0.0	0.0
91	G	0.0	0.0	1.472477E-02	-1.716376E-03	-1.344785E-03	0.0
92	G	0.0	0.0	3.250576E-04	-2.791251E-03	-7.104000E-03	0.0
93	G	0.0	0.0	3.77694E-04	4.49324E-04	-6.332264E-03	0.0
94	G	0.0	0.0	3.606307E-02	-3.240501E-03	-5.258512E-03	0.0
95	G	0.0	0.0	4.708976E-02	1.540754E-03	-7.265545E-03	0.0
96	G	0.0	0.0	5.153362E-02	-4.773527E-03	-7.425494E-03	0.0
97	G	0.0	0.0	-1.003000E+00	-4.436491E-02	5.891320E-02	0.0
98	G	0.0	0.0	-5.417480E-01	-4.312970E-02	6.769209E-02	0.0
99	G	0.0	0.0	7.442094E-01	-3.315539E-02	6.41454E-02	0.0
100	G	0.0	0.0	6.615752E-01	-7.896023E-02	6.121340E-02	0.0

NADC-73235-30

LIFENVALUE = 2.09475E+05

REFLECTION FACTOR NO.

3

POINT	TD	TYPE	T1	T2	T3	R1	R2	R3
1	1	G	0.0	0.0	2.119327E-03	-2.187643E-04	4.049400E-04	0.0
2	2	G	0.0	0.0	-1.777790E-07	-1.844394E-05	4.197160E-04	0.0
3	3	G	0.0	0.0	-0.021109E-03	2.356337E-04	1.324291E-03	0.0
4	4	G	0.0	0.0	-2.243609E-02	1.376306E-03	2.343774E-03	0.0
5	5	G	0.0	0.0	-4.333314E-12	3.737257E-07	2.674567E-03	0.0
6	6	G	0.0	0.0	-6.244494E-02	7.118750E-03	3.120007E-03	0.0
7	7	G	0.0	0.0	-8.927247E-02	1.235937E-02	5.606140E-03	0.0
8	8	G	0.0	0.0	-1.514564E-01	2.206135E-02	1.252454E-02	0.0
9	9	G	0.0	0.0	-3.013824E-01	3.815370E-02	2.507707E-02	0.0
10	10	G	0.0	0.0	-4.943795E-01	5.252406E-02	3.376423E-02	0.0
11	11	G	0.0	0.0	-1.534310E-03	7.176191E-05	0.0	0.0
12	12	G	0.0	0.0	1.192148E-07	4.026432E-05	1.758671E-04	0.0
13	13	G	0.0	0.0	0.0	-2.593193E-05	2.977901E-04	0.0
14	14	G	0.0	0.0	-3.320551E-03	2.498512E-04	7.590216E-04	0.0
15	15	G	0.0	0.0	-1.230324E-12	7.872133E-04	1.378227E-03	0.0
16	16	G	0.0	0.0	-2.438233E-12	2.408321E-03	1.420548E-03	0.0
17	17	G	0.0	0.0	-3.511291E-03	5.329320E-03	1.274111E-03	0.0
18	18	G	0.0	0.0	-4.435637E-12	9.531454E-07	1.911502E-03	0.0
19	19	G	0.0	0.0	-6.403742E-02	1.599727E-02	5.084578E-03	0.0
20	20	G	0.0	0.0	-1.712205E-11	2.306435E-02	1.524413E-02	0.0
21	21	G	0.0	0.0	-2.505339E-01	4.472133E-02	2.525788E-02	0.0
22	22	G	0.0	0.0	-4.427797E-01	6.642377E-02	2.708152E-02	0.0
23	23	G	0.0	0.0	2.821469E-03	7.274561E-05	0.0	0.0
24	24	G	0.0	0.0	2.091673E-03	2.726761E-05	3.200333E-04	0.0
25	25	G	0.0	0.0	0.0	-1.011157E-04	6.123594E-04	0.0
26	26	G	0.0	0.0	-5.415211E-03	8.489284E-04	7.964870E-04	0.0
27	27	G	0.0	0.0	-1.102057E-02	1.324913E-03	5.092384E-04	0.0
28	28	G	0.0	0.0	-1.455239E-02	4.002040E-03	-1.515558E-04	0.0
29	29	G	0.0	0.0	-1.030355E-02	7.789614E-03	-0.347462E-04	0.0
30	30	G	0.0	0.0	-7.323357E-03	1.362497E-02	2.125437E-04	0.0
31	31	G	0.0	0.0	-1.829024E-12	2.255735E-02	7.897092E-03	0.0
32	32	G	0.0	0.0	-7.036707E-02	3.800273E-02	1.428906E-02	0.0
33	33	G	0.0	0.0	-7.076015E-01	5.669075E-02	2.218986E-02	0.0
34	34	G	0.0	0.0	-7.442560E-11	7.823501E-02	1.610648E-02	0.0
35	35	G	0.0	0.0	1.977200E-03	-2.870492E-04	0.0	0.0
36	36	G	0.0	0.0	1.226221E-03	-1.720284E-04	2.823947E-04	0.0
37	37	G	0.0	0.0	0.0	1.311671E-04	5.918034E-04	0.0
38	38	G	0.0	0.0	-2.643712E-03	1.379873E-03	-4.267217E-03	0.0
39	39	G	0.0	0.0	4.931825E-14	6.885303E-03	-1.439124E-07	0.0
40	40	G	0.0	0.0	1.437422E-02	5.976247E-03	-2.047036E-03	0.0
41	41	G	0.0	0.0	3.524283E-02	1.096730E-02	-3.713116E-03	0.0
42	42	G	0.0	0.0	5.590441E-02	1.389275E-02	-2.760565E-07	0.0
43	43	G	0.0	0.0	5.711055E-02	3.331741E-02	1.481691E-03	0.0
44	44	G	0.0	0.0	4.457580E-07	4.820793E-02	1.123239E-02	0.0
45	45	G	0.0	0.0	-1.111340E-01	6.079133E-02	1.587152E-02	0.0
46	46	G	0.0	0.0	-2.185434E-01	7.068530E-02	1.4444137E-02	0.0
47	47	G	0.0	0.0	-4.230025E-03	-6.251365E-04	0.0	0.0
48	48	G	0.0	0.0	-3.139155E-03	-4.629723E-04	-7.319750E-04	0.0
49	49	G	0.0	0.0	0.0	2.180392E-05	-5.012407E-04	0.0
50	50	G	0.0	0.0	0.0	0.450395E-05	-2.627221E-03	0.0

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NADC-73235-30

EIGENVALUE = 2.94759E+05

POINT ID.	TYPE	T1	T2	T3	Q1	Q2	P7
51	G	1.0	0.0	3.059013E-02	3.470518E-03	-4.745407E-03	0.0
52	G	0.0	0.0	6.724008E-02	8.046466E-03	-6.857210E-03	0.0
53	G	0.0	0.0	1.233930E-01	1.531208E-02	-8.31494E-03	0.0
54	G	0.0	0.0	1.556007E-01	2.626832E-02	-7.457679E-03	0.0
55	G	0.0	0.0	1.713579E-01	3.939245E-02	-2.181165E-03	0.0
56	G	0.0	0.0	1.265590E-01	5.747739E-02	7.387124E-03	0.0
57	G	0.0	0.0	2.450075E-02	7.292455E-02	1.102870E-02	0.0
58	G	0.0	0.0	-8.573242E-02	8.12538E-02	1.240641E-02	0.0
59	G	0.0	0.0	-0.900535E-07	-9.246537E-05	0.0	0.0
60	G	0.0	0.0	-5.255047E-03	1.397652E-04	-8.588935E-04	0.0
61	G	0.0	0.0	0.0	1.366335E-03	-2.234900E-03	0.0
62	G	0.0	0.0	4.593734E-02	-1.239391E-04	-4.465587E-03	0.0
63	G	0.0	0.0	7.539984E-02	4.685504E-03	-9.018032E-03	0.0
64	G	0.0	0.0	1.411577E-01	1.081584E-02	-1.264705E-02	0.0
65	G	0.0	0.0	2.159431E-01	2.062475E-02	-1.441858E-02	0.0
66	G	0.0	0.0	3.793551E-01	3.339155E-02	-1.240924E-02	0.0
67	G	0.0	0.0	3.322488E-01	4.924041E-02	-0.229456E-03	0.0
68	G	0.0	0.0	2.537075E-01	6.533612E-02	3.259071E-03	0.0
69	G	0.0	0.0	1.546417E-01	7.747291E-02	0.904607E-03	0.0
70	G	0.0	0.0	3.824402E-02	5.268733E-02	1.120887E-02	0.0
71	G	0.0	0.0	3.944187E-02	1.066049E-02	-9.379328E-03	0.0
72	G	0.0	0.0	8.267432E-02	1.000289E-02	-5.420656E-03	0.0
73	G	0.0	0.0	1.612491E-01	6.985005E-02	-1.012526E-02	0.0
74	G	0.0	0.0	2.550007E-01	1.607951E-02	-2.131050E-02	0.0
75	G	0.0	0.0	3.751125E-01	2.890831E-02	-2.261885E-02	0.0
76	G	0.0	0.0	4.601574E-01	4.523911E-02	-1.024117E-02	0.0
77	G	0.0	0.0	4.807509E-01	6.191355E-02	-1.01465E-02	0.0
78	G	0.0	0.0	4.307709E-01	7.574973E-02	-1.502326E-04	0.0
79	G	0.0	0.0	3.264591E-01	8.336304E-02	7.151339E-03	0.0
80	G	0.0	0.0	2.185260E-01	8.817253E-02	1.014973E-02	0.0
81	G	0.0	0.0	2.618924E-01	2.051197E-02	-2.226521E-02	0.0
82	G	0.0	0.0	3.192043E-01	1.657913E-02	-3.120708E-02	0.0
83	G	0.0	0.0	4.944254E-01	2.445913E-02	-4.499581E-02	0.0
84	G	0.0	0.0	6.339220E-01	4.098344E-02	-5.055333E-02	0.0
85	G	0.0	0.0	9.031270E-01	7.057416E-02	-5.457101E-02	0.0
86	G	0.0	0.0	1.030070E+00	9.065934E-02	-3.796475E-02	0.0
87	G	0.0	0.0	9.515539E-01	1.052522E-01	-1.577792E-02	0.0
88	G	0.0	0.0	7.903838E-01	9.312151E-02	1.018732E-03	0.0
89	G	0.0	0.0	5.077501E-01	9.408255E-02	7.409124E-03	0.0
90	G	0.0	0.0	-6.472382E-03	-1.590123E-05	0.0	0.0
91	G	0.0	0.0	-2.431496E-03	-4.112398E-04	-6.423409E-04	0.0
92	G	0.0	0.0	-6.445562E-04	-4.581134E-04	-1.008273E-03	0.0
93	G	0.0	0.0	6.605665E-03	2.322497E-03	-3.470936E-03	0.0
94	G	0.0	0.0	8.715233E-03	1.433177E-03	-2.182733E-03	0.0
95	G	0.0	0.0	2.062447E-02	4.052437E-03	-2.554935E-03	0.0
96	G	0.0	0.0	4.226245E-02	1.943367E-03	-6.849176E-03	0.0
97	G	0.0	0.0	3.480344E-01	8.374023E-02	9.900352E-03	0.0
98	G	0.0	0.0	1.088210E-01	8.71581E-02	1.065638E-02	0.0
99	G	0.0	0.0	-5.553902E-01	8.491174E-02	2.504948E-02	0.0
100	G	0.0	0.0	-3.115200E-01	0.631836E-02	7.331550E-03	0.0

NADC-73235-30

EIGENVALUE = 7.203555E+05

D F A L L I C A T I O N V E C T O R N O .

4

FORM ID.	TYPE	T1	T2	T3	K1	P2	P3
1	C	0.0	0.0	1.720344E-02	-2.498549E-03	7.405511E-03	0.0
2	C	0.0	0.0	-6.425442E-07	-5.955945E-04	2.378697E-03	0.0
3	C	0.0	0.0	-4.333515E-02	2.168244E-04	7.591408E-03	0.0
4	C	0.0	0.0	-1.413625E-01	4.220821E-03	1.622148E-02	0.0
5	C	0.0	0.0	-3.554414E-01	1.371951E-02	2.767764E-02	0.0
6	C	0.0	0.0	-4.515293E-01	2.684143E-02	2.731816E-02	0.0
7	C	0.0	0.0	-6.720354E-01	3.954545E-02	9.025146E-03	0.0
8	C	0.0	0.0	-4.921594E-01	4.015799E-02	7.671512E-02	0.0
9	C	0.0	0.0	-7.589574E-02	1.465652E-02	-5.658668E-02	0.0
10	C	0.0	0.0	7.730244E-01	-2.338254E-02	-4.025474E-02	0.0
11	C	0.0	0.0	9.653146E-03	5.487374E-04	0.0	0.0
12	C	0.0	0.0	6.595371E-03	3.146698E-04	9.932240E-04	0.0
13	C	0.0	0.0	0.0	-3.712745E-04	1.671355E-03	0.0
14	C	0.0	0.0	-1.927225E-02	1.789649E-03	4.505396E-03	0.0
15	C	0.0	0.0	-7.827505E-02	2.73579E-03	1.413626E-02	0.0
16	C	0.0	0.0	-1.857844E-01	8.221855E-07	1.611484E-02	0.0
17	C	0.0	0.0	-3.314665E-01	1.754375E-02	1.959332E-02	0.0
18	C	0.0	0.0	-4.654798E-01	2.797359E-02	1.481507E-02	0.0
19	C	0.0	0.0	-5.005129E-01	3.589389E-02	-1.985135E-03	0.0
20	C	0.0	0.0	-3.211049E-01	2.736771E-02	-3.294170E-02	0.0
21	C	0.0	0.0	6.57249E-02	3.837734E-07	-2.202134E-02	0.0
22	C	0.0	0.0	0.14626E-01	-4.192244E-02	-2.03402E-02	0.0
23	C	0.0	0.0	1.953000E-02	9.482933E-04	0.0	0.0
24	C	0.0	0.0	1.444618E-02	9.531355E-04	2.213595E-02	0.0
25	C	0.0	0.0	0.0	-5.680755E-04	4.012062E-03	0.0
26	C	0.0	0.0	-3.063152E-02	4.403997E-03	7.710280E-03	0.0
27	C	0.0	0.0	-1.194773E-01	7.743529E-07	1.118456E-02	0.0
28	C	0.0	0.0	-2.112102E-01	1.357871E-02	1.474238E-02	0.0
29	C	0.0	0.0	-3.249872E-01	2.105003E-02	1.416794E-02	0.0
30	C	0.0	0.0	-3.997636E-01	2.779715E-02	2.537087E-02	0.0
31	C	0.0	0.0	-3.627314E-01	2.357411E-02	-1.249158E-02	0.0
32	C	0.0	0.0	-1.524245E-01	1.487085E-02	-3.800615E-02	0.0
33	C	0.0	0.0	1.652740E-01	-1.659335E-02	-3.777592E-02	0.0
34	C	0.0	0.0	2.937411E-01	-5.84874E-02	1.836241E-02	0.0
35	C	0.0	0.0	3.097535E-02	0.818157E-04	0.0	0.0
36	C	0.0	0.0	2.227723E-02	1.952972E-04	3.573282E-07	0.0
37	C	0.0	0.0	0.0	-3.253597E-04	6.591241E-03	0.0
38	C	0.0	0.0	-4.941689E-02	7.313060E-03	7.980017E-02	0.0
39	C	0.0	0.0	-1.201844E-01	1.114937E-02	1.019325E-02	0.0
40	C	0.0	0.0	-2.000332E-01	1.569204E-02	1.124599E-02	0.0
41	C	0.0	0.0	-2.800745E-01	2.231604E-02	7.445315E-03	0.0
42	C	0.0	0.0	-3.225218E-01	2.283639E-02	-3.13207E-03	0.0
43	C	0.0	0.0	-2.24901E-01	2.301435E-02	-1.956635E-02	0.0
44	C	0.0	0.0	-2.144515E-02	3.974094E-03	-3.272804E-02	0.0
45	C	0.0	0.0	1.77030E-01	-3.187933E-02	-1.440281E-02	0.0
46	C	0.0	0.0	1.326850E-01	-6.217481E-02	2.510777E-02	0.0
47	C	0.0	0.0	3.157782E-02	-1.675875E-04	0.0	0.0
48	C	0.0	0.0	2.331655E-02	-2.152033E-04	7.788498E-07	0.0
49	C	0.0	0.0	0.0	-2.48762E-04	7.171924E-03	0.0
50	C	0.0	0.0	-2.578474E-02	7.33231E-07	5.524470E-05	0.0

NADC-73235-30

FICENVALUE = 7.203555E+03

REAL EIGENVECTOR NO.

4

POINT NO.	TYPE	T1	T2	T3	R1	R2	R3
51	C	0.0	0.0	-1.376797E-01	1.32949E-02	7.697471E-03	0.0
52	C	0.0	0.0	-1.670706E-01	1.953331E-02	6.566713E-03	0.0
53	C	0.0	0.0	-2.027741E-01	2.202995E-02	2.445474E-04	0.0
54	C	0.0	0.0	-1.812658E-01	2.473947E-02	-1.020894E-02	0.0
55	C	0.0	0.0	-8.310042E-02	1.967575E-02	-2.111891E-02	0.0
56	C	0.0	0.0	9.817879E-02	-1.640235E-04	-1.920182E-02	0.0
57	C	0.0	0.0	9.847440E-02	-3.101392E-02	1.361844E-02	0.0
58	C	0.0	0.0	-2.893109E-02	-6.975107E-02	7.504814E-02	0.0
59	C	0.0	0.0	7.618705E-02	1.378653E-03	0.0	0.0
60	C	0.0	0.0	2.567735E-02	1.369335E-03	3.027650E-03	0.0
61	C	0.0	0.0	0.0	1.647071E-03	7.255450E-03	0.0
62	C	0.0	0.0	-1.052557E-02	8.710231E-03	4.522279E-02	0.0
63	C	0.0	0.0	-7.277437E-02	1.594149E-02	3.348466E-03	0.0
64	C	0.0	0.0	-4.004530E-02	2.124145E-02	4.150321E-04	0.0
65	C	0.0	0.0	-1.055141E-01	2.550028E-02	-6.72076E-03	0.0
66	C	0.0	0.0	-6.073945E-02	2.572291E-02	-1.514117E-02	0.0
67	C	0.0	0.0	2.402646E-02	2.191470E-02	-1.776502E-02	0.0
68	C	0.0	0.0	8.509777E-02	4.17015E-03	-1.905180E-03	0.0
69	C	0.0	0.0	-1.715871E-02	-2.526971E-02	3.446147E-02	0.0
70	C	0.0	0.0	-2.353985E-01	-5.565149E-02	4.787446E-02	0.0
71	C	0.0	0.0	1.792587E-02	1.260075E-02	3.742406E-04	0.0
72	C	0.0	0.0	2.476577E-02	1.204224E-02	1.173810E-02	0.0
73	C	0.0	0.0	1.101029E-02	2.207245E-02	-2.152490E-03	0.0
74	C	0.0	0.0	1.535861E-02	3.053522E-02	-8.171203E-02	0.0
75	C	0.0	0.0	4.033174E-02	3.660964E-02	-1.181749E-02	0.0
76	C	0.0	0.0	1.033695E-01	3.955225E-02	-1.813712E-02	0.0
77	C	0.0	0.0	1.428092E-01	3.481924E-02	-1.016325E-02	0.0
78	C	0.0	0.0	8.117388E-02	1.537538E-02	2.114368E-02	0.0
79	C	0.0	0.0	-1.495183E-01	-1.517409E-02	5.245024E-02	0.0
80	C	0.0	0.0	-2.143991E-01	-3.744433E-02	7.306877E-02	0.0
81	C	0.0	0.0	5.022198E-01	8.422933E-02	-2.200574E-02	0.0
82	C	0.0	0.0	4.920545E-01	7.247499E-02	-7.167894E-02	0.0
83	C	0.0	0.0	2.572401E-01	9.177905E-02	-4.760774E-02	0.0
84	C	0.0	0.0	6.302687E-01	9.572471E-02	-4.308534E-02	0.0
85	C	0.0	0.0	7.121262E-01	1.190742E-01	-4.666238E-02	0.0
86	C	0.0	0.0	9.524897E-01	1.220239E-01	-1.951595E-02	0.0
87	C	0.0	0.0	4.284333E-01	9.432935E-02	2.40607E-02	0.0
88	C	0.0	0.0	5.905705E-01	7.206420E-02	6.553269E-02	0.0
89	C	0.0	0.0	-5.735866E-01	-1.873763E-02	7.861575E-02	0.0
101	C	0.0	0.0	3.127199E-02	6.51212E-04	0.0	0.0
102	C	0.0	0.0	2.280905E-02	3.71276E-02	2.114270E-03	0.0
103	C	0.0	0.0	-1.809250E-02	5.367181E-02	4.286961E-03	0.0
104	C	0.0	0.0	1.829925E-02	2.587952E-03	9.064671E-03	0.0
105	C	0.0	0.0	-6.817357E-02	9.431437E-02	7.403574E-03	0.0
106	C	0.0	0.0	-6.121259E-02	2.941925E-03	1.174188E-02	0.0
107	C	0.0	0.0	-4.515899E-02	1.206549E-02	4.450074E-02	0.0
111	C	0.0	0.0	-8.103470E-01	-8.524998E-02	5.061123E-02	0.0
112	C	0.0	0.0	-3.054012E-01	-8.150494E-02	4.605091E-02	0.0
113	C	0.0	0.0	6.115523E-01	-7.736531E-02	3.781044E-02	0.0
114	C	0.0	0.0	1.060000E+00	-8.243619E-02	4.245559E-02	0.0

FACENVAFUF = 8.120997E+05

REFLECTION VECTOR NO.

POINT ID.	TYPE	T1	T2	T3	R1	R2	P3
1	G	0.0	0.0	2.643971E-03	-4.256512E-04	3.886738E-04	0.0
2	G	0.0	0.0	-6.641309E-04	-4.372972E-04	3.063942E-04	0.0
3	G	0.0	0.0	-5.749102E-03	-7.903675E-05	9.752024E-04	0.0
4	G	0.0	0.0	-1.013603E-02	3.155563E-04	2.434929E-07	0.0
5	G	0.0	0.0	-4.675139E-02	1.011732E-03	4.173677E-03	0.0
6	G	0.0	0.0	-8.013744E-02	3.875534E-03	3.752166E-07	0.0
7	G	0.0	0.0	-8.814371E-02	6.370541E-03	-1.212172E-03	0.0
8	G	0.0	0.0	-3.718762E-02	6.997435E-03	-8.552765E-03	0.0
9	G	0.0	0.0	3.212110E-02	5.312948E-07	-4.406054E-03	0.0
10	G	0.0	0.0	5.290549E-04	6.449545E-07	1.736453E-02	0.0
11	G	0.0	0.0	1.128572E-03	7.595534E-05	0.0	0.0
12	G	0.0	0.0	9.177487E-04	7.983354E-05	1.248175E-04	0.0
13	G	0.0	0.0	0.0	-6.348715E-05	2.005470E-04	0.0
14	G	0.0	0.0	-2.497434E-03	1.132230E-04	0.094921E-04	0.0
15	G	0.0	0.0	-1.064901E-02	1.664917E-04	1.629492E-03	0.0
16	G	0.0	0.0	-2.797423E-02	7.752235E-04	2.817522E-03	0.0
17	G	0.0	0.0	-2.503223E-02	1.901121E-03	3.610077E-03	0.0
18	G	0.0	0.0	-7.694092E-02	3.565516E-03	1.774099E-03	0.0
19	G	0.0	0.0	-6.221073E-02	5.349378E-07	-4.454485E-03	0.0
20	G	0.0	0.0	3.409339E-03	6.247504E-03	-9.524005E-07	0.0
21	G	0.0	0.0	2.938698E-02	7.969138E-03	-4.555098E-04	0.0
22	G	0.0	0.0	-2.357927E-02	1.312397E-02	2.675175E-02	0.0
23	G	0.0	0.0	2.001814E-03	1.451045E-04	0.0	0.0
24	G	0.0	0.0	1.954791E-03	0.477637E-05	3.774095E-04	0.0
25	G	0.0	0.0	0.0	-5.296753E-05	5.464070E-04	0.0
26	G	0.0	0.0	-2.459032E-03	2.480511E-04	1.150597E-03	0.0
27	G	0.0	0.0	-4.741044E-02	7.261637E-04	2.072344E-03	0.0
28	G	0.0	0.0	-3.717192E-02	1.232447E-07	3.147443E-03	0.0
29	G	0.0	0.0	-6.031831E-02	1.694020E-03	2.397468E-03	0.0
30	G	0.0	0.0	-6.336399E-02	2.625171E-07	-1.377591E-03	0.0
31	G	0.0	0.0	-2.423242E-02	4.702394E-03	-8.185743E-03	0.0
32	G	0.0	0.0	5.171474E-02	8.415913E-03	-0.979417E-03	0.0
33	G	0.0	0.0	7.452006E-02	1.326075E-02	5.991112E-03	0.0
34	G	0.0	0.0	-4.904618E-02	2.169857E-02	7.370147E-02	0.0
35	G	0.0	0.0	5.587514E-03	3.285840E-04	0.0	0.0
36	G	0.0	0.0	4.077383E-03	1.876137E-04	6.194817E-04	0.0
37	G	0.0	0.0	0.0	-1.930275E-04	1.097175E-03	0.0
38	G	0.0	0.0	-9.053711E-03	9.072518E-04	1.637067E-03	0.0
39	G	0.0	0.0	-2.456929E-02	7.635737E-04	2.967515E-03	0.0
40	G	0.0	0.0	-4.814613E-02	2.761125E-04	3.178644E-03	0.0
41	G	0.0	0.0	-6.234120E-02	-1.069363E-04	2.323099E-04	0.0
42	G	0.0	0.0	-4.195923E-02	1.001492E-03	-6.104744E-03	0.0
43	G	0.0	0.0	2.617022E-02	5.169726E-03	-1.238881E-02	0.0
44	G	0.0	0.0	1.067897E-01	1.372607E-02	-8.050427E-03	0.0
45	G	0.0	0.0	9.557101E-02	1.306433E-02	1.310132E-02	0.0
46	G	0.0	0.0	-7.607812E-02	2.095477E-02	7.571760E-02	0.0
47	G	0.0	0.0	1.113612E-02	5.377944E-04	0.0	0.0
48	G	0.0	0.0	9.239804E-07	4.565407E-04	1.043462E-03	0.0
49	G	0.0	0.0	0.0	1.731415E-04	1.730460E-03	0.0
50	G	0.0	0.0	-3.001937E-07	6.064455E-04	0.0	0.0

NADC-73235-30

LIGENVALUE = A.120999E+05

POINT ID.	TYPE	T1	T2	T3	R1	R2	R3
1	G	0.0	0.0	-4.714729E-02	-1.188324E-03	4.574383E-07	0.0
2	G	0.0	0.0	-6.828809E-02	-7.316385E-03	2.573396E-07	0.0
3	G	0.0	0.0	-5.559549E-02	-4.342595E-03	-7.501394E-07	0.0
4	G	0.0	0.0	-6.333058E-03	-5.415745E-04	-1.256647E-02	0.0
5	G	0.0	0.0	9.652773E-02	8.097769E-03	-1.748982E-02	0.0
6	G	0.0	0.0	1.741909E-01	2.129426E-02	-2.943747E-07	0.0
7	G	0.0	0.0	1.131477E-01	7.943017E-02	2.257505E-02	0.0
8	G	0.0	0.0	-1.119444E-01	1.971772E-02	3.021096E-02	0.0
9	G	0.0	0.0	1.212477E-02	-9.132711E-05	0.0	0.0
10	G	0.0	0.0	9.050494E-03	-3.757375E-04	1.468115E-03	0.0
11	G	0.0	0.0	7.0	-1.969011E-07	3.412531E-03	0.0
12	G	0.0	0.0	-2.220523E-02	1.191527E-04	5.972761E-07	0.0
13	G	0.0	0.0	-4.343101E-02	-7.173490E-07	6.757742E-03	0.0
14	G	0.0	0.0	-1.016746E-01	-1.075672E-02	9.107765E-04	0.0
15	G	0.0	0.0	-6.442731E-02	-1.316254E-02	-9.787235E-03	0.0
16	G	0.0	0.0	4.246944E-02	1.504949E-03	-2.119551E-02	0.0
17	G	0.0	0.0	1.825981E-01	1.584157E-02	-2.293367E-02	0.0
18	G	0.0	0.0	2.675624E-01	3.387669E-02	-2.740803E-03	0.0
19	G	0.0	0.0	1.194412E-01	4.054747E-02	3.119659E-02	0.0
20	G	0.0	0.0	-1.425677E-01	3.364394E-02	4.556517E-02	0.0
21	G	0.0	0.0	-7.102623E-02	-7.290725E-03	1.323151E-02	0.0
22	G	0.0	0.0	-1.351705E-01	-2.103759E-02	-3.167232E-04	0.0
23	G	0.0	0.0	-1.868072E-01	-2.351304E-02	8.474309E-03	0.0
24	G	0.0	0.0	-1.759096E-01	-2.976700E-02	-2.921393E-03	0.0
25	G	0.0	0.0	-6.795225E-02	-2.288599E-02	-2.177746E-02	0.0
26	G	0.0	0.0	1.322540E-01	6.310379E-04	-3.494521E-02	0.0
27	G	0.0	0.0	3.235720E-01	3.247171E-02	-2.061541E-02	0.0
28	G	0.0	0.0	5.533809E-01	5.287979E-02	7.196714E-03	0.0
29	G	0.0	0.0	1.469747E-01	5.722913E-02	3.837895E-02	0.0
30	G	0.0	0.0	-1.713302E-01	5.452897E-02	2.862395E-02	0.0
31	G	0.0	0.0	-1.095005E+00	-1.551975E-01	4.461359E-02	0.0
32	G	0.0	0.0	-9.826501E-01	-1.391095E-01	5.177209E-02	0.0
33	G	0.0	0.0	-9.273035E-01	-1.334109E-01	2.480984E-02	0.0
34	G	0.0	0.0	-6.558068E-01	-1.370772E-01	-2.578479E-02	0.0
35	G	0.0	0.0	-9.274488E-02	-7.624013E-02	-9.749810E-02	0.0
36	G	0.0	0.0	5.294506E-01	7.088511E-02	-9.430055E-02	0.0
37	G	0.0	0.0	8.249810E-01	1.061524E-01	-4.331606E-02	0.0
38	G	0.0	0.0	6.437174E-01	1.391936E-01	2.713997E-02	0.0
39	G	0.0	0.0	3.495784E-02	7.970770E-02	5.51752E-02	0.0
40	G	0.0	0.0	1.244931E-02	-2.487126E-04	0.0	0.0
41	G	0.0	0.0	9.691557E-03	6.490477E-04	1.268390E-03	0.0
42	G	0.0	0.0	1.147845E-03	9.693555E-04	2.626240E-03	0.0
43	G	0.0	0.0	-1.088265E-02	-7.703225E-03	4.756577E-03	0.0
44	G	0.0	0.0	-1.780944E-02	6.729333E-04	3.786129E-03	0.0
45	G	0.0	0.0	-2.912025E-02	-3.992276E-03	7.347990E-03	0.0
46	G	0.0	0.0	-5.317308E-02	-7.952337E-03	7.346364E-07	0.0
47	G	0.0	0.0	-2.903496E-01	1.211750E-02	4.584274E-02	0.0
48	G	0.0	0.0	-1.855494E-01	1.352614E-02	4.432389E-02	0.0
49	G	0.0	0.0	-9.942449E-03	2.172619E-02	3.403350E-02	0.0
50	G	0.0	0.0	3.195322E-02	2.114023E-02	7.426710E-02	0.0

EIGENVALUE = 1.7572350E+06

REAL EIGENVALUE

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NO.

03

POINT ID.	TYPE	T1	T2	T3	R1	R2	03
1	G	1.0	0.0	1.000000E+00	-2.78291E-01	1.345182E-01	0.0
2	G	0.0	0.0	1.51650E-01	-4.93328E-02	2.658123E-02	0.0
3	G	0.0	0.0	1.94952E-03	-3.24831E-03	3.92768E-03	0.0
4	G	0.0	0.0	-0.401420E-03	9.66775E-04	7.875073E-04	0.0
5	G	0.0	0.0	-1.121184E-02	1.173535E-03	2.098200E-04	0.0
6	G	0.0	0.0	-9.747662E-03	1.145582E-03	-2.559945E-04	0.0
7	G	0.0	0.0	-4.006202E-03	8.24771E-04	-7.232949E-04	0.0
8	G	0.0	0.0	7.753430E-03	1.911233E-04	-6.60772E-04	0.0
9	G	0.0	0.0	4.839130E-03	-1.85371E-04	3.121132E-04	0.0
10	G	0.0	0.0	-6.809540E-04	5.002252E-05	7.78597E-04	0.0
11	G	0.0	0.0	-3.593325E-03	-2.479750E-04	0.0	0.0
12	G	0.0	0.0	-2.723646E-03	-7.90751E-04	-4.749222E-04	0.0
13	G	0.0	0.0	0.0	-2.69083E-03	-1.147456E-03	0.0
14	G	0.0	0.0	-4.930217E-03	1.17474E-03	2.835886E-04	0.0
15	G	0.0	0.0	-5.558742E-03	7.72791E-04	2.75302E-04	0.0
16	G	0.0	0.0	-7.31749E-03	7.415421E-04	2.12272E-04	0.0
17	G	0.0	0.0	-7.729134E-03	8.51753E-04	-7.570764E-05	0.0
18	G	0.0	0.0	-5.22861E-03	8.123395E-04	-4.277191E-04	0.0
19	G	0.0	0.0	1.018909E-04	5.292592E-04	-6.92698E-04	0.0
20	G	0.0	0.0	4.896314E-03	4.673374E-05	-2.592718E-04	0.0
21	G	0.0	0.0	3.54222E-03	-6.29494E-05	5.788123E-04	0.0
22	G	0.0	0.0	-1.747130E-03	2.46677E-04	5.199639E-04	0.0
23	G	0.0	0.0	7.433751E-04	5.238255E-04	0.0	0.0
24	G	0.0	0.0	6.469214E-04	5.712947E-04	1.920546E-04	0.0
25	G	0.0	0.0	0.0	7.73717E-04	6.26370E-04	0.0
26	G	0.0	0.0	-1.44557E-03	3.73867E-04	3.11278E-04	0.0
27	G	0.0	0.0	-3.82365E-03	5.051451E-04	1.94643E-04	0.0
28	G	0.0	0.0	-4.034225E-03	6.151945E-04	4.029348E-05	0.0
29	G	0.0	0.0	-3.953355E-03	6.487459E-04	-2.297741E-04	0.0
30	G	0.0	0.0	-9.057742E-04	5.55755E-04	-5.49222E-04	0.0
31	G	0.0	0.0	3.43905E-03	7.096674E-04	-5.048671E-04	0.0
32	G	0.0	0.0	5.31011E-03	9.236155E-05	4.68044E-05	0.0
33	G	0.0	0.0	1.057413E-03	7.350431E-05	6.58697E-04	0.0
34	G	0.0	0.0	-1.826284E-03	4.29741E-04	-1.74369E-05	0.0
35	G	0.0	0.0	1.557440E-03	-1.541249E-04	0.0	0.0
36	G	0.0	0.0	1.13799E-03	-1.639205E-04	1.785145E-04	0.0
37	G	0.0	0.0	0.0	-1.013904E-04	1.907269E-04	0.0
38	G	0.0	0.0	-1.427621E-03	2.379582E-04	1.401957E-04	0.0
39	G	0.0	0.0	-2.271718E-03	7.32417E-04	4.162908E-05	0.0
40	G	0.0	0.0	-2.092357E-03	4.537172E-04	-1.339764E-04	0.0
41	G	0.0	0.0	-3.32732E-04	4.483101E-04	-3.5871E-04	0.0
42	G	0.0	0.0	2.739321E-03	7.618780E-04	-4.896550E-04	0.0
43	G	0.0	0.0	5.476991E-03	1.855737E-04	-2.714837E-04	0.0
44	G	0.0	0.0	4.72843E-03	3.637173E-05	4.124951E-04	0.0
45	G	0.0	0.0	9.228349E-04	1.590933E-04	5.474540E-04	0.0
46	G	0.0	0.0	-9.741772E-04	4.92755E-04	-5.591146E-05	0.0
47	G	0.0	0.0	5.237522E-04	-3.852672E-05	0.0	0.0
48	G	0.0	0.0	0.000399E-04	-1.279901E-05	7.29977E-05	0.0
49	G	0.0	0.0	0.0	4.35514E-05	4.401107E-04	0.0
50	G	0.0	0.0	-2.537077E-04	9.515379E-05	2.807379E-05	0.0

EIGENVALUE = 1.757355E+06

POINT NO.	TYPE	T1	T2	T3	R1	R2	P3
51	G	0.0	0.0	-5.30514E-04	2.41226E-04	-9.313022E-05	0.0
52	G	0.0	0.0	2.861433E-04	2.71722E-04	-2.746272E-04	0.0
53	G	0.0	0.0	2.843434E-03	2.762472E-04	-4.111344E-04	0.0
54	G	0.0	0.0	5.047343E-07	1.374213E-04	-3.036759E-04	0.0
55	G	0.0	0.0	2.927574E-07	2.355831E-05	1.327485E-04	0.0
56	G	0.0	0.0	3.117233E-03	-1.478649E-04	6.017274E-04	0.0
57	G	0.0	0.0	-4.552902E-04	-5.309742E-05	2.486792E-04	0.0
58	G	0.0	0.0	1.571163E-04	4.904067E-04	-1.926370E-04	0.0
59	G	0.0	0.0	3.752474E-04	-4.515332E-06	0.0	0.0
60	G	0.0	0.0	2.742741E-04	2.500952E-07	3.700269E-05	0.0
61	G	0.0	0.0	0.0	2.255551E-05	2.764790E-05	0.0
62	G	0.0	0.0	-2.800419E-05	6.345543E-05	-1.512352E-05	0.0
63	G	0.0	0.0	4.211457E-04	8.769444E-05	-1.941714E-04	0.0
64	G	0.0	0.0	2.655710E-03	1.277193E-04	-3.769021E-04	0.0
65	G	0.0	0.0	5.047155E-07	1.666039E-04	-3.672875E-04	0.0
66	G	0.0	0.0	6.311422E-03	8.537342E-05	-2.72016E-05	0.0
67	G	0.0	0.0	4.664498E-07	-2.584670E-04	5.542912E-04	0.0
68	G	0.0	0.0	7.068300E-04	-5.700063E-04	6.603742E-04	0.0
69	G	0.0	0.0	-8.657301E-04	-5.200474E-04	-2.456313E-05	0.0
70	G	0.0	0.0	1.059600E-07	-3.711442E-05	-4.753002E-04	0.0
71	G	0.0	0.0	1.256681E-04	-4.269272E-05	-2.113944E-05	0.0
72	G	0.0	0.0	3.406553E-04	-3.465543E-05	-1.544509E-04	0.0
73	G	0.0	0.0	1.692531E-03	-1.715623E-04	-7.410190E-04	0.0
74	G	0.0	0.0	4.427257E-03	-7.327925E-05	-4.701937E-04	0.0
75	G	0.0	0.0	6.344678E-03	7.05591E-06	-1.920857E-04	0.0
76	G	0.0	0.0	5.147178E-07	-2.670452E-04	5.051692E-04	0.0
77	G	0.0	0.0	5.525990E-04	-1.017621E-07	1.51572E-07	0.0
78	G	0.0	0.0	-3.473734E-03	-1.554183E-03	6.591097E-04	0.0
79	G	0.0	0.0	-2.546172E-03	-1.365585E-03	-2.750792E-04	0.0
80	G	0.0	0.0	1.529419E-07	-1.219945E-03	-1.047320E-03	0.0
81	G	0.0	0.0	1.125077E-02	-2.576537E-03	1.694794E-04	0.0
82	G	0.0	0.0	-4.726325E-03	-2.304167E-03	7.364474E-05	0.0
83	G	0.0	0.0	-7.451119E-03	-1.747551E-03	-7.372295E-04	0.0
84	G	0.0	0.0	1.134700E-03	-1.122452E-07	-6.513443E-05	0.0
85	G	0.0	0.0	-7.339910E-03	-1.349279E-07	2.000407E-03	0.0
86	G	0.0	0.0	-1.616444E-02	-3.649174E-03	3.222499E-03	0.0
87	G	0.0	0.0	-2.343755E-02	-5.337075E-03	2.079423E-03	0.0
88	G	0.0	0.0	-1.801539E-02	-4.734699E-07	-4.672900E-05	0.0
89	G	0.0	0.0	-5.106434E-03	-2.478785E-07	-8.431085E-04	0.0
90	G	0.0	0.0	-4.154093E-04	-1.247410E-05	0.0	0.0
91	G	0.0	0.0	3.074951E-04	2.55555E-05	3.562883E-05	0.0
92	G	0.0	0.0	1.857277E-05	5.766633E-05	4.523794E-05	0.0
93	G	0.0	0.0	9.812593E-05	7.07764E-05	3.947185E-05	0.0
94	G	0.0	0.0	-9.612559E-04	2.701499E-04	7.728924E-05	0.0
95	G	0.0	0.0	-3.534754E-04	1.324273E-04	8.792278E-05	0.0
96	G	0.0	0.0	1.997729E-04	6.491055E-05	-0.273285E-05	0.0
97	G	0.0	0.0	5.731224E-03	8.03359E-04	-5.000133E-04	0.0
98	G	0.0	0.0	2.790525E-03	7.238171E-04	-4.27261E-04	0.0
99	G	0.0	0.0	-4.871107E-07	8.57877E-04	-4.473074E-04	0.0
100	G	0.0	0.0	-0.43025E-03	9.049619E-04	-5.54837E-04	0.0

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