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Experimental Modal Analysis of an Aero Commander Aircraft

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I. FOREWORD

This report documents the results of the dynamic testing and analysis of the fuselage panels of a 1957 Rockwell Aero Commander light aircraft. The work was performed in accordance with Wyle Labs purchase contract order No. 9-0636S and in support of NASA funded Columbia University research on noise transmission in light twin engined aircraft.

The work was performed during the week of March 23-27, 1981 at Columbia University, Engineering School under the direction of Professor R. Vaicaitus in the Civil Engineering Department. Limited data analysis was performed the first week of April.

Those participating in the project were as follows:

Columbia University

R. Vaicaitus, Professor Civil Engineering

Wyle Laboratories

A. L. Abrahamson, Ph.D., Engineering Contract Administrator

SDRC

D. Geisler, Project Engineer, Vehicle Systems Testing

D. Bricker, Engineering Assistant, Vehicle Systems Testing

II. INTRODUCTION

The reduction of interior noise in light aircraft has been the aim of several on going research efforts funded by NASA. These efforts have been concerned with both the noise source and the noise transmission mechanism. One such effort concerns one of the dominant source-path combinations for interior cabin noise, the thin fuselage sidewall. This effort is being carried out by a team at Columbia University School of Engineering headed by Professor R. Vaicaitus. The approach used by Professor Vaicaitus is theoretical in nature and involves sophisticated modeling of the sidewall panels and stiffeners. The work presented in this report was performed to provide experimental data from which to verify and supplement the dynamic characteristics predicted by the analytical models.

The test article for these experiments was the scraped, gutted fuselage of a twin engined 1957 Rockwell Aero Commander. This aircraft was the subject of many other tests investigating cabin noise of light aircraft while at the Langley Research Center in Hampton, Virginia. Some of the previous tests performed on this aircraft involved studying the effects of mass and stiffness treatments to the sidewalls. Therefore the results of this work will include the dynamic characteristics of some treated panels to contrast with the untreated original sidewall panels.

The results documented in this report were obtained using experimental modal analysis techniques. See references for technical papers describing this technique. These results include the natural frequencies, modal damping, and mode shapes of selected panels. Frequency response functions are provided for most panels whereas the modal parameters were extracted for specific panels. A summary of the modal parameters of those selected panels is presented first. Subsequent to the summary is a bulk data presentation including the test setup documentation, data acquisition techniques and data analysis techniques.

While the primary objectives of this work were focused on local panel dynamic responses, some additional data was acquired relating to the global (involving two or more panels) fuselage response. Also, acoustic response measurements were made. This involved measuring the sound pressure level of several locations in the pilot/passenger cavity due to a single point mechanical excitation of the fuselage sidewall. These global response and acoustic response results are presented in the bulk data sections.

III. SUMMARY

This section summarizes the data presented in the subsequent pages of this report. Included in the summary is a table of the data acquired during the testing performed on-site and also a table summarizing the panel frequencies and damping. Actual frequency response functions and mode shapes are presented in the bulk data sections of the report.

Table III.1 summarizes the data acquired. It indicates the type of data acquired, impact driving point transfer functions or random excitation cross transfer functions, and how much of each. Impact frequency response functions were used to determine the local panel resonances whereas random excitation data was used to generate global resonances. This was done because impacting the panels did not excite global modes, whereas the random excitation excited many fuselage modes. Table III.1 also indicates the panels for which mode shapes and damping were calculated.

Tables III.2 and III.3 summarize the panel frequencies and modal damping for the panels for which this information was generated. Panel frequencies are presented with a tolerance of +/– 2 Hz in most cases. Modal damping was calculated for well defined modes on some panels, and is presented as percent of critical viscous damping. Following are some general observations of the data.

1. Modal damping ranges from .3 – 1.0 percent of critical for the untreated panels.
2. Damping on the honeycomb treated panels range from .6 to 2.6 percent of critical.
3. Damping on the windows and door is much higher at 4 – 10 percent of critical.
4. Individual panel frequencies start above 100 Hz, the first being at 113 Hz for panel 2P.
5. The first fuselage sidewall global mode appears to be at approximately 60 Hz (possibly around 50 Hz). The term global mode is meant to imply a mode involving more than one individual panel.
6. Global modes are apparent up to 200 Hz such that some modes presented in this report in the range 100 – 200 may be more global than local in nature.
7. Honeycomb stiffening increases the first panel mode in frequency only slightly. For example the first panel mode of panel 1S, honeycomb stiffened, is at 167 Hz while the first mode of panel 1P, untreated, is at 150 Hz.
8. However, most noteworthy of the honeycomb treated panels is that the panel mode shapes are changed drastically. Compare the mode shape at 169 Hz of panel 1S, page 78, with the mode shape of panel 1P at 161 Hz, page 128. The honeycomb stiffened panels demonstrate more continuous behavior across the stringer and frame boundaries than the unstiffened panels do.
9. Acoustic response of the cavity due to single point mechanical excitation of the sidewall appeared linear with respect to excitation force in the range tested. That is, when the force is doubled from 1 pound RMS to 2 pounds RMS the sound pressure level increased by approximately 6 dB.

Table III.1
Data Summary

Panel ID	Frequency Response Functions Acquired		Mode Shapes Calculated	Damping Calculated
	Impact	Random		
1P	6	Full Grid	Yes	Yes
2P	3	Full Grid	Yes	Yes
3P	2	3		Yes
4P	1	3		
5P	1	3		
6P	2	3		
7P	1	3		Yes
8P	1	3		Yes
Port Fuselage			Yes	
Port Windscreen	1	3		Yes
1S	4	Full Grid	Yes	Yes
4S	4	6		Yes
6S	6	Full Grid	Yes	Yes
7S	4	6		Yes
8S	2	Full Grid	Yes	Yes

Table III.2
Aero Commander, Starboard Side Panel Frequencies
and Damping (percent of critical)

Mode Number	Panel Identification									
	1S		4S		6S		7S		8S (window)	
	f	δ	f	δ	f	δ	f	δ	f	δ
1	167		120	.7	171	.7	135 ②		107 ②	10.0
2	179	.8	134	1.0	242 ①	.6	172 ②		155	5.0
3	185	1.0	140	.4	263		209 ②		168	5.0
4	197	1.0	150	.7	276	.6	230	2.6	207	5.0
5	210	1.4	153	.6	330, 335 ①		248	2.0	218	5.0
6	266		190	.6	348 ①	.6	328		276	5.0
7	271		198	.7	380, 390 ①		390		363	
8	295		245	.4	444		403	1.7	400	
9	320		254	.7	474	.6	457		465	
10	338	.7	265	.4	537		473		540	

① Pairs of modes show up at approximately these frequencies.

② Most likely a global mode, involving at least 2 panels.

Table III.3
Aero Commander, Port Side Frequencies
and Damping (percent of critical)

Mode Number	Panel Identification												Port Fuselage
	1P		2P		3P		7P (window)		8P (door & window)		Windscreen		
	f	δ	f	δ	f	δ	f	δ	f	δ	f	δ	f
1	150		113	.7	158	.5	72②	4.0	173		108②	10.0	61
2	159		162	.6	201	.5	94②	4.0	219	5.7	127	7.0	71
3	167	.6	216		228	.5	323	5.0	256	6.0	167		86
4	185	.5	231	.5	270	1.0	406	4.0			185	6.0	94
5	192	.6	242①		297	1.0	495				246		114
6	203		276	.3					400	4.9	286	6.0	137
7	212		312	.4			750	5.0	450	5.3			146
8	227	.4	326										157
9	234	.7	353①	.4									161
10	243	.4	393						700	3.7			166

① Modes of the smaller panel which is one of two panels comprising panel 2P.

② Most likely a global mode, involving surrounding panels.

IV. TEST DESCRIPTION

This section of the report describes the test configuration, the test article definition and the test techniques used in the modal data acquisition task.

IV.1 Test Configuration

The test specimens were defined as particular panel sections of an Aero Commander fuselage sidewall. The panels bordered the passenger/pilot cavity beginning with the door and continuing forward to and including the pilot windscreen. The aircraft fuselage with wings, tail and nose gear removed was supported in a sling type cradle. The sling straps supported the fuselage underbody just aft of the pilot side window and just aft of the door. It was assumed that the support mechanism does not affect the local panel properties. Figure IV.8 shows the aircraft fuselage in its cradle support.

Figures IV.1a and IV.2a show the panel identification scheme. The data presented in this report is labeled according to this scheme. For example, panel 6S is panel no. 6 (Figure IV.1a) on the starboard side.

Data was measured at discrete locations throughout the sidewall. For identification of where the data was taken these points are labeled with integer numbers. Figures IV.1b and IV.2b present an overview of the point labeling scheme. These figures do not show all data point locations because the grid work was too dense on certain panels. Subsequent figures will show all points on particular panels. Grid numbers in the range 1 through 250 are located on the starboard sidewall. All points on the port side are placed symmetrically opposite points on the starboard side and the grid points on the port side are labeled with numbers 1000 greater than the corresponding starboard point. Detail data acquisition surveys were made on panels 1S, 6S, and 8S (starboard side) and on panels 1P and 2P on the port side. Figures IV.3 through IV.6 show the grid point detail for these panels. Figure IV.7 shows a longitudinal line and vertical line on the port sidewall where data was collected to document the global sidewall modes. The longitudinal line in Figure IV.7 represents the frame member which joins the top row of panels to the bottom row of panels. The vertical line in Figure IV.7 represents the frame that joins panels 6P and 7P and panels 2P and 3P.

The coordinate system used for displaying the panel geometry and labeling the data is the right hand cartesian system. The X direction corresponds to the fore-aft direction, positive being forward. The Y direction is positive up in the vertical direction while the Z direction corresponds to the lateral direction positive to the starboard side.

All data presented in this report is labeled with the point number and direction X, Y, or Z that correspond to the location and sense at which the data was obtained.

IV.2 Data Acquisition

The objective of the data acquisition task of this work was to experimentally measure the appropriate frequency response functions, FRF, from which to extract the desired panel modal parameters. The frequency response functions, sometimes referred to as a transfer function, is the ratio of the output response to the input force. In this case the FRF is acquired, stored and displayed in units of g's/pound (acceleration response/input force) as a function of frequency. The functions presented in this report are labeled with two coordinates. The first coordinate represents force input location and direction while the second coordinate represents the response location and direction.

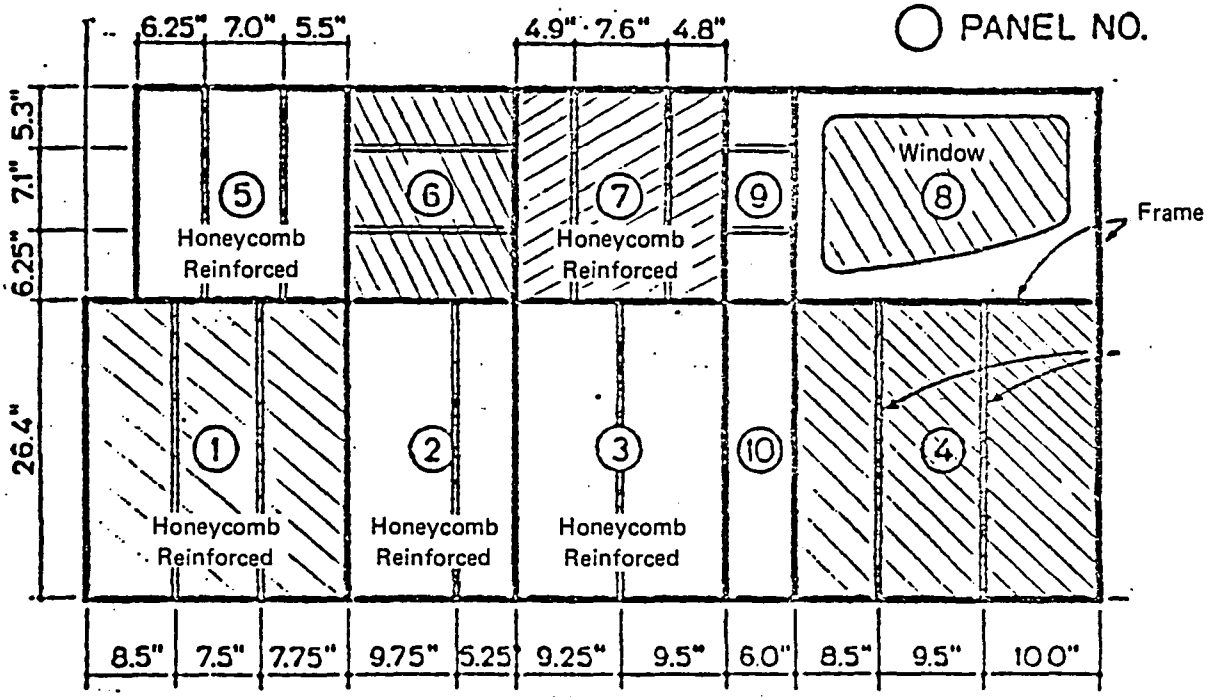
For example, FRF 1Z–, 35Z represents the response at point 35 in the +Z direction due to a force at point 1 in the –Z direction. The FRF's were obtained using two different techniques. The first method involved single point random excitation. This was accomplished by attaching an electromechanical shaker to the fuselage sidewall via a uniaxial stinger. The stinger was instrumented with force transducer in order to measure the input force. A roving small accelerometer was then attached to the desired location for the response measurement. Figure IV.10 demonstrates this excitation method while Figure IV.11 shows a close up of the stinger attachment. This method proved excellent for exciting the entire fuselage sidewall and was used for extracting panel mode shape information. The input force spectra for this technique was essentially flat out to 1000 Hz. The exact point of excitation was in line with a fuselage frame, which is close to a nodal line for local panel modes. Consequently, the measured response was often composed predominantly of global fuselage modes making it difficult, in some cases, to identify individual frequencies associated with a given panel.

The second data acquisition method involved impulse techniques. This technique requires the input to be supplied by the impact of an instrumented hammer. The impulse response was then measured using the same small accelerometers as were used before.

The corresponding FRF was then calculated by averaging 5 such impacts. This method was used to single out the local panel modes and typically only driving point FRF's were acquired. These driving point FRF's exhibit well separated, well defined response peaks and in most cases these functions were used for damping calculations. The actual FRF's are presented in the bulk data sections.

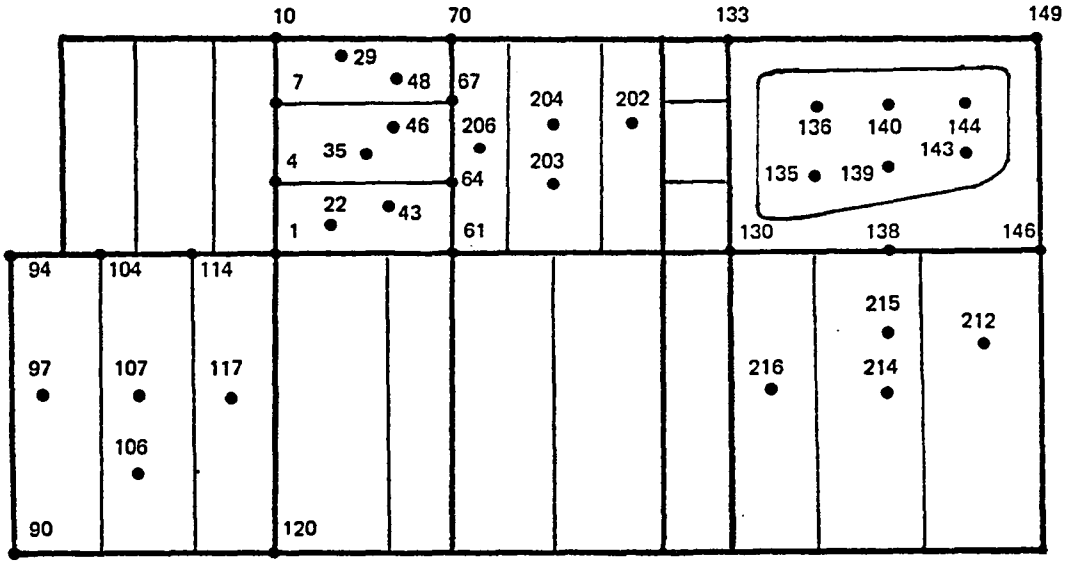
There was not enough energy input with the impact technique to excite global modes or even excite the modes of surrounding panels significantly. In fact the input energy was dissipated in local deformation of the impacted panel. The force input spectra dropped drastically at the frequencies associated with the panel flexibility. Figure IV.31 exemplifies the force input spectras for impacts on panels of different flexibility. Figure IV.31a shows the impact on panel 1S a honeycomb stiffened panel while Figure IV.31b is the force spectra for an impact on a large very flexible panel, panel 4S.

In summary, the impulse technique applied on the panel itself, was best suited for identifying the individual panel frequencies and extracting the modal damping for those frequencies. The random excitation applied at a centrally located frame member, was best suited for acquiring the modal deformation patterns of the individual panels as well as the overall fuselage. The random excitation also excited acoustic response in the cavity which is described in a subsequent section.



(a)

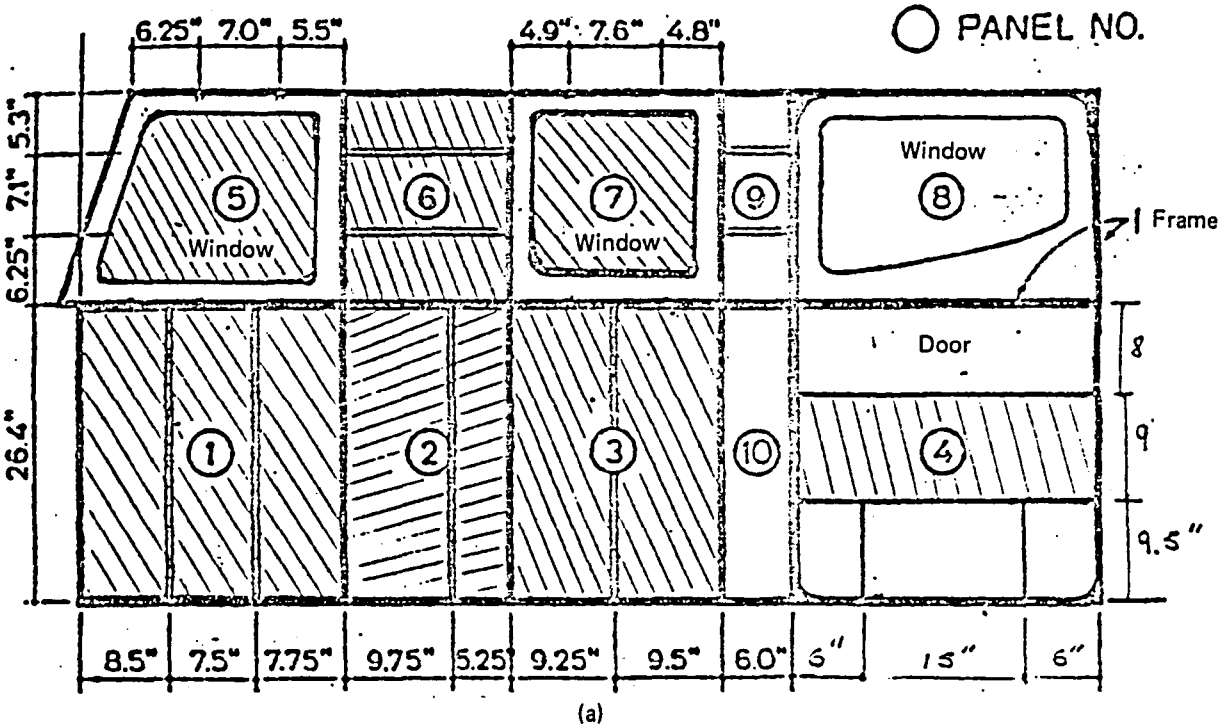
Panel Identification Scheme



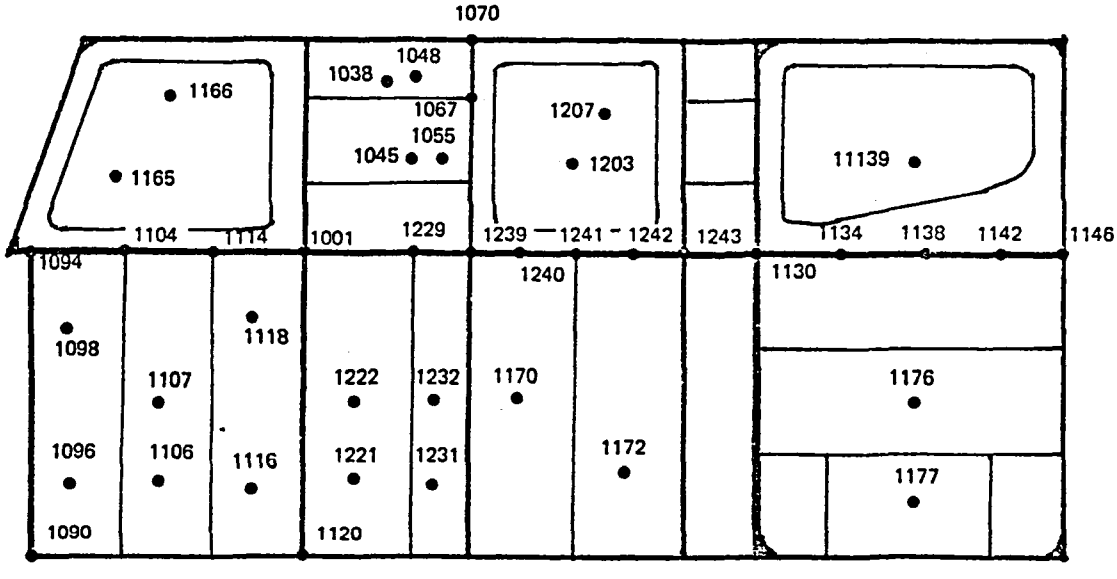
(b)

Data Point Labeling Scheme (Overview)
(All Points Except Detail Grid on Panels 1, 6 and 8)

Figure IV.1
Starboard Sidewall, as Viewed from Port Side



(a)
Panel Identification Scheme



(b)
Data Point Labeling Scheme (Overview)
(All Points Except Detail Grid on Panels 1, and 2)

Figure IV.2
Port Sidewall, as Viewed from Port Side

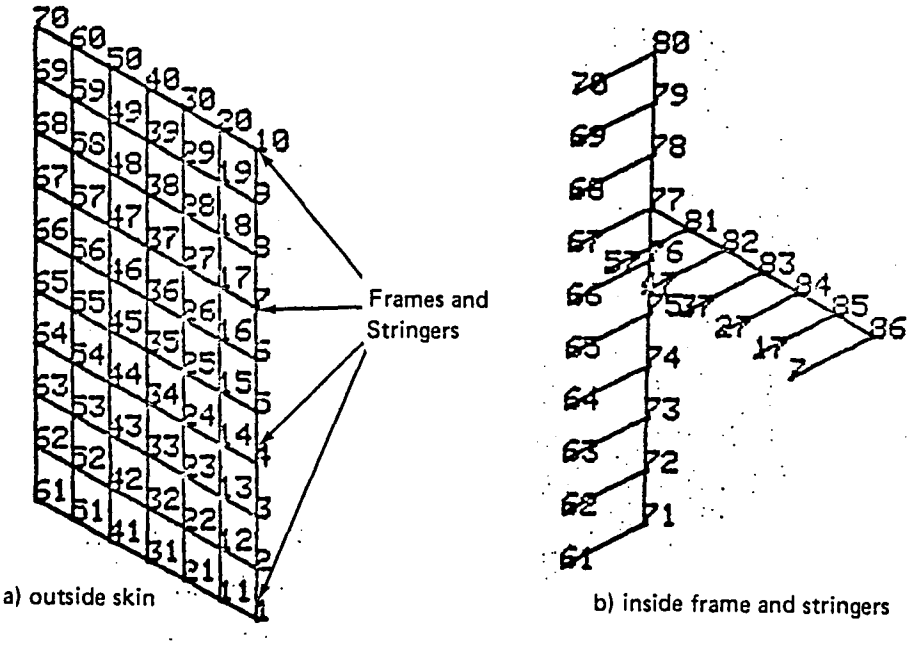


Figure IV.3
Panel 6S, Data Point Identification

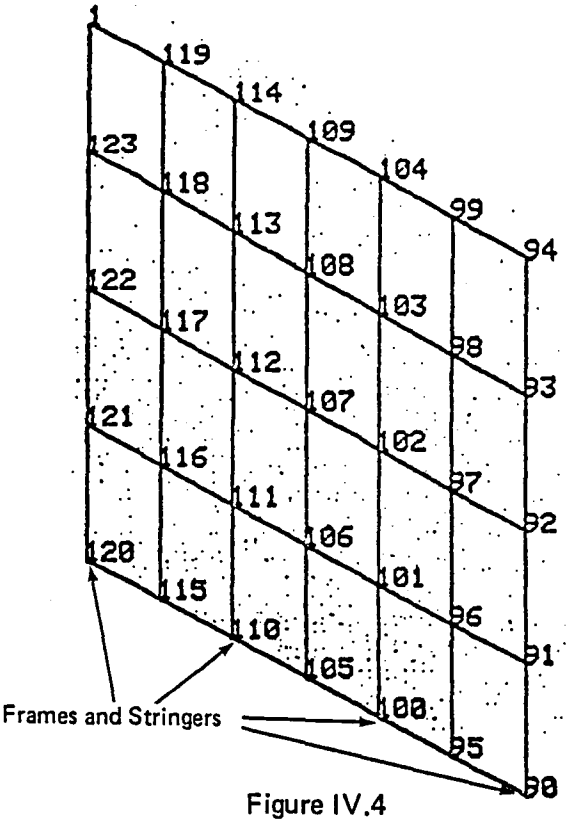


Figure IV.4
Panel 1S, Data Point Identification

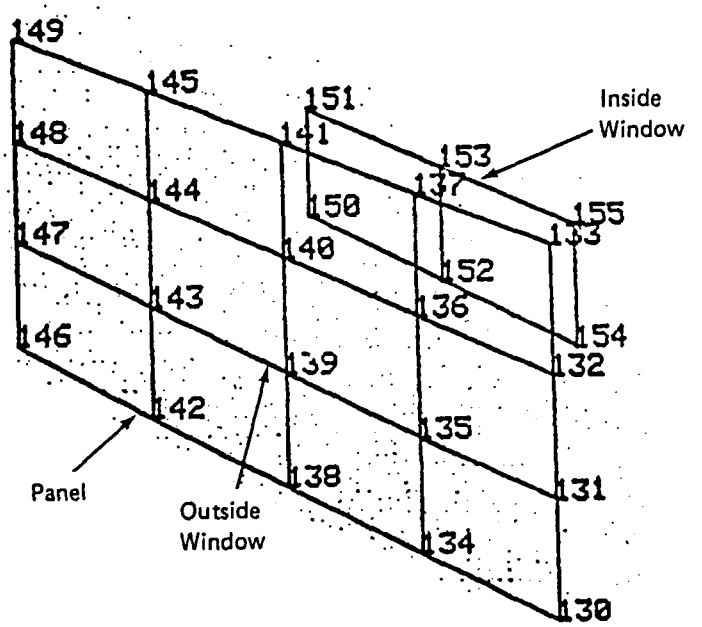


Figure IV.5
Panel 8S, Data Point Identification

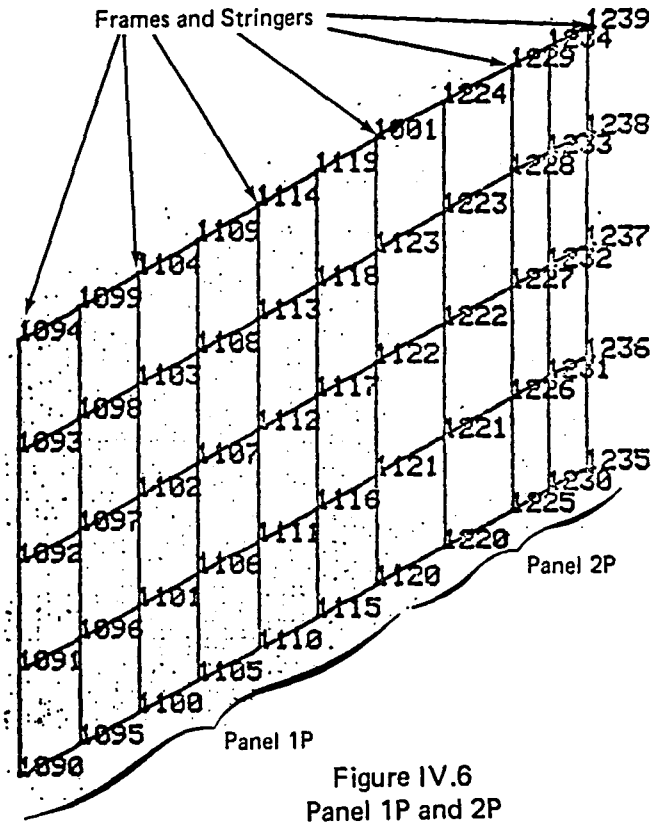


Figure IV.6
Panel 1P and 2P
Data Point Identification

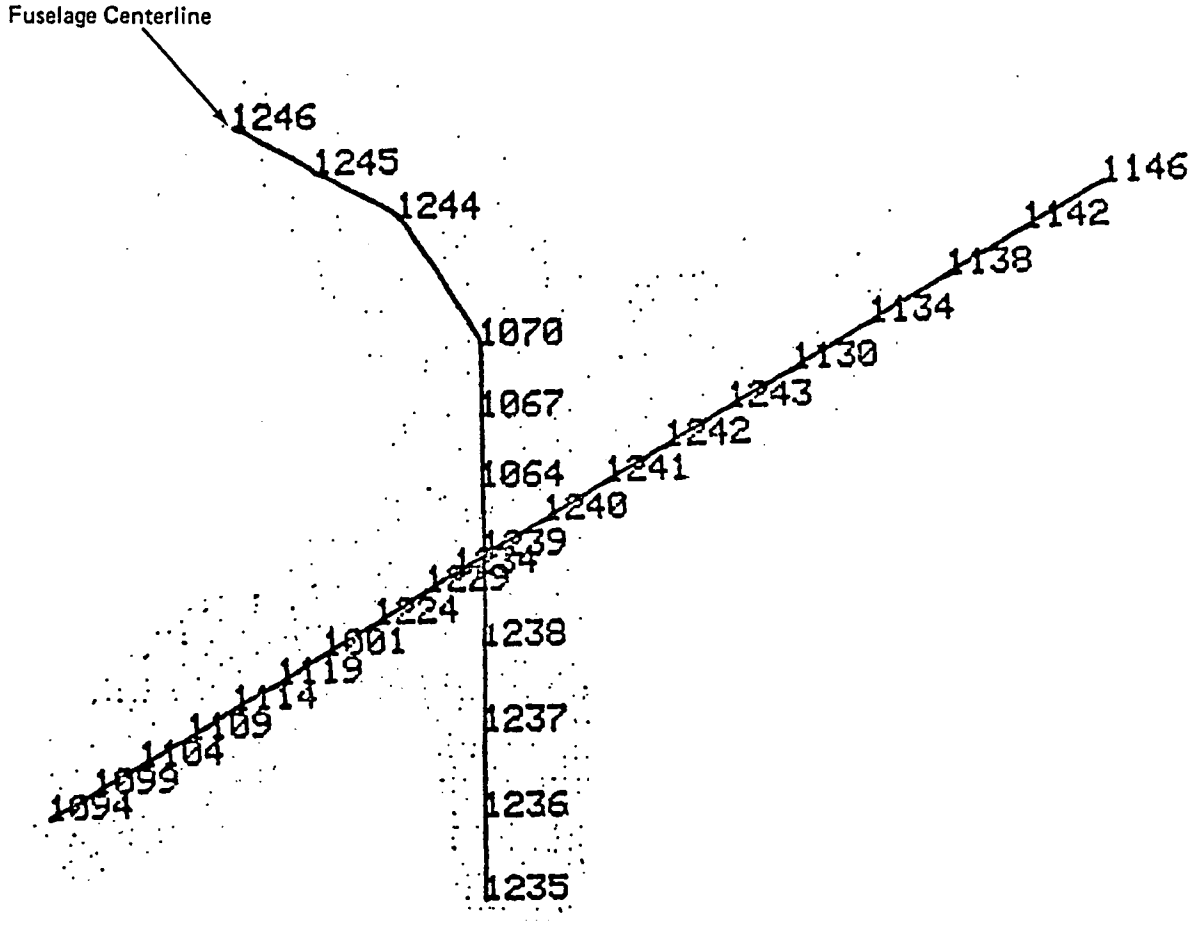


Figure IV.7
Port Side Global Fuselage
Measurement Location Identification

Figure IV.8
Test Article Supported
in Sling Type Cradle

Figure IV.9
Instrumented Impact Hammer
and Response Transducer

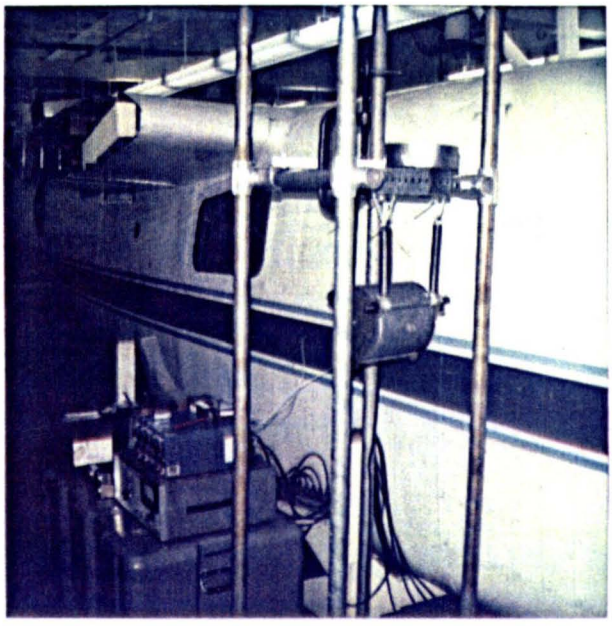


Figure IV.10
Random Excitation Setup
Electromechanical Shaker

Figure IV.11
Force Transducer Closeup
for Electromechanical Shaker

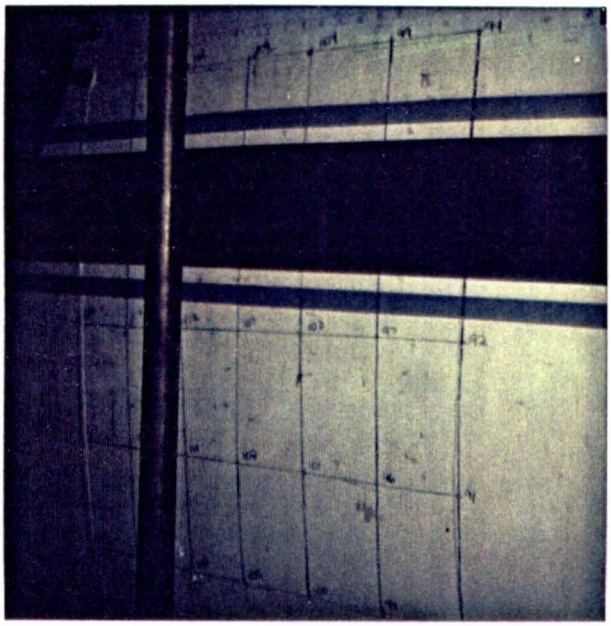


Figure IV.12
Panel 1S
Exterior

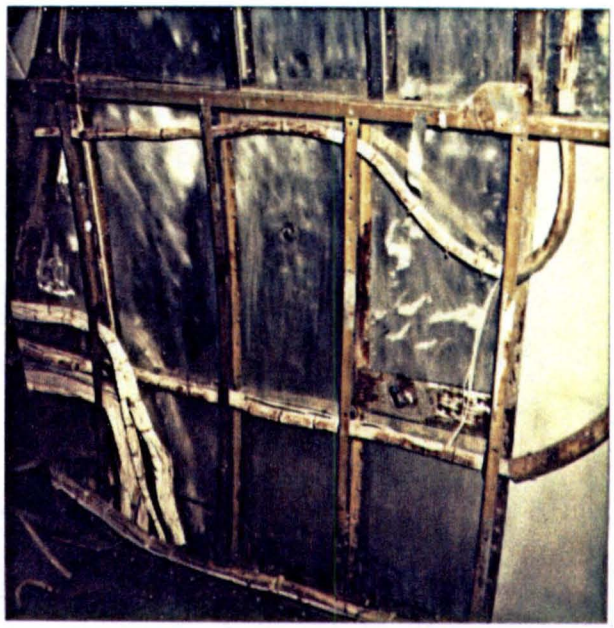


Figure IV.13
Panel 1S, Interior
(Honeycomb Stiffened)

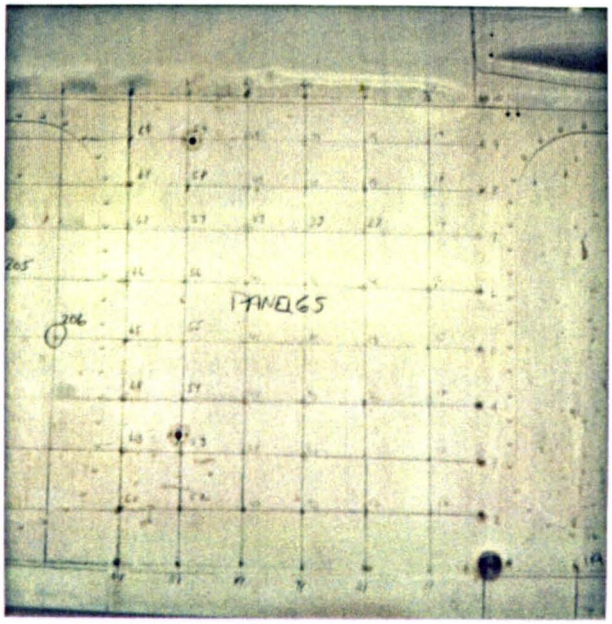


Figure IV.14
Panel 6S
Exterior

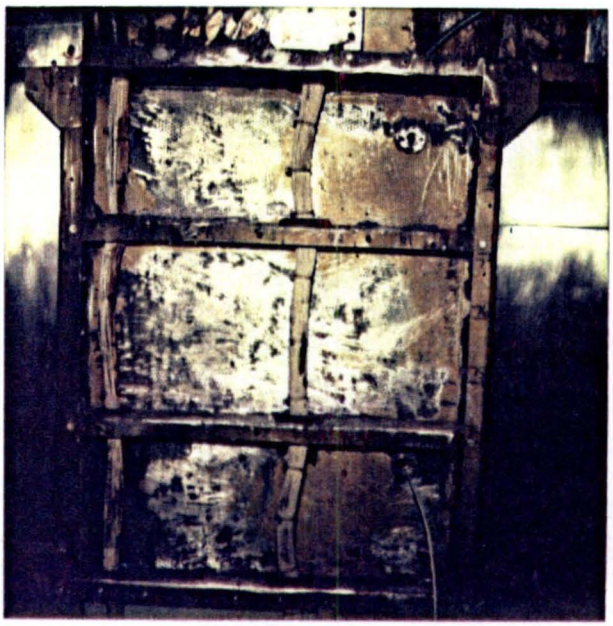


Figure IV.15
Panel 6S, Interior
(Honeycomb Removed)

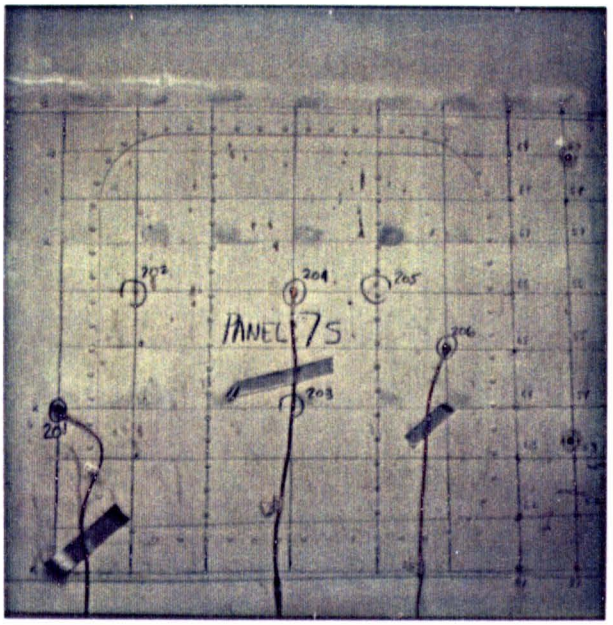


Figure IV.16
Panel 7S

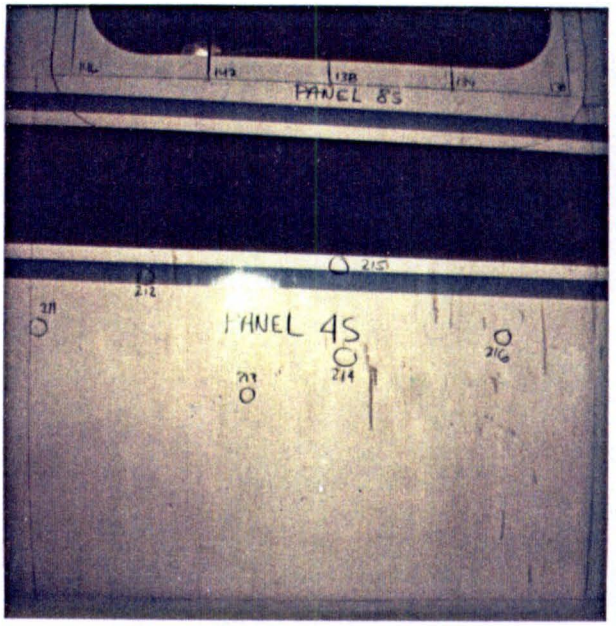


Figure IV.17
Panel 4S

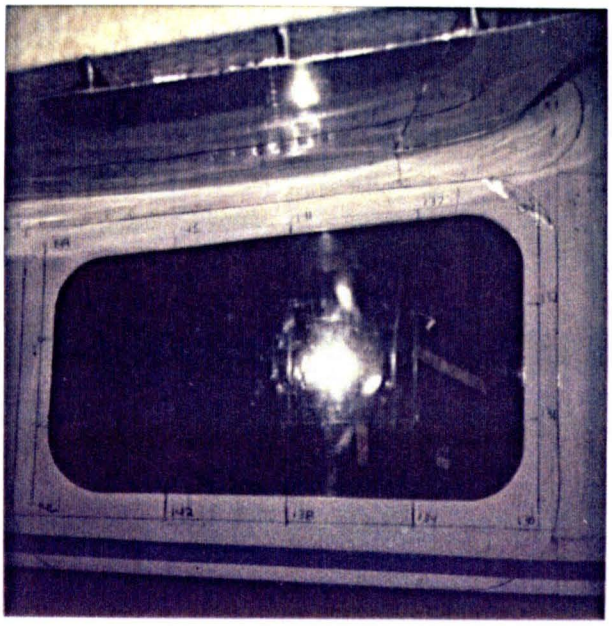


Figure IV.18
Panel 8S
Exterior

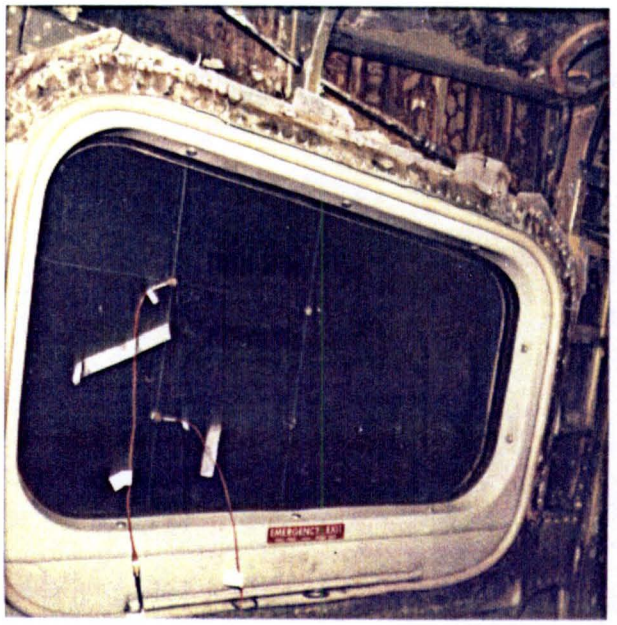


Figure IV.19
Panel 8S, Interior
(Double Pane Glass)

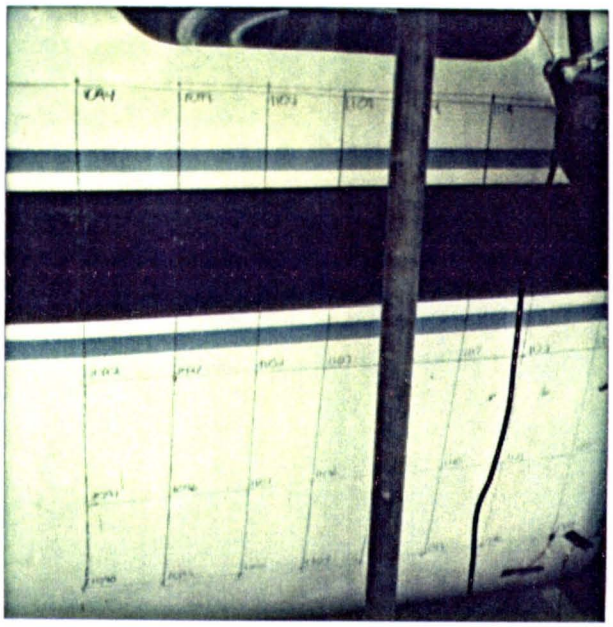


Figure IV.20
Panel 1P
Exterior

Figure IV.21
Panel 1P
Interior

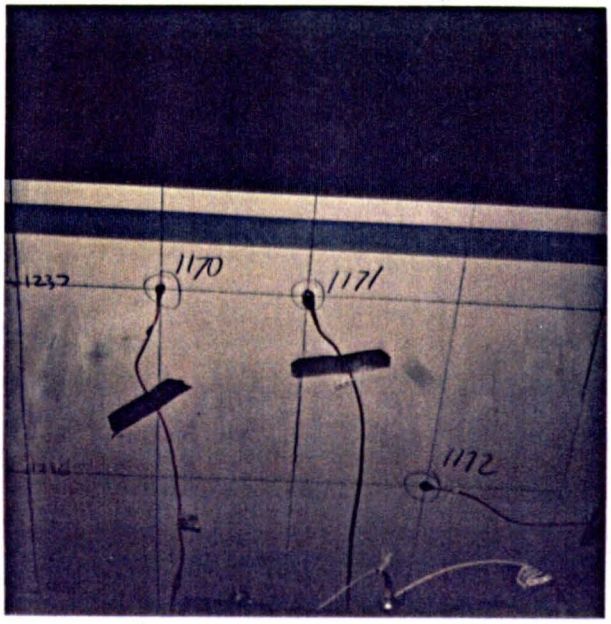


Figure IV.22
Panel 3P

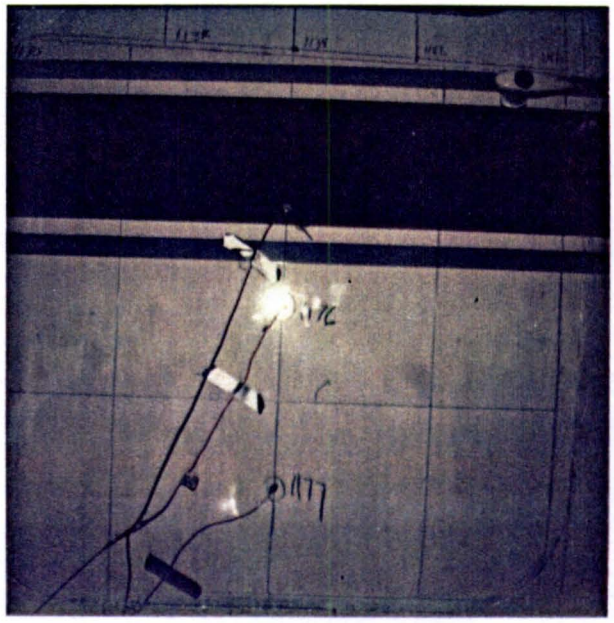


Figure IV.23
Panel 4P

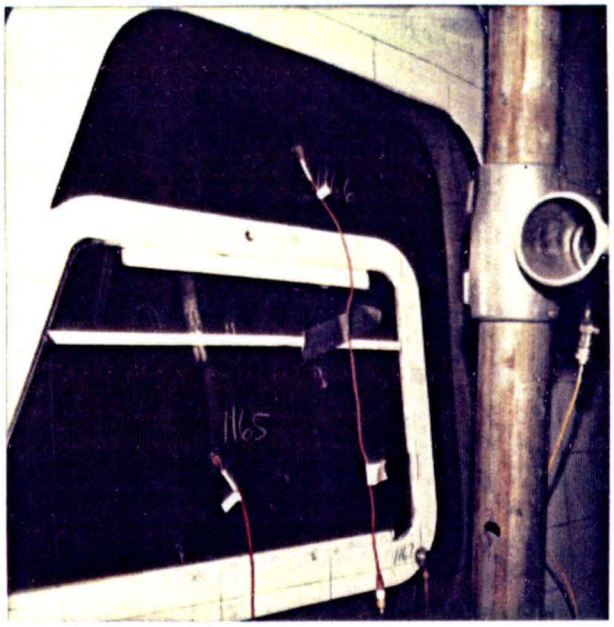


Figure IV.24
Panel 5P
Pilot Side Glass

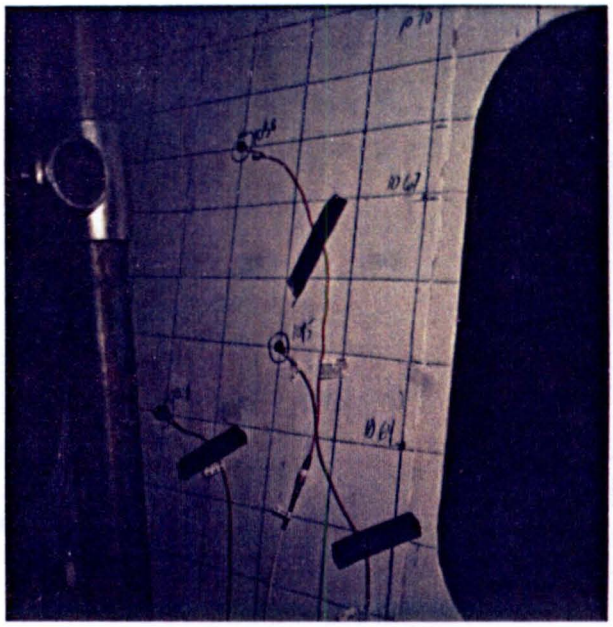


Figure IV.25
Panel 6P

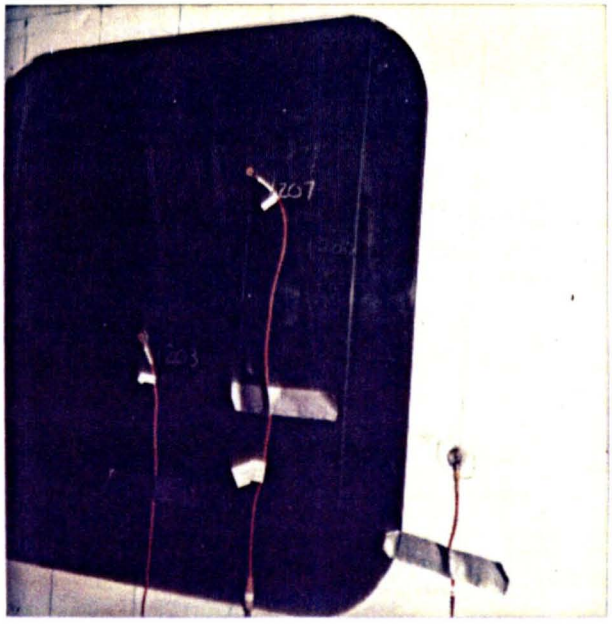


Figure IV.26
Panel 7P
Passenger Side Glass

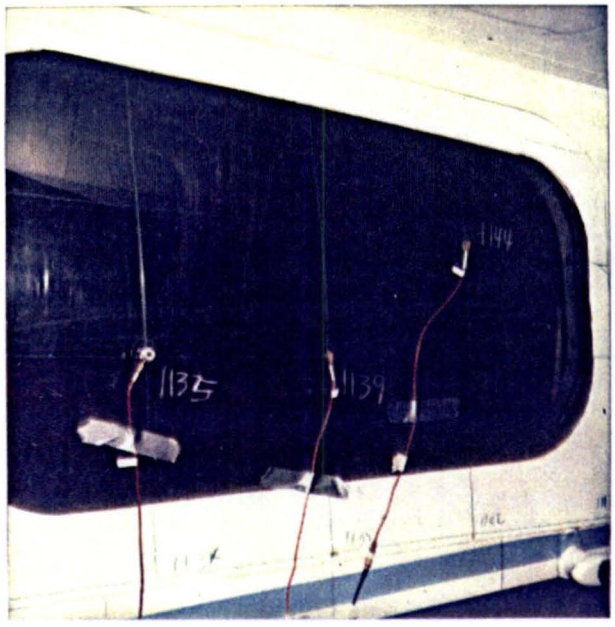


Figure IV.27
Panel 8P
Door Glass Exterior

Figure IV.28
Port Side Windscreen

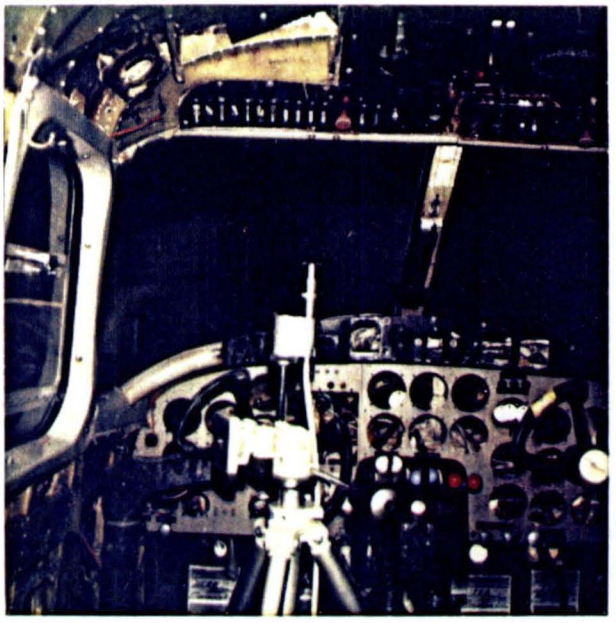


Figure IV.29
Microphone Location 101
View from Rear

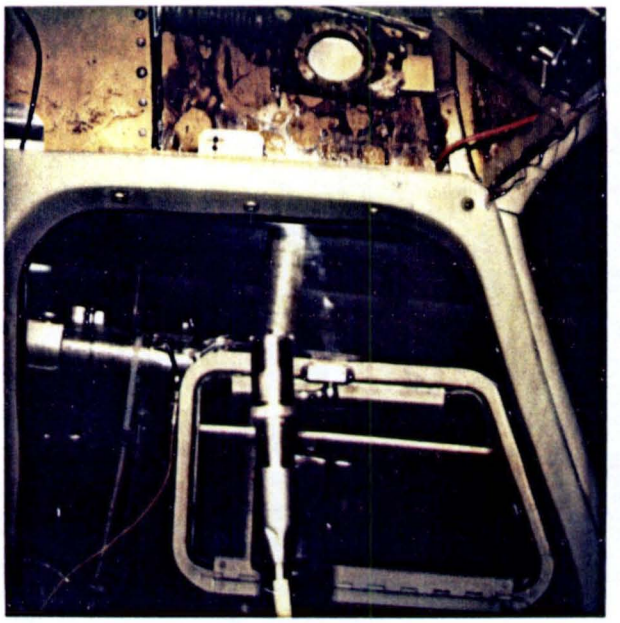
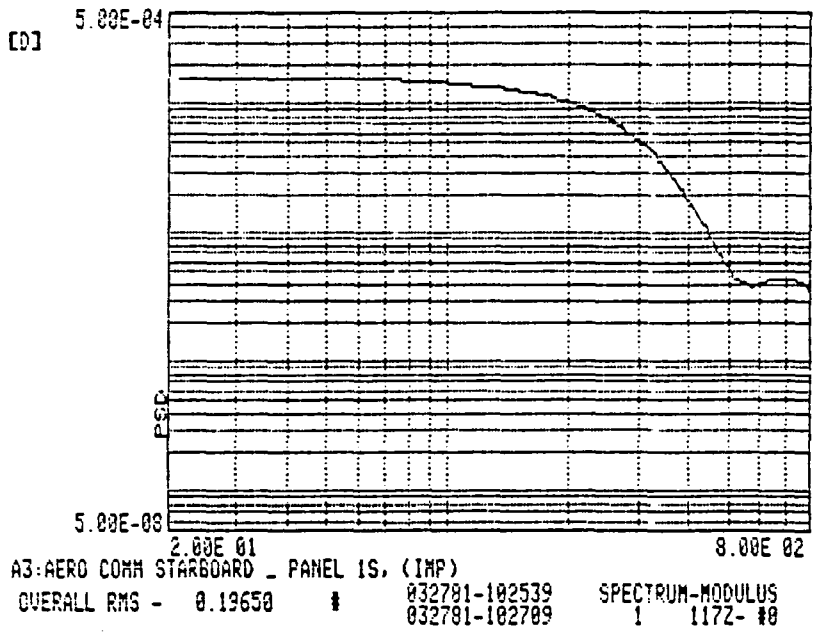
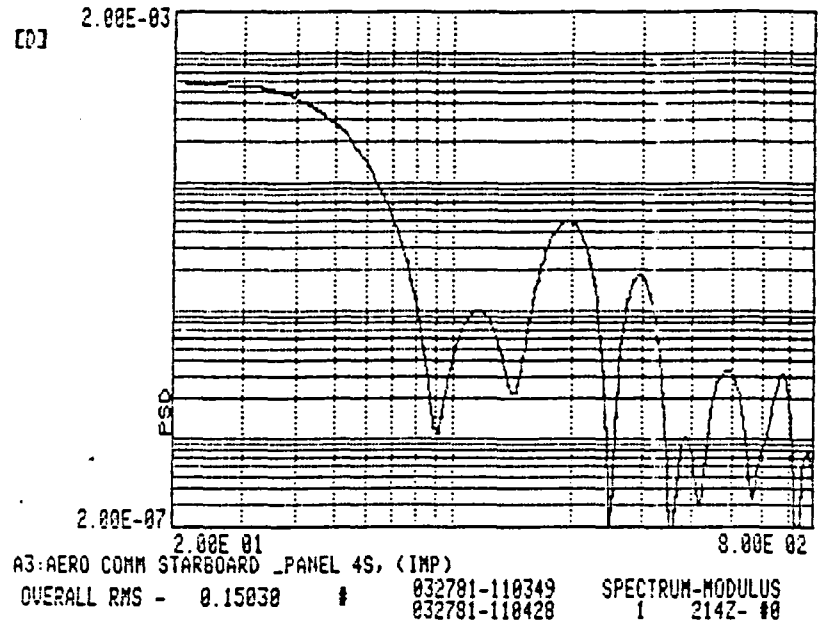


Figure IV.30
Microphone Location 101
View from Starboard Side



a) Input Force Spectra, Impact Technique
Honeycomb Stiffened Panel 1S



b) Input Force Spectra, Impact Technique
Panel 4S

Figure IV.31

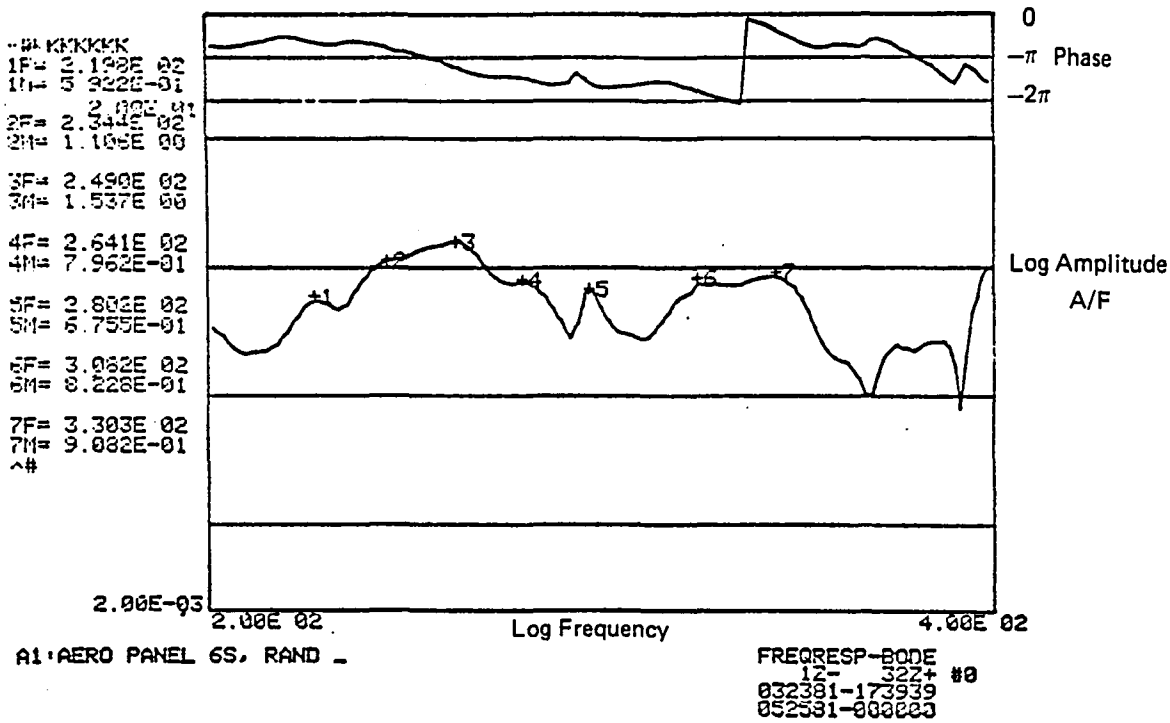
IV.3 Data Analysis

Data Analysis consisted of the determination of the: (1) mode shapes, and (2) modal damping corresponding to the panel resonant frequencies. This section describes the procedures used for determining the parameters desired.

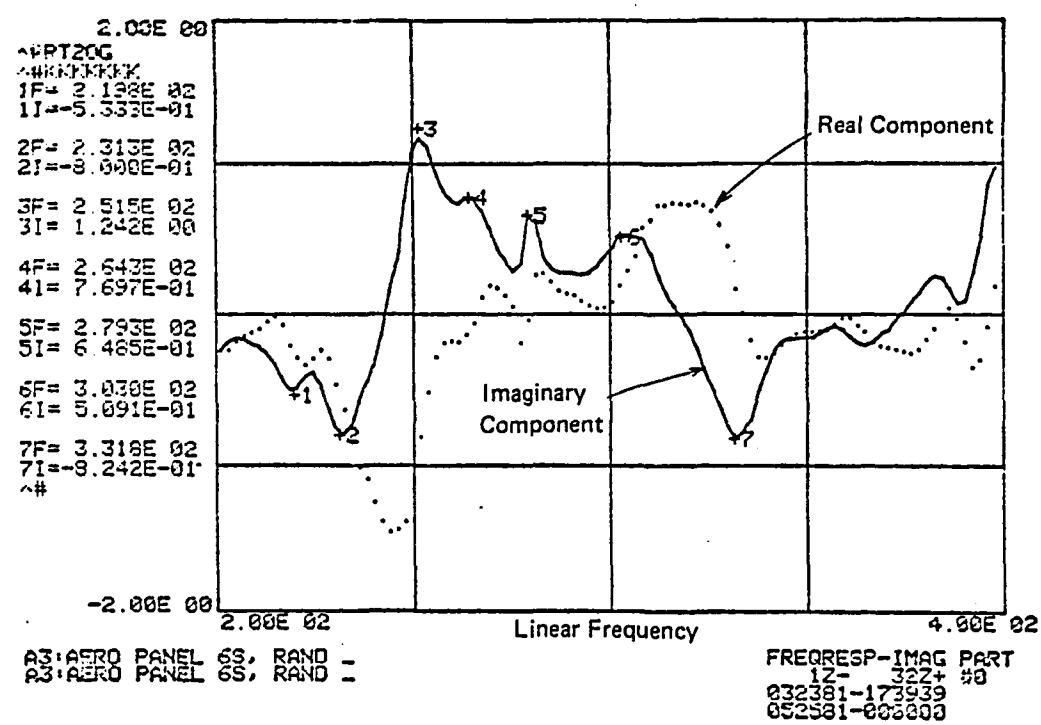
The modal deformation patterns (or mode shapes) presented in this report were generated by extracting the imaginary component at the desired frequency for each transfer function of the panel. This type of mode shape is referred to as a quadrature mode shape. These coefficients are stored in a file for each mode and can be superimposed on the geometry of the panel for visual display of the deformation pattern. This display can be animated at the computer console or statically displayed for hard copy documentation.

The use of quadrature mode shapes assumes well separated real normal modes at resonance. This implies that the imaginary component of the transfer function is at a maximum (absolute value) at resonance while the real component is at zero. Thus the modal amplitude is equal to the amplitude of the imaginary component of the function at the resonant frequency. In general, this approach is adequate for the lower order panel modes.

Figures IV.32 a and b graphically depict the above discussion. Figure IV.32a is the Bode frequency response plot for response location 32Z on panel 6S while exciting at location 1Z. This plot is an amplitude and phase versus frequency display. Figure IV.32b displays the real and imaginary components of the same function shown in Figure IV.32a. The tabulated points at the side of each plot correspond to cursored points on the plots. In Figure IV.32a the tabulated numbers correspond to the frequency and total response magnitude whereas in Figure IV.32b the tabulated numbers correspond to frequency and imaginary component amplitude. This imaginary component amplitude corresponds to the mode coefficients on point 32Z presented in subsequent sections.



a) Total Amplitude and Phase versus Frequency



b) Real and Imaginary Components versus Frequency

Figure IV.32
Transfer Function 1Z – 32Z, Panel 6S

Modal Damping is determined by using a multi-degree of freedom, MDOF, curve fitting algorithm on selected transfer functions. This technique is implemented in the SDRC modal analysis software package. The results of this technique include natural frequency modal amplitude proportional to modal mass and stiffness and modal damping ratio. The damping is viscous type ratioed to critical damping.

The general procedure involved in modal parameter estimation is outlined as follows. First the MDOF algorithm is applied to a selected function over a desired frequency range. Table IV.1 presents the results of such an estimation. The driving point function at location 1106Z on panel 1P was curvefit over the frequency range of 210 – 250 Hz. The results of this curvefit can be checked by generating a transfer function based on the analytical results. This is accomplished by choosing the significant roots of the estimation (the significant roots in Table IV.1 are underlined) and building a modal parameter table. Table IV.2 is such a table that contains the significant results shown in Table IV.1 as well as the results of other MDOF estimations. An analytical expression representing the sum of all the modes represented in Table IV.2 can then be generated for comparison with the original function from which the parameters were extracted. Figure IV.33 shows such a comparison for the parameters presented in Table IV.2.

There are certain requirements of the MDOF routine to assure accuracy in the estimation results. One of these requirements is that the frequency resolution be such that damping can be accurately estimated. The less damping present the greater the resolution required. For some of the panels extra data was acquired with greater resolution for this reason.

Table IV.1
MDOF Curvefitting Results
Significant Roots Underlined

LR
CE]###ESTIMATED ROOTS (106Z+1106Z-)

ROOT	FREQUENCY	DAMPING	AMPLITUDE	PHASE
1	210.2	0.2189E-01	780.6	3.142
2	210.2	0.1724E-02	17.81	-3.142
3	216.2	0.6153E-02	13.89	2.339
4	221.3	0.4965E-02	105.8	-1.827
5	225.4	0.4481E-02	186.1	-1.211
6	226.6	0.3704E-02	1332.	-2.084
7	231.8	0.4669E-02	930.2	-2.167
8	234.0	0.6917E-02	1546.	-1.913
9	240.3	0.3009E-02	0.5831	-2.700
10	243.1	0.3502E-02	69.39	-2.382
11	249.4	0.4291E-01	1939.	0.2971E-07
12	249.2	0.5588E-02	150.6	-0.1760E-06

#

Table IV.2
Parameter Table of Significant Roots

MODE PARAMETERS

LABEL	FREQ	DAMPING	AMPLITUDE	PHASE	REF	RES	MODE	FLAGS
1	150.000	0.01000	1700.	-1.570	1106Z+	1106Z-	0	0 0 0 1 1
2	177.591	0.00504	264.4	-2.450	1106Z+	1106Z-	0	0 0 0 1 1
3	183.757	0.00513	2624.	-1.742	1106Z+	1106Z-	0	0 0 0 1 1
4	192.632	0.00740	575.4	-1.650	1106Z+	1106Z-	0	0 0 0 1 1
5	221.321	0.00496	105.8	-1.827	1106Z+	1106Z-	0	0 0 0 1 1
6	226.642	0.00370	1332.	-2.084	1106Z+	1106Z-	0	0 0 0 1 1
7	231.768	0.00467	930.2	-2.167	1106Z+	1106Z-	0	0 0 0 1 1
8	234.002	0.00692	1546.	-1.913	1106Z+	1106Z-	0	0 0 0 1 1
9	243.140	0.00350	69.39	-2.382	1106Z+	1106Z-	0	0 0 0 1 1
10	256.886	0.00526	587.2	-1.821	1106Z+	1106Z-	0	0 0 0 1 1

#

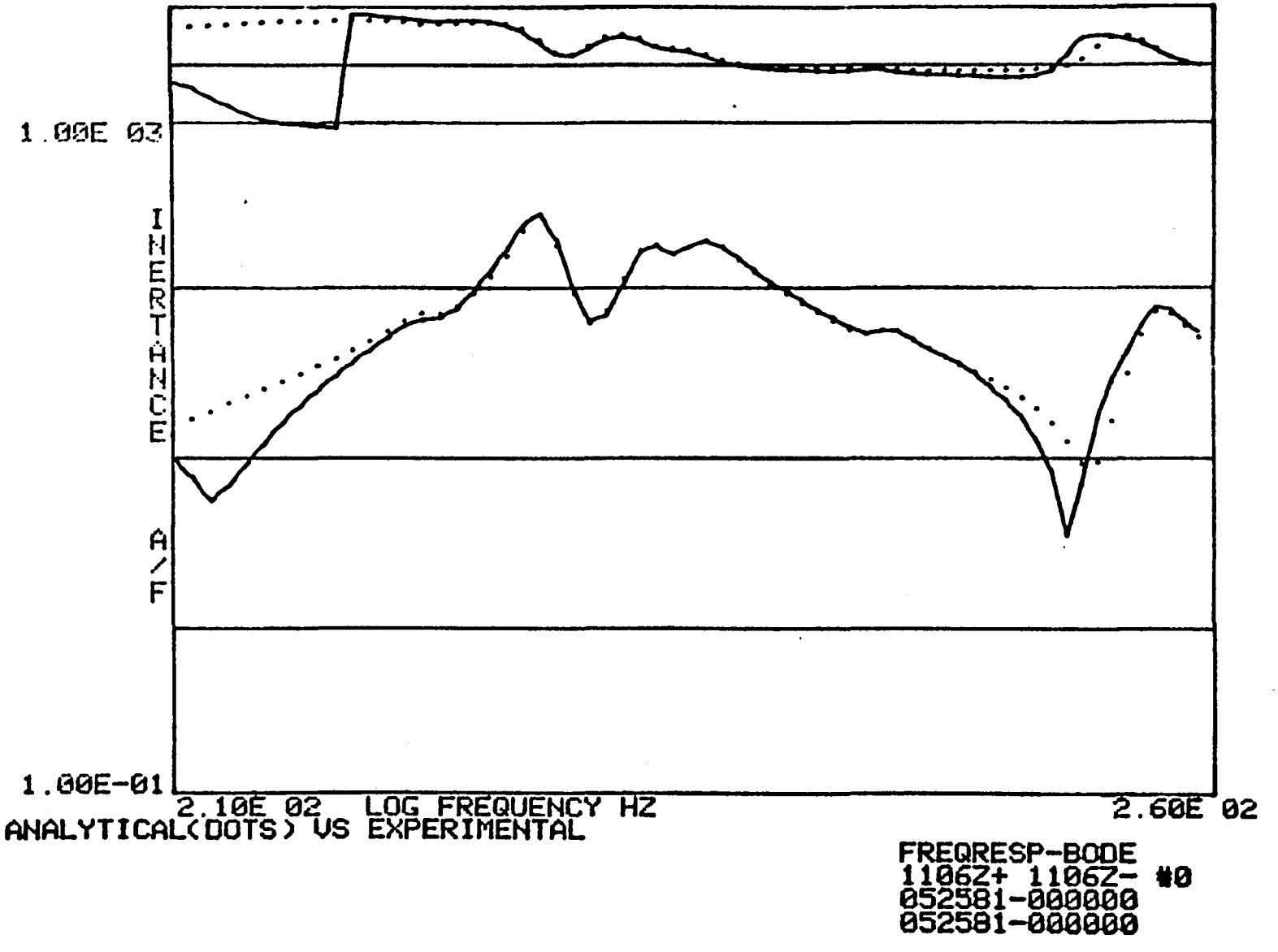


Figure IV.33
Comparison of Experimental Results versus Analytically Generated Results

IV.4 Acoustic Frequency Response

Random excitation on the fuselage sidewall created motion throughout the fuselage and consequently a significant sound pressure level. During these tests, microphones were positioned in the pilot/passenger cavity to measure the acoustic transfer function. These acoustic frequency response functions are calibrated in psi/lb and were measured during excitation on both the port side, 1001Z, and the starboard side, 1Z. Four acoustic response locations were chosen and their locations are described in Figure IV.34 and in the following table.

Table IV.3

Microphone Identification	Description
101	Pilots Ear, Port Side
102	1st Passenger, Propellar Plane, Port Side
103	2nd Passenger, Port Side
104	3rd Passenger, Door, Port Side

The measured acoustic frequency response functions are presented in Figures IV.35 through IV.43. Accompanying the FRF's are power spectral densities (PSD) of the input force, the input acceleration and the sound pressure level (SPL). Figure IV.38 shows the background noise present. Table IV.4 summarizes the overall acoustic response in terms of RMS.

Table IV.4
Acoustic Response to Single Point
Random Mechanical Input Summary

Force Input Location	Acoustic Response Location	Pounds Force Input (RMS)	Sound Pressure Level db	Accelerations At Input G's RMS
1Z–(Starboard)	101	2.28	92.2	–
"	101	0.87	83.8	–
"	102	1.88	92.3	1.2
"	102	.84	85.5	.52
1001Z (Port)	101	1.84	91.5	–
"	101	.82	84.7	.50
"	102	.87	85.4	–
"	102	1.84	91.6	1.12
"	103	1.85	89.5	–
"	103	.83	82.8	–
"	104	.82	81.9	–
"	104	1.82	88.6	–

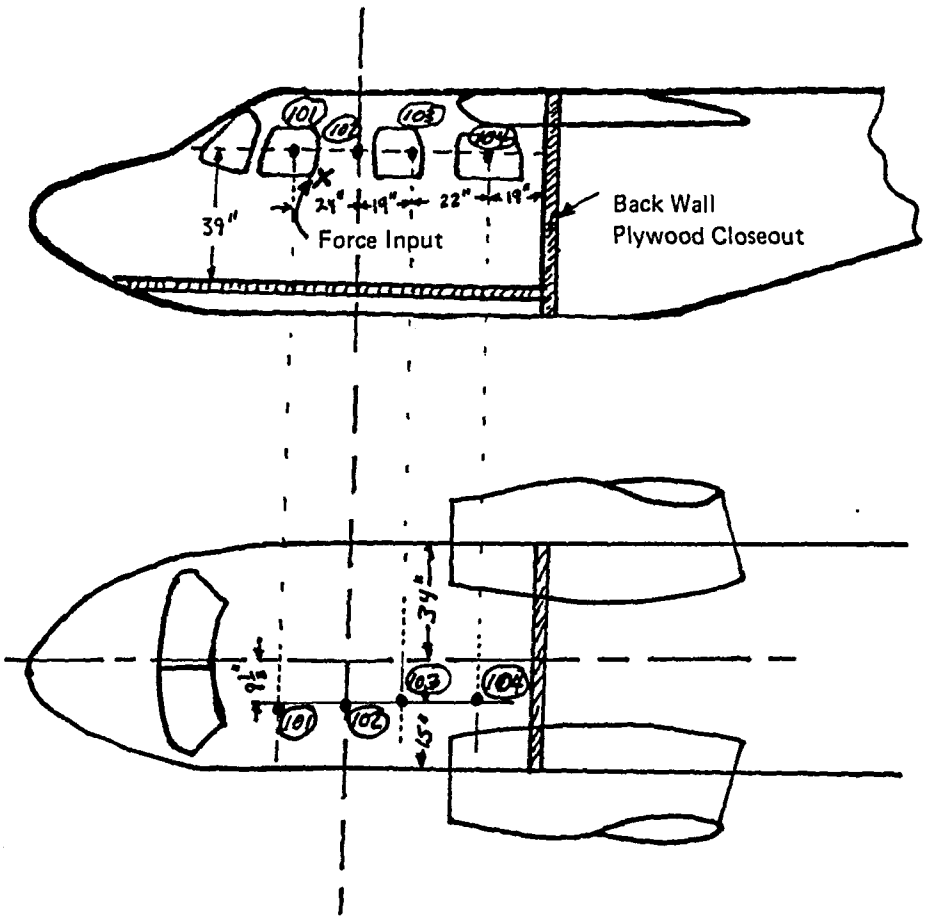
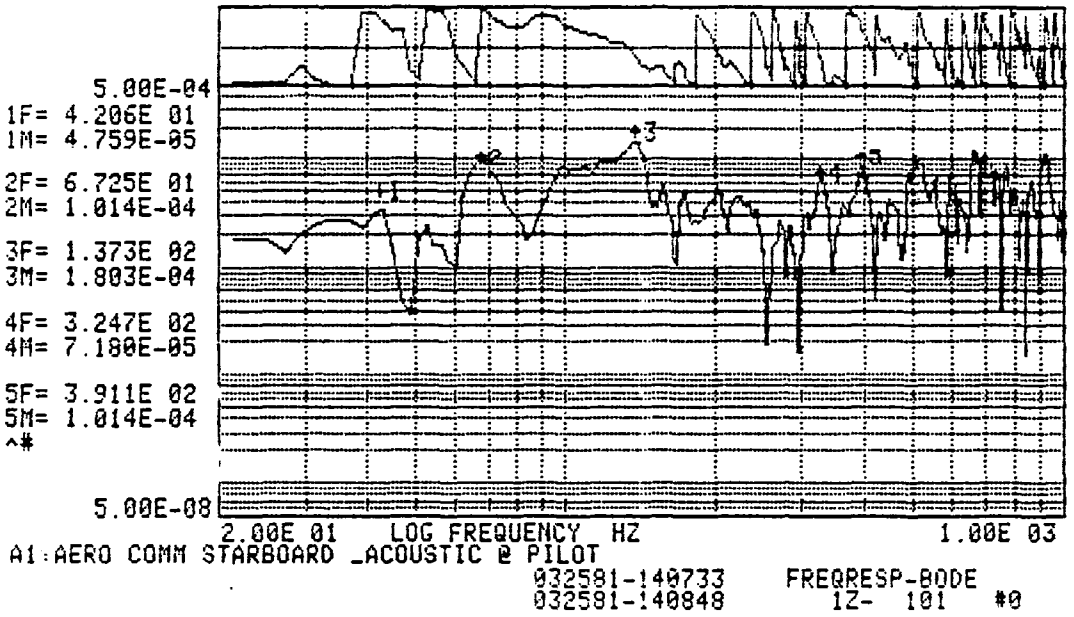
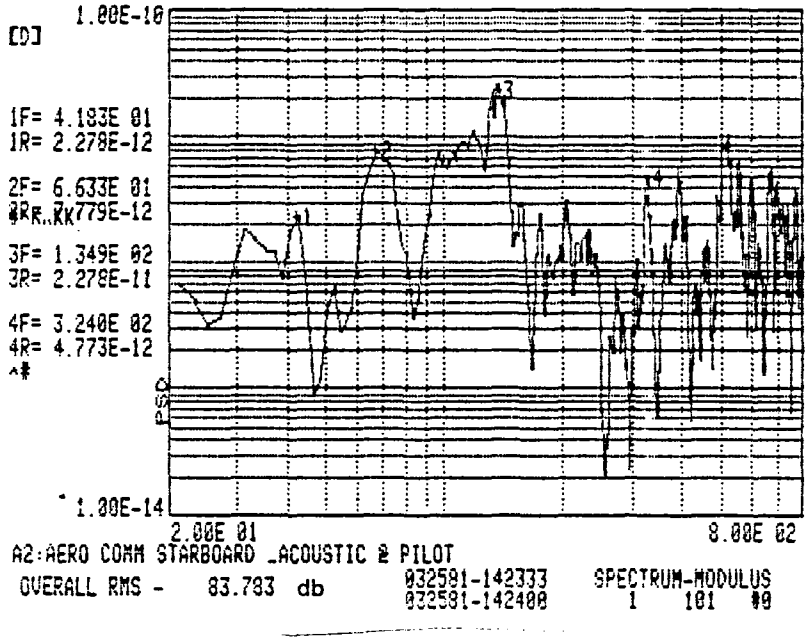


Figure IV.34
Microphone Location Description
for Acoustic Frequency Response Measurements

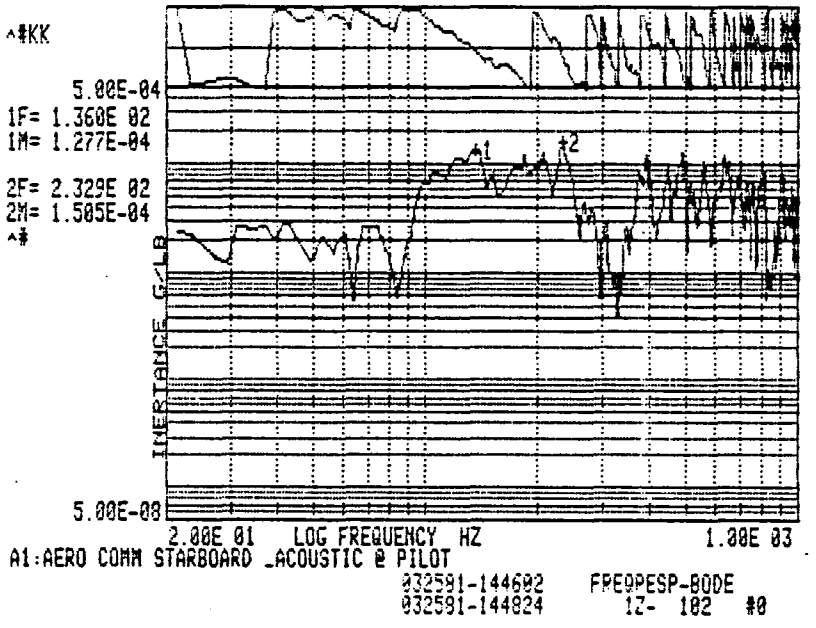


a) FRF psi/lb

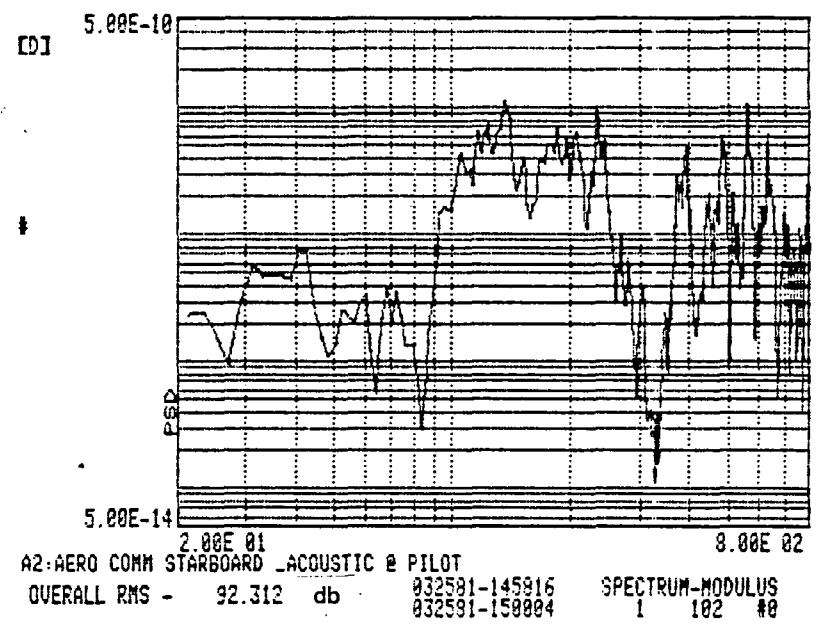


b) SPL PSD (psi^2/Hz)

Figure IV.35
Acoustic Frequency Response
Location 101, Starboard Excitation

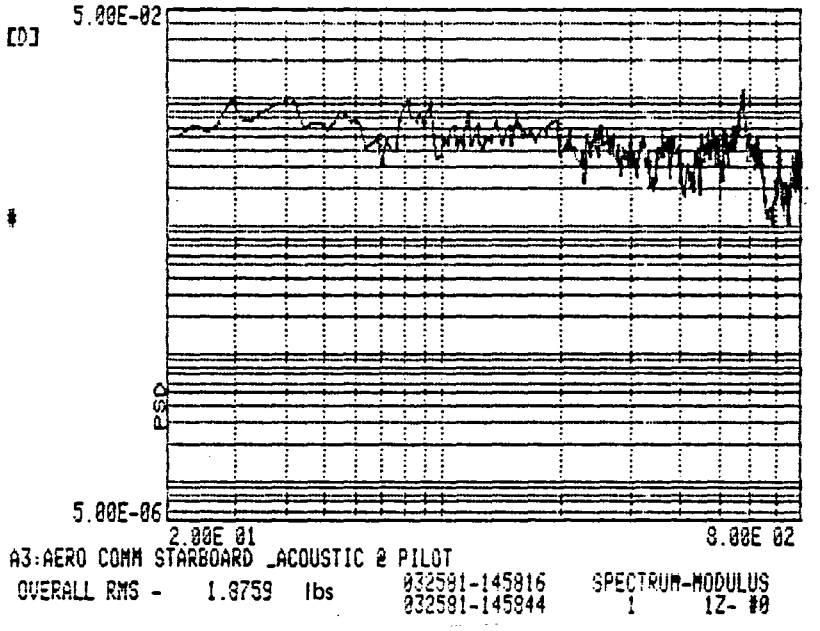


a) FRF psi/lb

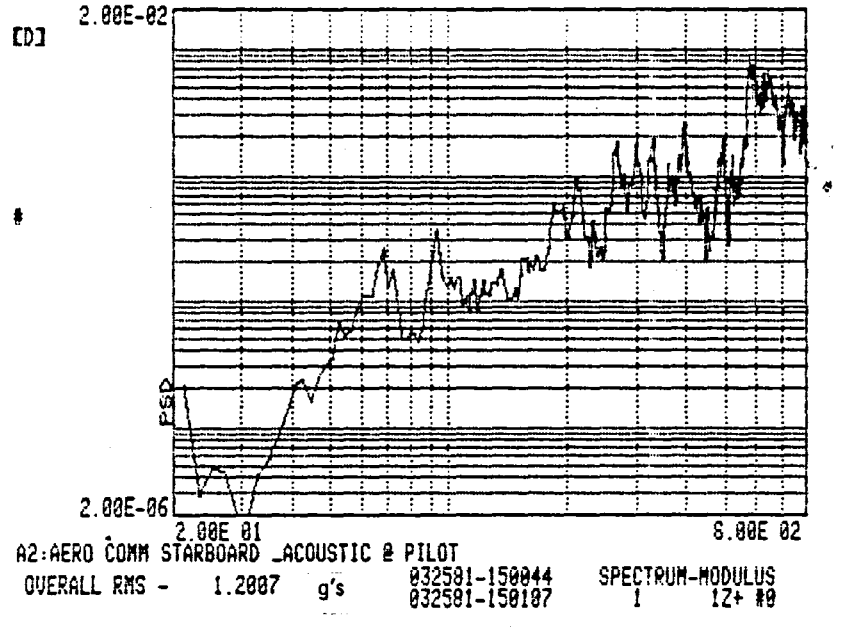


b) SPL PSD (psi^2/Hz)

Figure IV.36
Acoustic Frequency Response
Location 102, Starboard Excitation

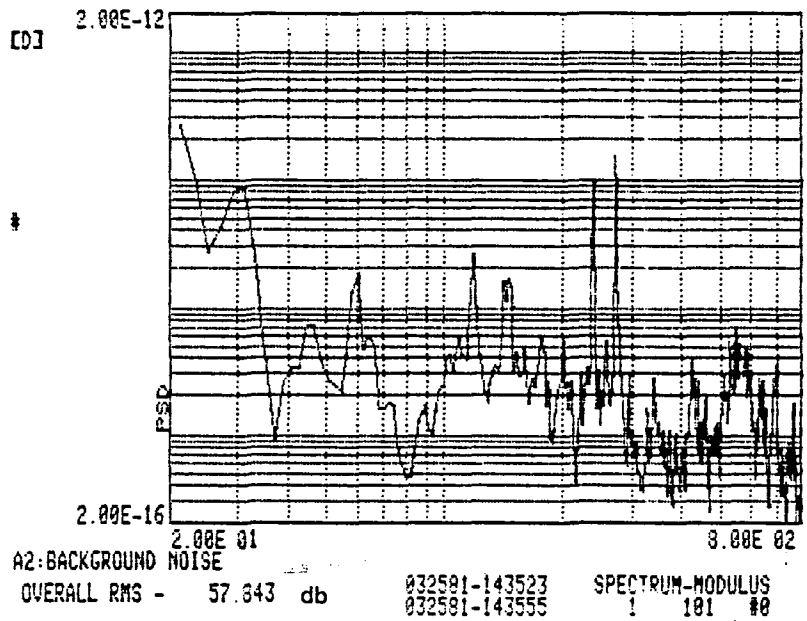


a) Input Force (lb^2/Hz)



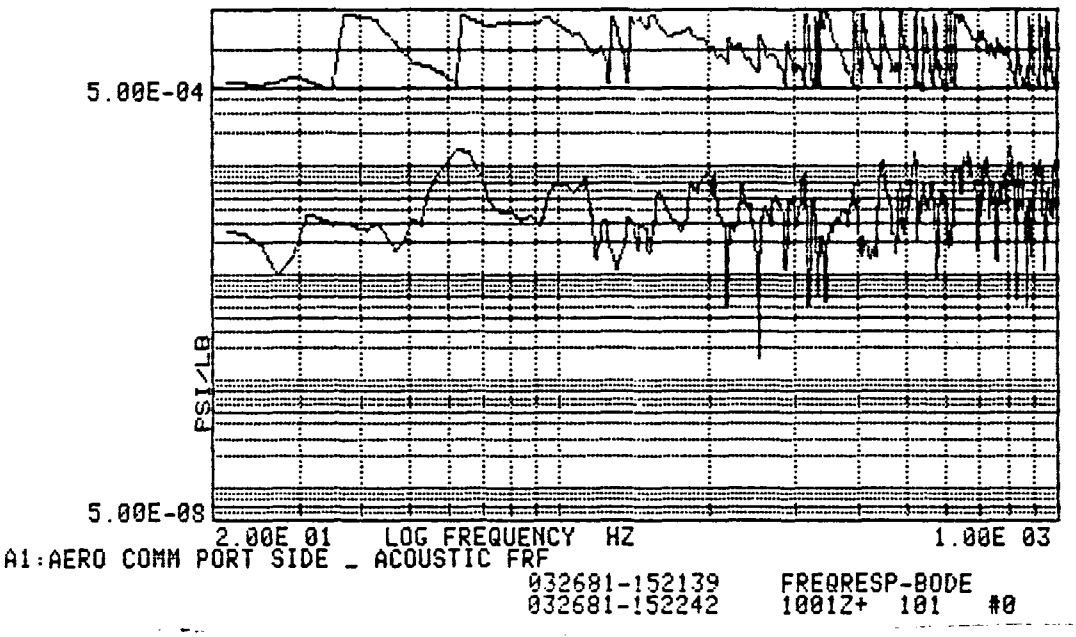
b) Input Acceleration (g^2/Hz)

Figure IV.37
Acoustic Response Excitation
Starboard Side, Random Excitation

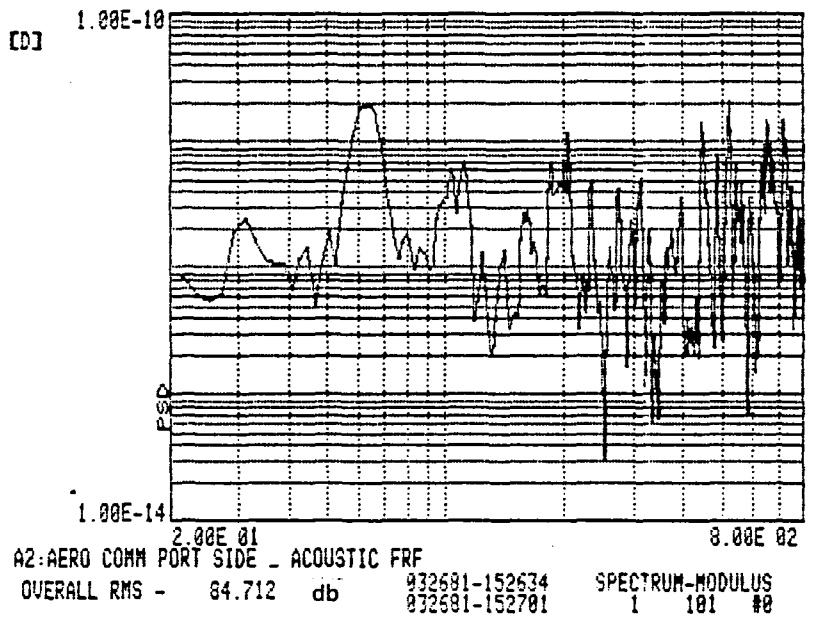


SPL PSD (psi^2/Hz)

Figure IV.38
Acoustic Background Noise
Location 101

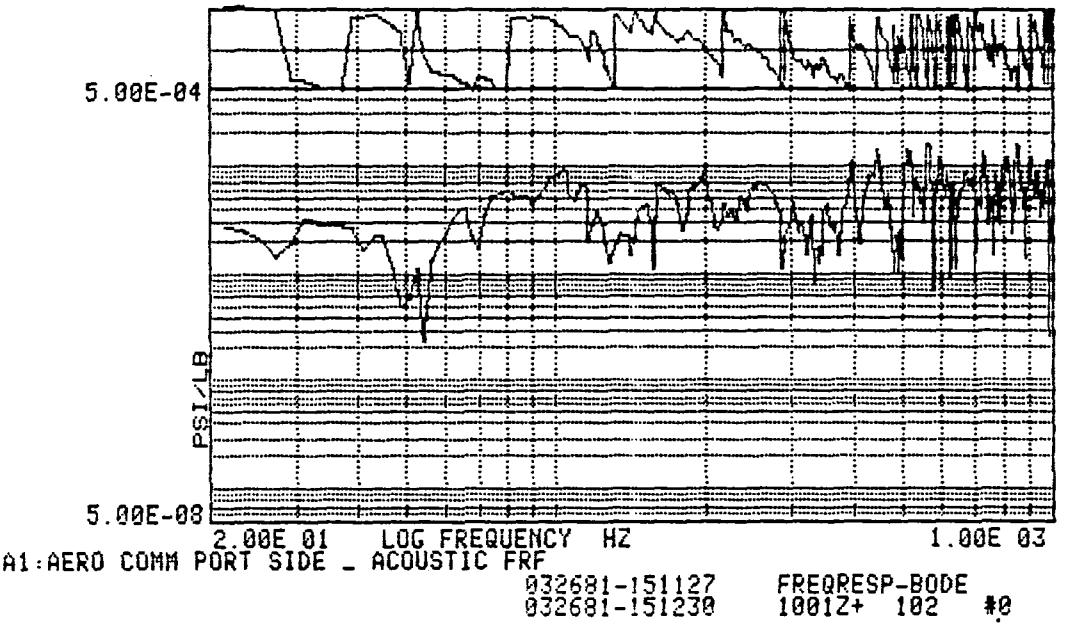


a) FRF psi/lb

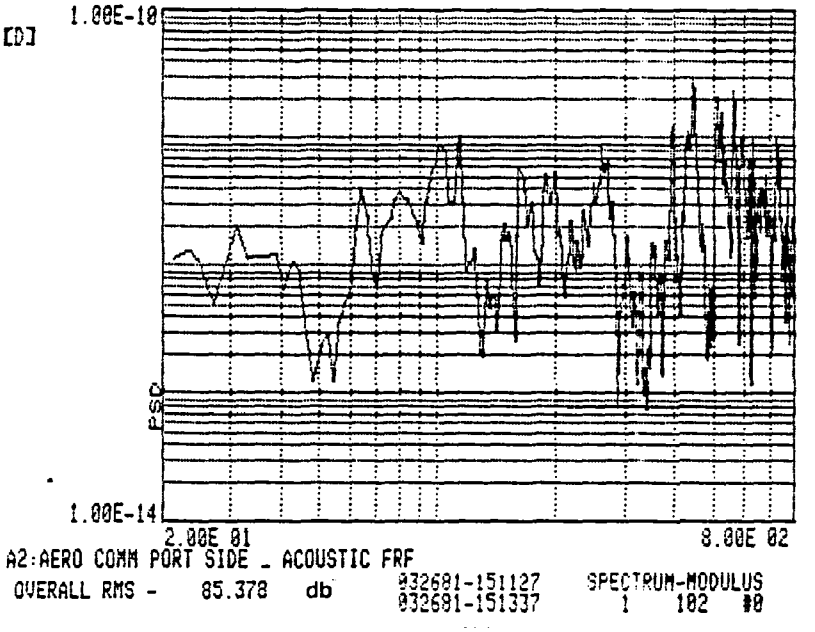


b) SPL PSD (psi^2/Hz)

Figure IV.39
Acoustic Frequency Response
Location 101, Port Side Excitation

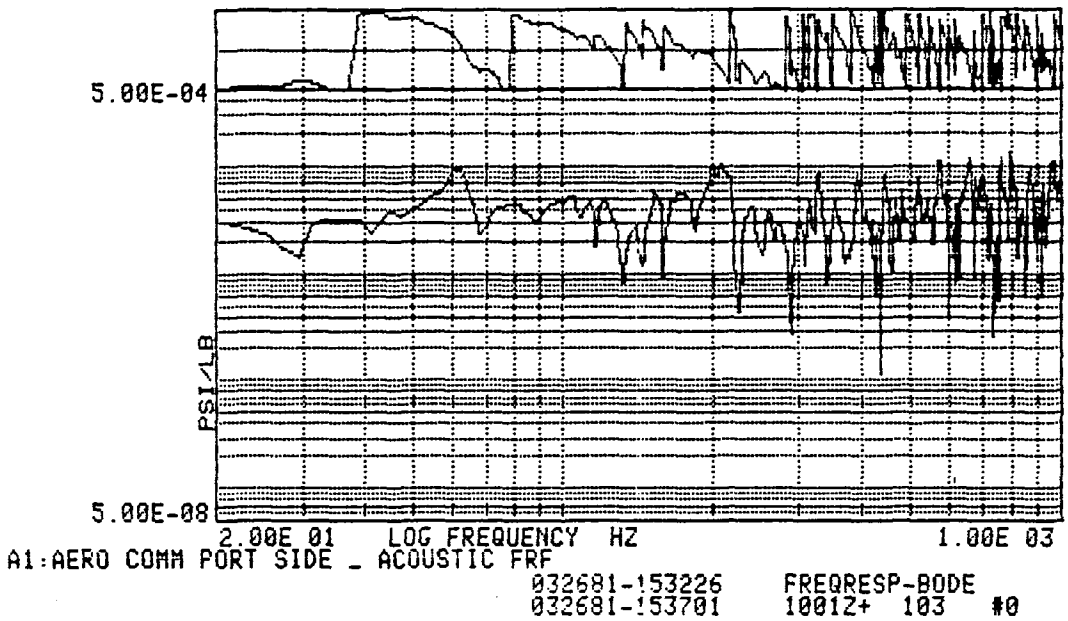


a) FRF psi/lb

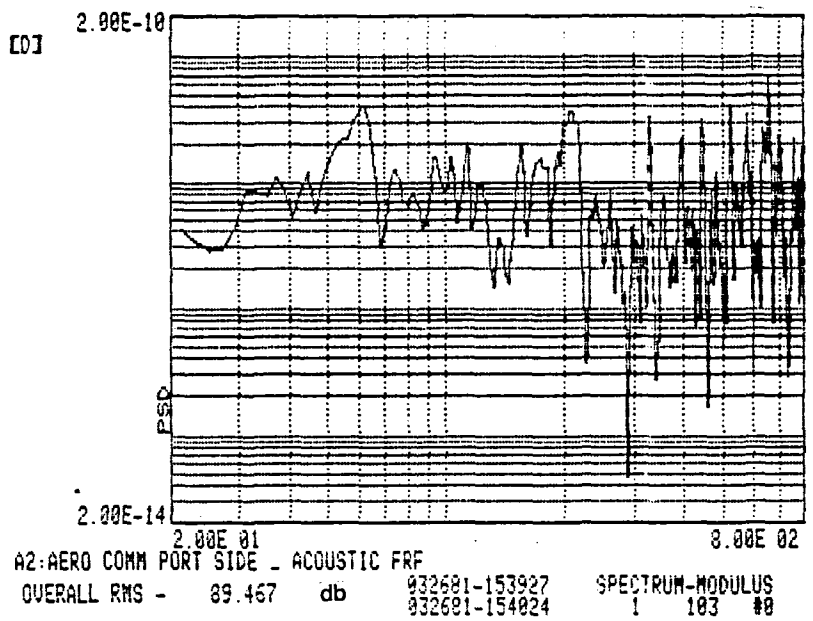


b) SPL PSD (psi^2/Hz)

Figure IV.40
Acoustic Frequency Response
Location 102, Port Side Excitation

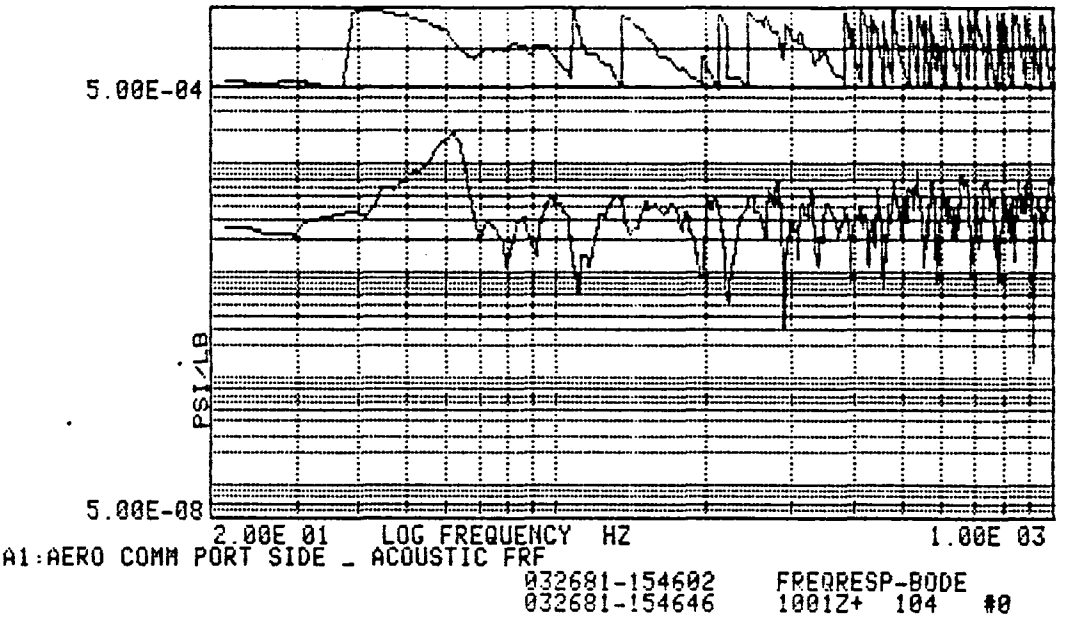


a) FRF psi/lb

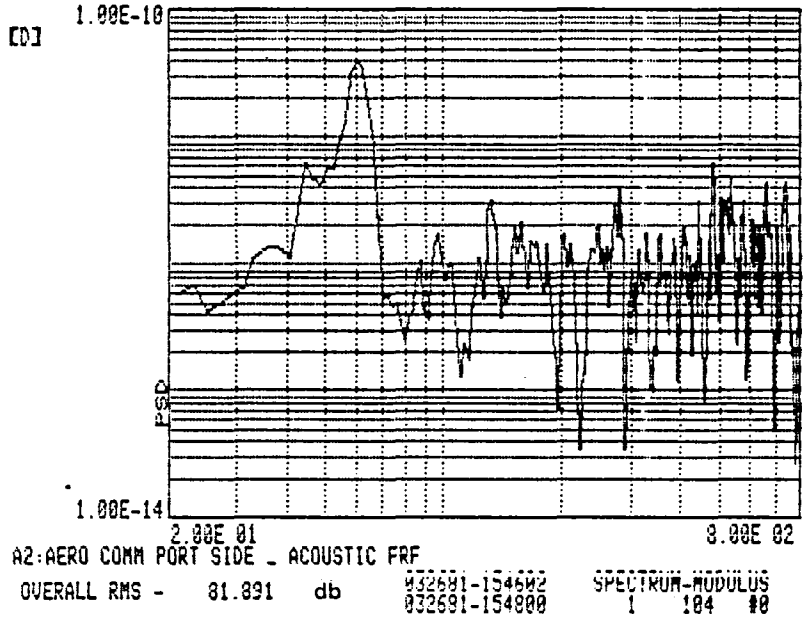


b) SPL PSD (psi^2/Hz)

Figure IV.41
Acoustic Frequency Response
Location 103, Port Side Excitation

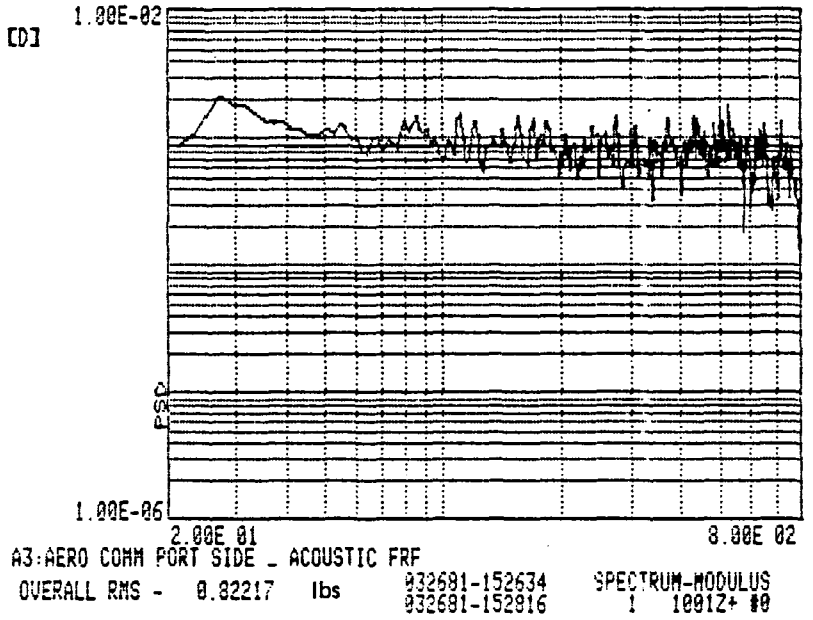


a) FRF psi/lb

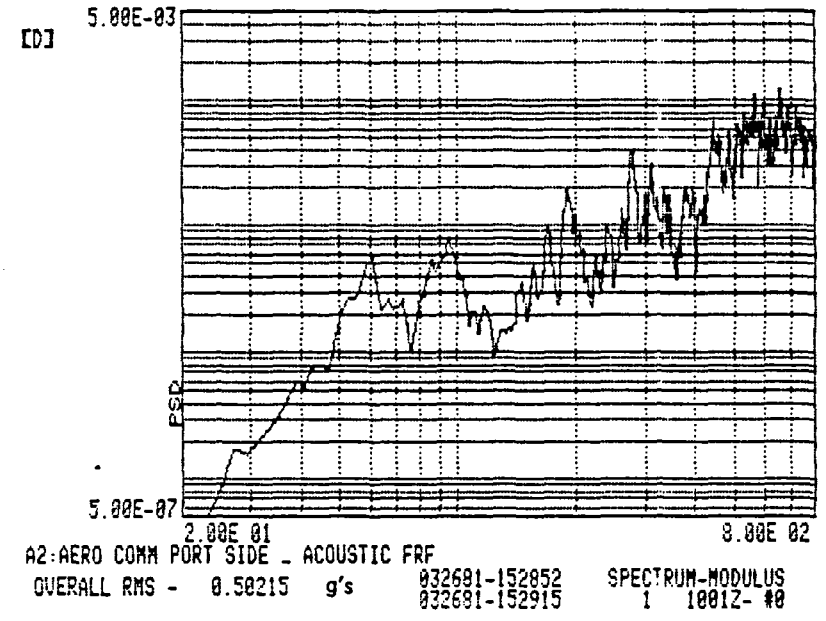


b) SPL PSD (psi^2/Hz)

Figure IV.42
Acoustic Frequency Response
Location 104, Port Side Excitation



a) Input Force (lb^2/Hz)



b) Input Acceleration (g^2/Hz)

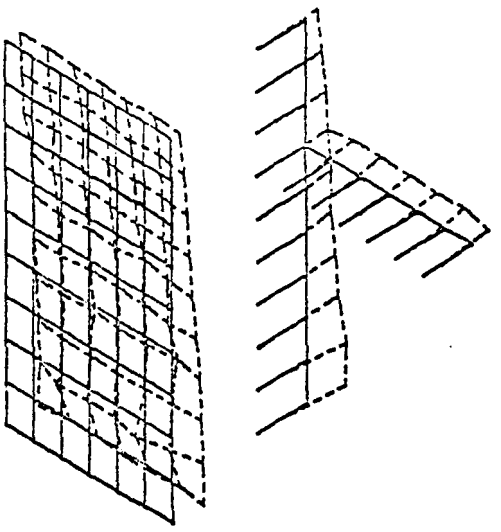
Figure IV.43
Acoustic Response Excitation
Port Side Random Excitation

V. DATA PRESENTATION

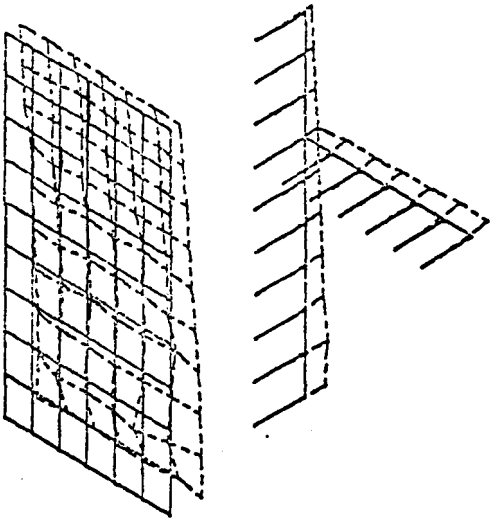
This section presents the dynamic response of the panels in terms of mode shapes and frequency response function. The modal deformation patterns are presented statically with the deformed shape shown with dotted lines overlayed on top of the undeformed shape as a solid line. Modal coefficients are also listed for selected modes. Frequency Response Functions, (FRF), acquired via the impact technique follow the mode shapes. These functions are plotted in a Bode diagram, log amplitude and linear phase versus log frequency. The plots contain cursor points with the frequency and amplitude of the cursored points tabulated on the side.

V.1 Modal Coefficients, Deformation Patterns and Frequency Response Functions Panel 6S

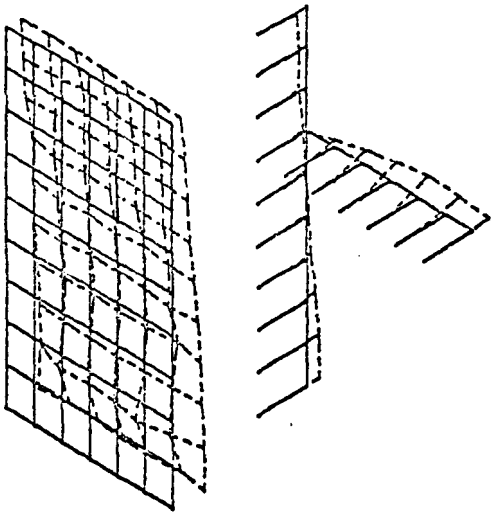
The mode shapes in this section are shown from an isometric viewing position. Two separate traces are shown, one of the panel skin and one of the frame and stringer behind the panel. The trace links are separated so as not to confuse the pattern. There are more frames attached to panel but data was acquired only on those shown in the mode shape display.



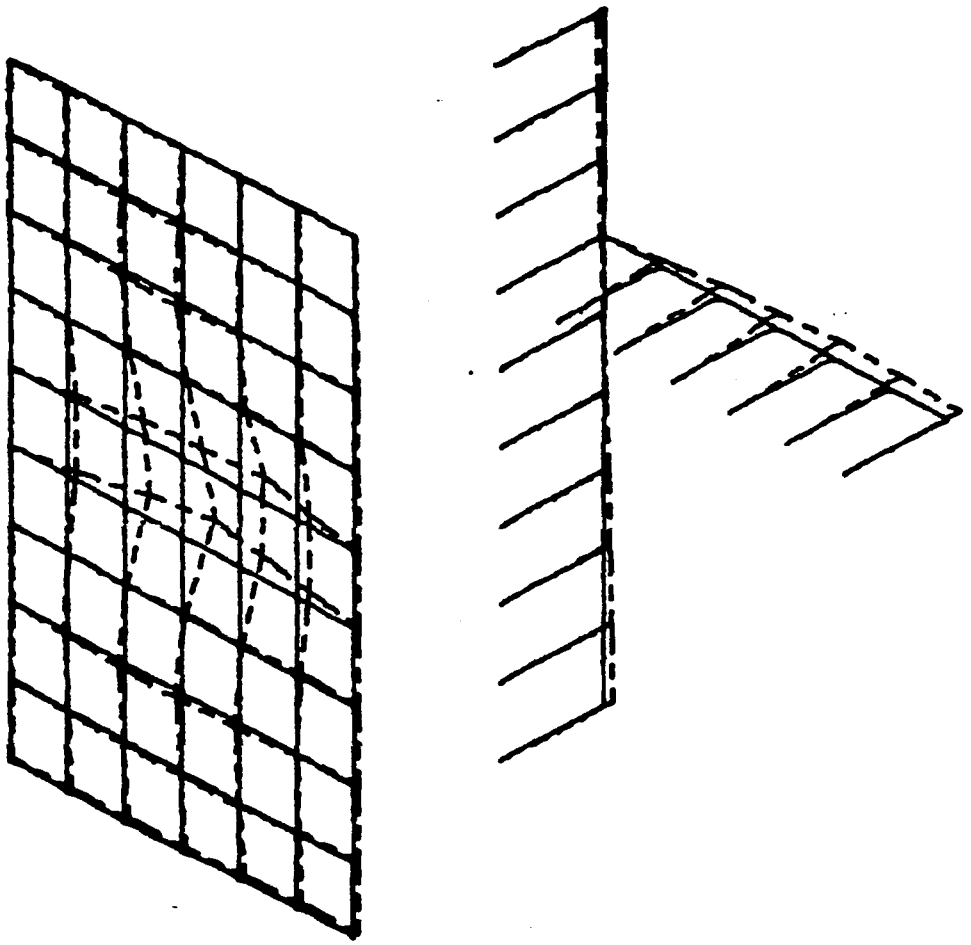
MR PANEL 6S
1: 1Z- COMP.F= 72.000 HZ (1.0, 1.0, 1.0, 0.0)=VIEW



MR PANEL 6S
2: 1Z- COMP.F= 98.000 HZ (1.0, 1.0, 1.0, 0.0)=VIEW



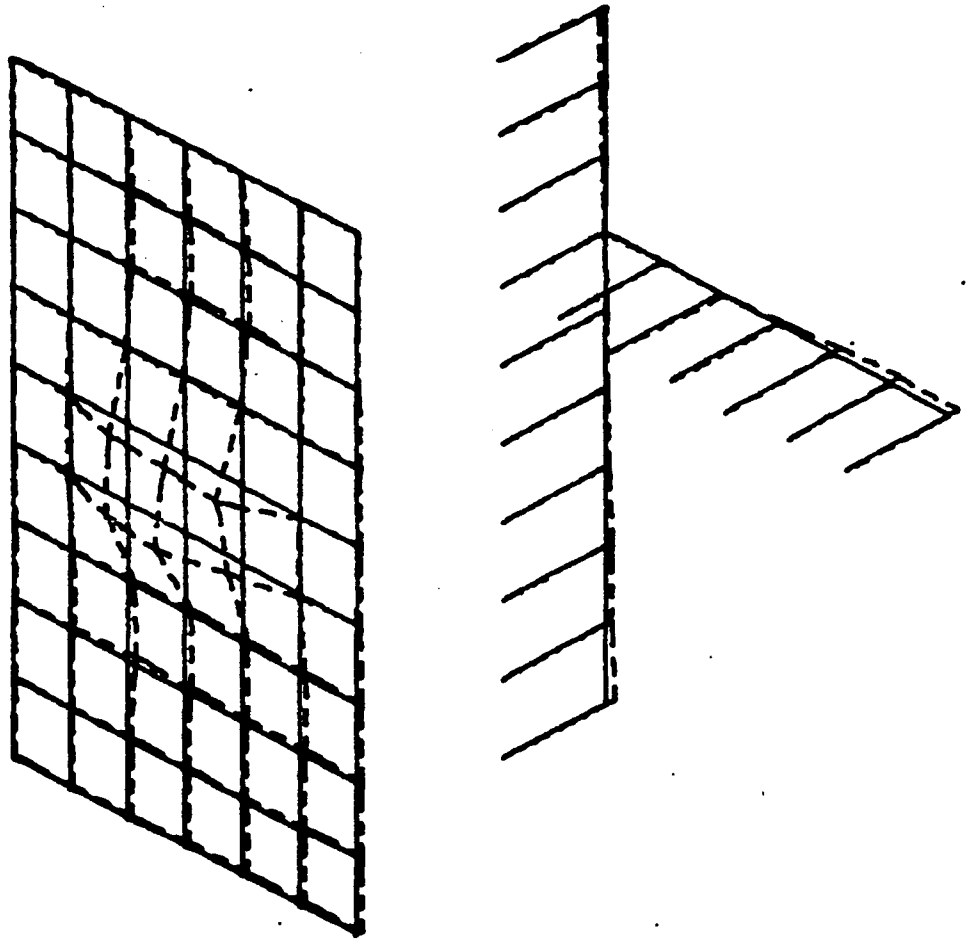
MR PANEL 6S
3: 1Z- COMP.F= 166.000 HZ (1.0, 1.0, 1.0, 0.0)=VIEW



MR PANEL 6S
4: 1Z- COMP,F= 170.690 HZ (1.0, 1.0, 1.0, 0.0)=VIEW

MODE SHAPE 4: 1Z- REAL, FREQ = 170.000 HZ
MR PANEL 63
MODE SHAPE

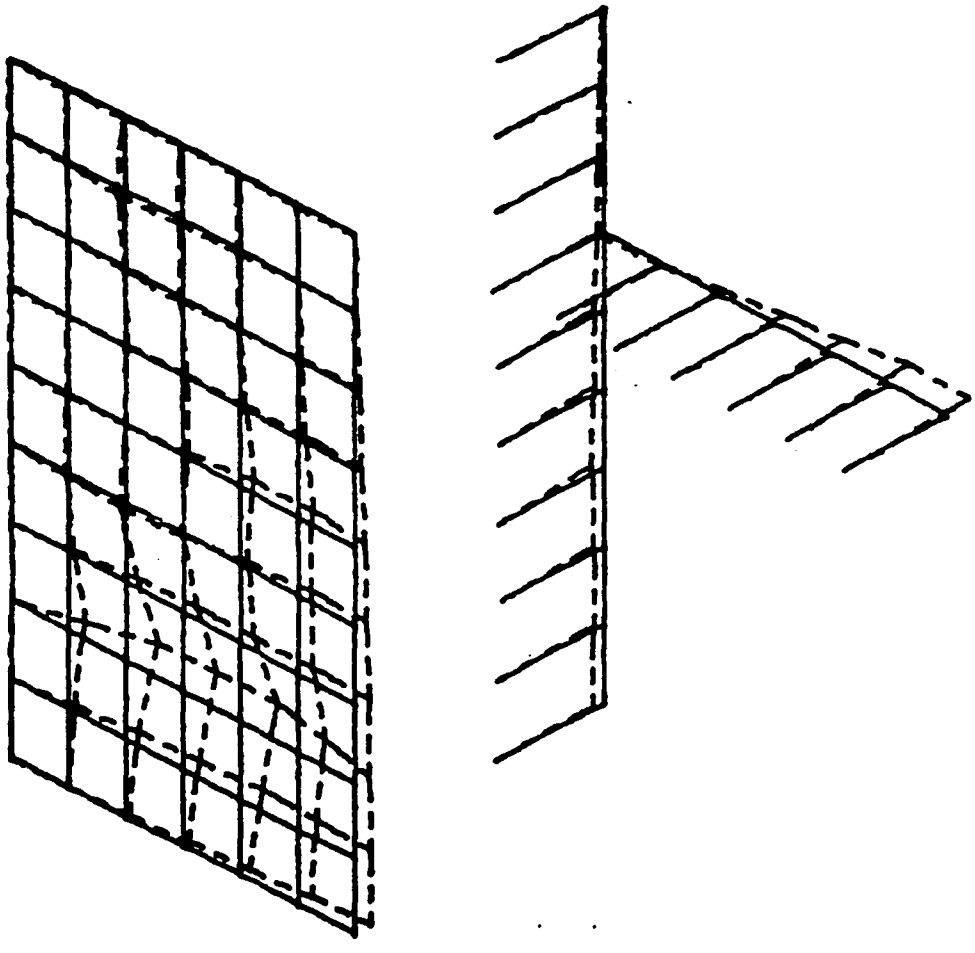
LOC	X COEFF	Y COEFF	Z COEFF
1	0.0000E-01	0.0000E-01	-2.0280E-01
2	0.0000E-01	0.0000E-01	-2.0144E-01
3	0.0000E-01	0.0000E-01	-2.0562E-01
4	0.0000E-01	0.0000E-01	-1.9356E-01
5	0.0000E-01	0.0000E-01	-1.9379E-01
6	0.0000E-01	0.0000E-01	-1.7075E-01
7	0.0000E-01	0.0000E-01	-1.3545E-01
8	0.0000E-01	0.0000E-01	-1.1320E-01
9	0.0000E-01	0.0000E-01	-8.8518E-02
10	0.0000E-01	0.0000E-01	-5.3176E-02
11	0.0000E-01	0.0000E-01	-2.1064E-01
12	0.0000E-01	0.0000E-01	-6.3455E-02
13	0.0000E-01	0.0000E-01	-1.7272E-02
14	0.0000E-01	0.0000E-01	-1.8872E-01
15	0.0000E-01	0.0000E-01	-5.2219E-01
16	0.0000E-01	0.0000E-01	-4.7263E-01
17	0.0000E-01	0.0000E-01	-1.3550E-01
18	0.0000E-01	0.0000E-01	-3.4590E-02
19	0.0000E-01	0.0000E-01	-4.3179E-02
20	0.0000E-01	0.0000E-01	-5.3974E-02
21	0.0000E-01	0.0000E-01	-1.9036E-01
22	0.0000E-01	0.0000E-01	9.1709E-02
23	0.0000E-01	0.0000E-01	1.8112E-01
24	0.0000E-01	0.0000E-01	-1.1471E-01
25	0.0000E-01	0.0000E-01	-9.2868E-01
26	0.0000E-01	0.0000E-01	-9.7975E-01
27	0.0000E-01	0.0000E-01	-1.6831E-01
28	0.0000E-01	0.0000E-01	5.9278E-02
29	0.0000E-01	0.0000E-01	2.4359E-02
30	0.0000E-01	0.0000E-01	-3.1258E-02
31	0.0000E-01	0.0000E-01	-1.6173E-01
32	0.0000E-01	0.0000E-01	7.1715E-02
33	0.0000E-01	0.0000E-01	2.5922E-01
34	0.0000E-01	0.0000E-01	-1.2165E-01
35	0.0000E-01	0.0000E-01	-1.3025E 00
36	0.0000E-01	0.0000E-01	-8.2153E-01
37	0.0000E-01	0.0000E-01	-1.2006E-01
38	0.0000E-01	0.0000E-01	2.3631E-01
39	0.0000E-01	0.0000E-01	1.5207E-01
40	0.0000E-01	0.0000E-01	-1.0701E-02
41	0.0000E-01	0.0000E-01	-1.4667E-01
42	0.0000E-01	0.0000E-01	6.4440E-02
43	0.0000E-01	0.0000E-01	2.7536E-01
44	0.0000E-01	0.0000E-01	-6.2469E-02
45	0.0000E-01	0.0000E-01	-1.0244E 00
46	0.0000E-01	0.0000E-01	-7.1434E-01
47	0.0000E-01	0.0000E-01	-1.0767E-01
48	0.0000E-01	0.0000E-01	2.0994E-01
49	0.0000E-01	0.0000E-01	1.4794E-01
50	0.0000E-01	0.0000E-01	1.4878E-02
51	0.0000E-01	0.0000E-01	-1.1072E-01
52	0.0000E-01	0.0000E-01	1.1687E-02
53	0.0000E-01	0.0000E-01	9.7623E-02
54	0.0000E-01	0.0000E-01	-7.3546E-02
55	0.0000E-01	0.0000E-01	-3.5398E-01
56	0.0000E-01	0.0000E-01	-2.8466E-01
57	0.0000E-01	0.0000E-01	-2.0041E-02
58	0.0000E-01	0.0000E-01	5.2942E-02
59	0.0000E-01	0.0000E-01	7.9553E-02
60	0.0000E-01	0.0000E-01	4.1067E-02
61	0.0000E-01	0.0000E-01	-8.6265E-02
62	0.0000E-01	0.0000E-01	-7.5423E-02
63	0.0000E-01	0.0000E-01	-5.7823E-02
64	0.0000E-01	0.0000E-01	-3.0601E-02
65	0.0000E-01	0.0000E-01	-2.9568E-02
66	0.0000E-01	0.0000E-01	-8.5889E-03
67	0.0000E-01	0.0000E-01	2.3843E-02
68	0.0000E-01	0.0000E-01	3.0930E-02
69	0.0000E-01	0.0000E-01	5.5148E-02
70	0.0000E-01	0.0000E-01	6.1202E-02
71	7.8849E-03	0.0000E-01	-9.0066E-02
72	-5.5852E-03	0.0000E-01	-8.7579E-02
73	-2.1637E-02	0.0000E-01	-8.1055E-02
74	-1.6533E-02	0.0000E-01	-5.8527E-02
75	-1.8398E-02	0.0000E-01	-2.7691E-02
76	-2.2059E-02	0.0000E-01	-7.0401E-03
77	-1.5488E-02	0.0000E-01	2.3373E-02
78	-1.2672E-02	0.0000E-01	4.2663E-02
79	-1.0325E-03	0.0000E-01	7.0354E-02
80	1.0091E-02	0.0000E-01	8.6593E-02
81	0.0000E-01	6.1061E-02	-1.5958E-03
82	0.0000E-01	1.0729E-01	-2.5204E-02
83	0.0000E-01	1.3559E-01	-3.1211E-02
84	0.0000E-01	1.4254E-01	-7.2232E-02
85	0.0000E-01	7.8521E-02	-1.0546E-01
86	0.0000E-01	1.7741E-02	-1.1926E-01



MR PANEL 6S
S: 12- COMP,F= 174.000 HZ (1.0, 1.0, 1.0, 0.0)=VIEW

MODE SHAPE 5: 12- REAL, FREQ = 174.000 HZ
MR PANEL 6S
MODE SHAPE

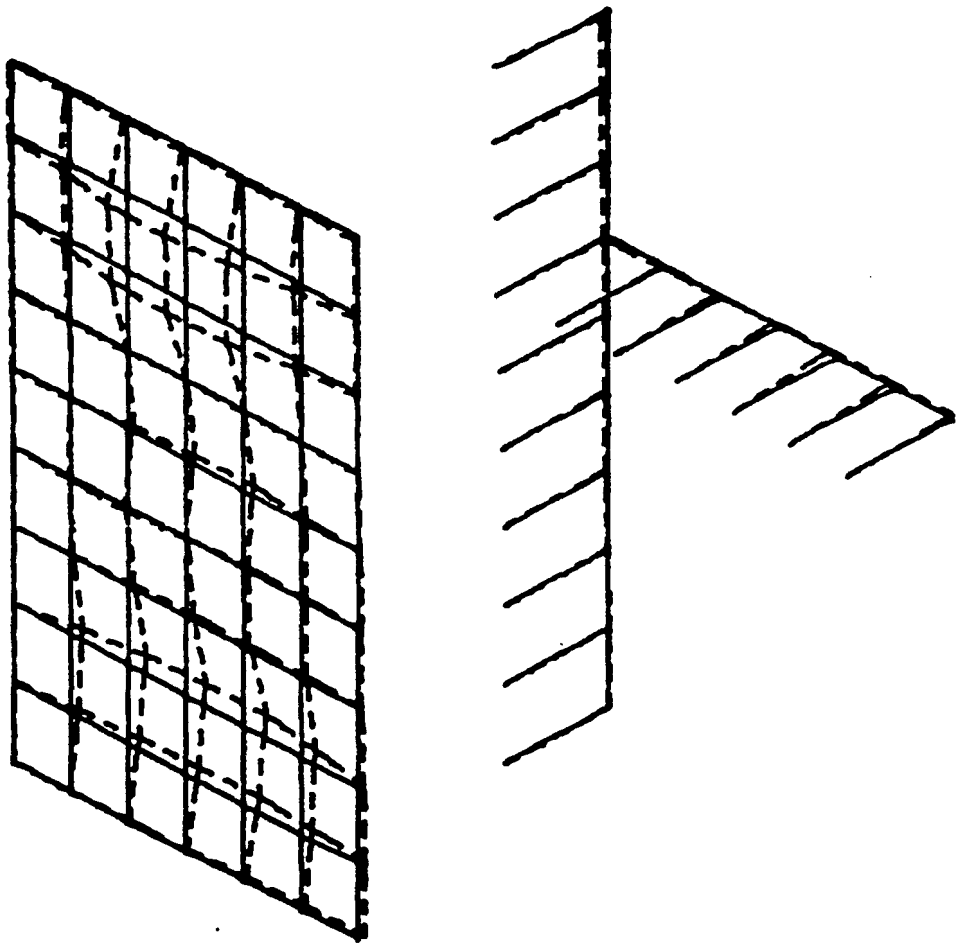
LOC	X COEFF	Y COEFF	Z COEFF
1	0.0000E-01	0.0000E-01	-1.7316E-01
2	0.0000E-01	0.0000E-01	-1.7715E-01
3	0.0000E-01	0.0000E-01	-1.7988E-01
4	0.0000E-01	0.0000E-01	-1.6609E-01
5	0.0000E-01	0.0000E-01	-1.3761E-01
6	0.0000E-01	0.0000E-01	-1.1869E-01
7	0.0000E-01	0.0000E-01	-1.0012E-01
8	0.0000E-01	0.0000E-01	-8.0806E-02
9	0.0000E-01	0.0000E-01	-6.2982E-02
10	0.0000E-01	0.0000E-01	-3.8386E-02
11	0.0000E-01	0.0000E-01	-1.8690E-01
12	0.0000E-01	0.0000E-01	-1.7620E-01
13	0.0000E-01	0.0000E-01	-2.5700E-01
14	0.0000E-01	0.0000E-01	-1.7212E-01
15	0.0000E-01	0.0000E-01	7.1744E-02
16	0.0000E-01	0.0000E-01	3.8536E-02
17	0.0000E-01	0.0000E-01	-8.5137E-02
18	0.0000E-01	0.0000E-01	-5.9546E-02
19	0.0000E-01	0.0000E-01	-6.4425E-02
20	0.0000E-01	0.0000E-01	-3.5051E-02
21	0.0000E-01	0.0000E-01	-1.7182E-01
22	0.0000E-01	0.0000E-01	-1.2865E-01
23	0.0000E-01	0.0000E-01	-2.3241E-01
24	0.0000E-01	0.0000E-01	-2.0174E-01
25	0.0000E-01	0.0000E-01	7.3950E-01
26	0.0000E-01	0.0000E-01	1.1882E 00
27	0.0000E-01	0.0000E-01	7.0549E-02
28	0.0000E-01	0.0000E-01	-2.9564E-01
29	0.0000E-01	0.0000E-01	-2.0308E-01
30	0.0000E-01	0.0000E-01	-2.5292E-02
31	0.0000E-01	0.0000E-01	-1.4488E-01
32	0.0000E-01	0.0000E-01	-1.6599E-01
33	0.0000E-01	0.0000E-01	-2.9489E-01
34	0.0000E-01	0.0000E-01	-1.8511E-01
35	0.0000E-01	0.0000E-01	1.3084E 00
36	0.0000E-01	0.0000E-01	9.2650E-01
37	0.0000E-01	0.0000E-01	4.1175E-02
38	0.0000E-01	0.0000E-01	-2.5875E-01
39	0.0000E-01	0.0000E-01	-1.8944E-01
40	0.0000E-01	0.0000E-01	-1.2646E-02
41	0.0000E-01	0.0000E-01	-1.3497E-01
42	0.0000E-01	0.0000E-01	-1.3891E-01
43	0.0000E-01	0.0000E-01	-3.3248E-01
44	0.0000E-01	0.0000E-01	-1.8407E-01
45	0.0000E-01	0.0000E-01	1.8151E 00
46	0.0000E-01	0.0000E-01	8.2249E-01
47	0.0000E-01	0.0000E-01	7.0898E-02
48	0.0000E-01	0.0000E-01	-1.9970E-01
49	0.0000E-01	0.0000E-01	-1.8063E-01
50	0.0000E-01	0.0000E-01	4.0826E-03
51	0.0000E-01	0.0000E-01	-1.0470E-01
52	0.0000E-01	0.0000E-01	-8.4938E-02
53	0.0000E-01	0.0000E-01	-1.6699E-01
54	0.0000E-01	0.0000E-01	-7.6225E-02
55	0.0000E-01	0.0000E-01	1.5185E-01
56	0.0000E-01	0.0000E-01	1.3378E-01
57	0.0000E-01	0.0000E-01	-5.9745E-03
58	0.0000E-01	0.0000E-01	9.7584E-03
59	0.0000E-01	0.0000E-01	-3.6345E-03
60	0.0000E-01	0.0000E-01	3.3856E-02
61	0.0000E-01	0.0000E-01	-8.3644E-02
62	0.0000E-01	0.0000E-01	-7.1346E-02
63	0.0000E-01	0.0000E-01	-6.6467E-02
64	0.0000E-01	0.0000E-01	-6.1538E-02
65	0.0000E-01	0.0000E-01	-3.3159E-02
66	0.0000E-01	0.0000E-01	-2.4745E-02
67	0.0000E-01	0.0000E-01	3.5847E-03
68	0.0000E-01	0.0000E-01	1.9816E-02
69	0.0000E-01	0.0000E-01	1.7874E-02
70	0.0000E-01	0.0000E-01	4.6402E-02
71	5.9745E-03	0.0000E-01	-8.8274E-02
72	-3.6843E-03	0.0000E-01	-7.7271E-02
73	-1.6081E-02	0.0000E-01	-7.6225E-02
74	-1.4538E-02	0.0000E-01	-5.3671E-02
75	-1.8820E-02	0.0000E-01	-3.6793E-02
76	-1.1152E-02	0.0000E-01	-1.9268E-02
77	-9.5095E-03	0.0000E-01	8.5635E-03
78	-6.1239E-03	0.0000E-01	3.1665E-02
79	0.0000E-01	0.0000E-01	5.4667E-02
80	8.5635E-03	0.0000E-01	7.6126E-02
81	0.0000E-01	9.0614E-03	-9.9576E-04
82	0.0000E-01	-2.9524E-02	-2.5292E-02
83	0.0000E-01	-3.6345E-03	-5.3821E-02
84	0.0000E-01	3.6594E-02	-6.8044E-02
85	0.0000E-01	3.8984E-02	-7.3013E-02
86	0.0000E-01	1.2995E-02	-9.5692E-02



MR PANEL 6S
6: 1Z- COMP,F= 219.000 HZ < 1.0, 1.0, 1.0, 0.0>=VIEW

MODE SHAPE 6: 1Z- REAL, FREQ = 219.000 HZ
MR PANEL 63
MODE SHAPE

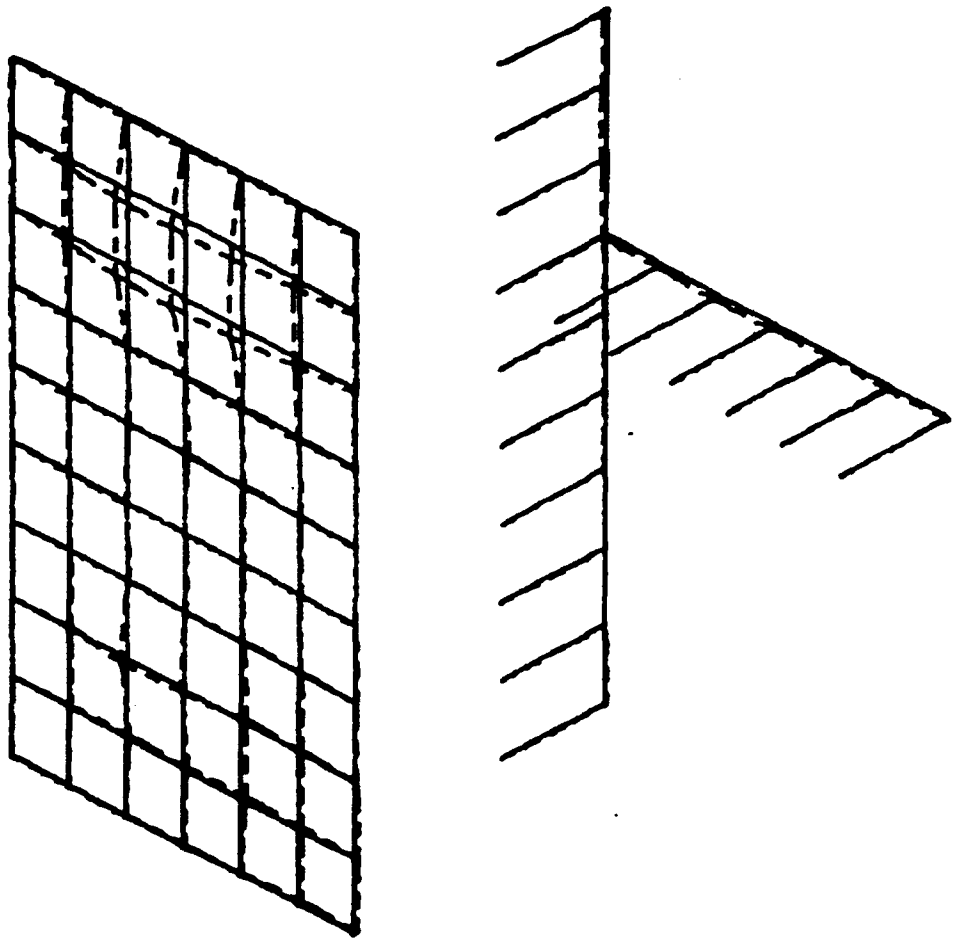
LOC	X COEFF	Y COEFF	Z COEFF
1	0.0000E-01	0.0000E-01	-5.0657E-01
2	0.0000E-01	0.0000E-01	-4.9192E-01
3	0.0000E-01	0.0000E-01	-4.7399E-01
4	0.0000E-01	0.0000E-01	-4.2911E-01
5	0.0000E-01	0.0000E-01	-3.6478E-01
6	0.0000E-01	0.0000E-01	-2.8260E-01
7	0.0000E-01	0.0000E-01	-2.0168E-01
8	0.0000E-01	0.0000E-01	-1.2595E-01
9	0.0000E-01	0.0000E-01	-5.2566E-02
10	0.0000E-01	0.0000E-01	2.8429E-02
11	0.0000E-01	0.0000E-01	-4.3496E-01
12	0.0000E-01	0.0000E-01	-6.1672E-01
13	0.0000E-01	0.0000E-01	-8.5057E-01
14	0.0000E-01	0.0000E-01	-4.3333E-01
15	0.0000E-01	0.0000E-01	-3.8744E-01
16	0.0000E-01	0.0000E-01	-4.4286E-01
17	0.0000E-01	0.0000E-01	-1.8472E-01
18	0.0000E-01	0.0000E-01	-7.8838E-02
19	0.0000E-01	0.0000E-01	-5.3395E-03
20	0.0000E-01	0.0000E-01	3.5212E-02
21	0.0000E-01	0.0000E-01	-3.2412E-01
22	0.0000E-01	0.0000E-01	-7.0749E-01
23	0.0000E-01	0.0000E-01	-1.1821E 00
24	0.0000E-01	0.0000E-01	-3.9697E-01
25	0.0000E-01	0.0000E-01	-1.7552E-01
26	0.0000E-01	0.0000E-01	-4.1868E-01
27	0.0000E-01	0.0000E-01	-1.5524E-01
28	0.0000E-01	0.0000E-01	4.8092E-02
29	0.0000E-01	0.0000E-01	9.1277E-02
30	0.0000E-01	0.0000E-01	3.0738E-02
31	0.0000E-01	0.0000E-01	-1.9702E-01
32	0.0000E-01	0.0000E-01	-4.9412E-01
33	0.0000E-01	0.0000E-01	-1.0811E 00
34	0.0000E-01	0.0000E-01	-3.8391E-01
35	0.0000E-01	0.0000E-01	7.0532E-02
36	0.0000E-01	0.0000E-01	-1.3818E-01
37	0.0000E-01	0.0000E-01	-1.1296E-01
38	0.0000E-01	0.0000E-01	9.2287E-02
39	0.0000E-01	0.0000E-01	1.5073E-01
40	0.0000E-01	0.0000E-01	3.1099E-02
41	0.0000E-01	0.0000E-01	-9.7410E-02
42	0.0000E-01	0.0000E-01	-4.1746E-01
43	0.0000E-01	0.0000E-01	-1.0181E 00
44	0.0000E-01	0.0000E-01	-3.0749E-01
45	0.0000E-01	0.0000E-01	1.8991E-01
46	0.0000E-01	0.0000E-01	5.1231E-03
47	0.0000E-01	0.0000E-01	-6.0286E-02
48	0.0000E-01	0.0000E-01	5.1814E-02
49	0.0000E-01	0.0000E-01	2.4998E-01
50	0.0000E-01	0.0000E-01	4.1237E-02
51	0.0000E-01	0.0000E-01	-1.8400E-02
52	0.0000E-01	0.0000E-01	-2.2996E-01
53	0.0000E-01	0.0000E-01	-4.9806E-01
54	0.0000E-01	0.0000E-01	-9.9719E-02
55	0.0000E-01	0.0000E-01	9.0808E-02
56	0.0000E-01	0.0000E-01	3.5140E-02
57	0.0000E-01	0.0000E-01	-1.3718E-02
58	0.0000E-01	0.0000E-01	6.8187E-03
59	0.0000E-01	0.0000E-01	2.6842E-02
60	0.0000E-01	0.0000E-01	4.0810E-02
61	0.0000E-01	0.0000E-01	4.7154E-02
62	0.0000E-01	0.0000E-01	3.2759E-02
63	0.0000E-01	0.0000E-01	3.0305E-03
64	0.0000E-01	0.0000E-01	2.4749E-02
65	0.0000E-01	0.0000E-01	2.8682E-02
66	0.0000E-01	0.0000E-01	2.3306E-02
67	0.0000E-01	0.0000E-01	6.5842E-02
68	0.0000E-01	0.0000E-01	3.2470E-02
69	0.0000E-01	0.0000E-01	3.7341E-02
70	0.0000E-01	0.0000E-01	2.6734E-02
71	-2.7491E-02	0.0000E-01	6.2631E-02
72	-3.2145E-02	0.0000E-01	4.5891E-02
73	-5.2169E-02	0.0000E-01	4.4664E-02
74	-7.0099E-02	0.0000E-01	2.8898E-02
75	-5.6642E-02	0.0000E-01	2.2982E-02
76	-5.1808E-02	0.0000E-01	2.2080E-02
77	-3.3444E-02	0.0000E-01	2.6229E-02
78	-1.8183E-02	0.0000E-01	1.9157E-02
79	-5.9529E-03	0.0000E-01	2.5543E-02
80	-1.5514E-03	0.0000E-01	6.6383E-03
81	0.0000E-01	-1.3277E-02	1.4431E-03
82	0.0000E-01	7.7928E-03	-3.1893E-02
83	0.0000E-01	3.6619E-02	-6.8115E-02
84	0.0000E-01	6.8295E-02	-8.6767E-02
85	0.0000E-01	7.3671E-02	-1.5239E-01
86	0.0000E-01	4.1417E-02	-1.6722E-01



MR PANEL 6S
7: 1Z- COMP,F= 232.000 HZ (1.0, 1.0, 1.0, 0.0)=VIEW

MODE SHAPE 7: 1Z- REAL, FREQ = 232.000 HZ
MR PANEL 6S
MODE SHAPE

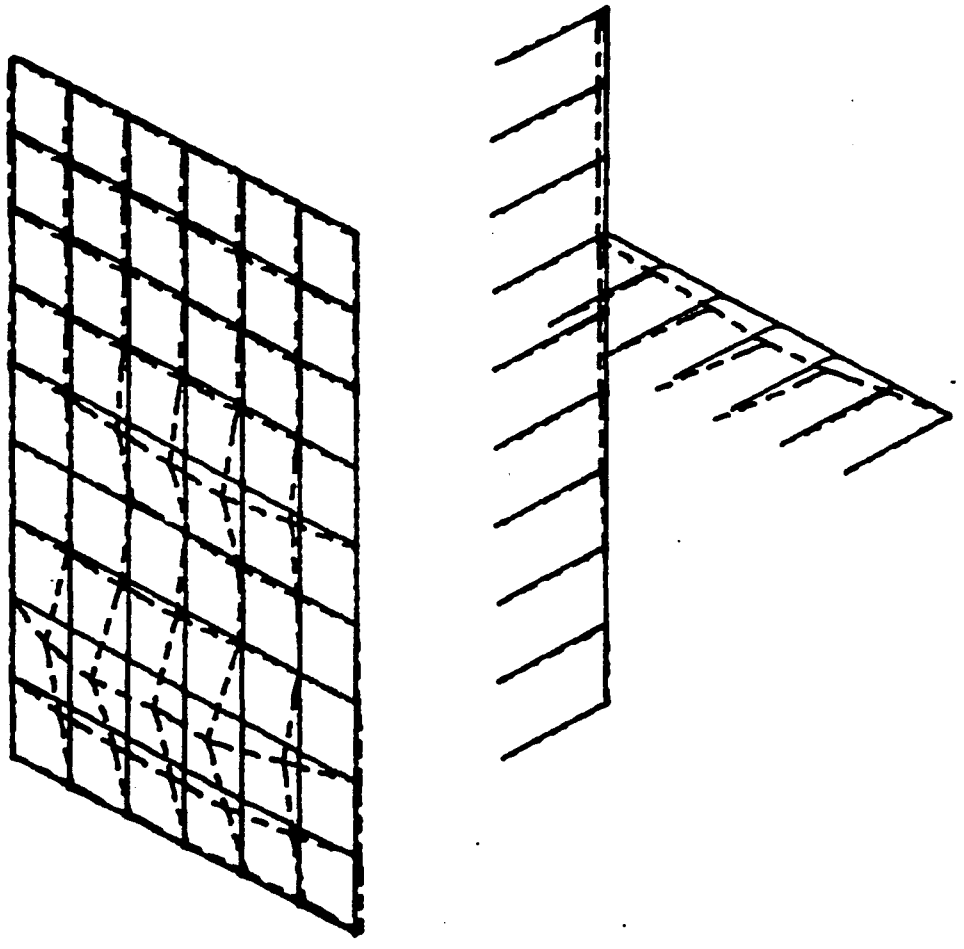
LOC	X COEFF	Y COEFF	Z COEFF
1	0.0000E-01	0.0000E-01	-3.6719E-01
2	0.0000E-01	0.0000E-01	-3.3252E-01
3	0.0000E-01	0.0000E-01	-2.8608E-01
4	0.0000E-01	0.0000E-01	-2.2223E-01
5	0.0000E-01	0.0000E-01	-1.4725E-01
6	0.0000E-01	0.0000E-01	-6.2869E-02
7	0.0000E-01	0.0000E-01	2.6387E-02
8	0.0000E-01	0.0000E-01	1.0395E-01
9	0.0000E-01	0.0000E-01	1.6661E-01
10	0.0000E-01	0.0000E-01	1.9564E-01
11	0.0000E-01	0.0000E-01	-3.0724E-01
12	0.0000E-01	0.0000E-01	-6.9616E-01
13	0.0000E-01	0.0000E-01	-8.3603E-01
14	0.0000E-01	0.0000E-01	-2.5134E-01
15	0.0000E-01	0.0000E-01	-2.6624E-01
16	0.0000E-01	0.0000E-01	-3.1824E-01
17	0.0000E-01	0.0000E-01	2.7640E-02
18	0.0000E-01	0.0000E-01	3.9984E-01
19	0.0000E-01	0.0000E-01	5.2607E-01
20	0.0000E-01	0.0000E-01	1.9752E-01
21	0.0000E-01	0.0000E-01	-2.2655E-01
22	0.0000E-01	0.0000E-01	-9.4868E-01
23	0.0000E-01	0.0000E-01	-1.3896E 00
24	0.0000E-01	0.0000E-01	-2.6568E-01
25	0.0000E-01	0.0000E-01	-2.4744E-01
26	0.0000E-01	0.0000E-01	-6.2368E-01
27	0.0000E-01	0.0000E-01	-1.0722E-02
28	0.0000E-01	0.0000E-01	1.0632E 00
29	0.0000E-01	0.0000E-01	9.7750E-01
30	0.0000E-01	0.0000E-01	1.8394E-01
31	0.0000E-01	0.0000E-01	-1.3061E-01
32	0.0000E-01	0.0000E-01	-7.8896E-01
33	0.0000E-01	0.0000E-01	-1.2058E 00
34	0.0000E-01	0.0000E-01	-3.6454E-01
35	0.0000E-01	0.0000E-01	-4.0938E-02
36	0.0000E-01	0.0000E-01	-5.1702E-01
37	0.0000E-01	0.0000E-01	-8.9117E-03
38	0.0000E-01	0.0000E-01	1.1619E 00
39	0.0000E-01	0.0000E-01	1.3016E 00
40	0.0000E-01	0.0000E-01	1.7802E-01
41	0.0000E-01	0.0000E-01	-5.5071E-02
42	0.0000E-01	0.0000E-01	-7.1579E-01
43	0.0000E-01	0.0000E-01	-1.1118E 00
44	0.0000E-01	0.0000E-01	-2.8698E-01
45	0.0000E-01	0.0000E-01	1.8060E-01
46	0.0000E-01	0.0000E-01	-3.0898E-01
47	0.0000E-01	0.0000E-01	7.1642E-02
48	0.0000E-01	0.0000E-01	1.0696E 00
49	0.0000E-01	0.0000E-01	1.2920E 00
50	0.0000E-01	0.0000E-01	1.9668E-01
51	0.0000E-01	0.0000E-01	-3.9615E-02
52	0.0000E-01	0.0000E-01	-4.5846E-01
53	0.0000E-01	0.0000E-01	-7.3020E-01
54	0.0000E-01	0.0000E-01	-9.7959E-02
55	0.0000E-01	0.0000E-01	1.3521E-01
56	0.0000E-01	0.0000E-01	2.2418E-02
57	0.0000E-01	0.0000E-01	7.5262E-02
58	0.0000E-01	0.0000E-01	4.2769E-01
59	0.0000E-01	0.0000E-01	4.9439E-01
60	0.0000E-01	0.0000E-01	1.7371E-01
61	0.0000E-01	0.0000E-01	-1.9842E-02
62	0.0000E-01	0.0000E-01	-3.7666E-02
63	0.0000E-01	0.0000E-01	-2.1861E-02
64	0.0000E-01	0.0000E-01	-1.2950E-02
65	0.0000E-01	0.0000E-01	3.6064E-02
66	0.0000E-01	0.0000E-01	6.3217E-02
67	0.0000E-01	0.0000E-01	1.2428E-01
68	0.0000E-01	0.0000E-01	1.3082E-01
69	0.0000E-01	0.0000E-01	1.5957E-01
70	0.0000E-01	0.0000E-01	1.6521E-01
71	-6.9622E-04	0.0000E-01	-2.5134E-02
72	-8.9813E-03	0.0000E-01	-2.4298E-02
73	-2.7222E-02	0.0000E-01	-8.8421E-03
74	-4.7970E-02	0.0000E-01	-4.9432E-03
75	-3.6204E-02	0.0000E-01	1.0235E-02
76	-2.1513E-02	0.0000E-01	4.0868E-02
77	-5.5698E-04	0.0000E-01	8.3129E-02
78	6.9622E-05	0.0000E-01	1.0283E-01
79	2.9938E-02	0.0000E-01	1.2532E-01
80	3.8153E-02	0.0000E-01	1.5735E-01
81	0.0000E-01	3.7805E-02	9.1275E-02
82	0.0000E-01	8.0901E-02	1.0722E-01
83	0.0000E-01	1.2372E-01	1.1843E-01
84	0.0000E-01	1.7071E-01	1.0388E-01
85	0.0000E-01	1.1488E-01	4.7761E-02
86	0.0000E-01	6.2382E-02	2.1026E-02



MR PANEL 6S
8: 1Z- COMP,F= 240.000 HZ (1.0, 1.0, 1.0, 0.0)=VIEW

MODE SHAPE 8: 1Z- REAL, FREQ = 240.000 HZ
MR PANEL 6S
MODE SHAPE

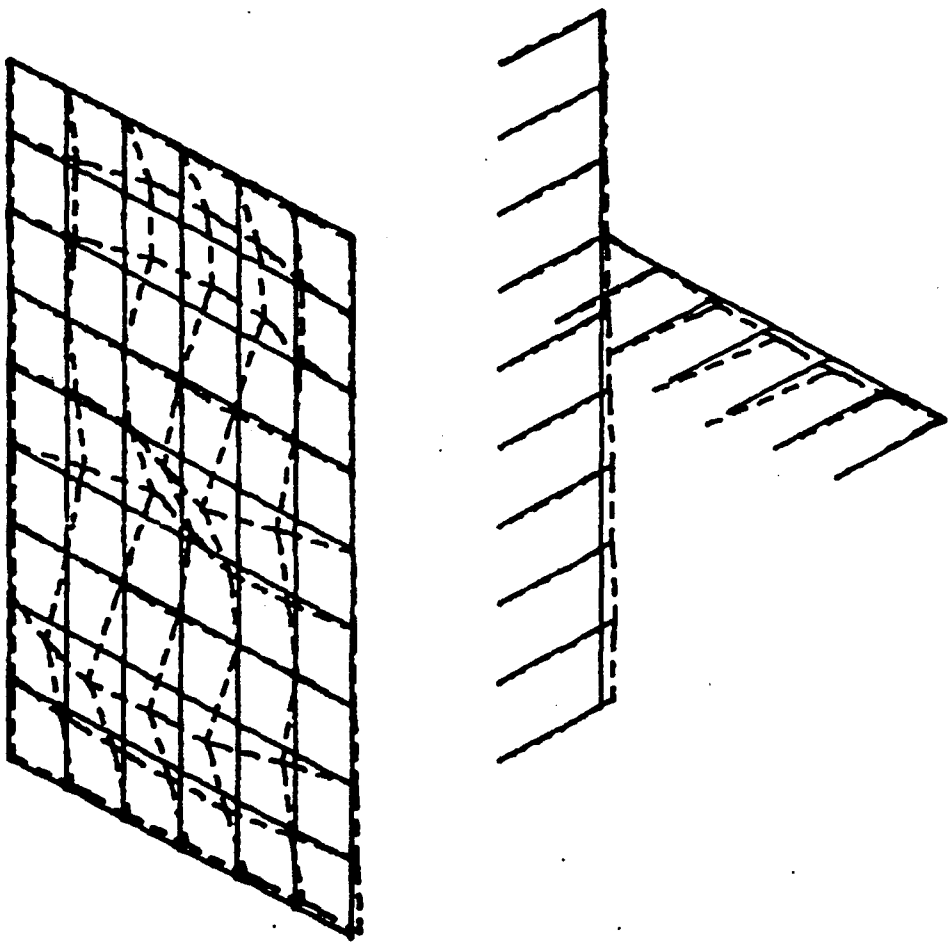
LOC	X COEFF	Y COEFF	Z COEFF
1	0.0000E-01	0.0000E-01	-2.7500E-01
2	0.0000E-01	0.0000E-01	-2.2035E-01
3	0.0000E-01	0.0000E-01	-1.6308E-01
4	0.0000E-01	0.0000E-01	-9.0103E-02
5	0.0000E-01	0.0000E-01	-2.3126E-02
6	0.0000E-01	0.0000E-01	5.4214E-02
7	0.0000E-01	0.0000E-01	1.3210E-01
8	0.0000E-01	0.0000E-01	1.9580E-01
9	0.0000E-01	0.0000E-01	2.1555E-01
10	0.0000E-01	0.0000E-01	2.2264E-01
11	0.0000E-01	0.0000E-01	-2.4402E-01
12	0.0000E-01	0.0000E-01	-3.0936E-01
13	0.0000E-01	0.0000E-01	-3.5168E-01
14	0.0000E-01	0.0000E-01	-9.3593E-02
15	0.0000E-01	0.0000E-01	-8.2794E-02
16	0.0000E-01	0.0000E-01	-8.3340E-02
17	0.0000E-01	0.0000E-01	1.3897E-01
18	0.0000E-01	0.0000E-01	5.7160E-01
19	0.0000E-01	0.0000E-01	6.4577E-01
20	0.0000E-01	0.0000E-01	2.1282E-01
21	0.0000E-01	0.0000E-01	-1.7999E-01
22	0.0000E-01	0.0000E-01	-3.9215E-01
23	0.0000E-01	0.0000E-01	-3.9979E-01
24	0.0000E-01	0.0000E-01	-9.6975E-02
25	0.0000E-01	0.0000E-01	-8.0176E-02
26	0.0000E-01	0.0000E-01	-2.1686E-01
27	0.0000E-01	0.0000E-01	9.4793E-02
28	0.0000E-01	0.0000E-01	1.2582E 00
29	0.0000E-01	0.0000E-01	1.1356E 00
30	0.0000E-01	0.0000E-01	1.7879E-01
31	0.0000E-01	0.0000E-01	-1.0777E-01
32	0.0000E-01	0.0000E-01	-3.2310E-01
33	0.0000E-01	0.0000E-01	3.1296E-01
34	0.0000E-01	0.0000E-01	-1.2599E-01
35	0.0000E-01	0.0000E-01	-3.0543E-03
36	0.0000E-01	0.0000E-01	-2.3278E-01
37	0.0000E-01	0.0000E-01	7.0140E-02
38	0.0000E-01	0.0000E-01	1.3313E 00
39	0.0000E-01	0.0000E-01	1.3376E 00
40	0.0000E-01	0.0000E-01	1.6548E-01
41	0.0000E-01	0.0000E-01	-5.0506E-02
42	0.0000E-01	0.0000E-01	-2.9954E-01
43	0.0000E-01	0.0000E-01	5.5076E-01
44	0.0000E-01	0.0000E-01	-8.5521E-02
45	0.0000E-01	0.0000E-01	1.7181E-01
46	0.0000E-01	0.0000E-01	-1.2763E-01
47	0.0000E-01	0.0000E-01	1.3854E-01
48	0.0000E-01	0.0000E-01	1.2642E 00
49	0.0000E-01	0.0000E-01	1.1672E 00
50	0.0000E-01	0.0000E-01	1.7061E-01
51	0.0000E-01	0.0000E-01	-2.9234E-02
52	0.0000E-01	0.0000E-01	-1.5184E-01
53	0.0000E-01	0.0000E-01	-2.3257E-01
54	0.0000E-01	0.0000E-01	-1.3635E-02
55	0.0000E-01	0.0000E-01	1.5228E-01
56	0.0000E-01	0.0000E-01	7.1777E-02
57	0.0000E-01	0.0000E-01	1.0625E-01
58	0.0000E-01	0.0000E-01	5.6200E-01
59	0.0000E-01	0.0000E-01	5.7421E-01
60	0.0000E-01	0.0000E-01	1.5239E-01
61	0.0000E-01	0.0000E-01	-1.5272E-03
62	0.0000E-01	0.0000E-01	-7.6358E-04
63	0.0000E-01	0.0000E-01	3.3379E-02
64	0.0000E-01	0.0000E-01	9.3812E-03
65	0.0000E-01	0.0000E-01	4.9524E-02
66	0.0000E-01	0.0000E-01	7.7013E-02
67	0.0000E-01	0.0000E-01	9.7520E-02
68	0.0000E-01	0.0000E-01	1.2610E-01
69	0.0000E-01	0.0000E-01	1.4344E-01
70	0.0000E-01	0.0000E-01	1.4574E-01
71	-8.7267E-04	0.0000E-01	-1.6144E-02
72	-1.3090E-03	0.0000E-01	-5.4542E-04
73	-1.1345E-02	0.0000E-01	1.0363E-02
74	-2.6398E-02	0.0000E-01	1.8980E-02
75	-1.6581E-02	0.0000E-01	3.7525E-02
76	8.7267E-04	0.0000E-01	6.4468E-02
77	1.3526E-02	0.0000E-01	9.6648E-02
78	7.6358E-03	0.0000E-01	1.2108E-01
79	3.7088E-02	0.0000E-01	1.2545E-01
80	4.0470E-02	0.0000E-01	1.4323E-01
81	0.0000E-01	1.6253E-02	1.2610E-01
82	0.0000E-01	4.2215E-02	1.6821E-01
83	0.0000E-01	6.9813E-02	2.0562E-01
84	0.0000E-01	1.2566E-01	1.7955E-01
85	0.0000E-01	8.5085E-02	1.6068E-01
86	0.0000E-01	6.2286E-02	1.1170E-01



MR PANEL 6S
9: 1Z- COMP,F= 252.000 HZ < 1.0, 1.0, 1.0, 0.0>=VIEW

MODE SHAPE 9: 12- REAL, FREQ = 252.000 HZ
MR PANEL 6S
MODE SHAPE

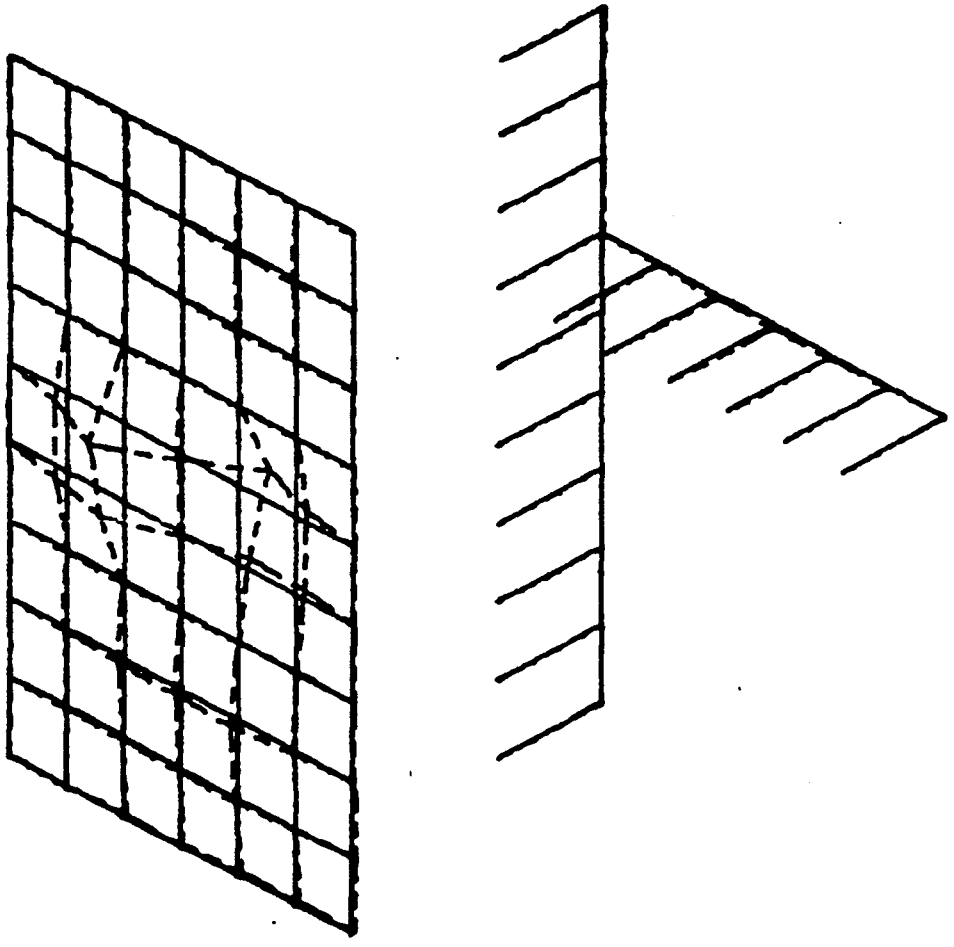
LOC	X COEFF	Y COEFF	Z COEFF
1	0.0000E-01	0.0000E-01	-2.9855E-01
2	0.0000E-01	0.0000E-01	-2.1852E-01
3	0.0000E-01	0.0000E-01	-1.7042E-01
4	0.0000E-01	0.0000E-01	-8.8965E-02
5	0.0000E-01	0.0000E-01	-3.3977E-02
6	0.0000E-01	0.0000E-01	3.1116E-02
7	0.0000E-01	0.0000E-01	4.9534E-02
8	0.0000E-01	0.0000E-01	8.6641E-02
9	0.0000E-01	0.0000E-01	1.1892E-01
10	0.0000E-01	0.0000E-01	1.1731E-01
11	0.0000E-01	0.0000E-01	-3.2761E-01
12	0.0000E-01	0.0000E-01	7.0448E-01
13	0.0000E-01	0.0000E-01	1.3093E 00
14	0.0000E-01	0.0000E-01	5.2843E-02
15	0.0000E-01	0.0000E-01	2.9238E-01
16	0.0000E-01	0.0000E-01	7.8066E-01
17	0.0000E-01	0.0000E-01	1.5978E-01
18	0.0000E-01	0.0000E-01	2.0592E-01
19	0.0000E-01	0.0000E-01	3.2975E-01
20	0.0000E-01	0.0000E-01	1.2598E-01
21	0.0000E-01	0.0000E-01	-2.6627E-01
22	0.0000E-01	0.0000E-01	1.2998E 00
23	0.0000E-01	0.0000E-01	2.7876E 00
24	0.0000E-01	0.0000E-01	2.4258E-01
25	0.0000E-01	0.0000E-01	3.3494E-01
26	0.0000E-01	0.0000E-01	1.6553E 00
27	0.0000E-01	0.0000E-01	3.4987E-01
28	0.0000E-01	0.0000E-01	2.2648E-01
29	0.0000E-01	0.0000E-01	3.8269E-01
30	0.0000E-01	0.0000E-01	1.3108E-01
31	0.0000E-01	0.0000E-01	-1.7927E-01
32	0.0000E-01	0.0000E-01	1.1782E 00
33	0.0000E-01	0.0000E-01	2.4809E 00
34	0.0000E-01	0.0000E-01	6.0675E-01
35	0.0000E-01	0.0000E-01	-6.1248E-02
36	0.0000E-01	0.0000E-01	1.2590E 00
37	0.0000E-01	0.0000E-01	3.5470E-01
38	0.0000E-01	0.0000E-01	1.8446E-01
39	0.0000E-01	0.0000E-01	3.7124E-01
40	0.0000E-01	0.0000E-01	1.4074E-01
41	0.0000E-01	0.0000E-01	-1.3859E-01
42	0.0000E-01	0.0000E-01	1.1308E 00
43	0.0000E-01	0.0000E-01	2.9298E 00
44	0.0000E-01	0.0000E-01	5.8154E-01
45	0.0000E-01	0.0000E-01	-2.6949E-01
46	0.0000E-01	0.0000E-01	9.3749E-01
47	0.0000E-01	0.0000E-01	3.5908E-01
48	0.0000E-01	0.0000E-01	3.9690E-01
49	0.0000E-01	0.0000E-01	3.8868E-01
50	0.0000E-01	0.0000E-01	1.4547E-01
51	0.0000E-01	0.0000E-01	-1.1221E-01
52	0.0000E-01	0.0000E-01	8.2322E-01
53	0.0000E-01	0.0000E-01	1.9905E 00
54	0.0000E-01	0.0000E-01	2.6681E-01
55	0.0000E-01	0.0000E-01	-1.7078E-02
56	0.0000E-01	0.0000E-01	3.7643E-01
57	0.0000E-01	0.0000E-01	2.1396E-01
58	0.0000E-01	0.0000E-01	3.6230E-01
59	0.0000E-01	0.0000E-01	4.1988E-01
60	0.0000E-01	0.0000E-01	1.5173E-01
61	0.0000E-01	0.0000E-01	-1.7078E-02
62	0.0000E-01	0.0000E-01	9.3525E-02
63	0.0000E-01	0.0000E-01	9.7460E-02
64	0.0000E-01	0.0000E-01	1.4538E-01
65	0.0000E-01	0.0000E-01	1.6470E-01
66	0.0000E-01	0.0000E-01	1.9295E-01
67	0.0000E-01	0.0000E-01	1.7713E-01
68	0.0000E-01	0.0000E-01	2.0949E-01
69	0.0000E-01	0.0000E-01	2.1700E-01
70	0.0000E-01	0.0000E-01	1.6067E-01
71	-1.0372E-02	0.0000E-01	-4.8193E-02
72	1.1713E-02	0.0000E-01	2.5035E-02
73	-1.3412E-03	0.0000E-01	4.2560E-02
74	1.8330E-02	0.0000E-01	1.1185E-01
75	1.9402E-02	0.0000E-01	1.5093E-01
76	2.6824E-02	0.0000E-01	1.6711E-01
77	1.8667E-02	0.0000E-01	1.7418E-01
78	1.1624E-03	0.0000E-01	1.7695E-01
79	2.7718E-02	0.0000E-01	1.8151E-01
80	4.2918E-02	0.0000E-01	1.8240E-01
81	0.0000E-01	-7.3855E-02	1.9805E-01
82	0.0000E-01	-1.6237E-01	2.0860E-01
83	0.0000E-01	-2.2469E-01	2.2121E-01
84	0.0000E-01	-1.9501E-01	1.8070E-01
85	0.0000E-01	-6.3304E-02	1.0300E-01
86	0.0000E-01	2.7539E-02	2.7807E-02



HR PANEL 6S
10: 1Z- COMP,F= 264.000 HZ (1.0, 1.0, 1.0, 0.0)=VIEW

MODE SHAPE 10: 1Z- REAL, FREQ = 264.000 HZ
MR PANEL 6S
MODE SHAPE

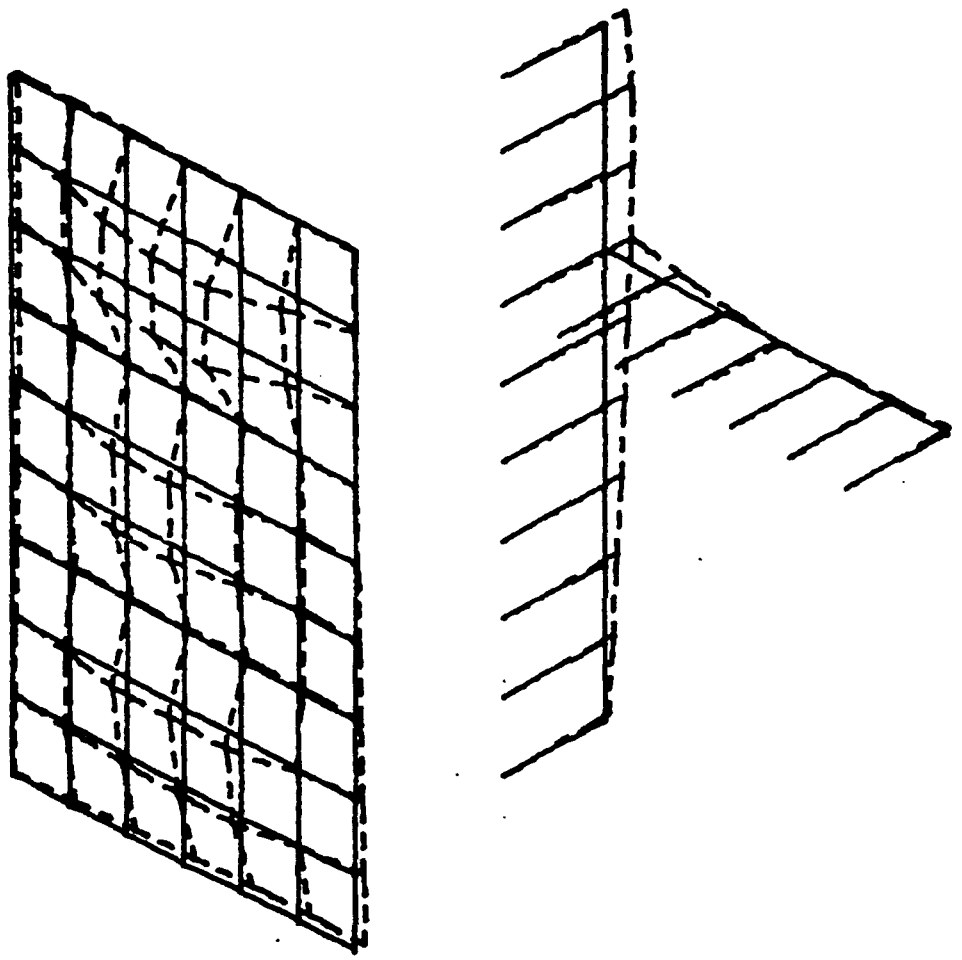
LOC	X COEFF	Y COEFF	Z COEFF
1	0.0000E-01	0.0000E-01	-4.5893E-01
2	0.0000E-01	0.0000E-01	-3.0574E-01
3	0.0000E-01	0.0000E-01	-2.2488E-01
4	0.0000E-01	0.0000E-01	-1.2786E-01
5	0.0000E-01	0.0000E-01	-4.4524E-02
6	0.0000E-01	0.0000E-01	4.9605E-02
7	0.0000E-01	0.0000E-01	8.7355E-02
8	0.0000E-01	0.0000E-01	1.3237E-01
9	0.0000E-01	0.0000E-01	1.4190E-01
10	0.0000E-01	0.0000E-01	1.7534E-01
11	0.0000E-01	0.0000E-01	-4.9739E-01
12	0.0000E-01	0.0000E-01	3.3672E-01
13	0.0000E-01	0.0000E-01	7.7702E-01
14	0.0000E-01	0.0000E-01	-6.4705E-02
15	0.0000E-01	0.0000E-01	4.8864E-01
16	0.0000E-01	0.0000E-01	1.1601E 00
17	0.0000E-01	0.0000E-01	1.3950E-01
18	0.0000E-01	0.0000E-01	-3.7448E-01
19	0.0000E-01	0.0000E-01	-3.4265E-01
20	0.0000E-01	0.0000E-01	1.9009E-01
21	0.0000E-01	0.0000E-01	-4.8857E-01
22	0.0000E-01	0.0000E-01	8.1943E-01
23	0.0000E-01	0.0000E-01	1.9620E 00
24	0.0000E-01	0.0000E-01	-4.1772E-02
25	0.0000E-01	0.0000E-01	6.2927E-01
26	0.0000E-01	0.0000E-01	2.2903E 00
27	0.0000E-01	0.0000E-01	3.2007E-01
28	0.0000E-01	0.0000E-01	-1.6291E 00
29	0.0000E-01	0.0000E-01	-1.1895E 00
30	0.0000E-01	0.0000E-01	1.5799E-01
31	0.0000E-01	0.0000E-01	-3.7757E-01
32	0.0000E-01	0.0000E-01	7.6848E-01
33	0.0000E-01	0.0000E-01	1.9870E 00
34	0.0000E-01	0.0000E-01	1.8148E-01
35	0.0000E-01	0.0000E-01	-5.7197E-01
36	0.0000E-01	0.0000E-01	1.0808E 00
37	0.0000E-01	0.0000E-01	2.4972E-01
38	0.0000E-01	0.0000E-01	-1.8488E 00
39	0.0000E-01	0.0000E-01	-1.5618E 00
40	0.0000E-01	0.0000E-01	1.0238E-01
41	0.0000E-01	0.0000E-01	-3.4413E-01
42	0.0000E-01	0.0000E-01	7.2403E-01
43	0.0000E-01	0.0000E-01	2.3121E 00
44	0.0000E-01	0.0000E-01	2.1578E-01
45	0.0000E-01	0.0000E-01	-1.7857E 00
46	0.0000E-01	0.0000E-01	-1.8480E-01
47	0.0000E-01	0.0000E-01	6.1600E-02
48	0.0000E-01	0.0000E-01	-1.6553E 00
49	0.0000E-01	0.0000E-01	-1.5664E 00
50	0.0000E-01	0.0000E-01	3.7609E-02
51	0.0000E-01	0.0000E-01	-3.1894E-01
52	0.0000E-01	0.0000E-01	4.0185E-01
53	0.0000E-01	0.0000E-01	1.2774E 00
54	0.0000E-01	0.0000E-01	-1.1713E-02
55	0.0000E-01	0.0000E-01	-1.0483E 00
56	0.0000E-01	0.0000E-01	-4.9217E-01
57	0.0000E-01	0.0000E-01	-1.2419E-02
58	0.0000E-01	0.0000E-01	-4.7114E-01
59	0.0000E-01	0.0000E-01	-5.7246E-01
60	0.0000E-01	0.0000E-01	1.1078E-02
61	0.0000E-01	0.0000E-01	-2.2100E-01
62	0.0000E-01	0.0000E-01	-2.0244E-01
63	0.0000E-01	0.0000E-01	-1.6702E-01
64	0.0000E-01	0.0000E-01	-1.6695E-01
65	0.0000E-01	0.0000E-01	-1.7577E-01
66	0.0000E-01	0.0000E-01	-1.7259E-01
67	0.0000E-01	0.0000E-01	-9.2859E-02
68	0.0000E-01	0.0000E-01	-7.4654E-02
69	0.0000E-01	0.0000E-01	-1.1283E-01
70	0.0000E-01	0.0000E-01	-1.6229E-02
71	-2.0674E-02	0.0000E-01	-2.0987E-01
72	4.5159E-03	0.0000E-01	-2.2460E-01
73	-1.8134E-02	0.0000E-01	-1.9426E-01
74	1.7640E-02	0.0000E-01	-1.5361E-01
75	2.0181E-02	0.0000E-01	-1.0450E-01
76	2.5402E-02	0.0000E-01	-7.2608E-02
77	1.9193E-02	0.0000E-01	-6.0965E-02
78	1.9757E-02	0.0000E-01	-3.7680E-02
79	7.4795E-03	0.0000E-01	-2.6178E-02
80	-1.4818E-03	0.0000E-01	-9.0318E-03
81	0.0000E-01	-4.1278E-02	-2.6743E-02
82	0.0000E-01	-1.1777E-01	-1.5241E-02
83	0.0000E-01	-1.8671E-01	-3.1611E-02
84	0.0000E-01	-1.9736E-01	-8.1146E-03
85	0.0000E-01	-7.1620E-02	3.3023E-02
86	0.0000E-01	4.6994E-02	7.7759E-02



KR PANEL 6S
11: 1Z- COMP,F= 278.000 HZ (1.0, 1.0, 1.0, 0.0)=VIEW

MODE SHAPE 11: 1Z- REAL, FREQ = 278.000 HZ
MR PANEL 6S
MODE SHAPE

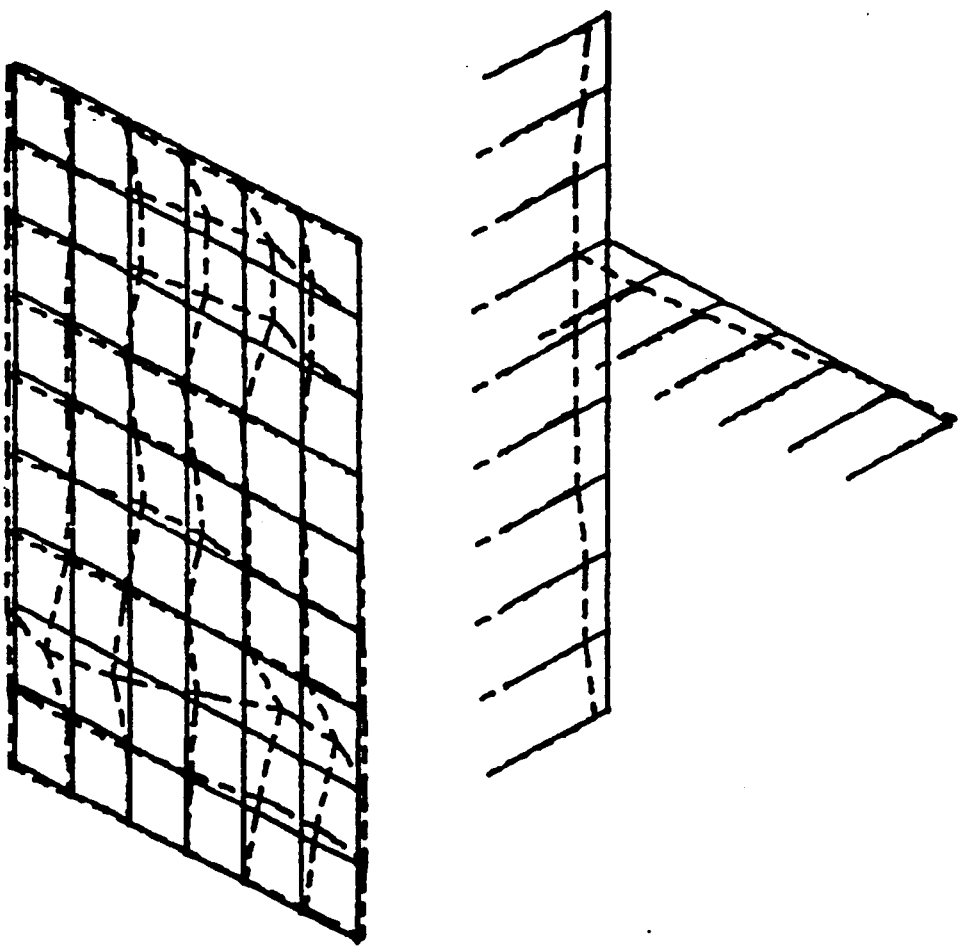
LOC	X COEFF	Y COEFF	Z COEFF
1	0.0000E-01	0.0000E-01	-4.8949E-01
2	0.0000E-01	0.0000E-01	-4.0983E-01
3	0.0000E-01	0.0000E-01	-3.3888E-01
4	0.0000E-01	0.0000E-01	-2.3538E-01
5	0.0000E-01	0.0000E-01	-2.4162E-01
6	0.0000E-01	0.0000E-01	-1.6859E-01
7	0.0000E-01	0.0000E-01	1.8921E-02
8	0.0000E-01	0.0000E-01	6.5278E-02
9	0.0000E-01	0.0000E-01	1.1409E-01
10	0.0000E-01	0.0000E-01	1.4550E-01
11	0.0000E-01	0.0000E-01	-5.2109E-01
12	0.0000E-01	0.0000E-01	8.6091E-02
13	0.0000E-01	0.0000E-01	3.6499E-01
14	0.0000E-01	0.0000E-01	-1.5496E-01
15	0.0000E-01	0.0000E-01	-1.6238E 00
16	0.0000E-01	0.0000E-01	-1.9044E 00
17	0.0000E-01	0.0000E-01	-9.0822E-03
18	0.0000E-01	0.0000E-01	3.7691E-01
19	0.0000E-01	0.0000E-01	4.4257E-01
20	0.0000E-01	0.0000E-01	1.0823E-01
21	0.0000E-01	0.0000E-01	-4.6224E-01
22	0.0000E-01	0.0000E-01	5.0784E-01
23	0.0000E-01	0.0000E-01	1.2834E 00
24	0.0000E-01	0.0000E-01	6.1494E-02
25	0.0000E-01	0.0000E-01	-1.9371E 00
26	0.0000E-01	0.0000E-01	-5.0525E 00
27	0.0000E-01	0.0000E-01	-3.0425E-01
28	0.0000E-01	0.0000E-01	6.2232E-01
29	0.0000E-01	0.0000E-01	4.4313E-01
30	0.0000E-01	0.0000E-01	6.1494E-02
31	0.0000E-01	0.0000E-01	-3.2525E-01
32	0.0000E-01	0.0000E-01	3.2790E-01
33	0.0000E-01	0.0000E-01	9.7330E-01
34	0.0000E-01	0.0000E-01	1.9886E-01
35	0.0000E-01	0.0000E-01	4.5619E-01
36	0.0000E-01	0.0000E-01	7.5401E-01
37	0.0000E-01	0.0000E-01	9.4227E-02
38	0.0000E-01	0.0000E-01	1.9640E-01
39	0.0000E-01	0.0000E-01	1.4248E-01
40	0.0000E-01	0.0000E-01	2.5922E-02
41	0.0000E-01	0.0000E-01	-2.3973E-01
42	0.0000E-01	0.0000E-01	2.9252E-01
43	0.0000E-01	0.0000E-01	9.5155E-01
44	0.0000E-01	0.0000E-01	1.4399E-01
45	0.0000E-01	0.0000E-01	4.2838E 00
46	0.0000E-01	0.0000E-01	6.1999E 00
47	0.0000E-01	0.0000E-01	3.1831E-01
48	0.0000E-01	0.0000E-01	-3.6253E-01
49	0.0000E-01	0.0000E-01	-2.4181E-01
50	0.0000E-01	0.0000E-01	-7.0008E-03
51	0.0000E-01	0.0000E-01	-1.2810E-01
52	0.0000E-01	0.0000E-01	2.2085E-01
53	0.0000E-01	0.0000E-01	5.7728E-01
54	0.0000E-01	0.0000E-01	5.4682E-02
55	0.0000E-01	0.0000E-01	2.0043E 00
56	0.0000E-01	0.0000E-01	2.1943E 00
57	0.0000E-01	0.0000E-01	7.4368E-02
58	0.0000E-01	0.0000E-01	-1.5080E-01
59	0.0000E-01	0.0000E-01	-1.4172E-01
60	0.0000E-01	0.0000E-01	-4.3140E-02
61	0.0000E-01	0.0000E-01	-5.4871E-03
62	0.0000E-01	0.0000E-01	5.6196E-02
63	0.0000E-01	0.0000E-01	4.3519E-02
64	0.0000E-01	0.0000E-01	8.7983E-02
65	0.0000E-01	0.0000E-01	1.5534E-01
66	0.0000E-01	0.0000E-01	8.8551E-02
67	0.0000E-01	0.0000E-01	4.0680E-02
68	0.0000E-01	0.0000E-01	-3.2166E-02
69	0.0000E-01	0.0000E-01	-4.9195E-02
70	0.0000E-01	0.0000E-01	-8.5902E-02
71	-5.5628E-02	0.0000E-01	-1.5137E-02
72	-4.0870E-02	0.0000E-01	2.8382E-03
73	-3.9734E-02	0.0000E-01	-2.4598E-03
74	-2.1570E-02	0.0000E-01	1.3623E-02
75	3.2166E-03	0.0000E-01	1.7029E-02
76	-7.3793E-03	0.0000E-01	-3.0274E-03
77	2.0813E-02	0.0000E-01	-6.0548E-03
78	2.1381E-02	0.0000E-01	-2.5544E-02
79	7.7577E-03	0.0000E-01	-6.5467E-02
80	-4.3519E-03	0.0000E-01	-9.0065E-02
81	0.0000E-01	-7.7577E-02	0.0000E-01
82	0.0000E-01	-1.4607E-01	7.0008E-03
83	0.0000E-01	-9.3849E-02	4.4086E-02
84	0.0000E-01	-2.2327E-02	8.4578E-02
85	0.0000E-01	3.6707E-02	6.7359E-02
86	0.0000E-01	6.2251E-02	4.7681E-02



NR PANEL 6S
12: 1Z- COMP,F= 305.000 HZ < 1.0, 1.0, 1.0, 0.0>=VIEW

MODE SHAPE 12: 12- REAL, FREQ = 385.000 HZ
MR PANEL 6S
MODE SHAPE

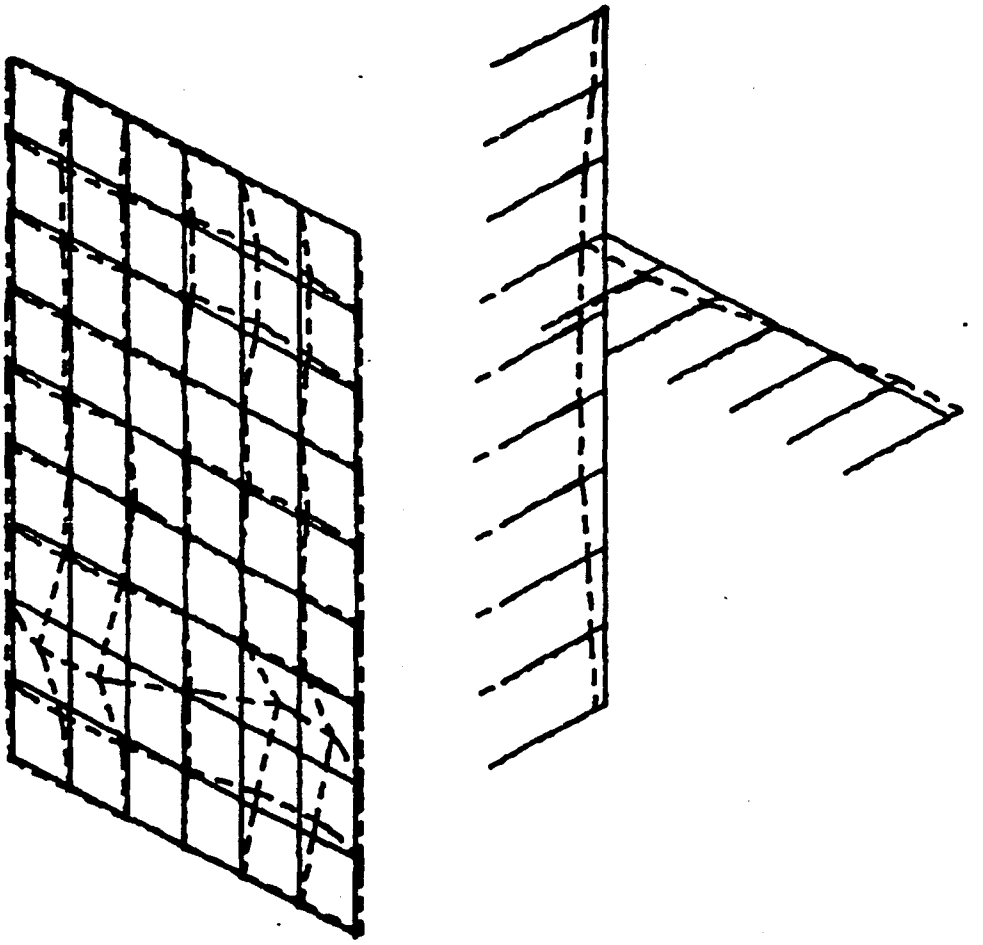
LOC	X COEFF	Y COEFF	Z COEFF	LOC	X COEFF	Y COEFF	Z COEFF
1	0.0000E-01	0.0000E-01	-6.6017E-01	44	0.0000E-01	0.0000E-01	-2.1724E-01
2	0.0000E-01	0.0000E-01	-5.3642E-01	45	0.0000E-01	0.0000E-01	9.8391E-01
3	0.0000E-01	0.0000E-01	-4.5074E-01	46	0.0000E-01	0.0000E-01	1.0637E 00
4	0.0000E-01	0.0000E-01	-3.5841E-01	47	0.0000E-01	0.0000E-01	-1.5401E-01
5	0.0000E-01	0.0000E-01	-2.5385E-01	48	0.0000E-01	0.0000E-01	1.8108E 00
6	0.0000E-01	0.0000E-01	-1.4581E-01	49	0.0000E-01	0.0000E-01	1.6648E 00
7	0.0000E-01	0.0000E-01	-8.0490E-03	50	0.0000E-01	0.0000E-01	-2.7622E-01
8	0.0000E-01	0.0000E-01	6.3618E-02	51	0.0000E-01	0.0000E-01	-3.2978E-01
9	0.0000E-01	0.0000E-01	1.2429E-01	52	0.0000E-01	0.0000E-01	2.9100E-01
10	0.0000E-01	0.0000E-01	1.0224E-01	53	0.0000E-01	0.0000E-01	3.7544E-01
11	0.0000E-01	0.0000E-01	-7.4422E-01	54	0.0000E-01	0.0000E-01	-2.9007E-01
12	0.0000E-01	0.0000E-01	6.1373E-02	55	0.0000E-01	0.0000E-01	1.3180E-01
13	0.0000E-01	0.0000E-01	1.1269E-01	56	0.0000E-01	0.0000E-01	8.5907E-02
14	0.0000E-01	0.0000E-01	-3.4489E-01	57	0.0000E-01	0.0000E-01	-2.8551E-01
15	0.0000E-01	0.0000E-01	-3.0896E-01	58	0.0000E-01	0.0000E-01	4.4091E-01
16	0.0000E-01	0.0000E-01	-2.9975E-01	59	0.0000E-01	0.0000E-01	4.7481E-01
17	0.0000E-01	0.0000E-01	-4.9842E-02	60	0.0000E-01	0.0000E-01	-3.5663E-01
18	0.0000E-01	0.0000E-01	9.1348E-01	61	0.0000E-01	0.0000E-01	-1.1524E-01
19	0.0000E-01	0.0000E-01	1.1760E 00	62	0.0000E-01	0.0000E-01	-1.6291E-01
20	0.0000E-01	0.0000E-01	-2.8868E-02	63	0.0000E-01	0.0000E-01	-2.5439E-01
21	0.0000E-01	0.0000E-01	-7.8624E-01	64	0.0000E-01	0.0000E-01	-3.0145E-01
22	0.0000E-01	0.0000E-01	6.3765E-01	65	0.0000E-01	0.0000E-01	-3.8000E-01
23	0.0000E-01	0.0000E-01	1.0639E 00	66	0.0000E-01	0.0000E-01	-4.4788E-01
24	0.0000E-01	0.0000E-01	-3.0029E-01	67	0.0000E-01	0.0000E-01	-4.4687E-01
25	0.0000E-01	0.0000E-01	3.4858E-01	68	0.0000E-01	0.0000E-01	-4.1034E-01
26	0.0000E-01	0.0000E-01	3.2583E-01	69	0.0000E-01	0.0000E-01	-4.2056E-01
27	0.0000E-01	0.0000E-01	-1.5595E-01	70	0.0000E-01	0.0000E-01	-3.7149E-01
28	0.0000E-01	0.0000E-01	2.5359E 00	71	-7.2054E-02	0.0000E-01	-1.4844E-01
29	0.0000E-01	0.0000E-01	2.3540E 00	72	-5.2241E-02	0.0000E-01	-2.1237E-01
30	0.0000E-01	0.0000E-01	-1.8946E-01	73	-7.3060E-02	0.0000E-01	-2.9487E-01
31	0.0000E-01	0.0000E-01	-6.5212E-01	74	-3.1035E-02	0.0000E-01	-3.2064E-01
32	0.0000E-01	0.0000E-01	5.2682E-01	75	-1.2538E-02	0.0000E-01	-3.7613E-01
33	0.0000E-01	0.0000E-01	1.1165E 00	76	8.2038E-03	0.0000E-01	-3.9796E-01
34	0.0000E-01	0.0000E-01	-1.8691E-01	77	2.7552E-02	0.0000E-01	-4.1862E-01
35	0.0000E-01	0.0000E-01	1.0261E 00	78	6.1451E-02	0.0000E-01	-4.1739E-01
36	0.0000E-01	0.0000E-01	1.0529E 00	79	5.4176E-04	0.0000E-01	-4.4873E-01
37	0.0000E-01	0.0000E-01	-2.4178E-01	80	-5.1080E-02	0.0000E-01	-4.1499E-01
38	0.0000E-01	0.0000E-01	2.2451E 00	81	0.0000E-01	-3.9780E-02	-2.9325E-01
39	0.0000E-01	0.0000E-01	2.3313E 00	82	0.0000E-01	-8.8461E-02	-1.7847E-01
40	0.0000E-01	0.0000E-01	-2.4936E-01	83	0.0000E-01	-7.0815E-02	-4.6823E-02
41	0.0000E-01	0.0000E-01	-5.6629E-01	84	0.0000E-01	2.1593E-02	2.8636E-03
42	0.0000E-01	0.0000E-01	4.4556E-01	85	0.0000E-01	7.9638E-02	-4.2567E-03
43	0.0000E-01	0.0000E-01	1.1060E 00	86	0.0000E-01	6.9809E-02	-2.4611E-02



MR PANEL 6S
13: 1Z- COMP,F= 329.000 HZ (1.0, 1.0, 1.0, 0.0)=VIEW

MODE SHAPE 13: 1Z- REAL, FREQ = 329.000 HZ
MR PANEL 6S
MODE SHAPE

LOC	X COEFF	Y COEFF	Z COEFF	LOC	X COEFF	Y COEFF	Z COEFF
1	0.0000E-01	0.0000E-01	-7.4829E-01	44	0.0000E-01	0.0000E-01	5.9560E-01
2	0.0000E-01	0.0000E-01	-8.0921E-01	45	0.0000E-01	0.0000E-01	-1.7427E 00
3	0.0000E-01	0.0000E-01	-8.5300E-01	46	0.0000E-01	0.0000E-01	-6.1143E-01
4	0.0000E-01	0.0000E-01	-6.3938E-01	47	0.0000E-01	0.0000E-01	7.7641E-01
5	0.0000E-01	0.0000E-01	-4.4548E-01	48	0.0000E-01	0.0000E-01	-1.5168E 00
6	0.0000E-01	0.0000E-01	-2.7663E-01	49	0.0000E-01	0.0000E-01	-1.3389E 00
7	0.0000E-01	0.0000E-01	-7.2874E-02	50	0.0000E-01	0.0000E-01	7.9160E-01
8	0.0000E-01	0.0000E-01	-1.0018E-02	51	0.0000E-01	0.0000E-01	3.6599E-01
9	0.0000E-01	0.0000E-01	4.1850E-02	52	0.0000E-01	0.0000E-01	8.6366E-01
10	0.0000E-01	0.0000E-01	2.3397E-01	53	0.0000E-01	0.0000E-01	3.8158E 00
11	0.0000E-01	0.0000E-01	-5.6732E-01	54	0.0000E-01	0.0000E-01	8.9889E-01
12	0.0000E-01	0.0000E-01	-2.1533E 00	55	0.0000E-01	0.0000E-01	1.9713E-01
13	0.0000E-01	0.0000E-01	-4.9506E 00	56	0.0000E-01	0.0000E-01	9.1004E-01
14	0.0000E-01	0.0000E-01	-6.4035E-01	57	0.0000E-01	0.0000E-01	8.0242E-01
15	0.0000E-01	0.0000E-01	-3.3173E-01	58	0.0000E-01	0.0000E-01	2.4157E-01
16	0.0000E-01	0.0000E-01	-1.1165E-01	59	0.0000E-01	0.0000E-01	4.1575E-01
17	0.0000E-01	0.0000E-01	8.5962E-02	60	0.0000E-01	0.0000E-01	8.4088E-01
18	0.0000E-01	0.0000E-01	-1.4447E 00	61	0.0000E-01	0.0000E-01	5.7394E-01
19	0.0000E-01	0.0000E-01	-1.6015E 00	62	0.0000E-01	0.0000E-01	8.6188E-01
20	0.0000E-01	0.0000E-01	5.1286E-01	63	0.0000E-01	0.0000E-01	1.0338E 00
21	0.0000E-01	0.0000E-01	-2.9667E-01	64	0.0000E-01	0.0000E-01	1.0149E 00
22	0.0000E-01	0.0000E-01	-2.3754E 00	65	0.0000E-01	0.0000E-01	1.0902E 00
23	0.0000E-01	0.0000E-01	-5.2946E 00	66	0.0000E-01	0.0000E-01	1.1595E 00
24	0.0000E-01	0.0000E-01	-4.1915E-01	67	0.0000E-01	0.0000E-01	1.1194E 00
25	0.0000E-01	0.0000E-01	-5.2660E-01	68	0.0000E-01	0.0000E-01	1.1233E 00
26	0.0000E-01	0.0000E-01	-2.0505E-01	69	0.0000E-01	0.0000E-01	9.5140E-01
27	0.0000E-01	0.0000E-01	4.6891E-01	70	0.0000E-01	0.0000E-01	8.0048E-01
28	0.0000E-01	0.0000E-01	-4.1666E 00	71	2.9085E-03	0.0000E-01	4.6213E-01
29	0.0000E-01	0.0000E-01	-3.8092E 00	72	-7.4328E-03	0.0000E-01	7.8659E-01
30	0.0000E-01	0.0000E-01	8.1212E-01	73	4.2012E-03	0.0000E-01	8.3797E-01
31	0.0000E-01	0.0000E-01	-2.2783E-02	74	-1.2086E-01	0.0000E-01	9.6110E-01
32	0.0000E-01	0.0000E-01	-6.1369E-01	75	-1.2830E-01	0.0000E-01	1.0377E 00
33	0.0000E-01	0.0000E-01	-1.4008E 00	76	-9.3880E-02	0.0000E-01	1.0695E 00
34	0.0000E-01	0.0000E-01	-8.4023E-03	77	-7.8368E-02	0.0000E-01	1.0682E 00
35	0.0000E-01	0.0000E-01	-1.9358E 00	78	-1.3153E-01	0.0000E-01	1.0017E 00
36	0.0000E-01	0.0000E-01	-9.7822E-01	79	5.7200E-02	0.0000E-01	9.3670E-01
37	0.0000E-01	0.0000E-01	7.5475E-01	80	1.3411E-01	0.0000E-01	8.4136E-01
38	0.0000E-01	0.0000E-01	-2.8227E 00	81	0.0000E-01	-1.3072E-01	8.7594E-01
39	0.0000E-01	0.0000E-01	-2.9587E 00	82	0.0000E-01	-1.1214E-01	6.7445E-01
40	0.0000E-01	0.0000E-01	8.2844E-01	83	0.0000E-01	-7.2228E-02	4.1899E-01
41	0.0000E-01	0.0000E-01	2.5546E-01	84	0.0000E-01	-6.4633E-04	2.1862E-01
42	0.0000E-01	0.0000E-01	4.7085E-01	85	0.0000E-01	8.4346E-02	-4.5243E-03
43	0.0000E-01	0.0000E-01	2.5596E 00	86	0.0000E-01	1.1214E-01	-1.2652E-01



MR PANEL 6S
14: 1Z- COMP,F= 338.000 HZ (1.0, 1.0, 1.0, 0.0)=VIEW

MODE SHAPE 14: IZ- REAL, FREQ = 338.000 HZ
MR PANEL 6S
MODE SHAPE

LOC	X COEFF	Y COEFF	Z COEFF
1	0.0000E-01	0.0000E-01	-5.7287E-01
2	0.0000E-01	0.0000E-01	-7.3321E-01
3	0.0000E-01	0.0000E-01	-6.5964E-01
4	0.0000E-01	0.0000E-01	-6.6739E-01
5	0.0000E-01	0.0000E-01	-6.0718E-01
6	0.0000E-01	0.0000E-01	-5.5869E-01
7	0.0000E-01	0.0000E-01	-3.9803E-01
8	0.0000E-01	0.0000E-01	-3.7163E-01
9	0.0000E-01	0.0000E-01	-3.4268E-01
10	0.0000E-01	0.0000E-01	-1.6297E-01
11	0.0000E-01	0.0000E-01	-4.4273E-01
12	0.0000E-01	0.0000E-01	-2.6293E 00
13	0.0000E-01	0.0000E-01	-4.8105E 00
14	0.0000E-01	0.0000E-01	-6.8438E-01
15	0.0000E-01	0.0000E-01	-5.0937E-01
16	0.0000E-01	0.0000E-01	-1.0380E 00
17	0.0000E-01	0.0000E-01	-2.7827E-01
18	0.0000E-01	0.0000E-01	-1.4151E 00
19	0.0000E-01	0.0000E-01	-1.6759E 00
20	0.0000E-01	0.0000E-01	0.0000E-01
21	0.0000E-01	0.0000E-01	-2.3901E-01
22	0.0000E-01	0.0000E-01	-2.3872E 00
23	0.0000E-01	0.0000E-01	-5.4050E 00
24	0.0000E-01	0.0000E-01	-4.8067E-01
25	0.0000E-01	0.0000E-01	2.3572E-01
26	0.0000E-01	0.0000E-01	-8.5131E-01
27	0.0000E-01	0.0000E-01	-1.1497E-01
28	0.0000E-01	0.0000E-01	-2.3154E 00
29	0.0000E-01	0.0000E-01	-2.2504E 00
30	0.0000E-01	0.0000E-01	1.8771E-01
31	0.0000E-01	0.0000E-01	-2.6062E-02
32	0.0000E-01	0.0000E-01	-4.9155E-01
33	0.0000E-01	0.0000E-01	-7.8896E-01
34	0.0000E-01	0.0000E-01	8.9074E-02
35	0.0000E-01	0.0000E-01	-3.9638E-01
36	0.0000E-01	0.0000E-01	-5.6859E-01
37	0.0000E-01	0.0000E-01	1.9134E-01
38	0.0000E-01	0.0000E-01	-1.1002E 00
39	0.0000E-01	0.0000E-01	-1.1629E 00
40	0.0000E-01	0.0000E-01	2.2763E-01
41	0.0000E-01	0.0000E-01	1.8013E-01
42	0.0000E-01	0.0000E-01	1.0461E 00
43	0.0000E-01	0.0000E-01	4.5406E 00
44	0.0000E-01	0.0000E-01	8.4438E-01
45	0.0000E-01	0.0000E-01	-8.4471E-01
46	0.0000E-01	0.0000E-01	-9.9465E-02
47	0.0000E-01	0.0000E-01	3.8368E-01
48	0.0000E-01	0.0000E-01	4.6582E-01
49	0.0000E-01	0.0000E-01	9.2983E-01
50	0.0000E-01	0.0000E-01	2.4363E-01
51	0.0000E-01	0.0000E-01	2.7365E-01
52	0.0000E-01	0.0000E-01	1.3018E 00
53	0.0000E-01	0.0000E-01	4.6816E 00
54	0.0000E-01	0.0000E-01	9.0558E-01
55	0.0000E-01	0.0000E-01	2.2846E-01
56	0.0000E-01	0.0000E-01	9.7948E-01
57	0.0000E-01	0.0000E-01	5.8805E-01
58	0.0000E-01	0.0000E-01	1.0478E 00
59	0.0000E-01	0.0000E-01	1.2932E 00
60	0.0000E-01	0.0000E-01	3.0384E-01
61	0.0000E-01	0.0000E-01	4.5510E-01
62	0.0000E-01	0.0000E-01	8.1931E-01
63	0.0000E-01	0.0000E-01	9.1911E-01
64	0.0000E-01	0.0000E-01	9.2439E-01
65	0.0000E-01	0.0000E-01	9.7816E-01
66	0.0000E-01	0.0000E-01	9.2257E-01
67	0.0000E-01	0.0000E-01	7.6669E-01
68	0.0000E-01	0.0000E-01	5.4335E-01
69	0.0000E-01	0.0000E-01	6.1807E-01
70	0.0000E-01	0.0000E-01	3.8533E-01
71	-2.8207E-02	0.0000E-01	3.5184E-01
72	-5.2784E-03	0.0000E-01	5.4929E-01
73	-3.2990E-03	0.0000E-01	6.3044E-01
74	-9.7156E-02	0.0000E-01	7.9045E-01
75	-1.0837E-01	0.0000E-01	8.4240E-01
76	-9.5012E-02	0.0000E-01	8.0579E-01
77	-9.5012E-02	0.0000E-01	7.0665E-01
78	-1.1118E-01	0.0000E-01	6.0174E-01
79	-2.9691E-03	0.0000E-01	4.2821E-01
80	4.1898E-02	0.0000E-01	3.6405E-01
81	0.0000E-01	-1.3031E-01	5.3807E-01
82	0.0000E-01	-9.7156E-02	3.4293E-01
83	0.0000E-01	-7.0929E-03	8.1651E-02
84	0.0000E-01	7.8187E-02	-2.4743E-03
85	0.0000E-01	9.5177E-02	-3.1506E-01
86	0.0000E-01	2.3918E-02	-4.1353E-01

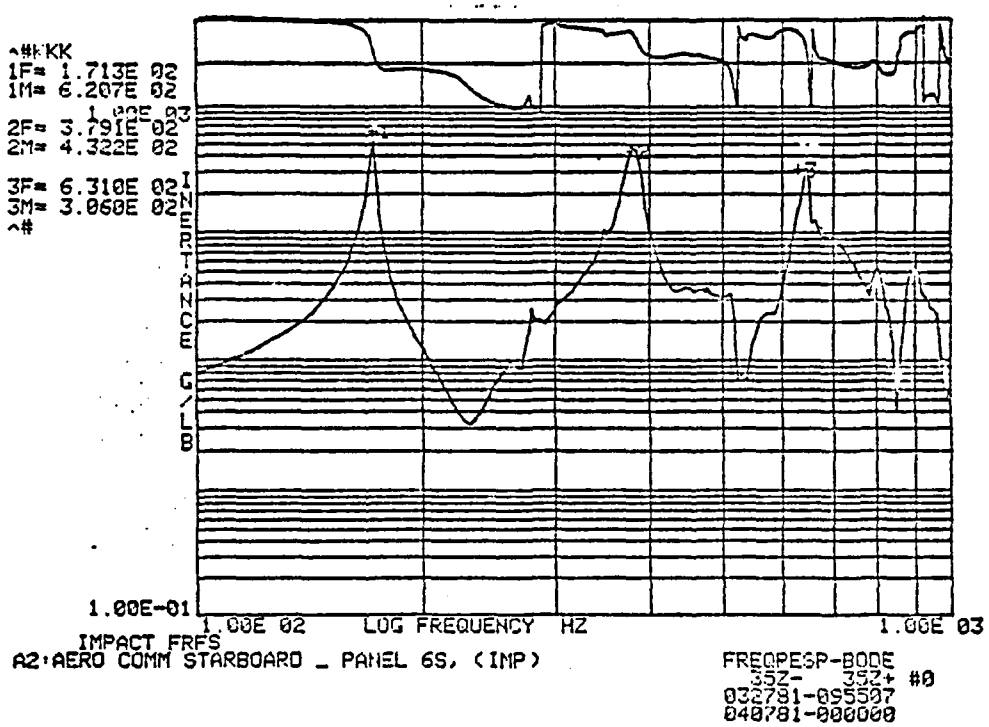


Figure V.1.1
Frequency Response, Panel 6S

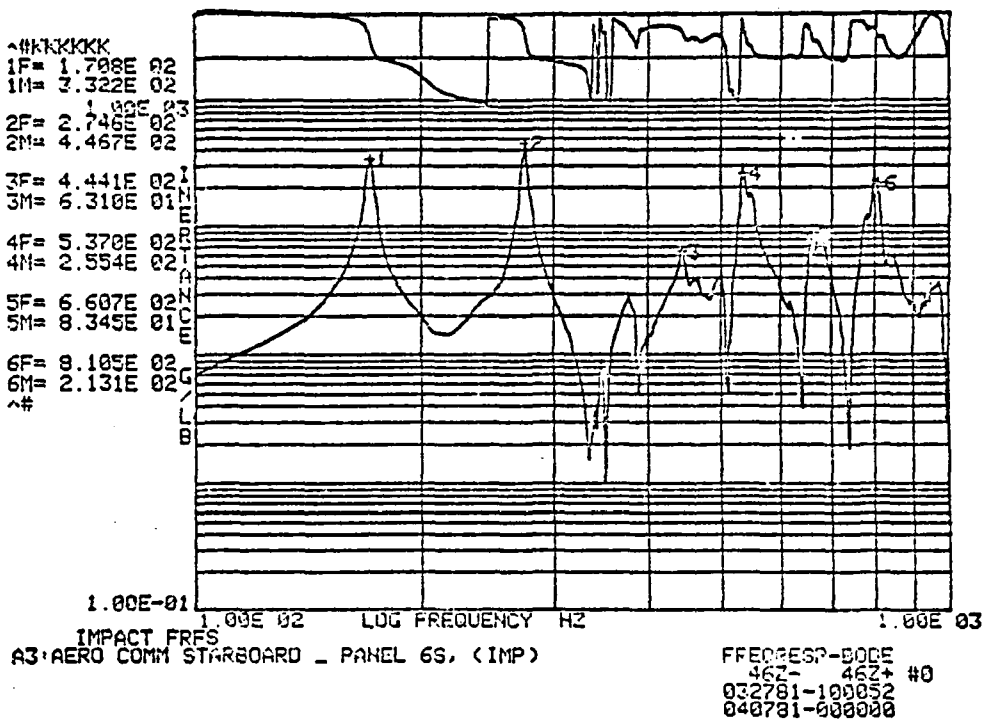


Figure V.1.2
Frequency Response, Panel 6S

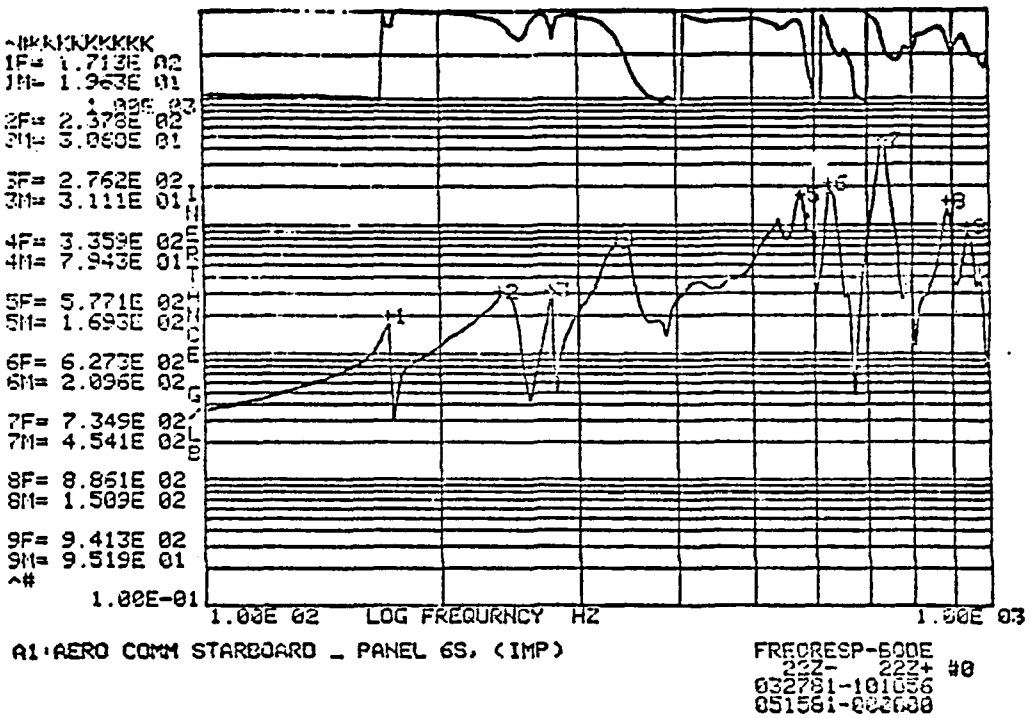


Figure V.1.3
Frequency Response, Panel 6S

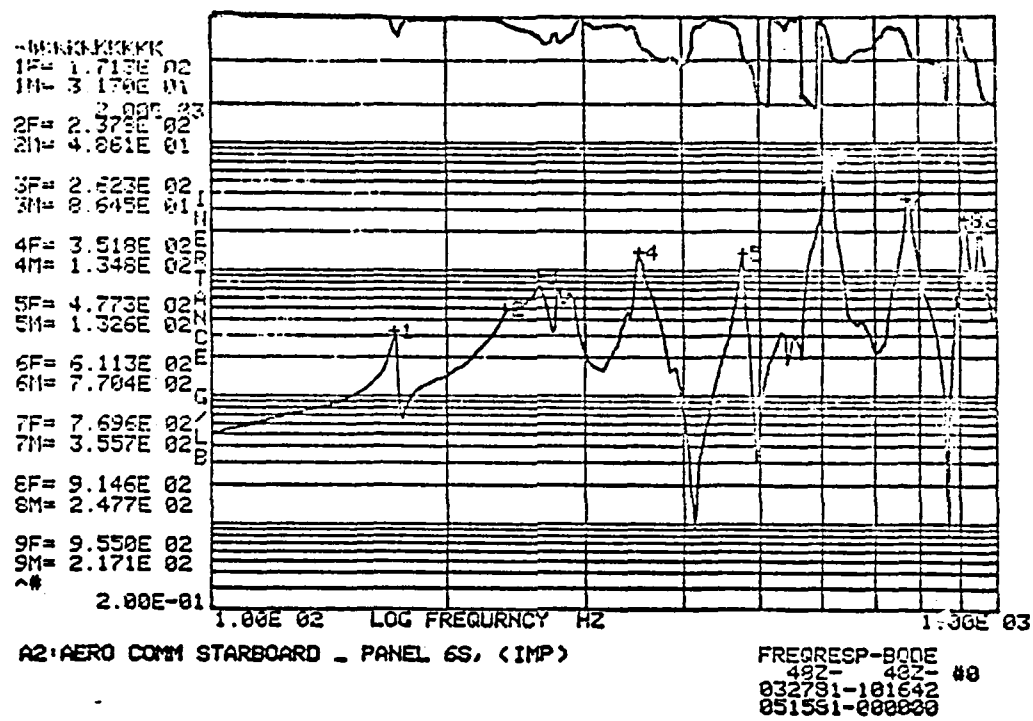


Figure V.1.4
Frequency Response, Panel 6S

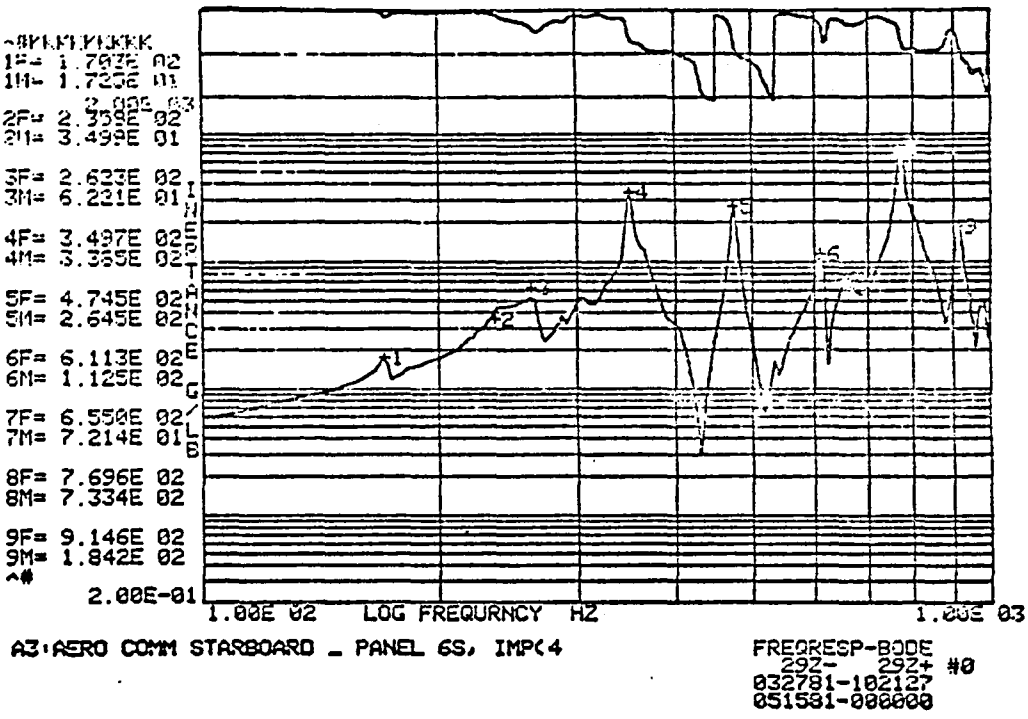


Figure V.1.5
Frequency Response, Panel 6S

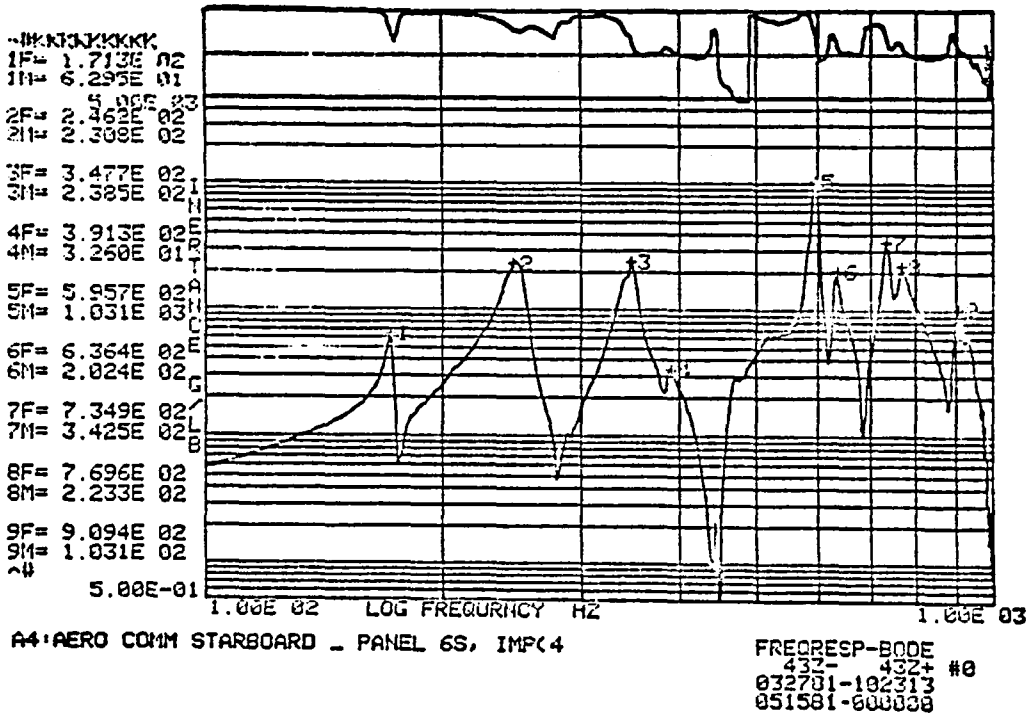
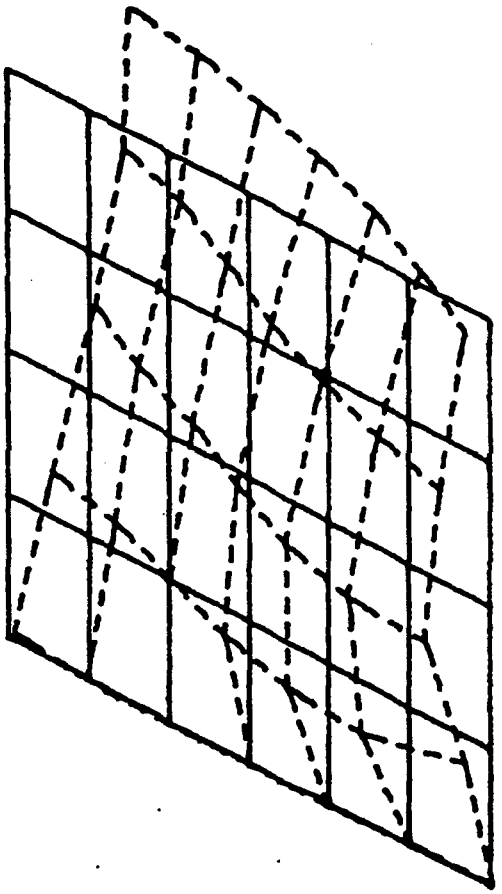


Figure V.1.6
Frequency Response, Panel 6S

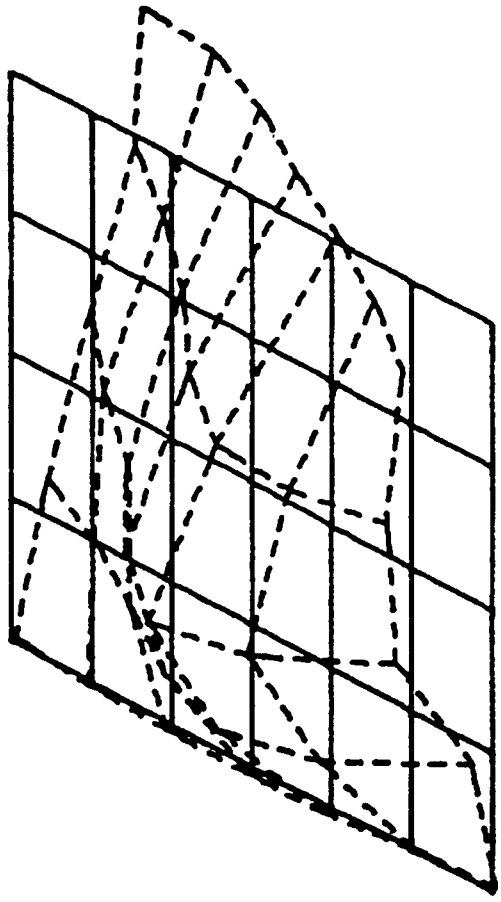
V.2 Modal Coefficients, Deformation Patterns and Frequency Response Functions Panel 1S



NR PANEL 1S
1: 1Z- COMP,F= 152.000 HZ < 1.0, 1.0, 1.0, 0.0>=VIEW

MODE SHAPE 1: 1Z- REAL, FREQ = 152.000 HZ
MR PANEL 1S
MODE SHAPE

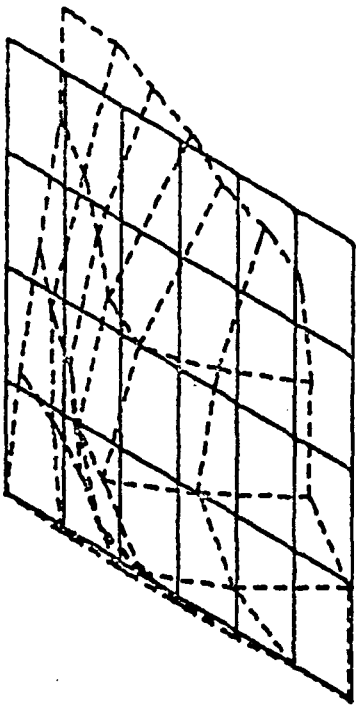
LOC	X COEFF	Y COEFF	Z COEFF
1	0.0000E-01	0.0000E-01	-1.5558E-01
90	0.0000E-01	0.0000E-01	-2.4949E-03
91	0.0000E-01	0.0000E-01	3.1612E-02
92	0.0000E-01	0.0000E-01	8.1842E-02
93	0.0000E-01	0.0000E-01	6.3072E-02
94	0.0000E-01	0.0000E-01	2.9384E-02
95	0.0000E-01	0.0000E-01	-2.0695E-03
96	0.0000E-01	0.0000E-01	6.2250E-02
97	0.0000E-01	0.0000E-01	7.7941E-02
98	0.0000E-01	0.0000E-01	3.8758E-02
99	0.0000E-01	0.0000E-01	-1.5655E-02
100	0.0000E-01	0.0000E-01	7.8597E-04
101	0.0000E-01	0.0000E-01	5.3648E-02
102	0.0000E-01	0.0000E-01	5.3951E-02
103	0.0000E-01	0.0000E-01	8.0256E-03
104	0.0000E-01	0.0000E-01	-5.8594E-02
105	0.0000E-01	0.0000E-01	-4.8312E-04
106	0.0000E-01	0.0000E-01	3.2520E-02
107	0.0000E-01	0.0000E-01	1.5618E-02
108	0.0000E-01	0.0000E-01	-2.9175E-02
109	0.0000E-01	0.0000E-01	-9.0055E-02
110	0.0000E-01	0.0000E-01	1.0311E-03
111	0.0000E-01	0.0000E-01	-1.9469E-03
112	0.0000E-01	0.0000E-01	-2.9420E-02
113	0.0000E-01	0.0000E-01	-7.5316E-02
114	0.0000E-01	0.0000E-01	-1.1975E-01
115	0.0000E-01	0.0000E-01	9.7345E-04
116	0.0000E-01	0.0000E-01	-3.3386E-02
117	0.0000E-01	0.0000E-01	-6.3844E-02
118	0.0000E-01	0.0000E-01	-1.1878E-01
119	0.0000E-01	0.0000E-01	-1.4221E-01
120	0.0000E-01	0.0000E-01	-6.4825E-03
121	0.0000E-01	0.0000E-01	-5.6821E-02
122	0.0000E-01	0.0000E-01	-1.1212E-01
123	0.0000E-01	0.0000E-01	-1.4887E-01



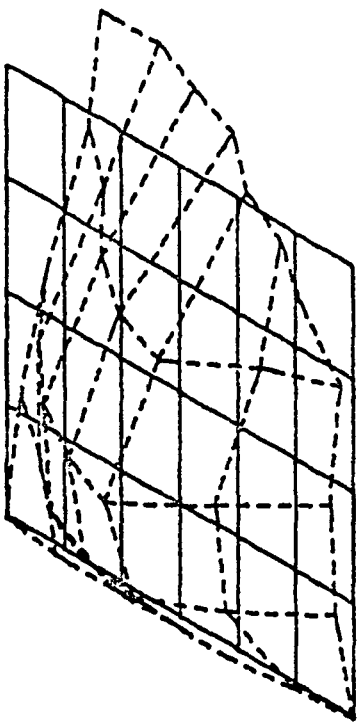
MR PANEL 1S
2: 12- COMP,F= 169.000 HZ (1.0, 1.0, 1.0, 0.0)=VIEW

MODE SHAPE 2: 1Z- REAL, FREQ = 169.000 HZ
MR PANEL 1S
MODE SHAPE

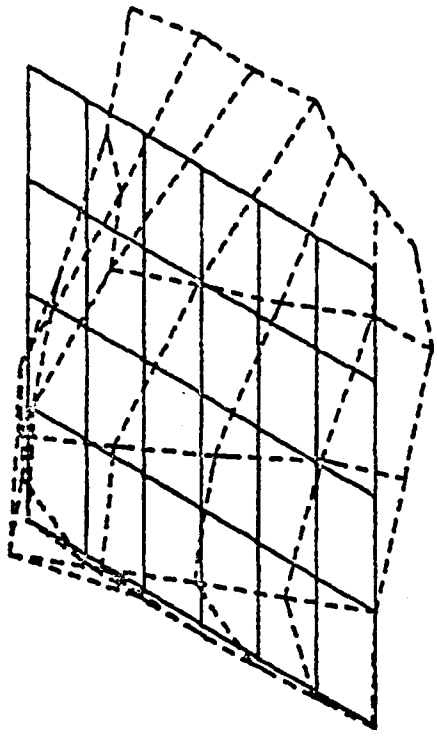
LOC	X COEFF	Y COEFF	Z COEFF
1	0.0000E-01	0.0000E-01	-1.7926E-01
90	0.0000E-01	0.0000E-01	-5.3119E-03
91	0.0000E-01	0.0000E-01	2.7241E-02
92	0.0000E-01	0.0000E-01	1.3079E-01
93	0.0000E-01	0.0000E-01	1.4237E-01
94	0.0000E-01	0.0000E-01	1.2059E-01
95	0.0000E-01	0.0000E-01	-1.6074E-03
96	0.0000E-01	0.0000E-01	1.2658E-01
97	0.0000E-01	0.0000E-01	2.2361E-01
98	0.0000E-01	0.0000E-01	1.6577E-01
99	0.0000E-01	0.0000E-01	5.0349E-02
100	0.0000E-01	0.0000E-01	1.0754E-02
101	0.0000E-01	0.0000E-01	1.5704E-01
102	0.0000E-01	0.0000E-01	2.5080E-01
103	0.0000E-01	0.0000E-01	1.5796E-01
104	0.0000E-01	0.0000E-01	-9.0624E-03
105	0.0000E-01	0.0000E-01	8.6338E-03
106	0.0000E-01	0.0000E-01	1.1932E-01
107	0.0000E-01	0.0000E-01	1.7255E-01
108	0.0000E-01	0.0000E-01	8.6361E-02
109	0.0000E-01	0.0000E-01	-6.2312E-02
110	0.0000E-01	0.0000E-01	7.9296E-03
111	0.0000E-01	0.0000E-01	5.8225E-02
112	0.0000E-01	0.0000E-01	6.0911E-02
113	0.0000E-01	0.0000E-01	-1.5255E-02
114	0.0000E-01	0.0000E-01	-1.2311E-01
115	0.0000E-01	0.0000E-01	4.3934E-03
116	0.0000E-01	0.0000E-01	-1.8293E-03
117	0.0000E-01	0.0000E-01	-1.5132E-02
118	0.0000E-01	0.0000E-01	-9.8875E-02
119	0.0000E-01	0.0000E-01	-1.6785E-01
120	0.0000E-01	0.0000E-01	-4.7455E-03
121	0.0000E-01	0.0000E-01	-4.8397E-02
122	0.0000E-01	0.0000E-01	-1.0651E-01
123	0.0000E-01	0.0000E-01	-1.6748E-01



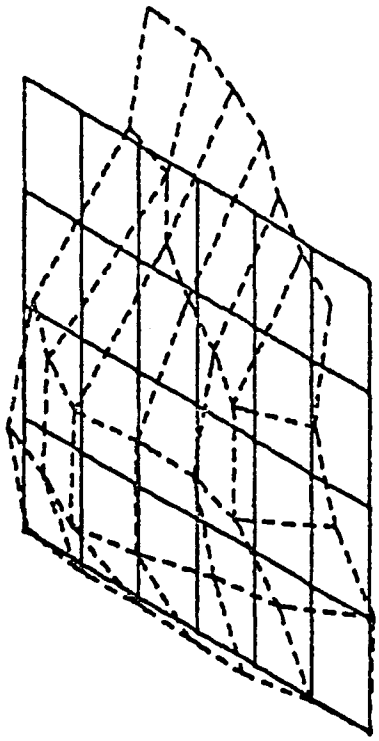
MR PANEL 1S
3: 1Z- COMP,F= 187.000 HZ (1.0, 1.0, 1.0, 0.0)=VIEW



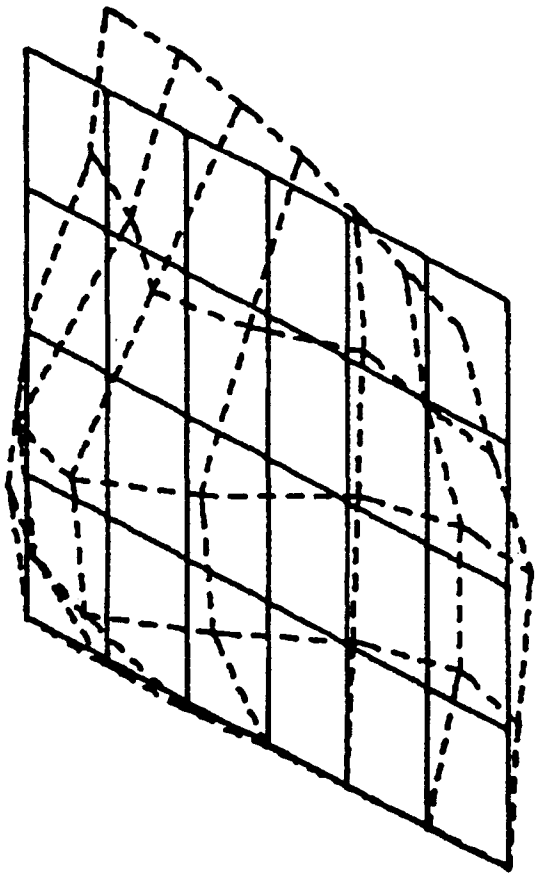
MR PANEL 1S
4: 1Z- COMP,F= 200.000 HZ (1.0, 1.0, 1.0, 0.0)=VIEW



MR PANEL 1S
5: 1Z- COMP,F= 218.000 HZ (1.0, 1.0, 1.0, 0.0)=VIEW



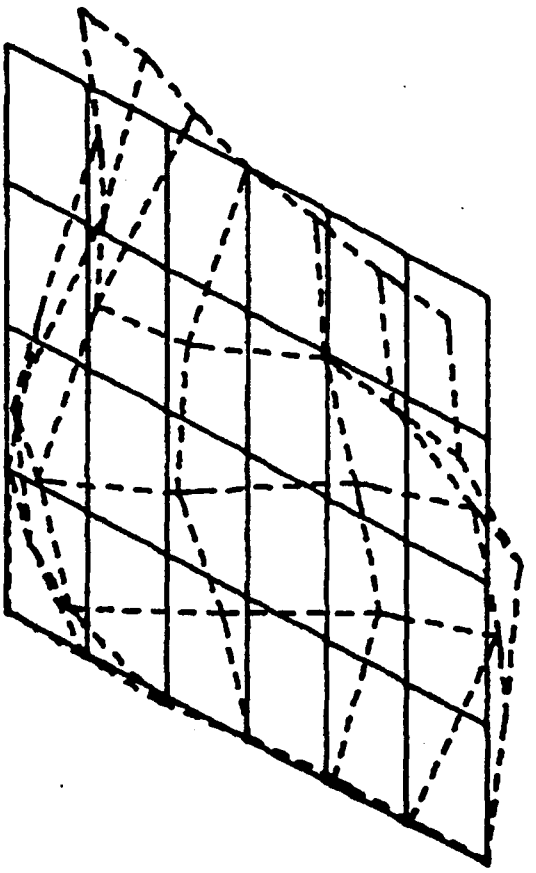
MR PANEL 1S
6: 1Z- COMP,F= 273.000 HZ (1.0, 1.0, 1.0, 0.0)=VIEW



MR PANEL 1S
7: 1Z- COMP,F= 286.000 HZ < 1.0, 1.0, 1.0, 0.0>=VIEW

MODE SHAPE 7: 1Z- REAL, FREQ = 286.000 HZ
MR PANEL 1S
MODE SHAPE

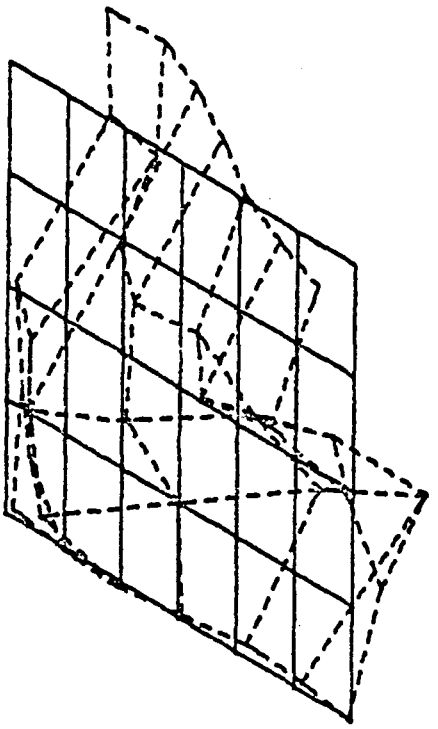
LOC	X COEFF	Y COEFF	Z COEFF
1	0.0000E-01	0.0000E-01	-4.1144E-01
90	0.0000E-01	0.0000E-01	-1.1724E-02
91	0.0000E-01	0.0000E-01	-5.8820E-02
92	0.0000E-01	0.0000E-01	-1.2904E-01
93	0.0000E-01	0.0000E-01	7.5358E-02
94	0.0000E-01	0.0000E-01	2.4169E-01
95	0.0000E-01	0.0000E-01	-7.0302E-03
96	0.0000E-01	0.0000E-01	-1.6534E-01
97	0.0000E-01	0.0000E-01	-1.7656E-01
98	0.0000E-01	0.0000E-01	1.1945E-02
99	0.0000E-01	0.0000E-01	1.1818E-01
100	0.0000E-01	0.0000E-01	-4.9957E-03
101	0.0000E-01	0.0000E-01	-3.6904E-02
102	0.0000E-01	0.0000E-01	-5.7450E-02
103	0.0000E-01	0.0000E-01	-8.2388E-02
104	0.0000E-01	0.0000E-01	-4.5424E-02
105	0.0000E-01	0.0000E-01	1.2953E-02
106	0.0000E-01	0.0000E-01	2.8070E-01
107	0.0000E-01	0.0000E-01	3.3612E-01
108	0.0000E-01	0.0000E-01	9.2158E-02
109	0.0000E-01	0.0000E-01	-1.7424E-01
110	0.0000E-01	0.0000E-01	3.6763E-02
111	0.0000E-01	0.0000E-01	5.2771E-01
112	0.0000E-01	0.0000E-01	5.9304E-01
113	0.0000E-01	0.0000E-01	1.6967E-01
114	0.0000E-01	0.0000E-01	-2.7361E-01
115	0.0000E-01	0.0000E-01	2.0124E-02
116	0.0000E-01	0.0000E-01	3.8435E-01
117	0.0000E-01	0.0000E-01	4.6069E-01
118	0.0000E-01	0.0000E-01	-1.2658E-01
119	0.0000E-01	0.0000E-01	-3.7804E-01
120	0.0000E-01	0.0000E-01	6.8489E-04
121	0.0000E-01	0.0000E-01	1.0217E-01
122	0.0000E-01	0.0000E-01	8.4604E-04
123	0.0000E-01	0.0000E-01	-3.3338E-01



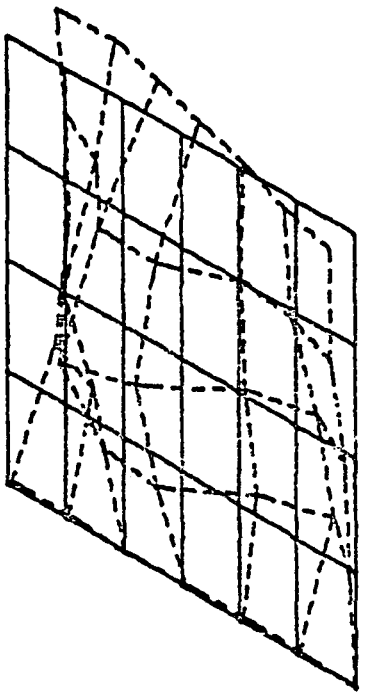
MR PANEL 1S
 8: 1Z- COMP,F= 297.600 HZ (1.0, 1.0, 1.0, 0.0)=VIEW

MODE SHAPE 8: 1Z- REAL, FREQ = 297.000 HZ
MR PANEL 1S
MODE SHAPE

LOC	X COEFF	Y COEFF	Z COEFF
1	0.0000E-01	0.0000E-01	-4.5276E-01
90	0.0000E-01	0.0000E-01	-1.5001E-02
91	0.0000E-01	0.0000E-01	-1.2905E-01
92	0.0000E-01	0.0000E-01	-2.1891E-01
93	0.0000E-01	0.0000E-01	1.8125E-01
94	0.0000E-01	0.0000E-01	2.4600E-01
95	0.0000E-01	0.0000E-01	-2.7568E-02
96	0.0000E-01	0.0000E-01	-5.7712E-01
97	0.0000E-01	0.0000E-01	-4.1650E-01
98	0.0000E-01	0.0000E-01	9.7258E-02
99	0.0000E-01	0.0000E-01	1.8026E-01
100	0.0000E-01	0.0000E-01	-4.8182E-02
101	0.0000E-01	0.0000E-01	-3.3678E-01
102	0.0000E-01	0.0000E-01	-1.8443E-01
103	0.0000E-01	0.0000E-01	1.8528E-02
104	0.0000E-01	0.0000E-01	8.1761E-02
105	0.0000E-01	0.0000E-01	-1.8950E-02
106	0.0000E-01	0.0000E-01	1.7057E-01
107	0.0000E-01	0.0000E-01	4.3918E-01
108	0.0000E-01	0.0000E-01	3.7791E-01
109	0.0000E-01	0.0000E-01	-7.9724E-03
110	0.0000E-01	0.0000E-01	4.2520E-02
111	0.0000E-01	0.0000E-01	6.2379E-01
112	0.0000E-01	0.0000E-01	8.1381E-01
113	0.0000E-01	0.0000E-01	4.3774E-01
114	0.0000E-01	0.0000E-01	-1.7311E-01
115	0.0000E-01	0.0000E-01	2.1036E-02
116	0.0000E-01	0.0000E-01	3.6445E-01
117	0.0000E-01	0.0000E-01	4.6620E-01
118	0.0000E-01	0.0000E-01	-1.0215E-01
119	0.0000E-01	0.0000E-01	-3.7105E-01
120	0.0000E-01	0.0000E-01	-6.9293E-03
121	0.0000E-01	0.0000E-01	-4.5947E-03
122	0.0000E-01	0.0000E-01	-2.1349E-01
123	0.0000E-01	0.0000E-01	-5.7312E-01



MR PANEL 1S
9: 1Z- COMP,F= 328.000 HZ (1.0, 1.0, 1.0, 0.0)=VIEW



MR PANEL 1S
10: 1Z- COMP,F= 366.000 HZ (1.0, 1.0, 1.0, 0.0)=VIEW

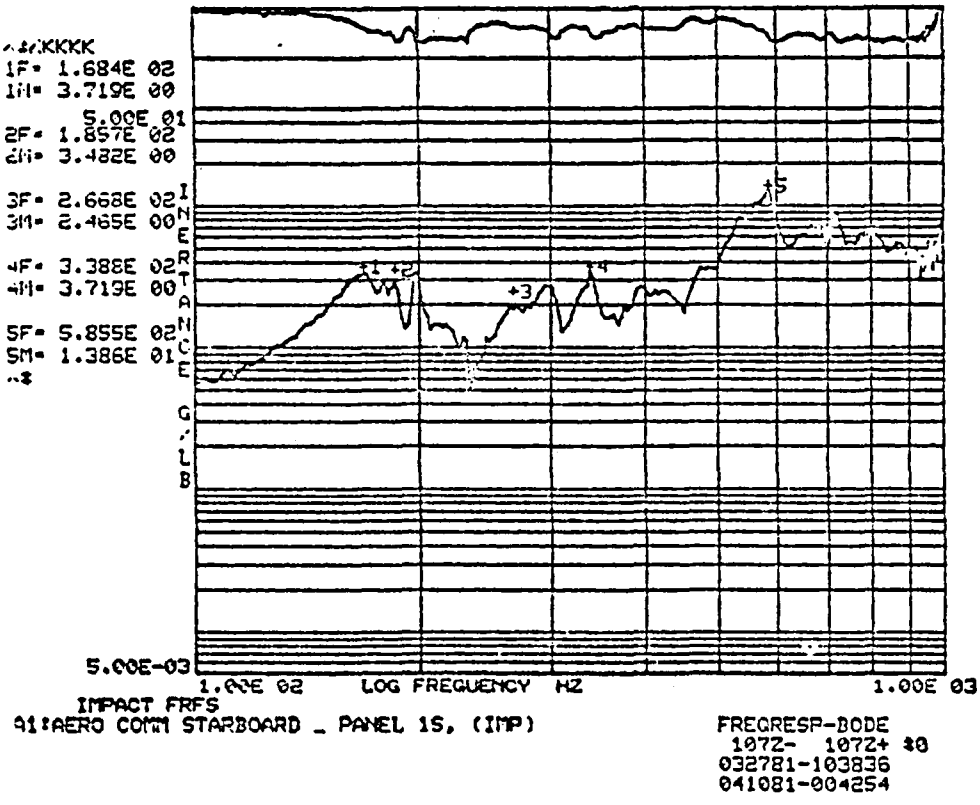


Figure V.2.1
Frequency Response, Panel 1S

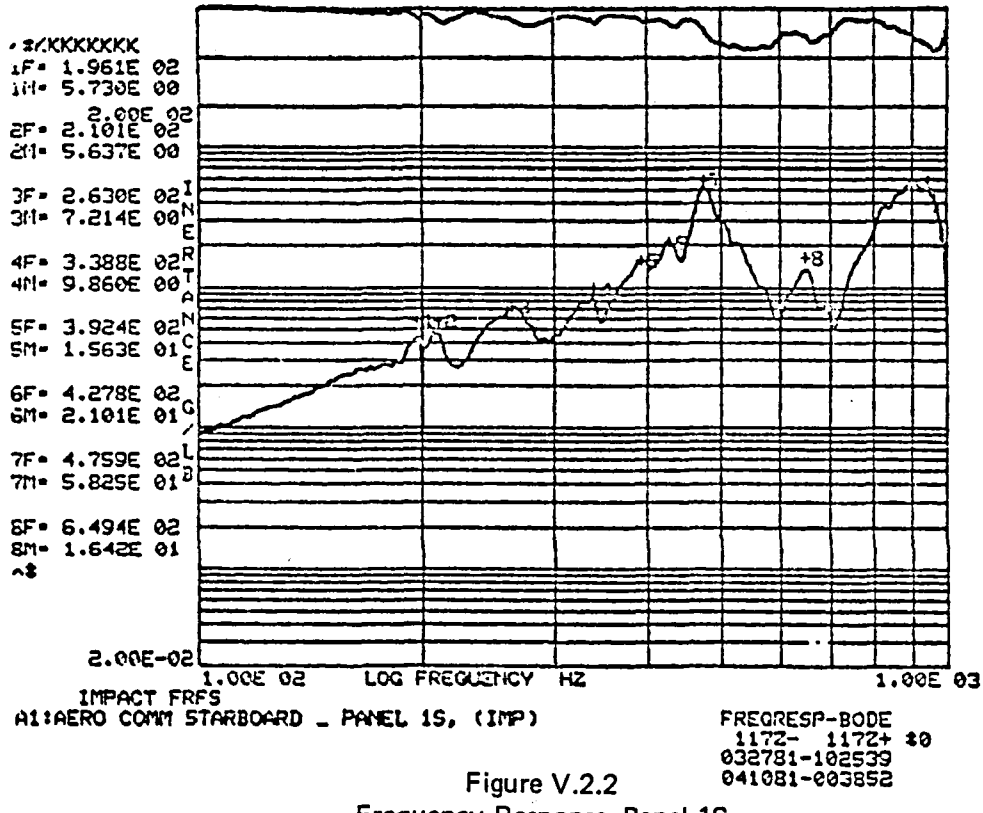


Figure V.2.2
Frequency Response, Panel 1S

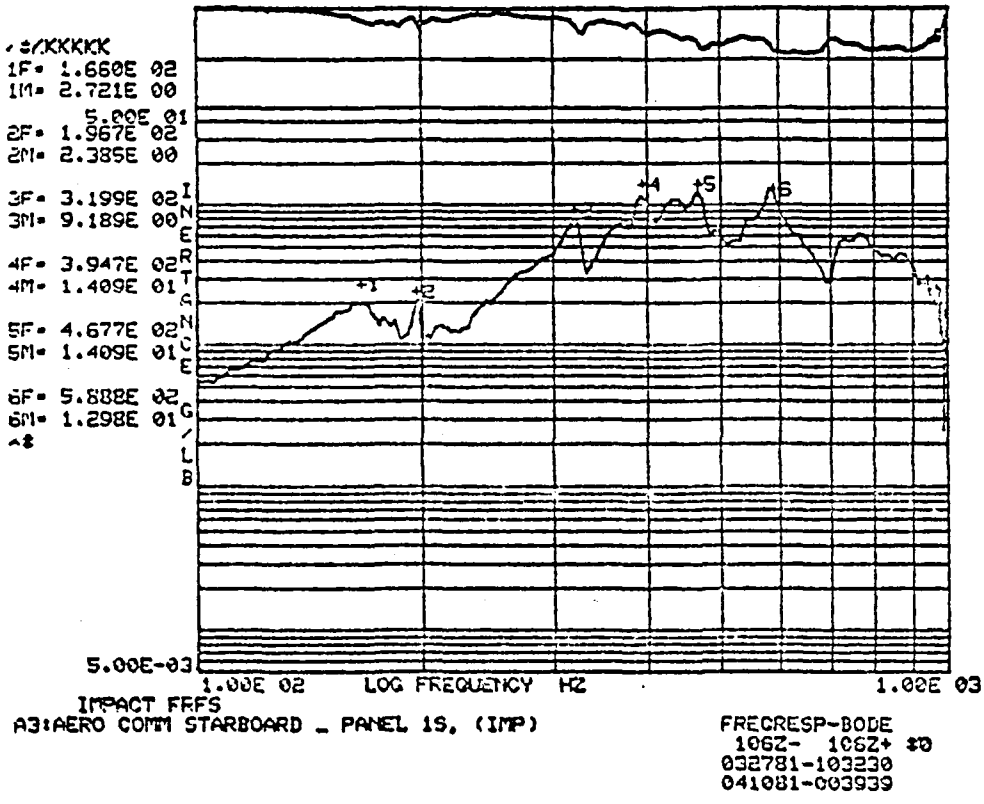


Figure V.2.3
Frequency Response, Panel 1S

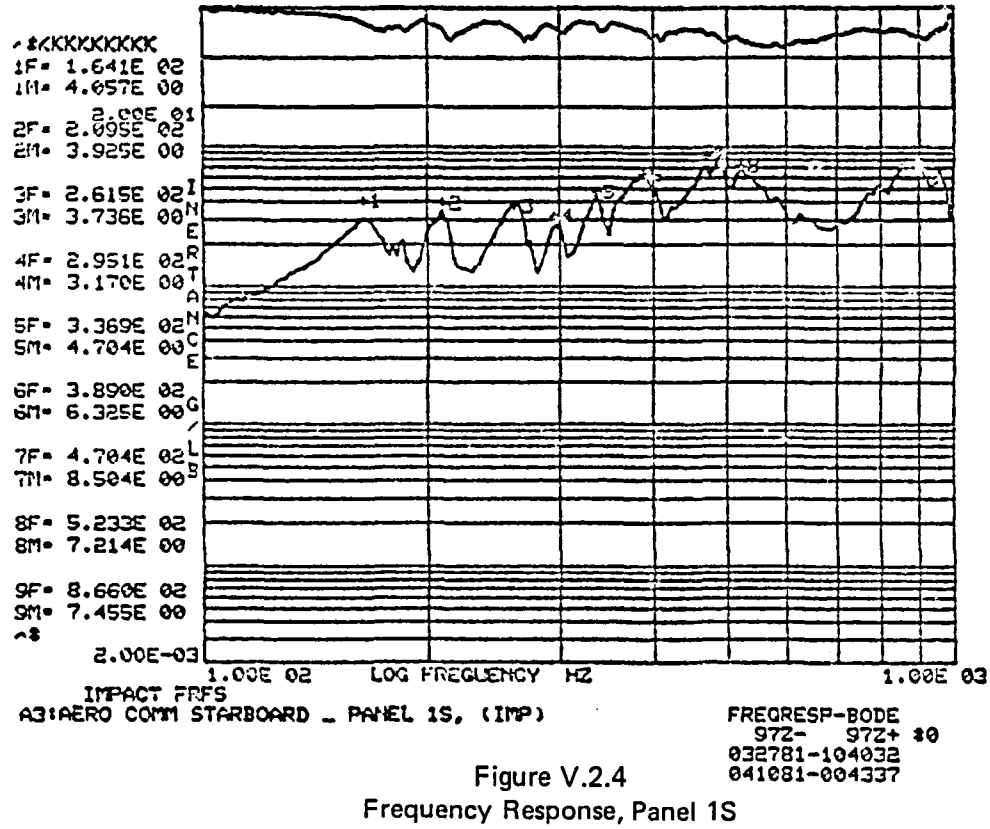
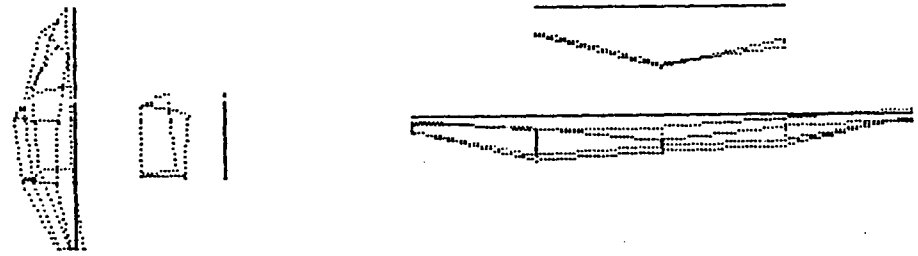


Figure V.2.4
Frequency Response, Panel 1S

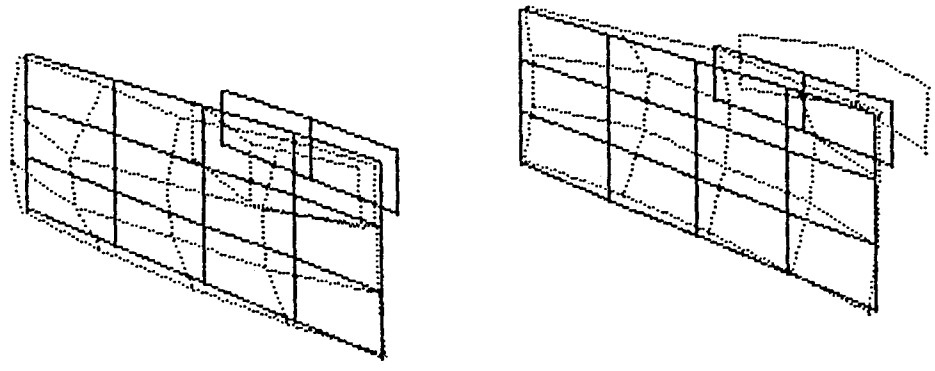
V.3 Modal Coefficients, Deformation Patterns and Frequency Response Functions Panel 8S

The mode shapes in this section are presented from three viewing positions, two plan views and an isometric view. The deformed position denoted by the dotted line, is overlayed on the undeformed solid line. Two deformation positions, the plus and minus extremes, are shown for the isometric whereas only the plus extreme deformed position is shown in the plan views.



MR PANEL 8S (WINDOW)
1: IZ- COMP,F= 72.000 HZ (0.0, 0.0, 0.0, 0.0)=VIEW

#

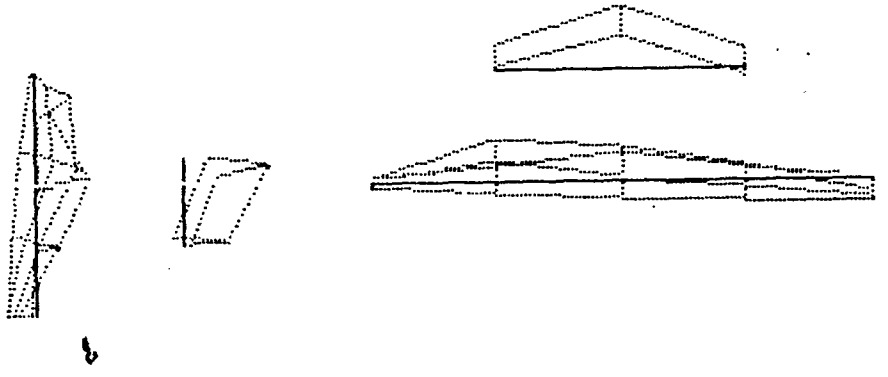


MR PANEL 8S (WINDOW)
1: IZ- COMP,F= 72.000 HZ (1.0, 1.0, 1.0, 0.0)=VIEW

#

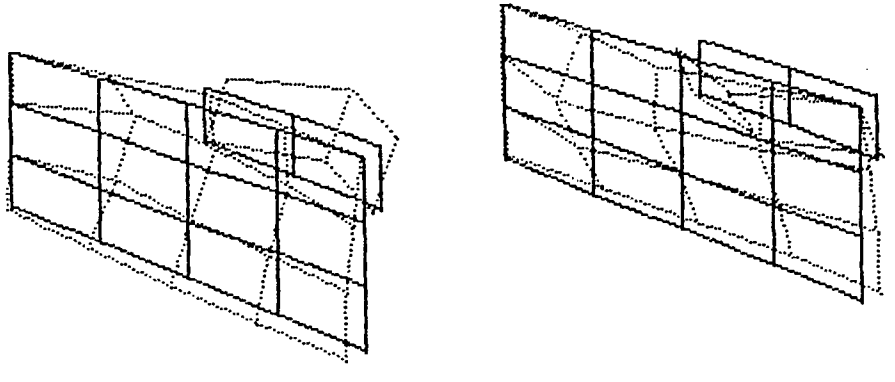
MODE SHAPE 1:
MR PANEL 8S (WINDOW)
MODE SHAPE

LOC	X COEFF	Y COEFF	Z COEFF
130	0.0000E-01	0.0000E-01	-3.6189E-02
131	0.0000E-01	0.0000E-01	1.6963E-02
132	0.0000E-01	0.0000E-01	2.6067E-02
133	0.0000E-01	0.0000E-01	4.1199E-02
134	0.0000E-01	0.0000E-01	3.3061E-02
135	0.0000E-01	0.0000E-01	1.7709E-01
136	0.0000E-01	0.0000E-01	2.0986E-01
137	0.0000E-01	0.0000E-01	8.6060E-02
138	0.0000E-01	0.0000E-01	8.1164E-02
139	0.0000E-01	0.0000E-01	2.0644E-01
140	0.0000E-01	0.0000E-01	2.4693E-01
141	0.0000E-01	0.0000E-01	1.6889E-01
142	0.0000E-01	0.0000E-01	9.4210E-02
143	0.0000E-01	0.0000E-01	2.5992E-01
144	0.0000E-01	0.0000E-01	3.0071E-01
145	0.0000E-01	0.0000E-01	7.9994E-02
146	0.0000E-01	0.0000E-01	2.2163E-02
147	0.0000E-01	0.0000E-01	9.4757E-02
148	0.0000E-01	0.0000E-01	8.7802E-02
149	0.0000E-01	0.0000E-01	3.7003E-02
150	0.0000E-01	0.0000E-01	1.9989E-01
151	0.0000E-01	0.0000E-01	1.7985E-01
152	0.0000E-01	0.0000E-01	4.1665E-01
153	0.0000E-01	0.0000E-01	4.0146E-01
154	0.0000E-01	0.0000E-01	2.4062E-01
155	0.0000E-01	0.0000E-01	2.7845E-01



MR PANEL 8S (WINDOW)
2: 1Z- COMP,F= 97.000 HZ (0.0, 0.0, 0.0, 0.0)=VIEW

#



MR PANEL 8S (WINDOW)
2: 1Z- COMP,F= 97.000 HZ (1.0, 1.0, 1.0, 0.0)=VIEW

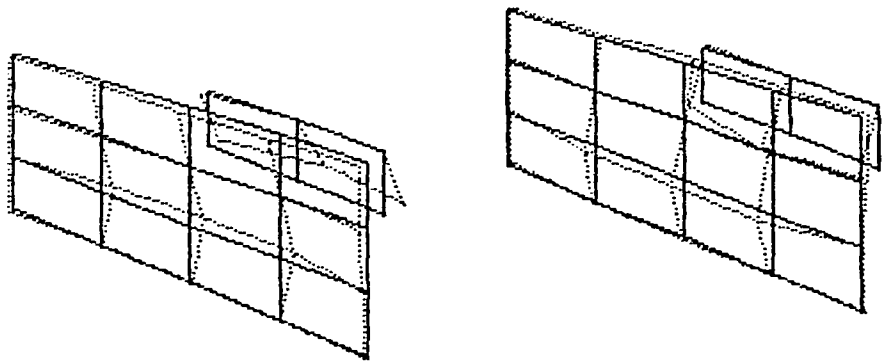
#

MODE SHAPE 2: 1Z- REAL, FREQ = 97.000 HZ
MR PANEL 8S (WINDOW)
MODE SHAPE

LOC	X COEFF	Y COEFF	Z COEFF
130	0.0000E-01	0.0000E-01	2.1907E-01
131	0.0000E-01	0.0000E-01	1.9393E-01
132	0.0000E-01	0.0000E-01	1.1893E-01
133	0.0000E-01	0.0000E-01	1.9953E-02
134	0.0000E-01	0.0000E-01	2.3076E-01
135	0.0000E-01	0.0000E-01	8.2492E-02
136	0.0000E-01	0.0000E-01	-1.4337E-01
137	0.0000E-01	0.0000E-01	-1.0824E-01
138	0.0000E-01	0.0000E-01	1.8477E-01
139	0.0000E-01	0.0000E-01	-3.0750E-02
140	0.0000E-01	0.0000E-01	-3.3076E-01
141	0.0000E-01	0.0000E-01	-2.7073E-01
142	0.0000E-01	0.0000E-01	1.3729E-01
143	0.0000E-01	0.0000E-01	-1.8486E-01
144	0.0000E-01	0.0000E-01	-4.2760E-01
145	0.0000E-01	0.0000E-01	-1.1818E-01
146	0.0000E-01	0.0000E-01	4.3146E-02
147	0.0000E-01	0.0000E-01	9.4473E-03
148	0.0000E-01	0.0000E-01	-1.7213E-02
149	0.0000E-01	0.0000E-01	-1.7213E-02
150	0.0000E-01	0.0000E-01	-4.3644E-02
151	0.0000E-01	0.0000E-01	-2.5983E-01
152	0.0000E-01	0.0000E-01	-3.4747E-01
153	0.0000E-01	0.0000E-01	-6.8035E-01
154	0.0000E-01	0.0000E-01	8.4236E-02
155	0.0000E-01	0.0000E-01	-1.9669E-01

MR PANEL 8S (WINDOW)
3: 1Z- COMP,F= 112.000 HZ (0.0, 0.0, 0.0, 0.0)=VIEW

#

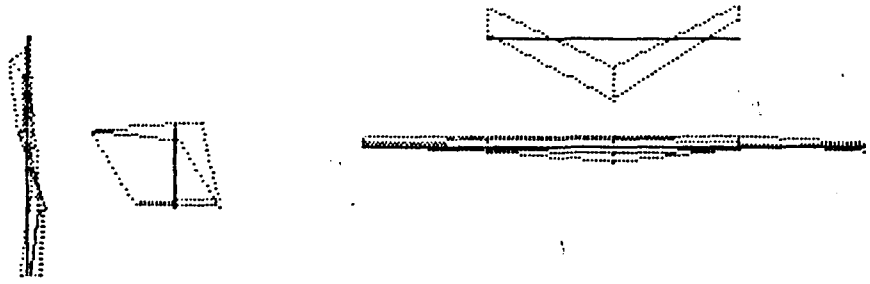


MR PANEL 8S (WINDOW)
3: 1Z- COMP,F= 112.000 HZ (1.0, 1.0, 1.0, 0.0)=VIEW

#

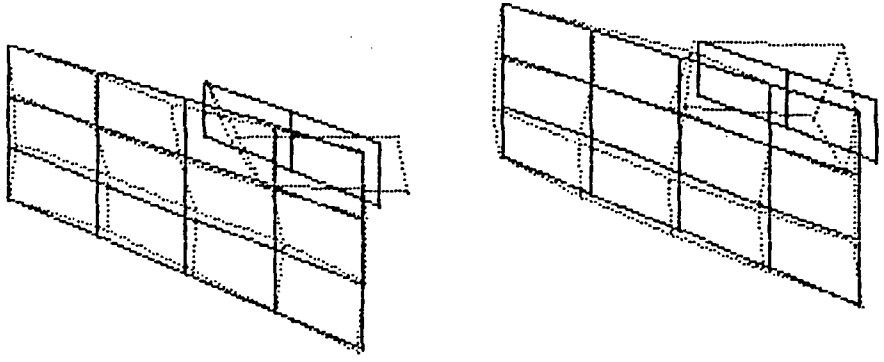
MODE SHAPE 3: 1Z- REAL, FREQ = 112.000 HZ
MR PANEL 8S (WINDOW)
MODE SHAPE

LOC	X COEFF	Y COEFF	Z COEFF
130	0.0000E-01	0.0000E-01	3.3915E-02
131	0.0000E-01	0.0000E-01	2.4572E-02
132	0.0000E-01	0.0000E-01	6.1086E-02
133	0.0000E-01	0.0000E-01	6.1820E-02
134	0.0000E-01	0.0000E-01	-9.7904E-03
135	0.0000E-01	0.0000E-01	-1.3235E-01
136	0.0000E-01	0.0000E-01	-3.5143E-02
137	0.0000E-01	0.0000E-01	7.4400E-02
138	0.0000E-01	0.0000E-01	-2.9180E-02
139	0.0000E-01	0.0000E-01	-1.2149E-01
140	0.0000E-01	0.0000E-01	7.3189E-03
141	0.0000E-01	0.0000E-01	9.1430E-02
142	0.0000E-01	0.0000E-01	-2.1271E-02
143	0.0000E-01	0.0000E-01	-9.6883E-02
144	0.0000E-01	0.0000E-01	3.3326E-03
145	0.0000E-01	0.0000E-01	5.5234E-02
146	0.0000E-01	0.0000E-01	3.2209E-02
147	0.0000E-01	0.0000E-01	1.8114E-02
148	0.0000E-01	0.0000E-01	3.2480E-02
149	0.0000E-01	0.0000E-01	1.6121E-02
150	0.0000E-01	0.0000E-01	-1.0747E-01
151	0.0000E-01	0.0000E-01	4.7278E-02
152	0.0000E-01	0.0000E-01	-2.5584E-01
153	0.0000E-01	0.0000E-01	-5.9795E-03
154	0.0000E-01	0.0000E-01	-1.7339E-01
155	0.0000E-01	0.0000E-01	1.4829E-03



MR PANEL 8S (WINDOW)
4: 1Z- COMP,F= 120.000 HZ (0.0, 0.0, 0.0, 0.0)=VIEW

#

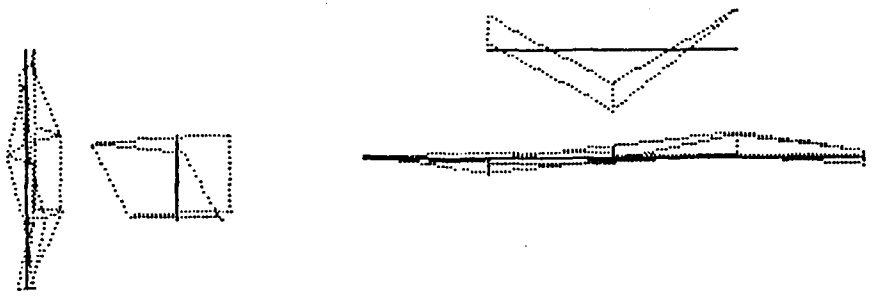


MR PANEL 8S (WINDOW)
4: 1Z- COMP,F= 120.000 HZ (1.0, 1.0, 1.0, 0.0)=VIEW

MODE SHAPE 4: 1Z- REAL, FREQ = 120.000 HZ
MR PANEL 8S (WINDOW)
MODE SHAPE

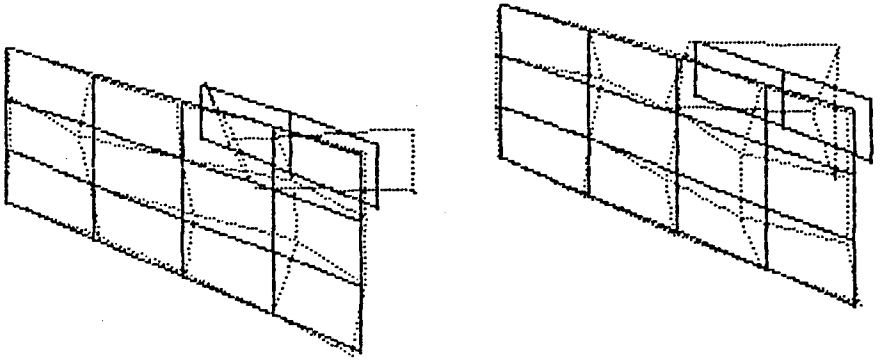
LOC	X COEFF	Y COEFF	Z COEFF
130	0.0000E-01	0.0000E-01	2.9912E-02
131	0.0000E-01	0.0000E-01	-2.1420E-02
132	0.0000E-01	0.0000E-01	-2.4770E-02
133	0.0000E-01	0.0000E-01	-8.0466E-03
134	0.0000E-01	0.0000E-01	-2.1000E-02
135	0.0000E-01	0.0000E-01	-7.1294E-02
136	0.0000E-01	0.0000E-01	8.7264E-03
137	0.0000E-01	0.0000E-01	1.3572E-02
138	0.0000E-01	0.0000E-01	-5.6783E-02
139	0.0000E-01	0.0000E-01	-7.9971E-02
140	0.0000E-01	0.0000E-01	3.7279E-02
141	0.0000E-01	0.0000E-01	8.4718E-02
142	0.0000E-01	0.0000E-01	-6.6696E-02
143	0.0000E-01	0.0000E-01	-8.5472E-02
144	0.0000E-01	0.0000E-01	1.2274E-02
145	0.0000E-01	0.0000E-01	1.9294E-02
146	0.0000E-01	0.0000E-01	-1.5104E-02
147	0.0000E-01	0.0000E-01	-5.4299E-02
148	0.0000E-01	0.0000E-01	-4.3125E-02
149	0.0000E-01	0.0000E-01	-6.8723E-03
150	0.0000E-01	0.0000E-01	-1.9916E-01
151	0.0000E-01	0.0000E-01	-2.2521E-02
152	0.0000E-01	0.0000E-01	1.8914E-01
153	0.0000E-01	0.0000E-01	4.0501E-01
154	0.0000E-01	0.0000E-01	-2.0062E-01
155	0.0000E-01	0.0000E-01	-1.2737E-01

#



MR PANEL 8S (WINDOW)
5: 1Z- COMP,F= 129.000 HZ (0.0, 0.0, 0.0, 0.0)=VIEW

#

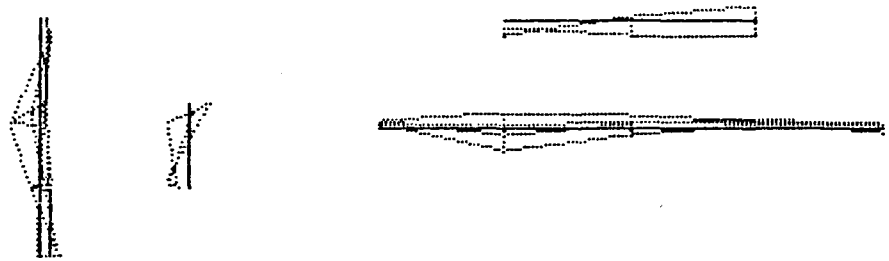


MR PANEL 8S (WINDOW)
5: 1Z- COMP,F= 129.000 HZ (1.0, 1.0, 1.0, 0.0)=VIEW

MODE SHAPE 5: 1Z- REAL, FREQ = 129.000 HZ
MR PANEL 8S (WINDOW)
MODE SHAPE

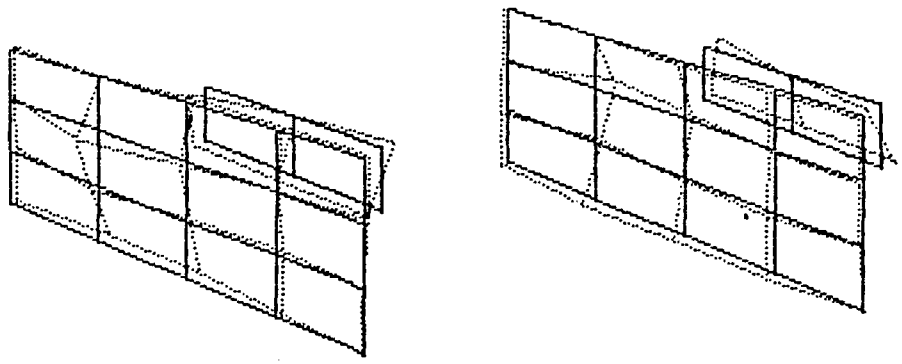
LOC	X COEFF	Y COEFF	Z COEFF
130	0.0000E-01	0.0000E-01	4.3558E-02
131	0.0000E-01	0.0000E-01	-3.3552E-02
132	0.0000E-01	0.0000E-01	-4.4283E-02
133	0.0000E-01	0.0000E-01	-3.1375E-02
134	0.0000E-01	0.0000E-01	-6.7993E-03
135	0.0000E-01	0.0000E-01	-1.5951E-01
136	0.0000E-01	0.0000E-01	-1.4289E-01
137	0.0000E-01	0.0000E-01	-2.3370E-02
138	0.0000E-01	0.0000E-01	-2.6916E-02
139	0.0000E-01	0.0000E-01	-7.7964E-02
140	0.0000E-01	0.0000E-01	8.6601E-04
141	0.0000E-01	0.0000E-01	2.9760E-02
142	0.0000E-01	0.0000E-01	-3.5635E-02
143	0.0000E-01	0.0000E-01	1.3692E-02
144	0.0000E-01	0.0000E-01	9.0147E-02
145	0.0000E-01	0.0000E-01	1.5366E-02
146	0.0000E-01	0.0000E-01	-1.6969E-03
147	0.0000E-01	0.0000E-01	-2.5477E-02
148	0.0000E-01	0.0000E-01	-2.7607E-02
149	0.0000E-01	0.0000E-01	-6.8344E-03
150	0.0000E-01	0.0000E-01	-1.9099E-01
151	0.0000E-01	0.0000E-01	-3.6126E-02
152	0.0000E-01	0.0000E-01	2.1262E-01
153	0.0000E-01	0.0000E-01	3.8347E-01
154	0.0000E-01	0.0000E-01	-2.3532E-01
155	0.0000E-01	0.0000E-01	-2.3209E-01

#



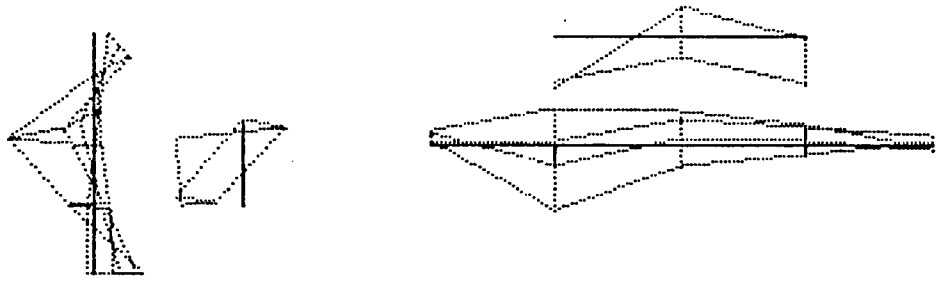
MR_PANEL_8S (WINDOW)
  6:   IZ- COMP,F=   146.400 HZ (0.0,   0.0,   0.0,   0.0)=VIEW

#



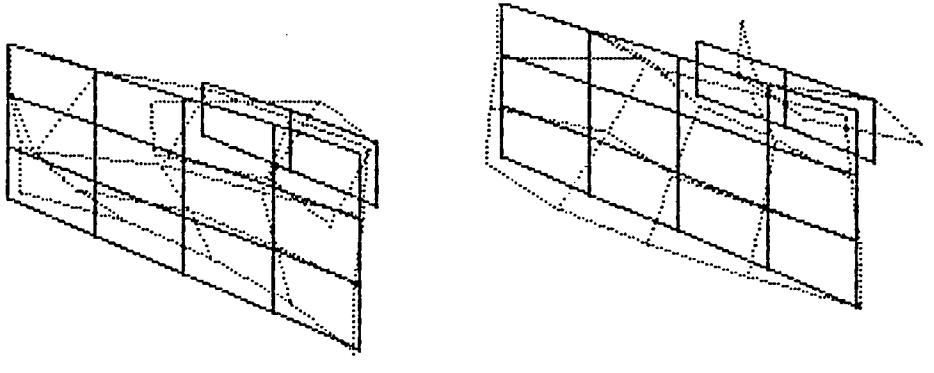
MR_PANEL_8S (WINDOW)
  6:   IZ- COMP,F=   146.400 HZ (1.0,   1.0,   1.0,   0.0)=VIEW

#



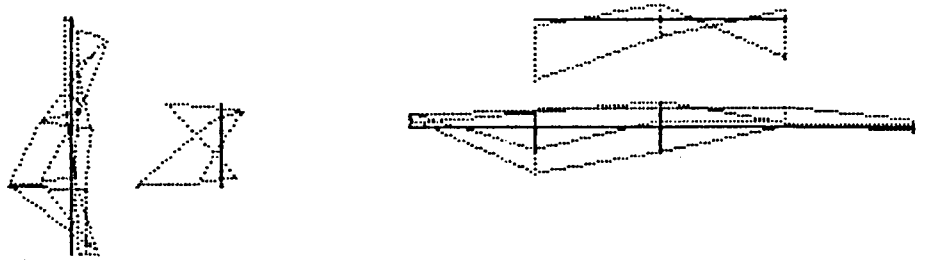
MR_PANEL_8S (WINDOW)
7: 1Z- COMP,F= 158.000 HZ (0.0, 0.0, 0.0, 0.0)=VIEW

#



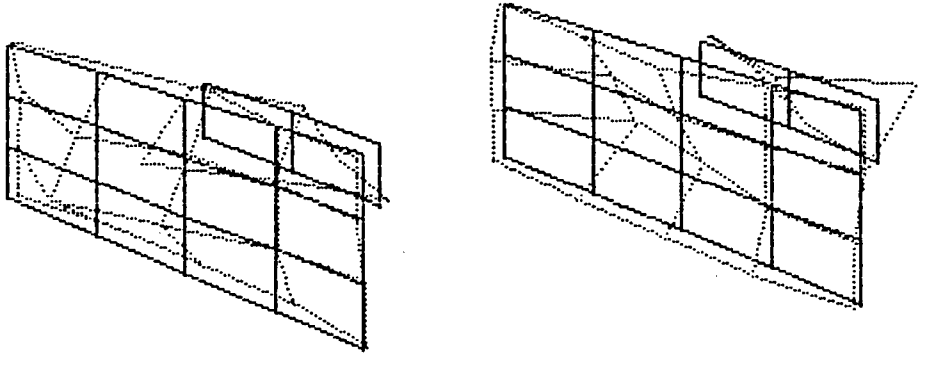
MR_PANEL_8S (WINDOW)
7: 1Z- COMP,F= 158.000 HZ (1.0, 1.0, 1.0, 0.0)=VIEW

#



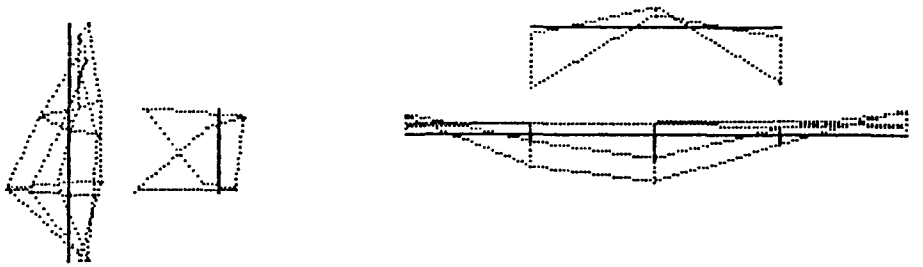
MR_PANEL_8S (WINDOW)
  8:   IZ- COMP,F= 167.000 HZ (0.0,   0.0,   0.0,   0.0)=VIEW

#



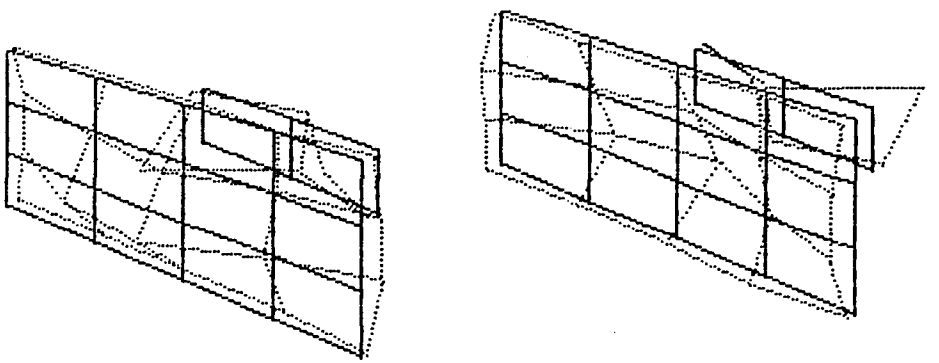
MR_PANEL_8S (WINDOW)
  8:   IZ- COMP,F= 167.000 HZ (1.0,   1.0,   1.0,   0.0)=VIEW

#



MR PANEL 8S (WINDOW)
9: 1Z- COMP,F= 174.000 HZ (0.0, 0.0, 0.0, 0.0)=VIEW

#

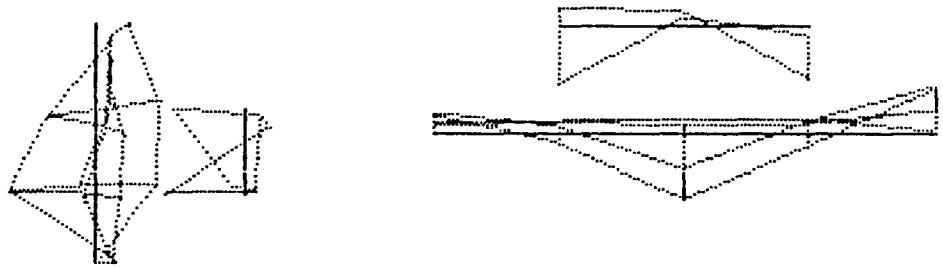


MR PANEL 8S (WINDOW)
9: 1Z- COMP,F= 174.000 HZ (1.0, 1.0, 1.0, 0.0)=VIEW

#

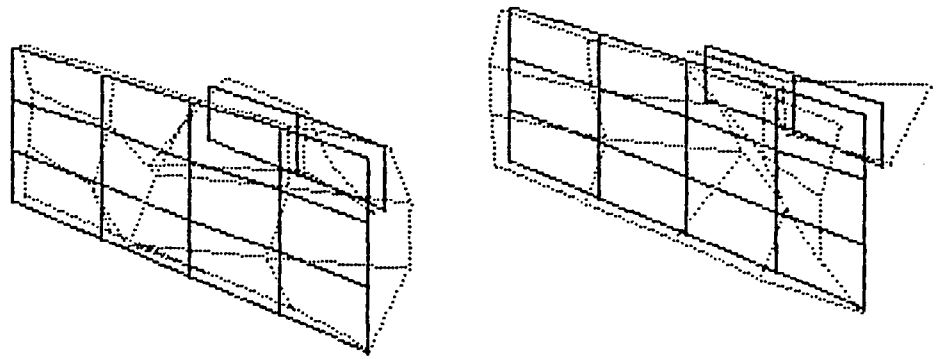
MODE SHAPE 9: 1Z- REAL, FREQ = 174.000 HZ
MR PANEL 8S (WINDOW)
MODE SHAPE

LOC	X COEFF	Y COEFF	Z COEFF
130	0.0000E-01	0.0000E-01	-2.5376E-02
131	0.0000E-01	0.0000E-01	-8.2815E-02
132	0.0000E-01	0.0000E-01	-7.3678E-02
133	0.0000E-01	0.0000E-01	-4.3098E-02
134	0.0000E-01	0.0000E-01	-5.0778E-02
135	0.0000E-01	0.0000E-01	2.7815E-02
136	0.0000E-01	0.0000E-01	-2.1154E-02
137	0.0000E-01	0.0000E-01	-2.0314E-02
138	0.0000E-01	0.0000E-01	-4.1135E-02
139	0.0000E-01	0.0000E-01	1.5651E-01
140	0.0000E-01	0.0000E-01	7.4243E-02
141	0.0000E-01	0.0000E-01	-3.6650E-02
142	0.0000E-01	0.0000E-01	-3.8741E-02
143	0.0000E-01	0.0000E-01	1.0029E-01
144	0.0000E-01	0.0000E-01	1.8723E-02
145	0.0000E-01	0.0000E-01	-3.8934E-02
146	0.0000E-01	0.0000E-01	-4.3868E-02
147	0.0000E-01	0.0000E-01	-5.7888E-02
148	0.0000E-01	0.0000E-01	-6.8859E-02
149	0.0000E-01	0.0000E-01	-2.4414E-02
150	0.0000E-01	0.0000E-01	2.0805E-01
151	0.0000E-01	0.0000E-01	3.0439E-02
152	0.0000E-01	0.0000E-01	-3.6586E-02
153	0.0000E-01	0.0000E-01	-6.0364E-02
154	0.0000E-01	0.0000E-01	3.6252E-02
155	0.0000E-01	0.0000E-01	1.8689E-01



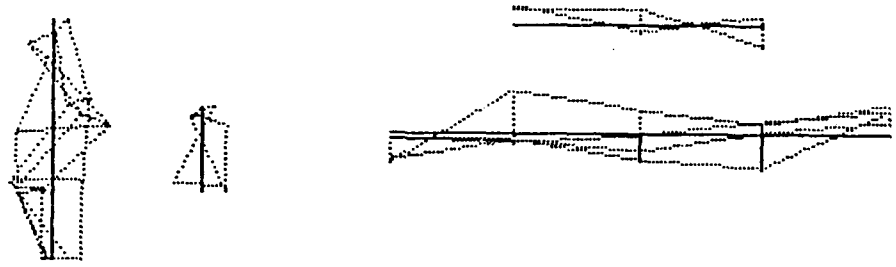
```
MR_PANEL_8S (WINDOW)
 10:   1Z- COMP,F=   185.000 HZ  (    0.0,    0.0,    0.0,    0.0)=VIEW

#
```



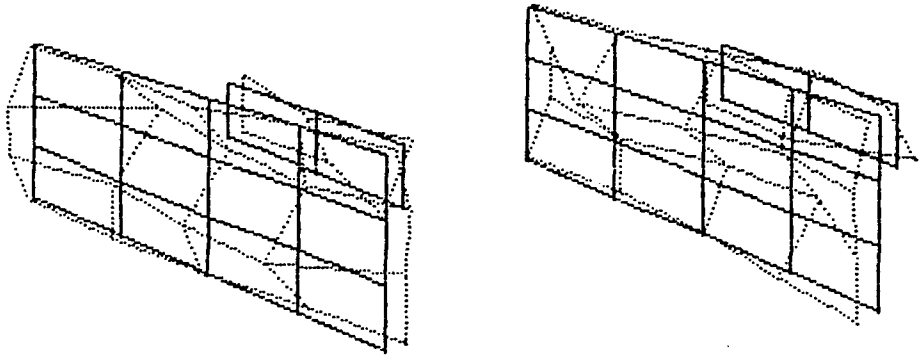
```
MR_PANEL_8S (WINDOW)
 10:   1Z- COMP,F=   185.000 HZ  (    1.0,    1.0,    1.0,    0.0)=VIEW

#
```



MR PANEL 8S (WINDOW)
 11: IZ- COMP,F= 194.000 HZ (0.0, 0.0, 0.0, 0.0)=VIEW

#

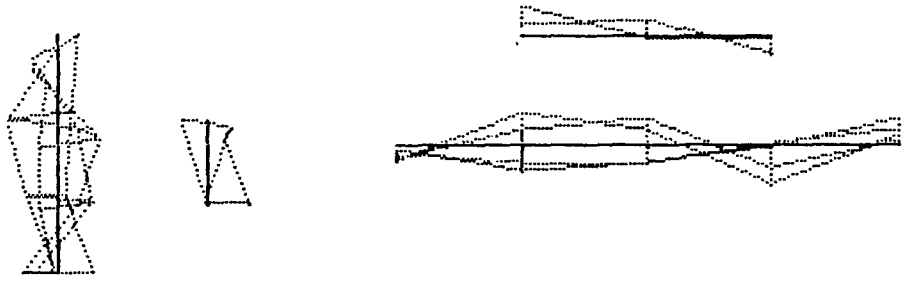


MR PANEL 8S (WINDOW)
 11: IZ- COMP,F= 194.000 HZ (1.0, 1.0, 1.0, 0.0)=VIEW

#

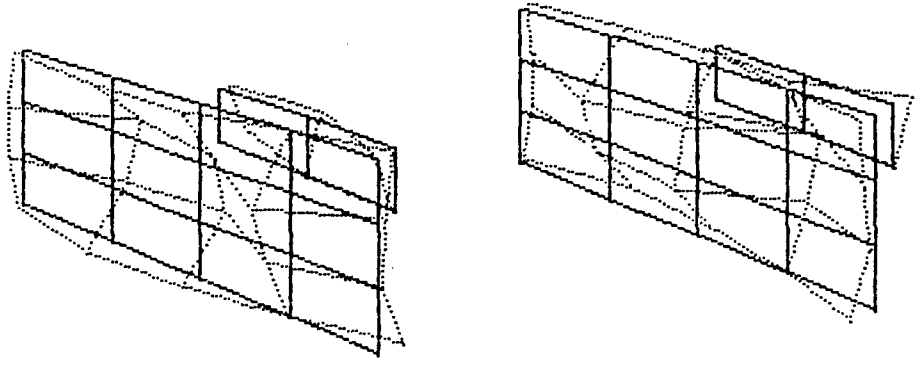
MODE SHAPE 11: IZ- REAL, FREQ = 194.000 HZ
MR PANEL 8S (WINDOW)
MODE SHAPE

LOC	X COEFF	Y COEFF	Z COEFF
130	0.0000E-01	0.0000E-01	-1.1754E-01
131	0.0000E-01	0.0000E-01	-1.2088E-01
132	0.0000E-01	0.0000E-01	-1.4892E-01
133	0.0000E-01	0.0000E-01	-5.8963E-02
134	0.0000E-01	0.0000E-01	-6.5316E-02
135	0.0000E-01	0.0000E-01	1.7764E-01
136	0.0000E-01	0.0000E-01	-5.2703E-02
137	0.0000E-01	0.0000E-01	-3.9488E-03
138	0.0000E-01	0.0000E-01	1.2137E-02
139	0.0000E-01	0.0000E-01	1.4222E-01
140	0.0000E-01	0.0000E-01	-1.1793E-01
141	0.0000E-01	0.0000E-01	9.7964E-02
142	0.0000E-01	0.0000E-01	4.4930E-02
143	0.0000E-01	0.0000E-01	3.5260E-02
144	0.0000E-01	0.0000E-01	-2.2580E-01
145	0.0000E-01	0.0000E-01	3.8597E-02
146	0.0000E-01	0.0000E-01	1.4863E-02
147	0.0000E-01	0.0000E-01	1.3232E-01
148	0.0000E-01	0.0000E-01	1.4869E-01
149	0.0000E-01	0.0000E-01	2.9114E-02
150	0.0000E-01	0.0000E-01	-8.5309E-02
151	0.0000E-01	0.0000E-01	-9.5487E-02
152	0.0000E-01	0.0000E-01	-9.0823E-02
153	0.0000E-01	0.0000E-01	4.4940E-02
154	0.0000E-01	0.0000E-01	1.1541E-01
155	0.0000E-01	0.0000E-01	-4.8972E-02



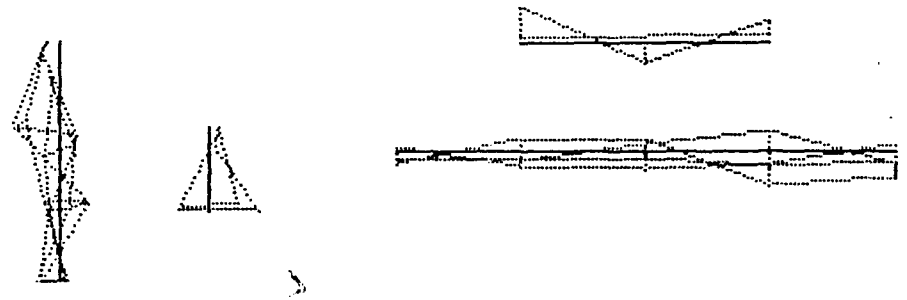
```
MR_PANEL_8S (WINDOW)
 12:    1Z- COMP,F=   209.000 HZ  (    0.0,    0.0,    0.0,    0.0)=VIEW

#
```



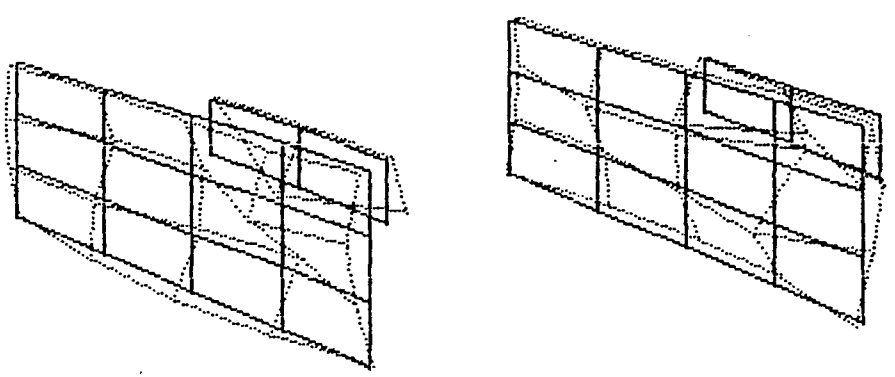
```
MR_PANEL_8S (WINDOW)
 12:    1Z- COMP,F=   209.000 HZ  (    1.0,    1.0,    1.0,    0.0)=VIEW

#
```



MR PANEL 8S (WINDOW)
13: 1Z- COMP,F= 223.000 HZ (0.0, 0.0, 0.0, 0.0)=VIEW

#



MR PANEL 8S (WINDOW)
13: 1Z- COMP,F= 223.000 HZ (1.0, 1.0, 1.0, 0.0)=VIEW

#

MODE SHAPE 13: 1Z- REAL, FREQ = 223.000 HZ
MR PANEL 8S (WINDOW)
MODE SHAPE

LOC	X COEFF	Y COEFF	Z COEFF
130	0.0000E-01	0.0000E-01	-2.5322E-02
131	0.0000E-01	0.0000E-01	5.2606E-02
132	0.0000E-01	0.0000E-01	1.0850E-01
133	0.0000E-01	0.0000E-01	4.5824E-02
134	0.0000E-01	0.0000E-01	5.6956E-02
135	0.0000E-01	0.0000E-01	-9.4833E-02
136	0.0000E-01	0.0000E-01	1.5338E-01
137	0.0000E-01	0.0000E-01	6.5366E-02
138	0.0000E-01	0.0000E-01	7.8845E-02
139	0.0000E-01	0.0000E-01	-3.4879E-02
140	0.0000E-01	0.0000E-01	-5.1202E-02
141	0.0000E-01	0.0000E-01	3.3852E-02
142	0.0000E-01	0.0000E-01	6.2899E-02
143	0.0000E-01	0.0000E-01	3.6010E-02
144	0.0000E-01	0.0000E-01	-4.9052E-02
145	0.0000E-01	0.0000E-01	2.5905E-02
146	0.0000E-01	0.0000E-01	-1.5971E-02
147	0.0000E-01	0.0000E-01	2.5759E-02
148	0.0000E-01	0.0000E-01	5.1878E-02
149	0.0000E-01	0.0000E-01	2.5305E-02
150	0.0000E-01	0.0000E-01	-1.6058E-01
151	0.0000E-01	0.0000E-01	-2.0672E-02
152	0.0000E-01	0.0000E-01	9.6529E-02
153	0.0000E-01	0.0000E-01	-2.4346E-02
154	0.0000E-01	0.0000E-01	-9.3703E-02
155	0.0000E-01	0.0000E-01	-3.0940E-02

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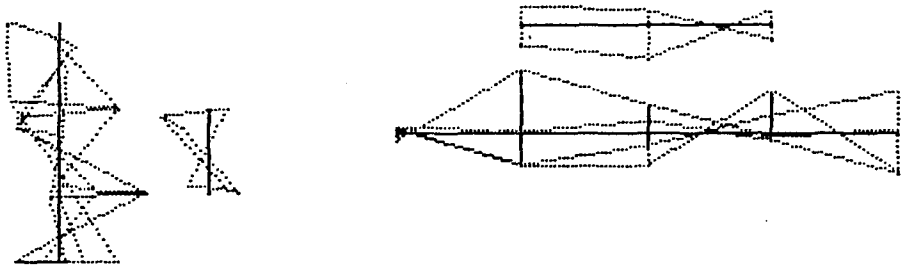
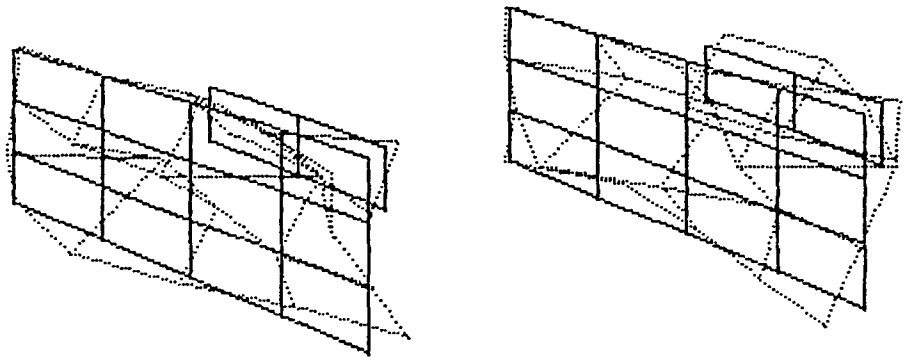
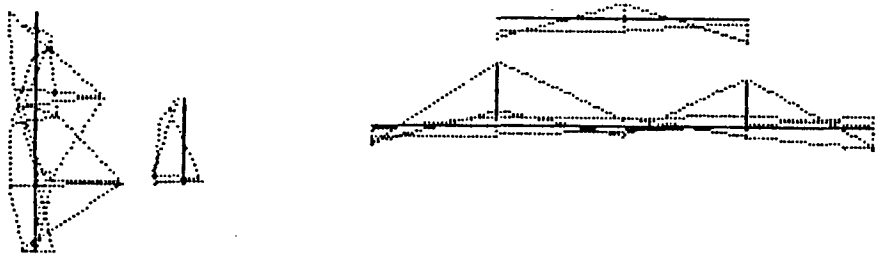


```
MR_PANEL_8S (WINDOW)
 16:    1Z- COMP,F=    273.000 HZ  (     0.0,     0.0,     0.0,     0.0)=VIEW

#
```

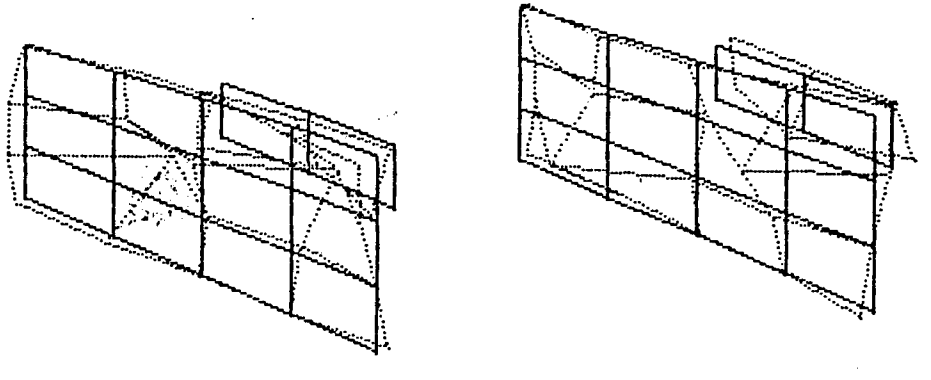


```
MR_PANEL_8S (WINDOW)
 16:    1Z- COMP,F=    273.000 HZ  (     1.0,     1.0,     1.0,     0.0)=VIEW

#
```



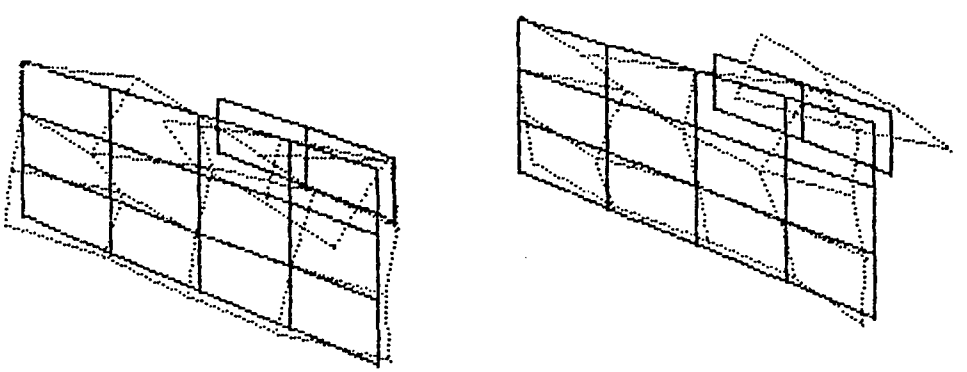
MR_PANEL_8S (WINDOW)
17: IZ- COMP,F= 283.000 HZ (0.0, 0.0, 0.0, 0.0)=VIEW

#



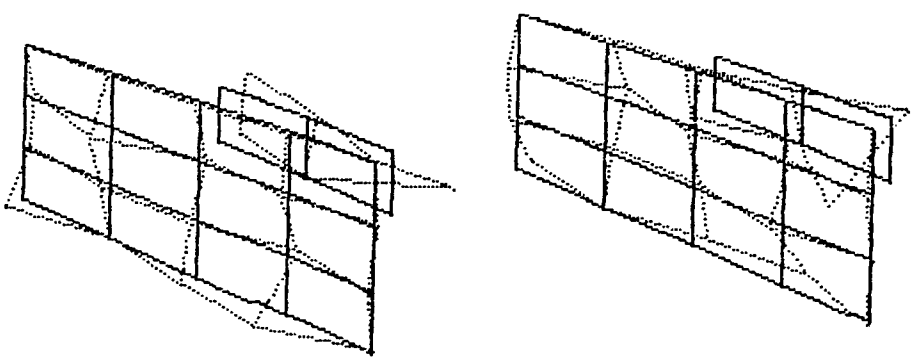
MR_PANEL_8S (WINDOW)
17: IZ- COMP,F= 283.000 HZ (1.0, 1.0, 1.0, 0.0)=VIEW

```
MR PANEL 8S (WINDOW)
 18:    1Z- COMP,F=   321.000 HZ  (     0.0,     0.0,     0.0,     0.0)=VIEW

#
```



```
MR PANEL 8S (WINDOW)
 18:    1Z- COMP,F=   321.000 HZ  (     1.0,     1.0,     1.0,     0.0)=VIEW

##
```

```
MR PANEL 8S (WINDOW)
 19:   IZ- COMP,F=   351.000 HZ  (    0.0,    0.0,    0.0,    0.0)=VIEW
#
```



```
MR PANEL 8S (WINDOW)
 19:   IZ- COMP,F=   351.000 HZ  (    1.0,    1.0,    1.0,    0.0)=VIEW
##
```

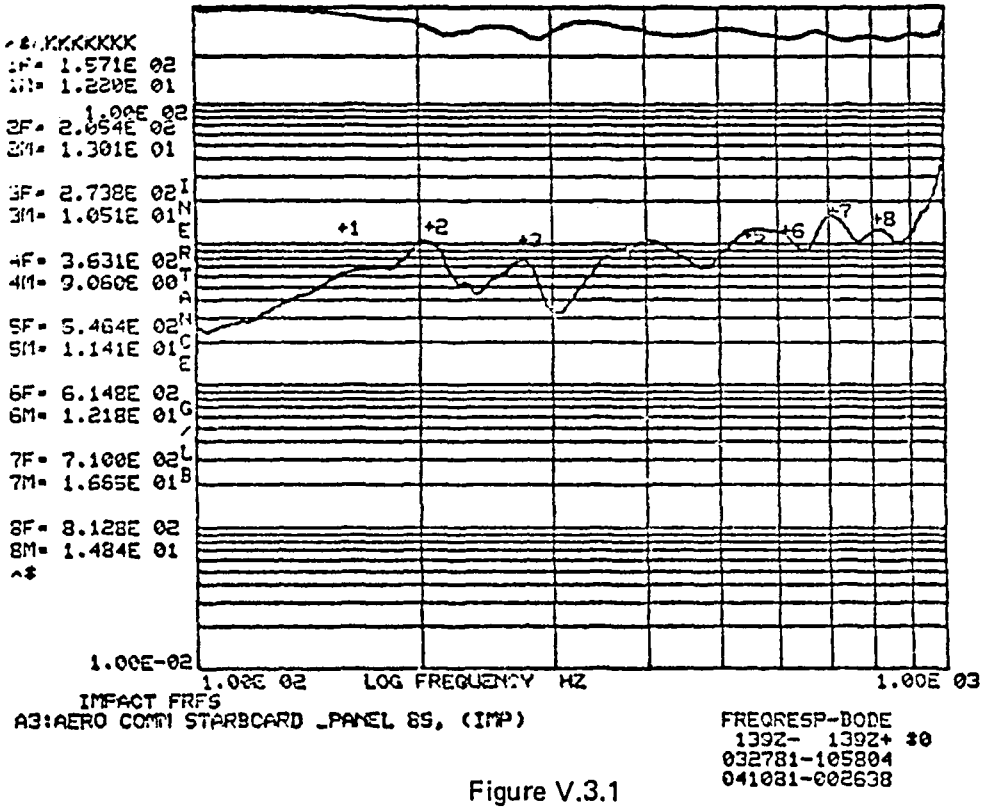


Figure V.3.1
Frequency Response, Panel 8S

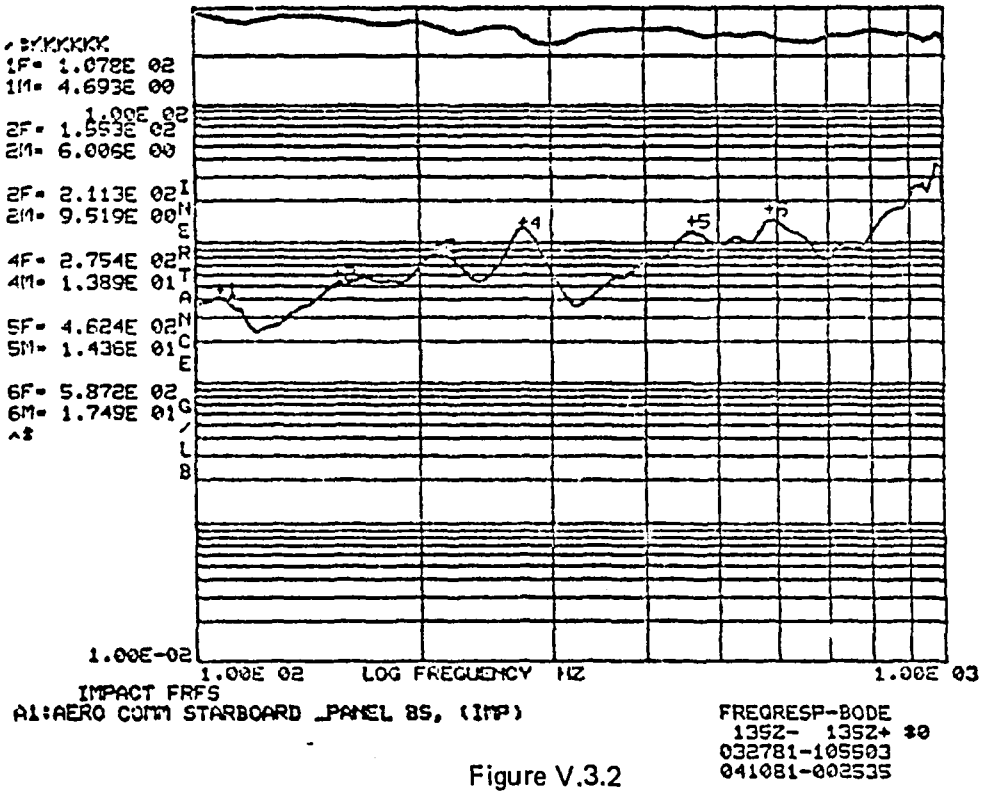
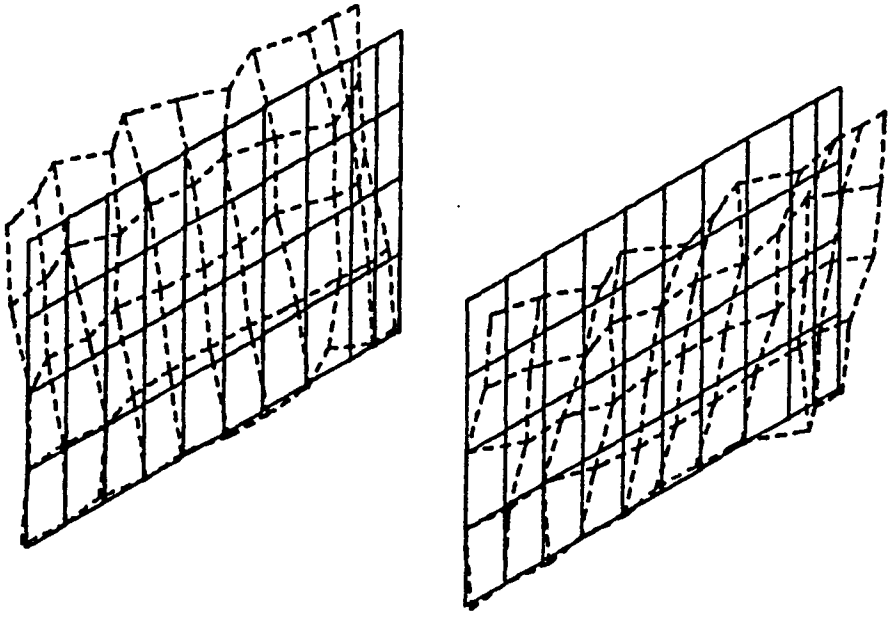


Figure V.3.2
Frequency Response, Panel 8S

V.4 Modal Coefficients, Deformation Patterns and Frequency Response Plots Panels 1P and 2P

The mode shapes shown in this section are shown from three viewing positions, two plan views and an isometric. The deformed position in dashed lines is overlayed on the undeformed which is the solid line. The isometric view actually shows two deformed positions, the plus and minus extreme positions, whereas the plan views show only the plus extreme position.

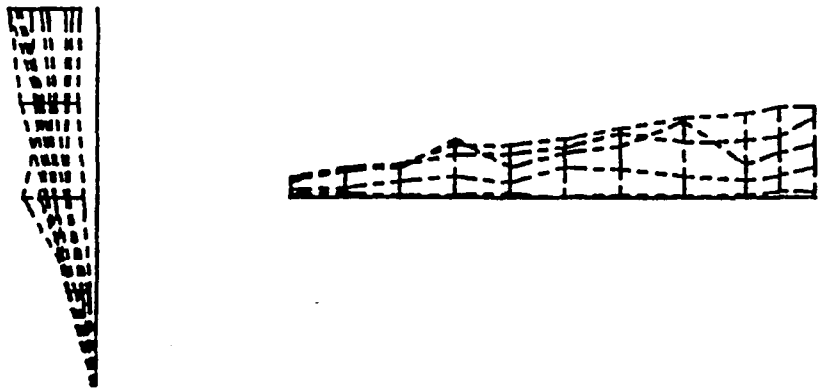
MR PORT SIDE PANELS 1P & 2P
1:1001Z+ COMP,F= 61.000 HZ (0.0, 0.0, 0.0, 180.0)=VIEW



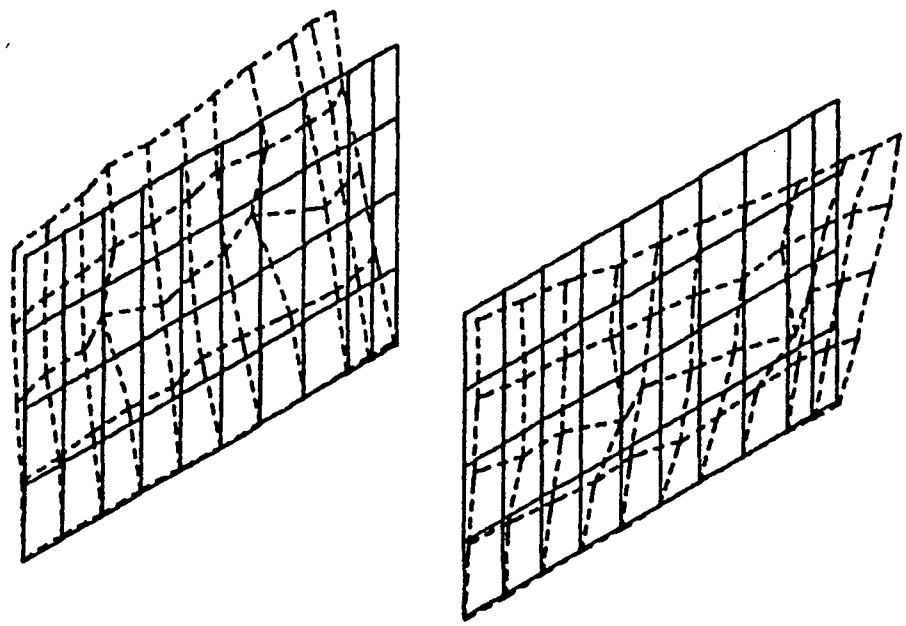
MR PORT SIDE PANELS 1P & 2P
1:1001Z+ COMP,F= 61.000 HZ (1.0, 1.0, -1.0, 0.0)=VIEW

MODE SHAPE 1:1001Z+ REAL, FREQ = 61.000 HZ
MR PORT SIDE PANELS 1P & 2P
MODE SHAPE

LOC	X COEFF	Y COEFF	Z COEFF
1090	0.0000E-01	0.0000E-01	2.0718E-02
1091	0.0000E-01	0.0000E-01	-6.0384E-04
1092	0.0000E-01	0.0000E-01	0.0000E-01
1093	0.0000E-01	0.0000E-01	6.9080E-02
1094	0.0000E-01	0.0000E-01	8.8826E-02
1095	0.0000E-01	0.0000E-01	-7.6347E-05
1096	0.0000E-01	0.0000E-01	2.0010E-02
1097	0.0000E-01	0.0000E-01	7.9706E-02
1098	0.0000E-01	0.0000E-01	8.9597E-02
1099	0.0000E-01	0.0000E-01	1.2628E-01
1100	0.0000E-01	0.0000E-01	2.1717E-02
1101	0.0000E-01	0.0000E-01	0.0000E-01
1102	0.0000E-01	0.0000E-01	6.7866E-02
1103	0.0000E-01	0.0000E-01	1.4874E-01
1104	0.0000E-01	0.0000E-01	2.0294E-01
1105	0.0000E-01	0.0000E-01	-3.3384E-03
1106	0.0000E-01	0.0000E-01	4.4427E-02
1107	0.0000E-01	0.0000E-01	1.1022E-01
1108	0.0000E-01	0.0000E-01	9.6676E-02
1109	0.0000E-01	0.0000E-01	1.3263E-01
1110	0.0000E-01	0.0000E-01	1.1299E-02
1111	0.0000E-01	0.0000E-01	5.7128E-02
1112	0.0000E-01	0.0000E-01	8.9840E-02
1113	0.0000E-01	0.0000E-01	1.3574E-01
1114	0.0000E-01	0.0000E-01	2.2742E-01
1115	0.0000E-01	0.0000E-01	-2.0253E-02
1116	0.0000E-01	0.0000E-01	5.4928E-02
1117	0.0000E-01	0.0000E-01	7.6292E-02
1118	0.0000E-01	0.0000E-01	1.1816E-01
1119	0.0000E-01	0.0000E-01	1.8134E-01
1120	0.0000E-01	0.0000E-01	-1.9621E-02
1121	0.0000E-01	0.0000E-01	5.1264E-02
1122	0.0000E-01	0.0000E-01	8.8625E-02
1123	0.0000E-01	0.0000E-01	1.5015E-01
1001	0.0000E-01	0.0000E-01	1.2780E-01
1220	0.0000E-01	0.0000E-01	-8.1761E-03
1221	0.0000E-01	0.0000E-01	3.6133E-02
1222	0.0000E-01	0.0000E-01	1.1719E-01
1223	0.0000E-01	0.0000E-01	1.2011E-01
1224	0.0000E-01	0.0000E-01	2.0325E-01
1225	0.0000E-01	0.0000E-01	7.5618E-02
1226	0.0000E-01	0.0000E-01	3.5765E-02
1227	0.0000E-01	0.0000E-01	6.2376E-02
1228	0.0000E-01	0.0000E-01	6.0300E-02
1229	0.0000E-01	0.0000E-01	1.6492E-01
1230	0.0000E-01	0.0000E-01	1.0008E-02
1231	0.0000E-01	0.0000E-01	2.2460E-02
1232	0.0000E-01	0.0000E-01	6.3472E-02
1233	0.0000E-01	0.0000E-01	1.0376E-01
1234	0.0000E-01	0.0000E-01	1.6882E-01
1235	0.0000E-01	0.0000E-01	1.7206E-02
1236	0.0000E-01	0.0000E-01	4.0464E-02
1237	0.0000E-01	0.0000E-01	1.2836E-01
1238	0.0000E-01	0.0000E-01	1.5185E-01
1239	0.0000E-01	0.0000E-01	1.6208E-01
1064	0.0000E-01	0.0000E-01	2.2730E-01
1067	0.0000E-01	0.0000E-01	9.4330E-02
1070	0.0000E-01	0.0000E-01	7.5438E-02
1130	0.0000E-01	0.0000E-01	-1.6609E-02
1134	0.0000E-01	0.0000E-01	-1.8275E-02
1138	0.0000E-01	0.0000E-01	3.8937E-03
1142	0.0000E-01	0.0000E-01	-3.6084E-02
1146	0.0000E-01	0.0000E-01	-3.5550E-02
1240	0.0000E-01	0.0000E-01	1.8509E-01
1241	0.0000E-01	0.0000E-01	9.3324E-02
1242	0.0000E-01	0.0000E-01	6.1216E-02
1243	0.0000E-01	0.0000E-01	9.1311E-02
1244	0.0000E-01	-2.6180E-02	0.0000E-01
1245	0.0000E-01	2.9206E-02	0.0000E-01
1246	0.0000E-01	-5.8163E-02	0.0000E-01



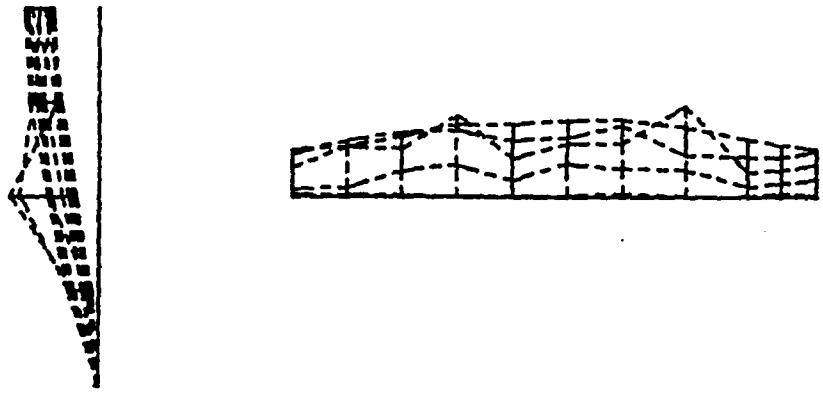
MR PORT SIDE PANELS 1P & 2P
2:1001Z+ COMP,F= 71.000 HZ < 0.0, 0.0, 0.0, 180.0>=VIEW



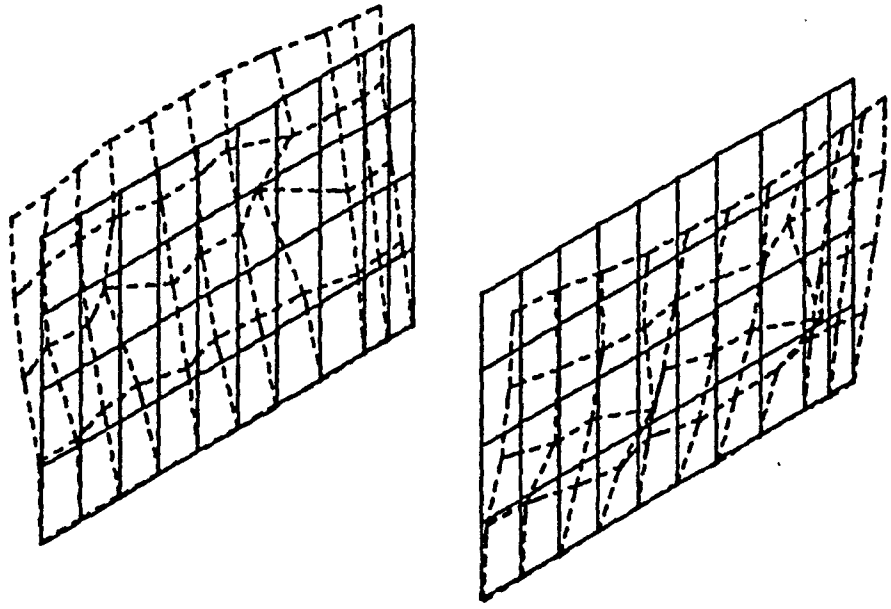
MR PORT SIDE PANELS 1P & 2P
2:1001Z+ COMP,F= 71.000 HZ < 1.0, 1.0, -1.0, 0.0>=VIEW

MODE SHAPE 2:1001Z+ REAL, FREQ = 71.000 HZ
MR PORT SIDE PANELS 1P & 2P
MODE SHAPE

LOC	X COEFF	Y COEFF	Z COEFF
1090	0.0000E-01	0.0000E-01	6.5399E-03
1091	0.0000E-01	0.0000E-01	1.6714E-02
1092	0.0000E-01	0.0000E-01	3.5580E-02
1093	0.0000E-01	0.0000E-01	4.6495E-02
1094	0.0000E-01	0.0000E-01	4.1301E-02
1095	0.0000E-01	0.0000E-01	9.1817E-03
1096	0.0000E-01	0.0000E-01	2.1714E-02
1097	0.0000E-01	0.0000E-01	7.1031E-02
1098	0.0000E-01	0.0000E-01	6.9323E-02
1099	0.0000E-01	0.0000E-01	6.0779E-02
1100	0.0000E-01	0.0000E-01	6.6817E-03
1101	0.0000E-01	0.0000E-01	3.7410E-02
1102	0.0000E-01	0.0000E-01	6.9568E-02
1103	0.0000E-01	0.0000E-01	7.6830E-02
1104	0.0000E-01	0.0000E-01	7.9459E-02
1105	0.0000E-01	0.0000E-01	6.0309E-03
1106	0.0000E-01	0.0000E-01	5.0161E-02
1107	0.0000E-01	0.0000E-01	1.3780E-01
1108	0.0000E-01	0.0000E-01	9.9349E-02
1109	0.0000E-01	0.0000E-01	1.2249E-01
1110	0.0000E-01	0.0000E-01	7.7577E-03
1111	0.0000E-01	0.0000E-01	3.3679E-02
1112	0.0000E-01	0.0000E-01	6.9446E-02
1113	0.0000E-01	0.0000E-01	1.0106E-01
1114	0.0000E-01	0.0000E-01	1.2090E-01
1115	0.0000E-01	0.0000E-01	-2.8358E-04
1116	0.0000E-01	0.0000E-01	7.1276E-02
1117	0.0000E-01	0.0000E-01	1.0174E-01
1118	0.0000E-01	0.0000E-01	1.1303E-01
1119	0.0000E-01	0.0000E-01	1.3561E-01
1120	0.0000E-01	0.0000E-01	2.3969E-03
1121	0.0000E-01	0.0000E-01	6.6024E-02
1122	0.0000E-01	0.0000E-01	1.1389E-01
1123	0.0000E-01	0.0000E-01	1.4855E-01
1001	0.0000E-01	0.0000E-01	1.5906E-01
1220	0.0000E-01	0.0000E-01	1.2693E-03
1221	0.0000E-01	0.0000E-01	4.7345E-02
1222	0.0000E-01	0.0000E-01	1.7676E-01
1223	0.0000E-01	0.0000E-01	1.2695E-01
1224	0.0000E-01	0.0000E-01	1.8640E-01
1225	0.0000E-01	0.0000E-01	4.9549E-03
1226	0.0000E-01	0.0000E-01	3.7094E-02
1227	0.0000E-01	0.0000E-01	7.6578E-02
1228	0.0000E-01	0.0000E-01	1.3244E-01
1229	0.0000E-01	0.0000E-01	1.9483E-01
1230	0.0000E-01	0.0000E-01	1.1765E-02
1231	0.0000E-01	0.0000E-01	4.9787E-02
1232	0.0000E-01	0.0000E-01	1.0424E-01
1233	0.0000E-01	0.0000E-01	1.4086E-01
1234	0.0000E-01	0.0000E-01	2.1082E-01
1235	0.0000E-01	0.0000E-01	1.0406E-02
1236	0.0000E-01	0.0000E-01	7.0741E-02
1237	0.0000E-01	0.0000E-01	1.2225E-01
1238	0.0000E-01	0.0000E-01	1.8244E-01
1239	0.0000E-01	0.0000E-01	2.1113E-01
1064	0.0000E-01	0.0000E-01	1.9586E-01
1067	0.0000E-01	0.0000E-01	1.2635E-01
1070	0.0000E-01	0.0000E-01	8.7461E-02
1130	0.0000E-01	0.0000E-01	-1.1340E-03
1134	0.0000E-01	0.0000E-01	-2.7919E-02
1138	0.0000E-01	0.0000E-01	-6.8473E-02
1142	0.0000E-01	0.0000E-01	-8.3357E-02
1146	0.0000E-01	0.0000E-01	-6.7152E-02
1240	0.0000E-01	0.0000E-01	1.8244E-01
1241	0.0000E-01	0.0000E-01	1.5662E-01
1242	0.0000E-01	0.0000E-01	1.2073E-01
1243	0.0000E-01	0.0000E-01	1.0077E-01
1244	0.0000E-01	2.8621E-02	0.0000E-01
1245	0.0000E-01	5.2152E-02	0.0000E-01
1246	0.0000E-01	-3.4117E-02	0.0000E-01



MR PORT SIDE PANELS 1P & 2P
3:1001Z+ COMP,F= 86.000 HZ < 0.0, 0.0, 0.0, 180.0)=VIEW

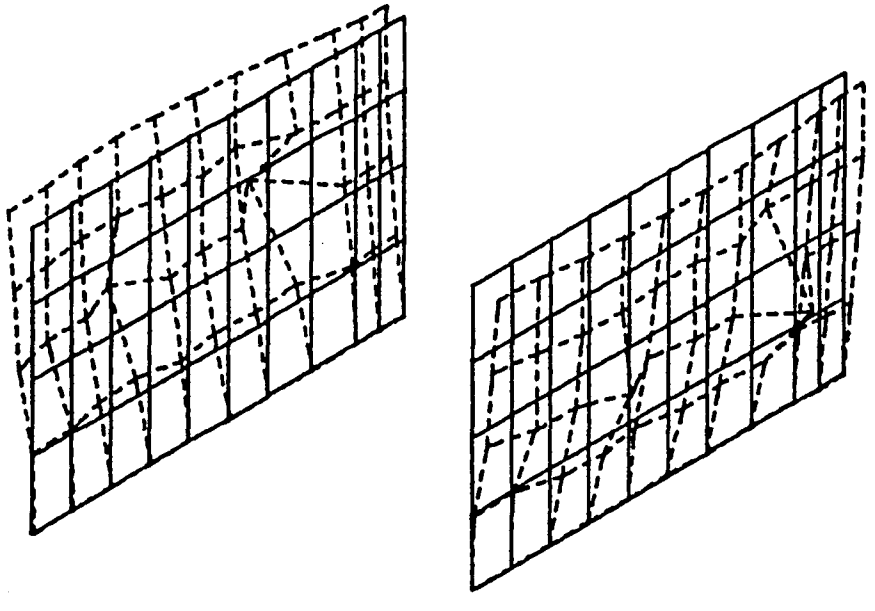


MR PORT SIDE PANELS 1P & 2P
3:1001Z+ COMP,F= 86.000 HZ < 1.0, 1.0, -1.0, 0.0)=VIEW

MODE SHAPE 3:1001Z+ REAL, FREQ = 86.000 HZ
MR PORT SIDE PANELS 1P & 2P
MODE SHAPE

LOC	X COEFF	Y COEFF	Z COEFF
1090	0.0000E-01	0.0000E-01	7.3714E-03
1091	0.0000E-01	0.0000E-01	1.8604E-02
1092	0.0000E-01	0.0000E-01	7.6844E-02
1093	0.0000E-01	0.0000E-01	1.0824E-01
1094	0.0000E-01	0.0000E-01	1.1840E-01
1095	0.0000E-01	0.0000E-01	6.5414E-03
1096	0.0000E-01	0.0000E-01	2.4288E-02
1097	0.0000E-01	0.0000E-01	1.3012E-01
1098	0.0000E-01	0.0000E-01	1.4331E-01
1099	0.0000E-01	0.0000E-01	1.2707E-01
1100	0.0000E-01	0.0000E-01	6.1264E-03
1101	0.0000E-01	0.0000E-01	6.5309E-02
1102	0.0000E-01	0.0000E-01	1.2414E-01
1103	0.0000E-01	0.0000E-01	1.6388E-01
1104	0.0000E-01	0.0000E-01	1.5460E-01
1105	0.0000E-01	0.0000E-01	1.6389E-03
1106	0.0000E-01	0.0000E-01	8.1296E-02
1107	0.0000E-01	0.0000E-01	2.0642E-01
1108	0.0000E-01	0.0000E-01	1.7065E-01
1109	0.0000E-01	0.0000E-01	1.8561E-01
1110	0.0000E-01	0.0000E-01	1.6107E-03
1111	0.0000E-01	0.0000E-01	4.2231E-02
1112	0.0000E-01	0.0000E-01	9.6124E-02
1113	0.0000E-01	0.0000E-01	1.4087E-01
1114	0.0000E-01	0.0000E-01	1.8573E-01
1115	0.0000E-01	0.0000E-01	1.5193E-03
1116	0.0000E-01	0.0000E-01	8.3498E-02
1117	0.0000E-01	0.0000E-01	1.3446E-01
1118	0.0000E-01	0.0000E-01	1.4966E-01
1119	0.0000E-01	0.0000E-01	1.9104E-01
1120	0.0000E-01	0.0000E-01	5.6974E-03
1121	0.0000E-01	0.0000E-01	7.1161E-02
1122	0.0000E-01	0.0000E-01	1.3391E-01
1123	0.0000E-01	0.0000E-01	1.8042E-01
1001	0.0000E-01	0.0000E-01	1.9410E-01
1220	0.0000E-01	0.0000E-01	-1.0902E-03
1221	0.0000E-01	0.0000E-01	6.5914E-02
1222	0.0000E-01	0.0000E-01	2.3048E-01
1223	0.0000E-01	0.0000E-01	1.0449E-01
1224	0.0000E-01	0.0000E-01	1.7493E-01
1225	0.0000E-01	0.0000E-01	2.6517E-03
1226	0.0000E-01	0.0000E-01	2.5019E-02
1227	0.0000E-01	0.0000E-01	6.1278E-02
1228	0.0000E-01	0.0000E-01	9.8508E-02
1229	0.0000E-01	0.0000E-01	1.4380E-01
1230	0.0000E-01	0.0000E-01	7.6246E-03
1231	0.0000E-01	0.0000E-01	3.3199E-02
1232	0.0000E-01	0.0000E-01	6.6891E-02
1233	0.0000E-01	0.0000E-01	9.9120E-02
1234	0.0000E-01	0.0000E-01	1.3007E-01
1235	0.0000E-01	0.0000E-01	2.0117E-03
1236	0.0000E-01	0.0000E-01	4.4123E-02
1237	0.0000E-01	0.0000E-01	8.1606E-02
1238	0.0000E-01	0.0000E-01	1.1426E-01
1239	0.0000E-01	0.0000E-01	1.1917E-01
1064	0.0000E-01	0.0000E-01	8.6515E-02
1067	0.0000E-01	0.0000E-01	4.6815E-02
1070	0.0000E-01	0.0000E-01	9.4253E-03
1130	0.0000E-01	0.0000E-01	-1.2941E-01
1134	0.0000E-01	0.0000E-01	-8.4363E-02
1138	0.0000E-01	0.0000E-01	-2.7319E-02
1142	0.0000E-01	0.0000E-01	1.0593E-02
1146	0.0000E-01	0.0000E-01	7.6640E-02
1240	0.0000E-01	0.0000E-01	6.8572E-02
1241	0.0000E-01	0.0000E-01	1.6600E-02
1242	0.0000E-01	0.0000E-01	-3.3136E-02
1243	0.0000E-01	0.0000E-01	-8.4349E-02
1244	0.0000E-01	2.7038E-02	0.0000E-01
1245	0.0000E-01	3.0970E-02	0.0000E-01
1246	0.0000E-01	-1.8246E-02	0.0000E-01

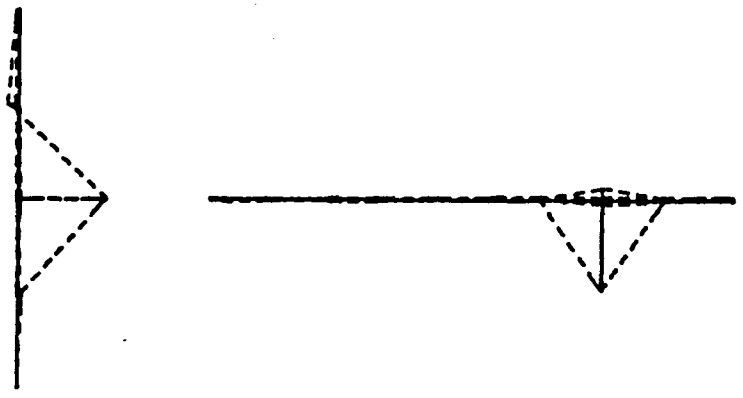
MR PORT SIDE PANELS 1P & 2P
4:1001Z+ COMP,F= 94.000 HZ (0.0, 0.0, 0.0, 180.0)=VIEW



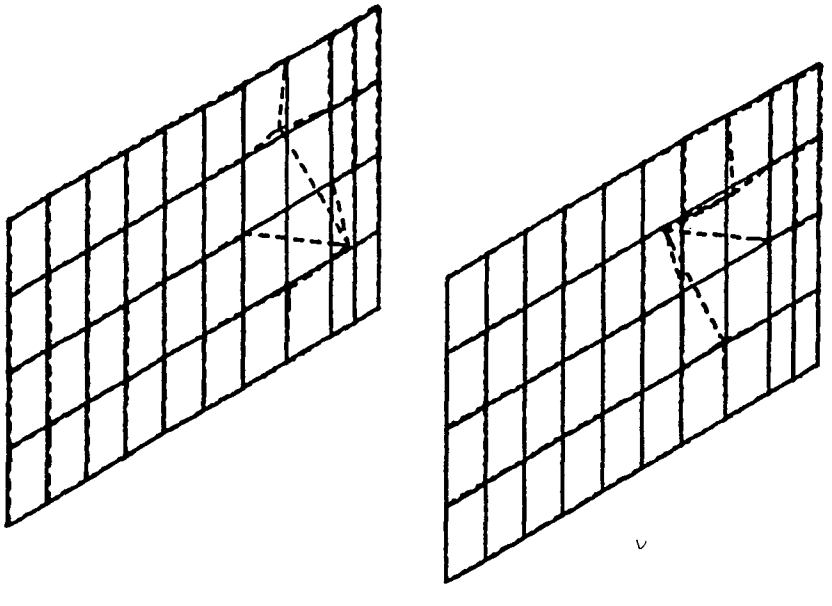
MR PORT SIDE PANELS 1P & 2P
4:1001Z+ COMP,F= 94.000 HZ (1.0, 1.0, -1.0, 0.0)=VIEW

MODE SHAPE 4:1001Z+ REAL, FREQ = 94.000 HZ
MR PORT SIDE PANELS 1P & 2P
MODE SHAPE

LOC	X COEFF	Y COEFF	Z COEFF
1090	0.0000E-01	0.0000E-01	-4.1215E-03
1091	0.0000E-01	0.0000E-01	1.5491E-02
1092	0.0000E-01	0.0000E-01	1.0662E-01
1093	0.0000E-01	0.0000E-01	1.4006E-01
1094	0.0000E-01	0.0000E-01	1.7699E-01
1095	0.0000E-01	0.0000E-01	-1.3215E-03
1096	0.0000E-01	0.0000E-01	1.8291E-02
1097	0.0000E-01	0.0000E-01	1.7980E-01
1098	0.0000E-01	0.0000E-01	1.7822E-01
1099	0.0000E-01	0.0000E-01	1.8786E-01
1100	0.0000E-01	0.0000E-01	-2.5121E-03
1101	0.0000E-01	0.0000E-01	8.8683E-02
1102	0.0000E-01	0.0000E-01	1.8175E-01
1103	0.0000E-01	0.0000E-01	2.1924E-01
1104	0.0000E-01	0.0000E-01	2.2662E-01
1105	0.0000E-01	0.0000E-01	-4.9196E-03
1106	0.0000E-01	0.0000E-01	1.0521E-01
1107	0.0000E-01	0.0000E-01	2.9699E-01
1108	0.0000E-01	0.0000E-01	2.2826E-01
1109	0.0000E-01	0.0000E-01	2.4407E-01
1110	0.0000E-01	0.0000E-01	2.2243E-04
1111	0.0000E-01	0.0000E-01	5.2244E-02
1112	0.0000E-01	0.0000E-01	1.3202E-01
1113	0.0000E-01	0.0000E-01	1.9311E-01
1114	0.0000E-01	0.0000E-01	2.4505E-01
1115	0.0000E-01	0.0000E-01	-7.6149E-03
1116	0.0000E-01	0.0000E-01	1.0594E-01
1117	0.0000E-01	0.0000E-01	1.8408E-01
1118	0.0000E-01	0.0000E-01	1.7920E-01
1119	0.0000E-01	0.0000E-01	2.4372E-01
1120	0.0000E-01	0.0000E-01	2.7346E-03
1121	0.0000E-01	0.0000E-01	8.6054E-02
1122	0.0000E-01	0.0000E-01	1.8078E-01
1123	0.0000E-01	0.0000E-01	2.2533E-01
1001	0.0000E-01	0.0000E-01	2.2754E-01
1220	0.0000E-01	0.0000E-01	-6.4504E-03
1221	0.0000E-01	0.0000E-01	1.0497E-01
1222	0.0000E-01	0.0000E-01	4.2872E-01
1223	0.0000E-01	0.0000E-01	1.0742E-01
1224	0.0000E-01	0.0000E-01	1.9445E-01
1225	0.0000E-01	0.0000E-01	-9.6822E-04
1226	0.0000E-01	0.0000E-01	2.6364E-02
1227	0.0000E-01	0.0000E-01	7.9577E-02
1228	0.0000E-01	0.0000E-01	1.1242E-01
1229	0.0000E-01	0.0000E-01	1.5283E-01
1230	0.0000E-01	0.0000E-01	8.1644E-03
1231	0.0000E-01	0.0000E-01	4.5166E-02
1232	0.0000E-01	0.0000E-01	8.2521E-02
1233	0.0000E-01	0.0000E-01	1.1841E-01
1234	0.0000E-01	0.0000E-01	1.3202E-01
1235	0.0000E-01	0.0000E-01	2.7346E-03
1236	0.0000E-01	0.0000E-01	5.2846E-02
1237	0.0000E-01	0.0000E-01	9.8379E-02
1238	0.0000E-01	0.0000E-01	1.2627E-01
1239	0.0000E-01	0.0000E-01	1.1727E-01
1064	0.0000E-01	0.0000E-01	6.6519E-02
1067	0.0000E-01	0.0000E-01	1.6748E-03
1070	0.0000E-01	0.0000E-01	-4.8280E-02
1130	0.0000E-01	0.0000E-01	-1.1018E-01
1134	0.0000E-01	0.0000E-01	-8.7951E-02
1138	0.0000E-01	0.0000E-01	-2.2819E-02
1142	0.0000E-01	0.0000E-01	1.6067E-02
1146	0.0000E-01	0.0000E-01	5.8865E-02
1240	0.0000E-01	0.0000E-01	6.9332E-02
1241	0.0000E-01	0.0000E-01	1.7598E-02
1242	0.0000E-01	0.0000E-01	-3.2775E-02
1243	0.0000E-01	0.0000E-01	-8.7794E-02
1244	0.0000E-01	2.3316E-02	0.0000E-01
1245	0.0000E-01	-1.8972E-02	0.0000E-01
1246	0.0000E-01	-1.7820E-02	0.0000E-01



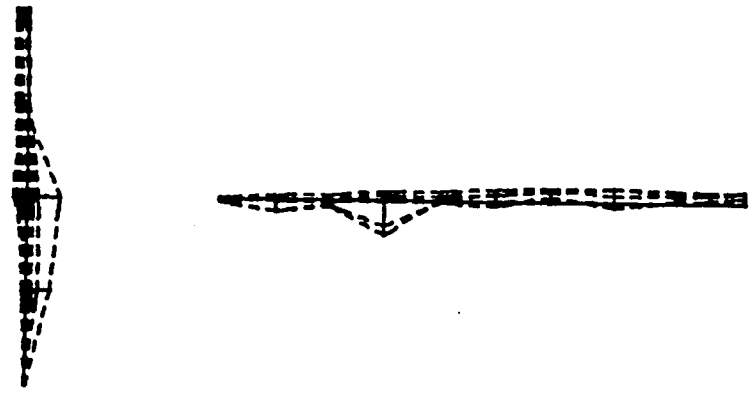
MR PORT SIDE PANELS 1P & 2P
5·1001Z+ COMP,F= 114.000 HZ (0.0, 0.0, 0.0, 180.0)=VIEW



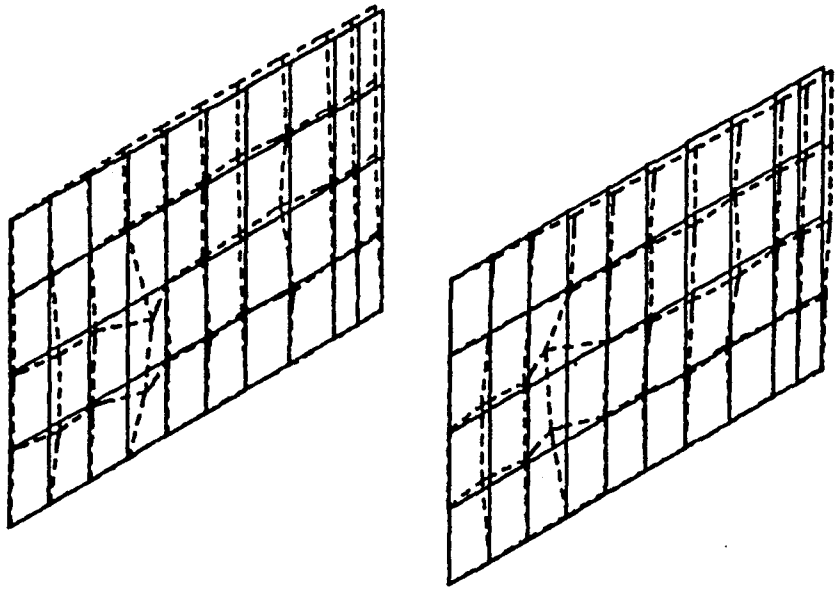
MR PORT SIDE PANELS 1P & 2P
5·1001Z+ COMP,F= 114.000 HZ (1.0, 1.0, -1.0, 0.0)=VIEW

MODE SHAPE 5:1001Z+ REAL, FREQ = 114.000 HZ
MR PORT SIDE PANELS 1P & 2P
MODE SHAPE

LOC	X COEFF	Y COEFF	Z COEFF
1090	0.0000E-01	0.0000E-01	-5.0214E-03
1091	0.0000E-01	0.0000E-01	-2.4499E-02
1092	0.0000E-01	0.0000E-01	-2.2825E-02
1093	0.0000E-01	0.0000E-01	-1.5977E-02
1094	0.0000E-01	0.0000E-01	1.8260E-03
1095	0.0000E-01	0.0000E-01	-6.9996E-03
1096	0.0000E-01	0.0000E-01	-5.7214E-02
1097	0.0000E-01	0.0000E-01	-3.4237E-02
1098	0.0000E-01	0.0000E-01	7.3039E-03
1099	0.0000E-01	0.0000E-01	1.5977E-02
1100	0.0000E-01	0.0000E-01	-7.7604E-03
1101	0.0000E-01	0.0000E-01	-2.3281E-02
1102	0.0000E-01	0.0000E-01	-6.6953E-03
1103	0.0000E-01	0.0000E-01	1.1412E-02
1104	0.0000E-01	0.0000E-01	3.9106E-02
1105	0.0000E-01	0.0000E-01	-8.5212E-03
1106	0.0000E-01	0.0000E-01	-6.6496E-02
1107	0.0000E-01	0.0000E-01	5.3258E-03
1108	0.0000E-01	0.0000E-01	3.5302E-02
1109	0.0000E-01	0.0000E-01	6.9387E-02
1110	0.0000E-01	0.0000E-01	-8.5212E-03
1111	0.0000E-01	0.0000E-01	-1.0347E-02
1112	0.0000E-01	0.0000E-01	1.6586E-02
1113	0.0000E-01	0.0000E-01	4.1845E-02
1114	0.0000E-01	0.0000E-01	8.3082E-02
1115	0.0000E-01	0.0000E-01	-9.7386E-03
1116	0.0000E-01	0.0000E-01	-2.7085E-02
1117	0.0000E-01	0.0000E-01	7.0300E-02
1118	0.0000E-01	0.0000E-01	3.3628E-02
1119	0.0000E-01	0.0000E-01	1.0362E-01
1120	0.0000E-01	0.0000E-01	-5.4779E-03
1121	0.0000E-01	0.0000E-01	4.6106E-02
1122	0.0000E-01	0.0000E-01	6.9083E-02
1123	0.0000E-01	0.0000E-01	1.0910E-01
1001	0.0000E-01	0.0000E-01	1.3588E-01
1220	0.0000E-01	0.0000E-01	-6.3909E-03
1221	0.0000E-01	0.0000E-01	-2.3631E-01
1222	0.0000E-01	0.0000E-01	-4.9860E 00
1223	0.0000E-01	0.0000E-01	6.1368E-01
1224	0.0000E-01	0.0000E-01	1.4182E-01
1225	0.0000E-01	0.0000E-01	-3.3476E-03
1226	0.0000E-01	0.0000E-01	-1.9781E-03
1227	0.0000E-01	0.0000E-01	-8.6430E-02
1228	0.0000E-01	0.0000E-01	1.0484E-01
1229	0.0000E-01	0.0000E-01	1.4608E-01
1230	0.0000E-01	0.0000E-01	-2.8911E-03
1231	0.0000E-01	0.0000E-01	3.8041E-03
1232	0.0000E-01	0.0000E-01	1.3756E-01
1233	0.0000E-01	0.0000E-01	1.0865E-01
1234	0.0000E-01	0.0000E-01	1.4699E-01
1235	0.0000E-01	0.0000E-01	-3.4998E-03
1236	0.0000E-01	0.0000E-01	5.6605E-02
1237	0.0000E-01	0.0000E-01	1.1869E-01
1238	0.0000E-01	0.0000E-01	1.5140E-01
1239	0.0000E-01	0.0000E-01	1.5125E-01
1064	0.0000E-01	0.0000E-01	1.0606E-01
1067	0.0000E-01	0.0000E-01	3.3476E-02
1070	0.0000E-01	0.0000E-01	-2.4499E-02
1130	0.0000E-01	0.0000E-01	-2.5259E-02
1134	0.0000E-01	0.0000E-01	-2.0694E-02
1138	0.0000E-01	0.0000E-01	-2.5868E-03
1142	0.0000E-01	0.0000E-01	1.2934E-02
1146	0.0000E-01	0.0000E-01	2.2673E-02
1240	0.0000E-01	0.0000E-01	1.2341E-01
1241	0.0000E-01	0.0000E-01	8.5212E-02
1242	0.0000E-01	0.0000E-01	5.1432E-02
1243	0.0000E-01	0.0000E-01	9.7386E-03
1244	0.0000E-01	8.8256E-03	0.0000E-01
1245	0.0000E-01	-1.2782E-02	0.0000E-01
1246	0.0000E-01	-1.3999E-02	0.0000E-01



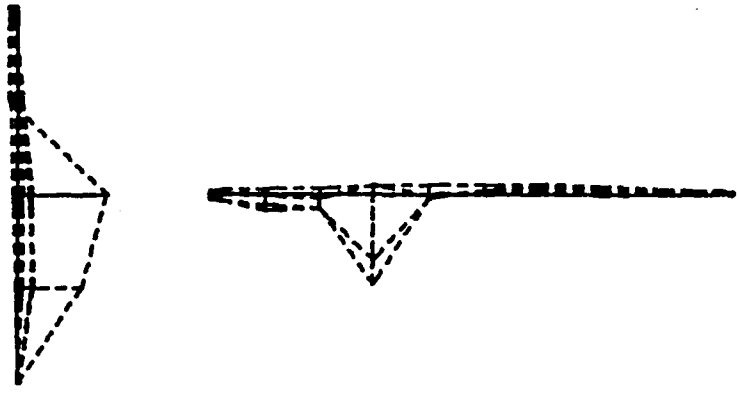
MR PORT SIDE PANELS 1P & 2P
6:1001Z+ COMP,F= 137.000 HZ < 0.0, 0.0, 0.0, 180.0>=VIEW



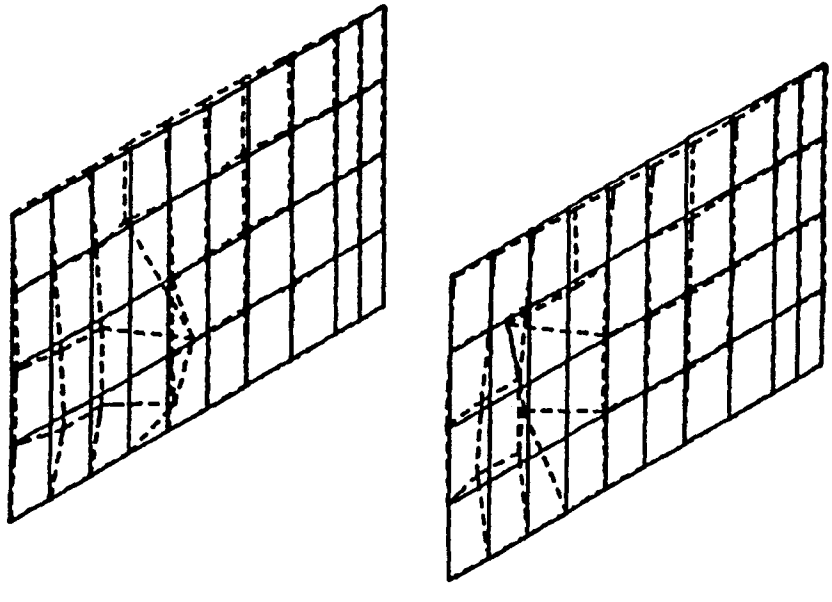
MR PORT SIDE PANELS 1P & 2P
6:1001Z+ COMP,F= 137.000 HZ < 1.0, 1.0, -1.0, 0.0>=VIEW

MODE SHAPE 6:1001Z+ REAL, FREQ = 137.000 HZ
MR PORT SIDE PANELS 1P & 2P
MODE SHAPE

LOC	X COEFF	Y COEFF	Z COEFF
1090	0.0000E-01	0.0000E-01	-4.6128E-03
1091	0.0000E-01	0.0000E-01	-1.9457E-02
1092	0.0000E-01	0.0000E-01	-2.8416E-02
1093	0.0000E-01	0.0000E-01	-1.1887E-02
1094	0.0000E-01	0.0000E-01	1.4164E-02
1095	0.0000E-01	0.0000E-01	-4.2284E-03
1096	0.0000E-01	0.0000E-01	-1.2628E-01
1097	0.0000E-01	0.0000E-01	-1.1984E-01
1098	0.0000E-01	0.0000E-01	-8.7821E-03
1099	0.0000E-01	0.0000E-01	4.2403E-02
1100	0.0000E-01	0.0000E-01	-1.2005E-02
1101	0.0000E-01	0.0000E-01	-5.5531E-02
1102	0.0000E-01	0.0000E-01	-7.1381E-02
1103	0.0000E-01	0.0000E-01	-2.1881E-03
1104	0.0000E-01	0.0000E-01	5.7365E-02
1105	0.0000E-01	0.0000E-01	-6.8897E-03
1106	0.0000E-01	0.0000E-01	-2.6524E-01
1107	0.0000E-01	0.0000E-01	-3.5974E-01
1108	0.0000E-01	0.0000E-01	6.0765E-02
1109	0.0000E-01	0.0000E-01	9.8496E-02
1110	0.0000E-01	0.0000E-01	-6.3870E-03
1111	0.0000E-01	0.0000E-01	-2.0255E-02
1112	0.0000E-01	0.0000E-01	1.3099E-02
1113	0.0000E-01	0.0000E-01	5.2486E-02
1114	0.0000E-01	0.0000E-01	1.0337E-01
1115	0.0000E-01	0.0000E-01	-4.0806E-03
1116	0.0000E-01	0.0000E-01	-4.5153E-02
1117	0.0000E-01	0.0000E-01	7.2584E-02
1118	0.0000E-01	0.0000E-01	5.6152E-02
1119	0.0000E-01	0.0000E-01	1.2351E-01
1120	0.0000E-01	0.0000E-01	6.0322E-03
1121	0.0000E-01	0.0000E-01	5.3077E-02
1122	0.0000E-01	0.0000E-01	1.0278E-01
1123	0.0000E-01	0.0000E-01	1.3463E-01
1001	0.0000E-01	0.0000E-01	1.3963E-01
1220	0.0000E-01	0.0000E-01	-6.5053E-04
1221	0.0000E-01	0.0000E-01	-5.7601E-02
1222	0.0000E-01	0.0000E-01	1.4844E-01
1223	0.0000E-01	0.0000E-01	7.0789E-02
1224	0.0000E-01	0.0000E-01	1.4158E-01
1225	0.0000E-01	0.0000E-01	-1.2715E-03
1226	0.0000E-01	0.0000E-01	1.7062E-02
1227	0.0000E-01	0.0000E-01	5.5029E-02
1228	0.0000E-01	0.0000E-01	8.7999E-02
1229	0.0000E-01	0.0000E-01	1.2475E-01
1230	0.0000E-01	0.0000E-01	5.3225E-04
1231	0.0000E-01	0.0000E-01	2.6583E-02
1232	0.0000E-01	0.0000E-01	7.5195E-02
1233	0.0000E-01	0.0000E-01	1.0154E-01
1234	0.0000E-01	0.0000E-01	1.1393E-01
1235	0.0000E-01	0.0000E-01	5.0564E-03
1236	0.0000E-01	0.0000E-01	5.7069E-02
1237	0.0000E-01	0.0000E-01	1.1112E-01
1238	0.0000E-01	0.0000E-01	1.2322E-01
1239	0.0000E-01	0.0000E-01	1.1192E-01
1064	0.0000E-01	0.0000E-01	5.7838E-02
1067	0.0000E-01	0.0000E-01	-3.9919E-03
1070	0.0000E-01	0.0000E-01	-5.0800E-02
1130	0.0000E-01	0.0000E-01	-4.6158E-02
1134	0.0000E-01	0.0000E-01	-2.2887E-02
1138	0.0000E-01	0.0000E-01	3.3295E-02
1142	0.0000E-01	0.0000E-01	3.3295E-02
1146	0.0000E-01	0.0000E-01	-1.3779E-02
1240	0.0000E-01	0.0000E-01	8.0577E-02
1241	0.0000E-01	0.0000E-01	4.1486E-02
1242	0.0000E-01	0.0000E-01	1.2005E-02
1243	0.0000E-01	0.0000E-01	-1.7653E-02
1244	0.0000E-01	7.9246E-03	0.0000E-01
1245	0.0000E-01	-4.9322E-02	0.0000E-01
1246	0.0000E-01	1.5080E-03	0.0000E-01



MR PORT SIDE PANELS 1P & 2P
7·1001Z+ COMP,F= 146.000 HZ (0.0, 0.0, 0.0, 180.0)=VIEW

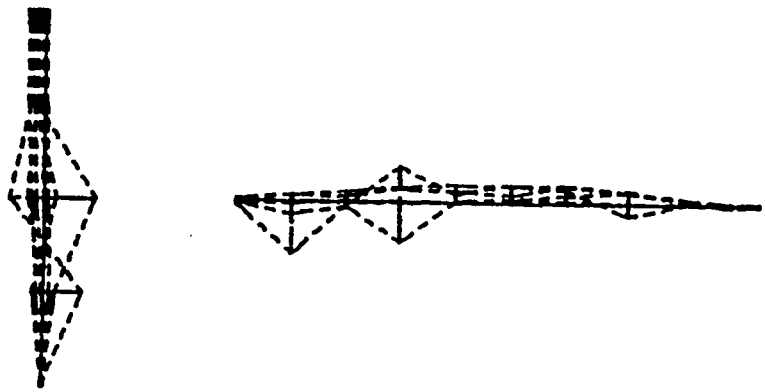


MR PORT SIDE PANELS 1P & 2P
7·1001Z+ COMP,F= 146.000 HZ (1.0, 1.0, -1.0, 0.0)=VIEW

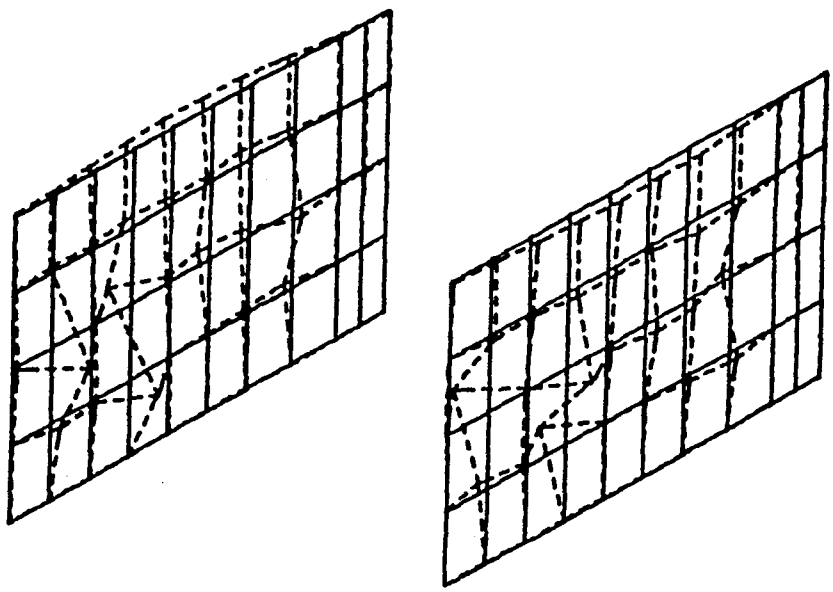
MODE SHAPE 7:1001Z+ REAL, FREQ = 146.000 HZ
MR PORT SIDE PANELS 1P & 2P

MODE SHAPE

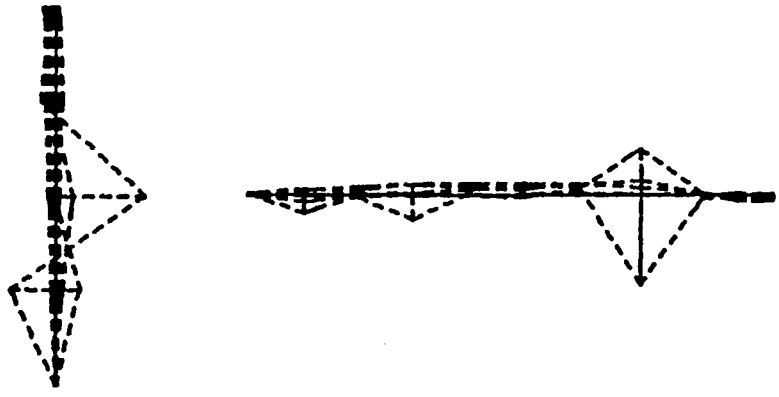
LOC	X COEFF	Y COEFF	Z COEFF
1090	0.0000E-01	0.0000E-01	-7.7331E-03
1091	0.0000E-01	0.0000E-01	-4.9075E-02
1092	0.0000E-01	0.0000E-01	-9.8567E-02
1093	0.0000E-01	0.0000E-01	-2.1296E-02
1094	0.0000E-01	0.0000E-01	8.6789E-02
1095	0.0000E-01	0.0000E-01	-1.1897E-02
1096	0.0000E-01	0.0000E-01	-3.4728E-01
1097	0.0000E-01	0.0000E-01	-2.3080E-01
1098	0.0000E-01	0.0000E-01	-1.0469E-02
1099	0.0000E-01	0.0000E-01	1.1344E-01
1100	0.0000E-01	0.0000E-01	-1.4455E-02
1101	0.0000E-01	0.0000E-01	-3.0189E-01
1102	0.0000E-01	0.0000E-01	-2.8975E-01
1103	0.0000E-01	0.0000E-01	-8.2387E-02
1104	0.0000E-01	0.0000E-01	1.3146E-01
1105	0.0000E-01	0.0000E-01	3.9260E-03
1106	0.0000E-01	0.0000E-01	-1.4026E 00
1107	0.0000E-01	0.0000E-01	-1.9492E 00
1108	0.0000E-01	0.0000E-01	2.1944E-01
1109	0.0000E-01	0.0000E-01	1.8631E-01
1110	0.0000E-01	0.0000E-01	-6.4244E-03
1111	0.0000E-01	0.0000E-01	-8.9109E-02
1112	0.0000E-01	0.0000E-01	-6.7278E-02
1113	0.0000E-01	0.0000E-01	0.0000E-01
1114	0.0000E-01	0.0000E-01	2.0817E-01
1115	0.0000E-01	0.0000E-01	-6.7218E-03
1116	0.0000E-01	0.0000E-01	3.4145E-02
1117	0.0000E-01	0.0000E-01	8.1733E-02
1118	0.0000E-01	0.0000E-01	1.5109E-02
1119	0.0000E-01	0.0000E-01	2.0600E-01
1120	0.0000E-01	0.0000E-01	1.9333E-02
1121	0.0000E-01	0.0000E-01	7.3940E-02
1122	0.0000E-01	0.0000E-01	1.2879E-01
1123	0.0000E-01	0.0000E-01	1.8738E-01
1001	0.0000E-01	0.0000E-01	2.0213E-01
1220	0.0000E-01	0.0000E-01	-1.9035E-03
1221	0.0000E-01	0.0000E-01	-4.0510E-02
1222	0.0000E-01	0.0000E-01	6.5374E-02
1223	0.0000E-01	0.0000E-01	8.4469E-02
1224	0.0000E-01	0.0000E-01	1.6329E-01
1225	0.0000E-01	0.0000E-01	1.4276E-03
1226	0.0000E-01	0.0000E-01	4.7588E-03
1227	0.0000E-01	0.0000E-01	3.8844E-02
1228	0.0000E-01	0.0000E-01	6.3947E-02
1229	0.0000E-01	0.0000E-01	1.0582E-01
1230	0.0000E-01	0.0000E-01	2.0820E-03
1231	0.0000E-01	0.0000E-01	1.2908E-02
1232	0.0000E-01	0.0000E-01	4.2235E-02
1233	0.0000E-01	0.0000E-01	5.3418E-02
1234	0.0000E-01	0.0000E-01	7.0966E-02
1235	0.0000E-01	0.0000E-01	3.5691E-03
1236	0.0000E-01	0.0000E-01	4.1580E-02
1237	0.0000E-01	0.0000E-01	6.5017E-02
1238	0.0000E-01	0.0000E-01	6.2698E-02
1239	0.0000E-01	0.0000E-01	4.8778E-02
1064	0.0000E-01	0.0000E-01	9.1013E-03
1067	0.0000E-01	0.0000E-01	-4.3960E-02
1070	0.0000E-01	0.0000E-01	-8.7027E-02
1130	0.0000E-01	0.0000E-01	-2.5103E-02
1134	0.0000E-01	0.0000E-01	-1.6953E-02
1138	0.0000E-01	0.0000E-01	1.3801E-02
1142	0.0000E-01	0.0000E-01	2.2664E-02
1146	0.0000E-01	0.0000E-01	-7.9115E-03
1240	0.0000E-01	0.0000E-01	2.1653E-02
1241	0.0000E-01	0.0000E-01	-1.7727E-02
1242	0.0000E-01	0.0000E-01	-3.3490E-02
1243	0.0000E-01	0.0000E-01	-4.7350E-02
1244	0.0000E-01	2.7542E-02	0.0000E-01
1245	0.0000E-01	-2.0195E-01	0.0000E-01
1246	0.0000E-01	2.6709E-02	0.0000E-01



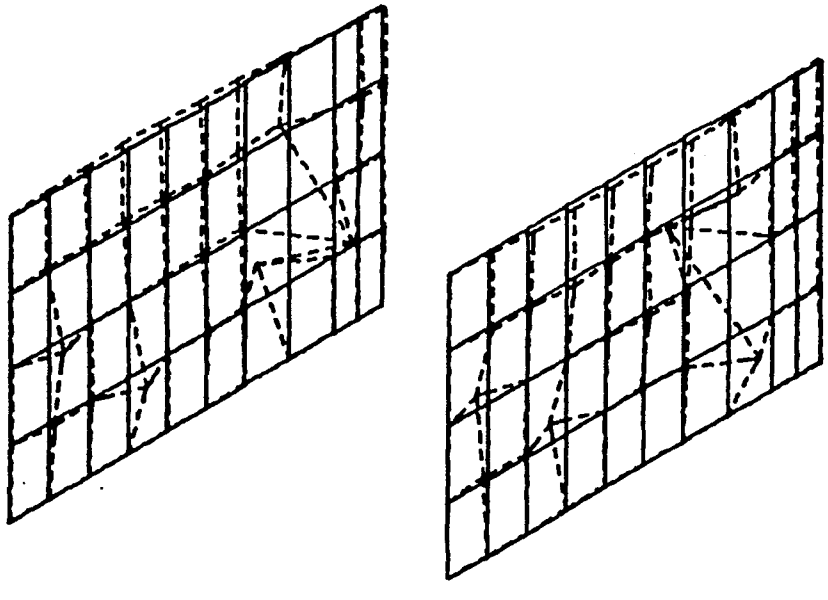
MR PORT SIDE PANELS 1P & 2P
 0:1001Z+ COMP,F= 157.000 HZ < 0.0, 0.0, 0.0, 180.0>=VIEW



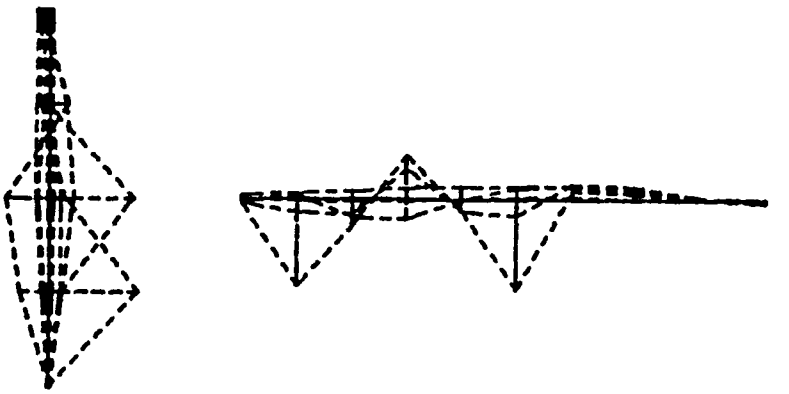
MR PORT SIDE PANELS 1P & 2P
 0:1001Z+ COMP,F= 157.000 HZ < 1.0, 1.0, -1.0, 0.0>=VIEW



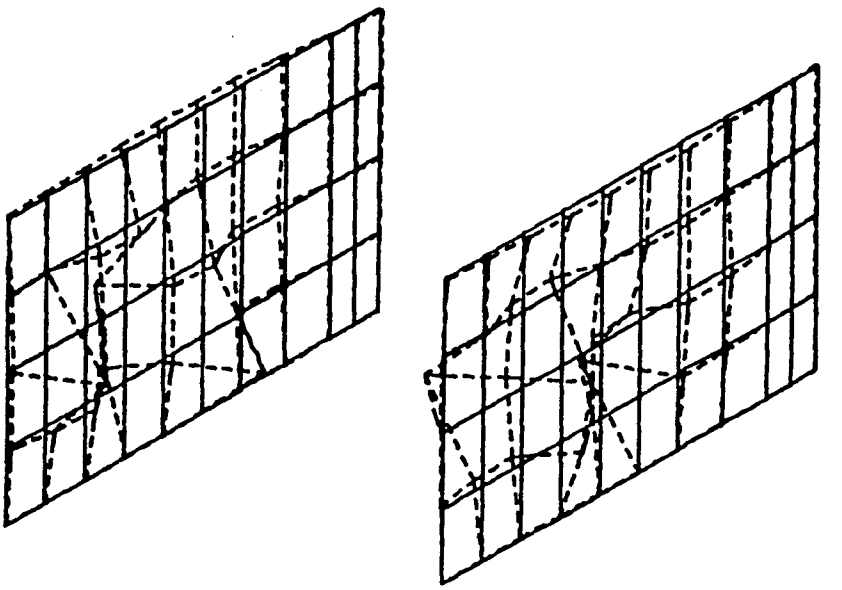
MR PORT SIDE PANELS 1P & 2P
9:1001Z+ COMP,F= 161.000 HZ (0.0, 0.0, 0.0, 180.0)=VIEW



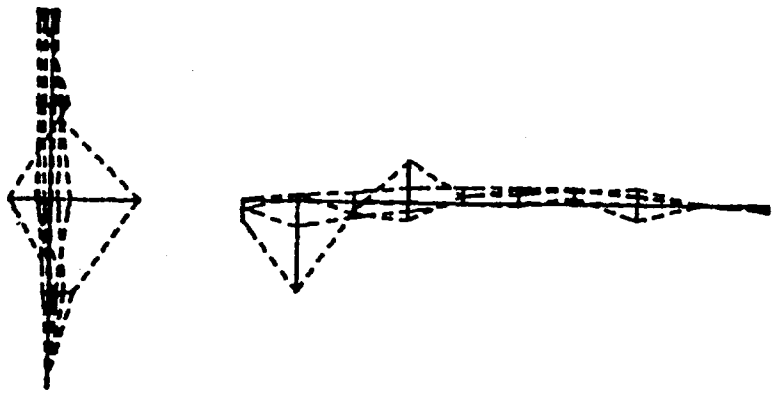
MR PORT SIDE PANELS 1P & 2P
9:1001Z+ COMP,F= 161.000 HZ (1.0, 1.0, -1.0, 0.0)=VIEW



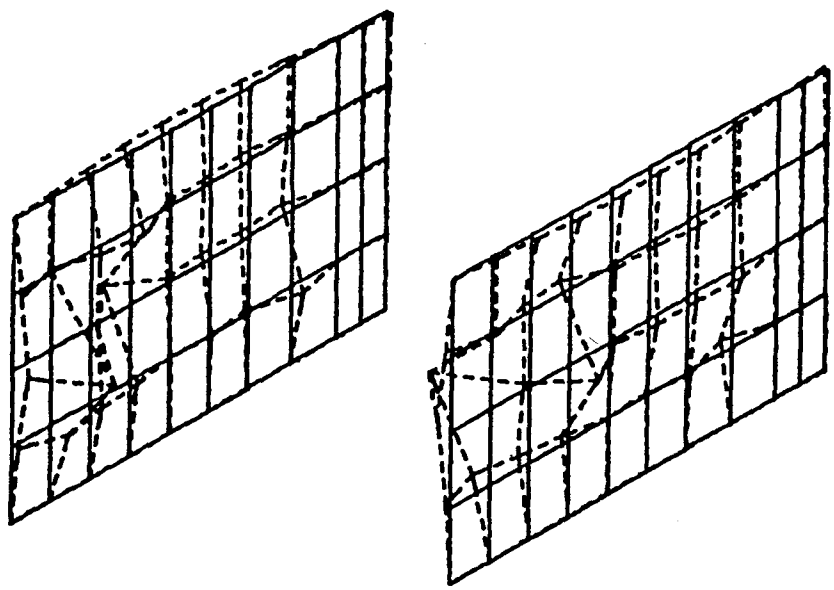
MR PORT SIDE PANELS 1P & 2P
10:1001Z+ COMP,F= 166.000 HZ < 0.0, 0.0, 0.0, 180.0)=VIEW



MR PORT SIDE PANELS 1P & 2P
10:1001Z+ COMP,F= 166.000 HZ < 1.0, 1.0, -1.0, 0.0)=VIEW



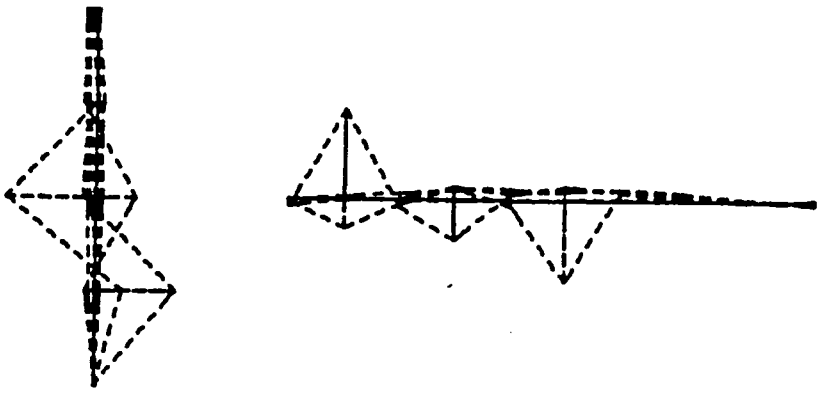
MR PORT SIDE PANELS 1P & 2P
11:1001Z+ COMP,F= 172.000 HZ (0.0, 0.0, 0.0, 180.0)=VIEW



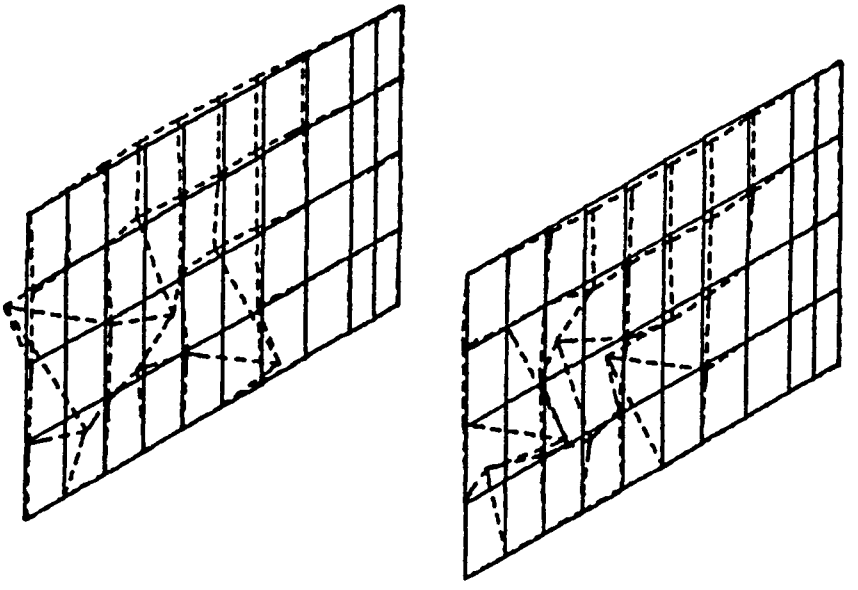
MR PORT SIDE PANELS 1P & 2P
11:1001Z+ COMP,F= 172.000 HZ (1.0, 1.0, -1.0, 0.0)=VIEW

MODE SHAPE 11:10012+ REAL, FREQ = 172.000 HZ
MR PORT SIDE PANELS 1P & 2P
MODE SHAPE

LOC	X COEFF	Y COEFF	Z COEFF
1090	0.0000E-01	0.0000E-01	-4.6781E-03
1091	0.0000E-01	0.0000E-01	-1.4595E-01
1092	0.0000E-01	0.0000E-01	-3.9736E-01
1093	0.0000E-01	0.0000E-01	-1.7766E-01
1094	0.0000E-01	0.0000E-01	3.5412E-02
1095	0.0000E-01	0.0000E-01	1.7624E-02
1096	0.0000E-01	0.0000E-01	-4.9620E-01
1097	0.0000E-01	0.0000E-01	-1.7824E 00
1098	0.0000E-01	0.0000E-01	1.2451E-01
1099	0.0000E-01	0.0000E-01	1.2517E-01
1100	0.0000E-01	0.0000E-01	6.6363E-03
1101	0.0000E-01	0.0000E-01	-3.0174E-01
1102	0.0000E-01	0.0000E-01	-1.5742E-01
1103	0.0000E-01	0.0000E-01	-2.3086E-01
1104	0.0000E-01	0.0000E-01	1.8217E-01
1105	0.0000E-01	0.0000E-01	-3.6446E-03
1106	0.0000E-01	0.0000E-01	-1.9311E-01
1107	0.0000E-01	0.0000E-01	8.3433E-01
1108	0.0000E-01	0.0000E-01	-3.3932E-01
1109	0.0000E-01	0.0000E-01	2.8215E-01
1110	0.0000E-01	0.0000E-01	-5.0589E-03
1111	0.0000E-01	0.0000E-01	4.3517E-04
1112	0.0000E-01	0.0000E-01	1.2038E-01
1113	0.0000E-01	0.0000E-01	1.4915E-01
1114	0.0000E-01	0.0000E-01	3.0826E-01
1115	0.0000E-01	0.0000E-01	-6.6907E-03
1116	0.0000E-01	0.0000E-01	-5.6137E-02
1117	0.0000E-01	0.0000E-01	2.5637E-01
1118	0.0000E-01	0.0000E-01	1.7113E-01
1119	0.0000E-01	0.0000E-01	2.9385E-01
1120	0.0000E-01	0.0000E-01	1.4741E-02
1121	0.0000E-01	0.0000E-01	1.1434E-01
1122	0.0000E-01	0.0000E-01	2.4157E-01
1123	0.0000E-01	0.0000E-01	2.7378E-01
1001	0.0000E-01	0.0000E-01	3.0625E-01
1220	0.0000E-01	0.0000E-01	5.9836E-04
1221	0.0000E-01	0.0000E-01	-3.2616E-01
1222	0.0000E-01	0.0000E-01	2.9978E-01
1223	0.0000E-01	0.0000E-01	1.3817E-01
1224	0.0000E-01	0.0000E-01	1.7004E-01
1225	0.0000E-01	0.0000E-01	-5.4396E-04
1226	0.0000E-01	0.0000E-01	-1.8060E-02
1227	0.0000E-01	0.0000E-01	-5.4396E-05
1228	0.0000E-01	0.0000E-01	4.0253E-03
1229	0.0000E-01	0.0000E-01	2.5022E-02
1230	0.0000E-01	0.0000E-01	4.0253E-03
1231	0.0000E-01	0.0000E-01	-1.7570E-02
1232	0.0000E-01	0.0000E-01	-3.8077E-02
1233	0.0000E-01	0.0000E-01	-2.7579E-02
1234	0.0000E-01	0.0000E-01	-5.3036E-02
1235	0.0000E-01	0.0000E-01	9.4106E-03
1236	0.0000E-01	0.0000E-01	-1.4905E-02
1237	0.0000E-01	0.0000E-01	-3.4324E-02
1238	0.0000E-01	0.0000E-01	-7.3381E-02
1239	0.0000E-01	0.0000E-01	-1.1788E-01
1064	0.0000E-01	0.0000E-01	-1.8223E-01
1067	0.0000E-01	0.0000E-01	-2.0573E-01
1070	0.0000E-01	0.0000E-01	-1.8788E-01
1130	0.0000E-01	0.0000E-01	6.3154E-02
1134	0.0000E-01	0.0000E-01	1.6852E-01
1138	0.0000E-01	0.0000E-01	9.2147E-02
1142	0.0000E-01	0.0000E-01	3.7153E-02
1146	0.0000E-01	0.0000E-01	-3.6772E-02
1240	0.0000E-01	0.0000E-01	-1.9365E-01
1241	0.0000E-01	0.0000E-01	-2.1340E-01
1242	0.0000E-01	0.0000E-01	-1.7570E-01
1243	0.0000E-01	0.0000E-01	-8.9101E-02
1244	0.0000E-01	1.1695E-02	0.0000E-01
1245	0.0000E-01	6.5439E-02	0.0000E-01
1246	0.0000E-01	-3.2311E-02	0.0000E-01



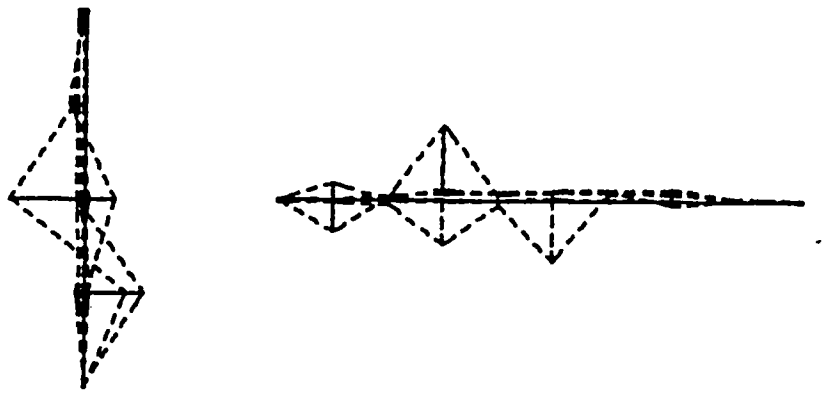
MR PORT SIDE PANELS 1P & 2P
12:1001Z+ COMP,F= 177.000 HZ (0.0, 0.0, 0.0, 180.0)=VIEW



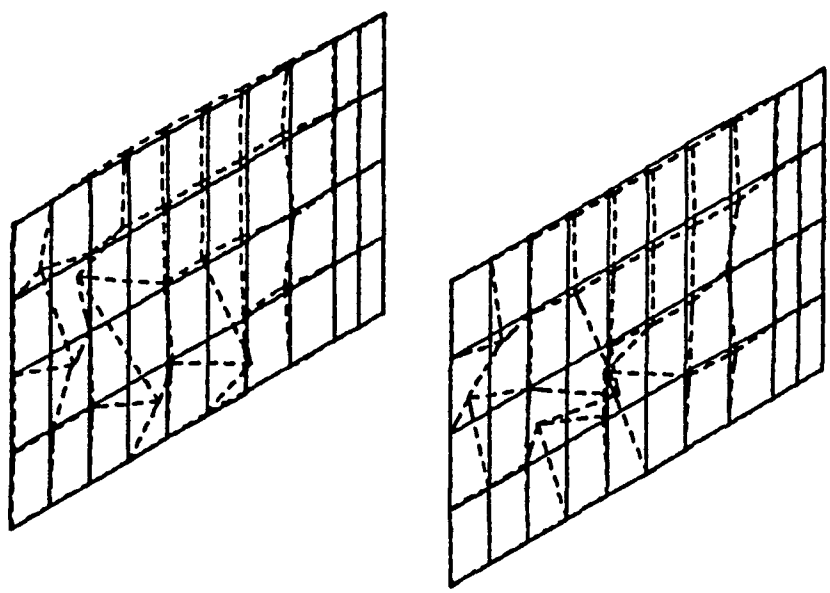
MR PORT SIDE PANELS 1P & 2P
12:1001Z+ COMP,F= 177.000 HZ (1.0, 1.0, -1.0, 0.0)=VIEW

MODE SHAPE 12:1001Z+ REAL, FREQ = 177.000 HZ
MR PORT SIDE PANELS 1P & 2P
MODE SHAPE

LOC	X COEFF	Y COEFF	Z COEFF
1090	0.0000E-01	0.0000E-01	-1.3649E-02
1091	0.0000E-01	0.0000E-01	-6.1638E-02
1092	0.0000E-01	0.0000E-01	-1.1278E-01
1093	0.0000E-01	0.0000E-01	-1.4384E-01
1094	0.0000E-01	0.0000E-01	-2.7793E-03
1095	0.0000E-01	0.0000E-01	5.3733E-03
1096	0.0000E-01	0.0000E-01	-6.1891E-01
1097	0.0000E-01	0.0000E-01	2.0237E 00
1098	0.0000E-01	0.0000E-01	-8.5231E-03
1099	0.0000E-01	0.0000E-01	8.0475E-02
1100	0.0000E-01	0.0000E-01	5.3115E-03
1101	0.0000E-01	0.0000E-01	-9.5483E-02
1102	0.0000E-01	0.0000E-01	-1.6243E-01
1103	0.0000E-01	0.0000E-01	1.2105E-02
1104	0.0000E-01	0.0000E-01	1.5379E-01
1105	0.0000E-01	0.0000E-01	-1.0623E-02
1106	0.0000E-01	0.0000E-01	2.4717E-01
1107	0.0000E-01	0.0000E-01	-9.0246E-01
1108	0.0000E-01	0.0000E-01	2.9831E-01
1109	0.0000E-01	0.0000E-01	2.0968E-01
1110	0.0000E-01	0.0000E-01	-1.4576E-02
1111	0.0000E-01	0.0000E-01	-1.1593E-01
1112	0.0000E-01	0.0000E-01	1.3032E-01
1113	0.0000E-01	0.0000E-01	1.6669E-01
1114	0.0000E-01	0.0000E-01	2.4470E-01
1115	0.0000E-01	0.0000E-01	2.1061E-02
1116	0.0000E-01	0.0000E-01	-1.8277E 00
1117	0.0000E-01	0.0000E-01	2.9825E-01
1118	0.0000E-01	0.0000E-01	1.7917E-01
1119	0.0000E-01	0.0000E-01	2.1752E-01
1120	0.0000E-01	0.0000E-01	1.7108E-02
1121	0.0000E-01	0.0000E-01	1.5805E-01
1122	0.0000E-01	0.0000E-01	2.0789E-01
1123	0.0000E-01	0.0000E-01	2.3327E-01
1001	0.0000E-01	0.0000E-01	2.1567E-01
1220	0.0000E-01	0.0000E-01	2.7793E-03
1221	0.0000E-01	0.0000E-01	2.2914E-02
1222	0.0000E-01	0.0000E-01	2.8287E-02
1223	0.0000E-01	0.0000E-01	1.7139E-01
1224	0.0000E-01	0.0000E-01	1.2951E-01
1225	0.0000E-01	0.0000E-01	1.5070E-02
1226	0.0000E-01	0.0000E-01	2.6558E-03
1227	0.0000E-01	0.0000E-01	0.0000E-01
1228	0.0000E-01	0.0000E-01	8.3996E-03
1229	0.0000E-01	0.0000E-01	2.8781E-02
1230	0.0000E-01	0.0000E-01	5.3733E-03
1231	0.0000E-01	0.0000E-01	-8.5231E-03
1232	0.0000E-01	0.0000E-01	-3.5389E-02
1233	0.0000E-01	0.0000E-01	-2.0011E-02
1234	0.0000E-01	0.0000E-01	-2.9399E-02
1235	0.0000E-01	0.0000E-01	2.5013E-02
1236	0.0000E-01	0.0000E-01	-1.8899E-02
1237	0.0000E-01	0.0000E-01	-4.1874E-02
1238	0.0000E-01	0.0000E-01	-5.3486E-02
1239	0.0000E-01	0.0000E-01	-7.0841E-02
1064	0.0000E-01	0.0000E-01	-4.6198E-02
1067	0.0000E-01	0.0000E-01	-7.9796E-02
1070	0.0000E-01	0.0000E-01	-5.7438E-02
1130	0.0000E-01	0.0000E-01	4.1133E-02
1134	0.0000E-01	0.0000E-01	7.2138E-02
1138	0.0000E-01	0.0000E-01	5.6635E-02
1142	0.0000E-01	0.0000E-01	1.7170E-02
1146	0.0000E-01	0.0000E-01	-1.3526E-02
1240	0.0000E-01	0.0000E-01	-1.8660E-01
1241	0.0000E-01	0.0000E-01	-1.1654E-01
1242	0.0000E-01	0.0000E-01	-9.7151E-02
1243	0.0000E-01	0.0000E-01	-4.7989E-02
1244	0.0000E-01	-3.5204E-03	0.0000E-01
1245	0.0000E-01	-2.1925E-02	0.0000E-01
1246	0.0000E-01	-2.1925E-02	0.0000E-01



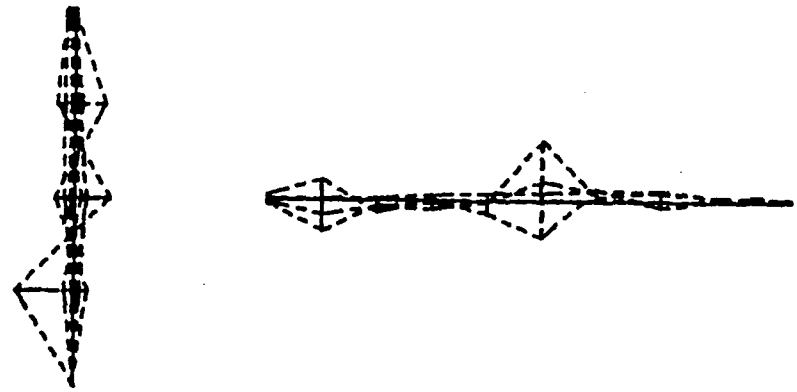
MR PORT SIDE PANELS 1P & 2P
13:1001Z+ COMP,F= 183.000 HZ (0.0, 0.0, 0.0, 180.0)=VIEW



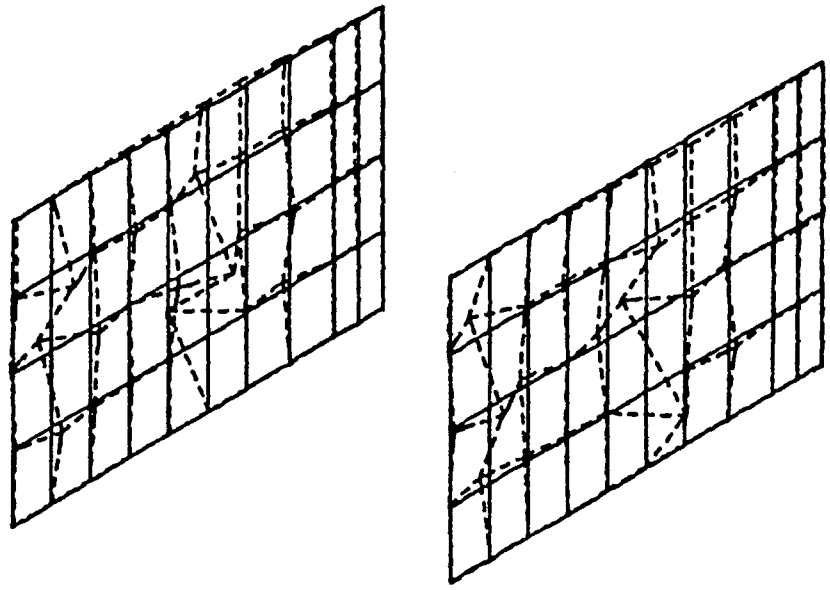
MR PORT SIDE PANELS 1P & 2P
13:1001Z+ COMP,F= 183.000 HZ (1.0, 1.0, -1.0, 0.0)=VIEW

MODE SHAPE 13:1001Z+ REAL, FREQ = 183.000 HZ
MR PORT SIDE PANELS 1P & 2P
MODE SHAPE

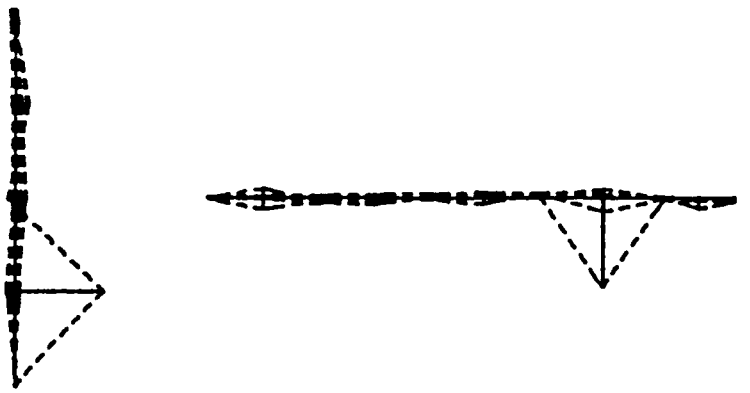
LOC	X COEFF	Y COEFF	Z COEFF
1090	0.0000E-01	0.0000E-01	7.7047E-03
1091	0.0000E-01	0.0000E-01	-2.4892E-02
1092	0.0000E-01	0.0000E-01	-8.0998E-03
1093	0.0000E-01	0.0000E-01	1.3236E-02
1094	0.0000E-01	0.0000E-01	-2.6077E-02
1095	0.0000E-01	0.0000E-01	1.2775E-02
1096	0.0000E-01	0.0000E-01	-3.4375E-02
1097	0.0000E-01	0.0000E-01	-7.3274E-01
1098	0.0000E-01	0.0000E-01	4.8111E-01
1099	0.0000E-01	0.0000E-01	1.9295E-02
1100	0.0000E-01	0.0000E-01	3.0951E-03
1101	0.0000E-01	0.0000E-01	-8.3435E-02
1102	0.0000E-01	0.0000E-01	5.7160E-02
1103	0.0000E-01	0.0000E-01	2.9436E-02
1104	0.0000E-01	0.0000E-01	9.5486E-02
1105	0.0000E-01	0.0000E-01	-4.1487E-03
1106	0.0000E-01	0.0000E-01	-1.0373E 00
1107	0.0000E-01	0.0000E-01	1.8026E 00
1108	0.0000E-01	0.0000E-01	2.6558E-01
1109	0.0000E-01	0.0000E-01	1.5179E-01
1110	0.0000E-01	0.0000E-01	-3.2268E-03
1111	0.0000E-01	0.0000E-01	-1.1518E-01
1112	0.0000E-01	0.0000E-01	1.2987E-01
1113	0.0000E-01	0.0000E-01	1.9920E-01
1114	0.0000E-01	0.0000E-01	1.8030E-01
1115	0.0000E-01	0.0000E-01	2.7395E-02
1116	0.0000E-01	0.0000E-01	-1.4582E 00
1117	0.0000E-01	0.0000E-01	2.0888E-01
1118	0.0000E-01	0.0000E-01	2.3042E-01
1119	0.0000E-01	0.0000E-01	1.8458E-01
1120	0.0000E-01	0.0000E-01	2.0414E-02
1121	0.0000E-01	0.0000E-01	1.4435E-01
1122	0.0000E-01	0.0000E-01	2.1995E-01
1123	0.0000E-01	0.0000E-01	2.4708E-01
1001	0.0000E-01	0.0000E-01	1.9150E-01
1220	0.0000E-01	0.0000E-01	-1.9756E-03
1221	0.0000E-01	0.0000E-01	2.1580E-01
1222	0.0000E-01	0.0000E-01	-9.8581E-02
1223	0.0000E-01	0.0000E-01	2.8125E-01
1224	0.0000E-01	0.0000E-01	1.3519E-01
1225	0.0000E-01	0.0000E-01	-3.9511E-04
1226	0.0000E-01	0.0000E-01	2.3509E-02
1227	0.0000E-01	0.0000E-01	3.7404E-02
1228	0.0000E-01	0.0000E-01	5.9794E-02
1229	0.0000E-01	0.0000E-01	5.5645E-02
1230	0.0000E-01	0.0000E-01	6.5852E-03
1231	0.0000E-01	0.0000E-01	1.6792E-02
1232	0.0000E-01	0.0000E-01	2.4365E-02
1233	0.0000E-01	0.0000E-01	3.4902E-02
1234	0.0000E-01	0.0000E-01	1.0800E-02
1235	0.0000E-01	0.0000E-01	1.3170E-03
1236	0.0000E-01	0.0000E-01	3.7536E-03
1237	0.0000E-01	0.0000E-01	6.6511E-03
1238	0.0000E-01	0.0000E-01	-5.9267E-03
1239	0.0000E-01	0.0000E-01	-2.9238E-02
1064	0.0000E-01	0.0000E-01	-3.9643E-02
1067	0.0000E-01	0.0000E-01	-6.0584E-02
1070	0.0000E-01	0.0000E-01	-5.5052E-02
1130	0.0000E-01	0.0000E-01	1.4356E-02
1134	0.0000E-01	0.0000E-01	4.8731E-02
1138	0.0000E-01	0.0000E-01	2.8843E-02
1142	0.0000E-01	0.0000E-01	-2.6341E-04
1146	0.0000E-01	0.0000E-01	-9.1535E-03
1240	0.0000E-01	0.0000E-01	-5.3472E-02
1241	0.0000E-01	0.0000E-01	-7.4018E-02
1242	0.0000E-01	0.0000E-01	-7.4084E-02
1243	0.0000E-01	0.0000E-01	-5.2287E-02
1244	0.0000E-01	7.1779E-03	0.0000E-01
1245	0.0000E-01	1.2051E-02	0.0000E-01
1246	0.0000E-01	-1.8636E-02	0.0000E-01



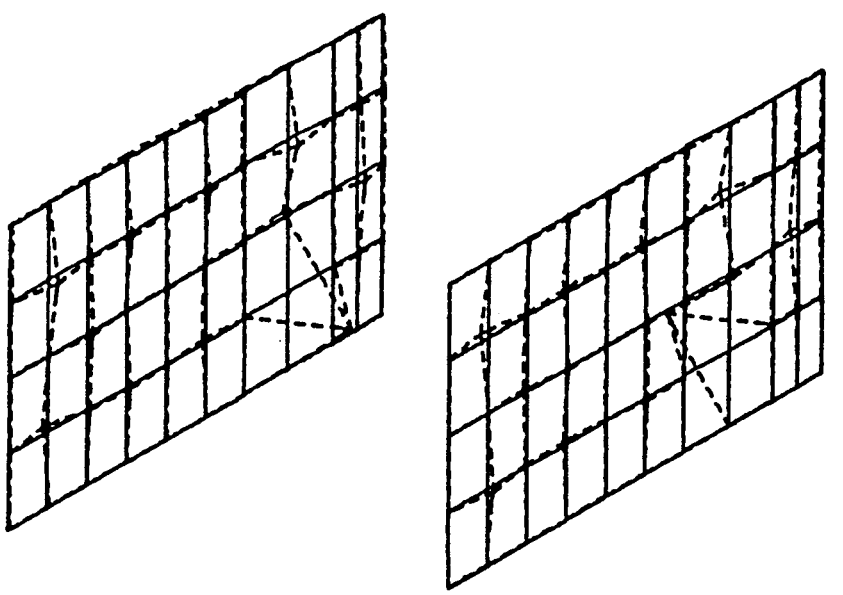
MR PORT SIDE PANELS 1P & 2P
14:1001Z+ COMP,F= 189.000 HZ (0.0, 0.0, 0.0, 100.0)=VIEW



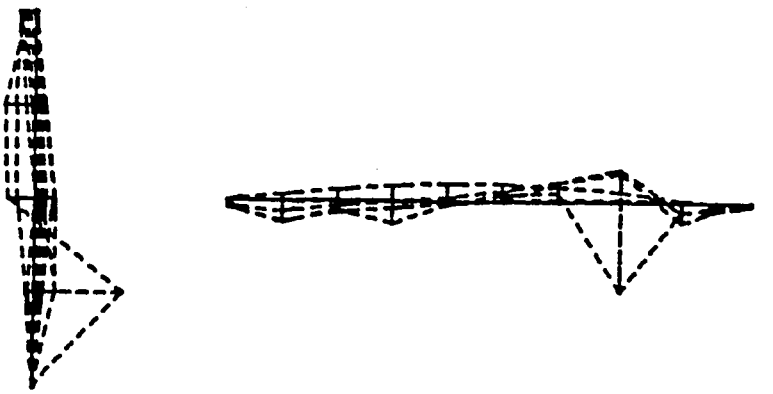
MR PORT SIDE PANELS 1P & 2P
14:1001Z+ COMP,F= 189.000 HZ (1.0, 1.0, -1.0, 0.0)=VIEW



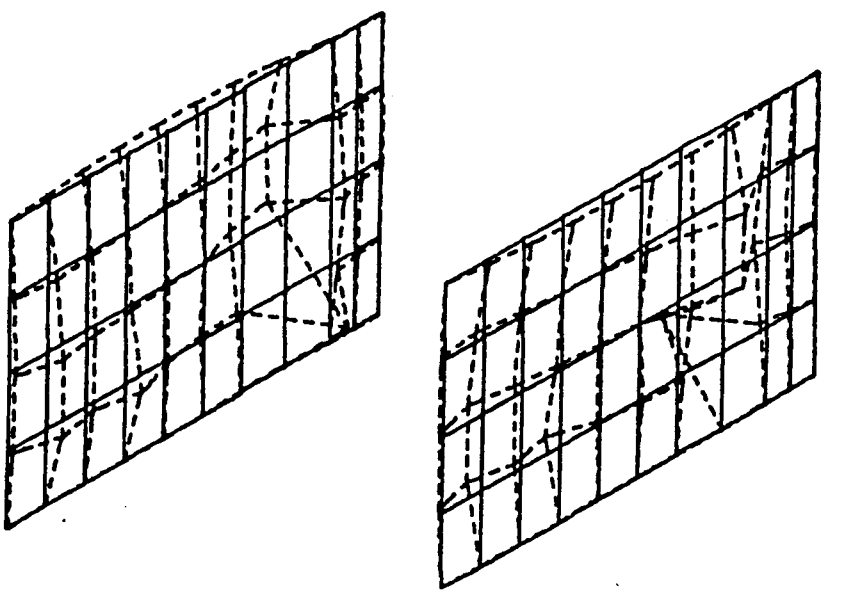
MR PORT SIDE PANELS 1P & 2P
15:1001Z+ COMP,F= 217.000 HZ (0.0, 0.0, 0.0, 180.0)=VIEW



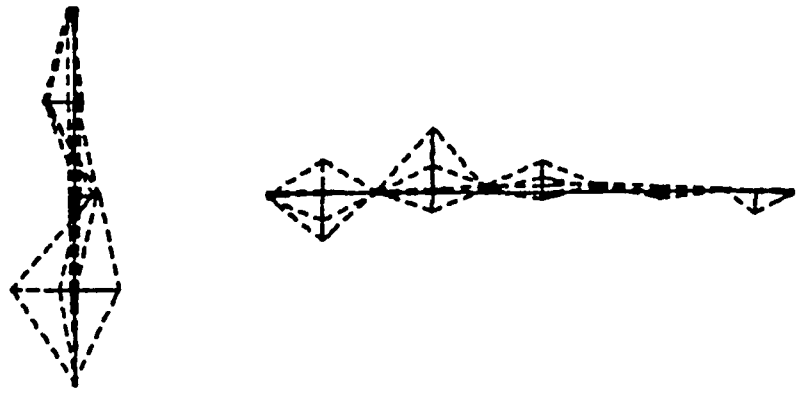
MR PORT SIDE PANELS 1P & 2P
15:1001Z+ COMP,F= 217.000 HZ (1.0, 1.0, -1.0, 0.0)=VIEW



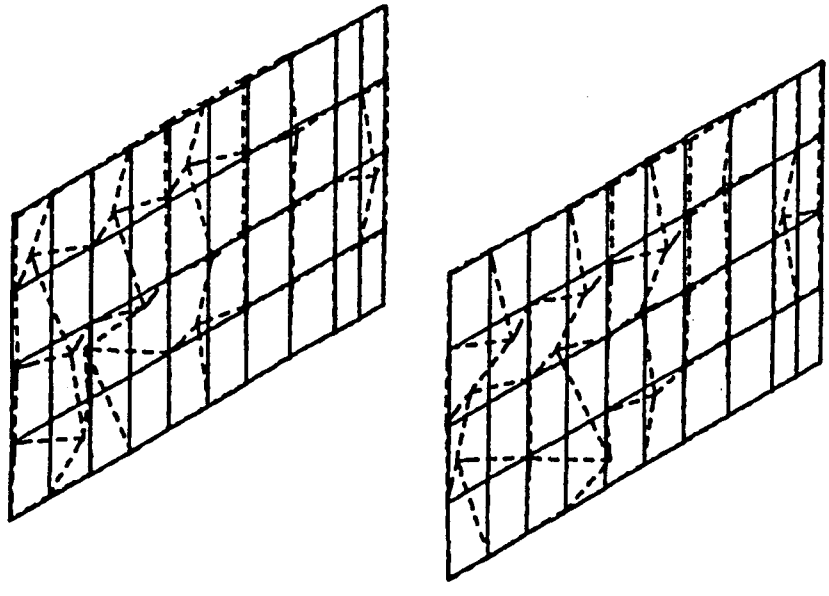
MR PORT SIDE PANELS 1P & 2P
16:1001Z+ COMP,F= 224.000 HZ < 0.0, 0.0, 0.0, 180.0)=VIEW



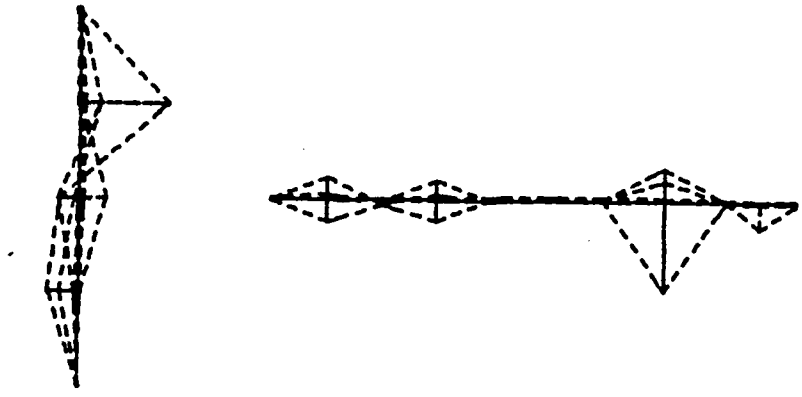
MR PORT SIDE PANELS 1P & 2P
16:1001Z+ COMP,F= 224.000 HZ < 1.0, 1.0, -1.0, 0.0)=VIEW



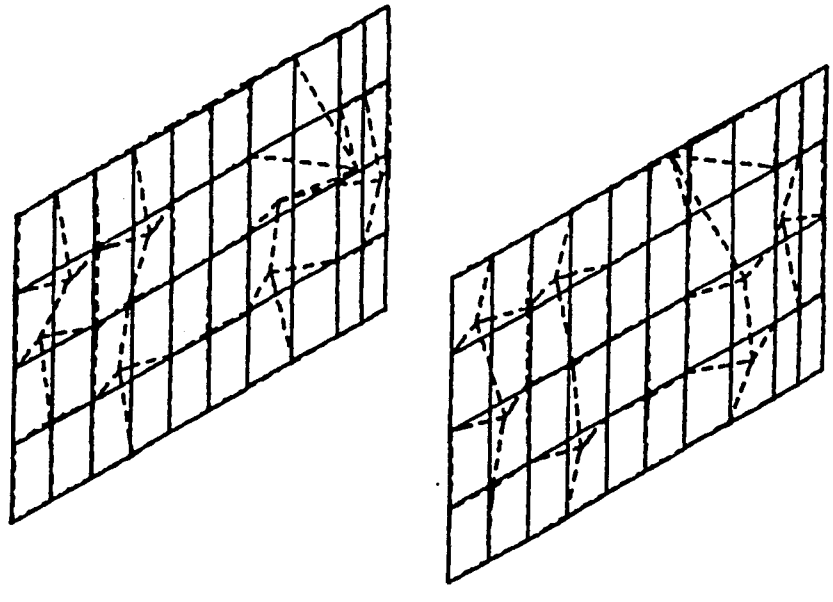
MR PORT SIDE PANELS 1P & 2P
17:1001Z+ COMP,F= 234.000 HZ < 0.0, 0.0, 0.0, 180.0)=VIEW



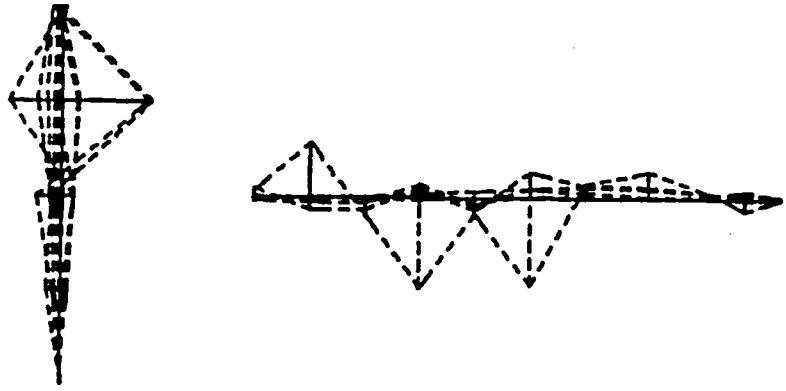
MR PORT SIDE PANELS 1P & 2P
17:1001Z+ COMP,F= 234.000 HZ < 1.0, 1.0, -1.0, 0.0)=VIEW



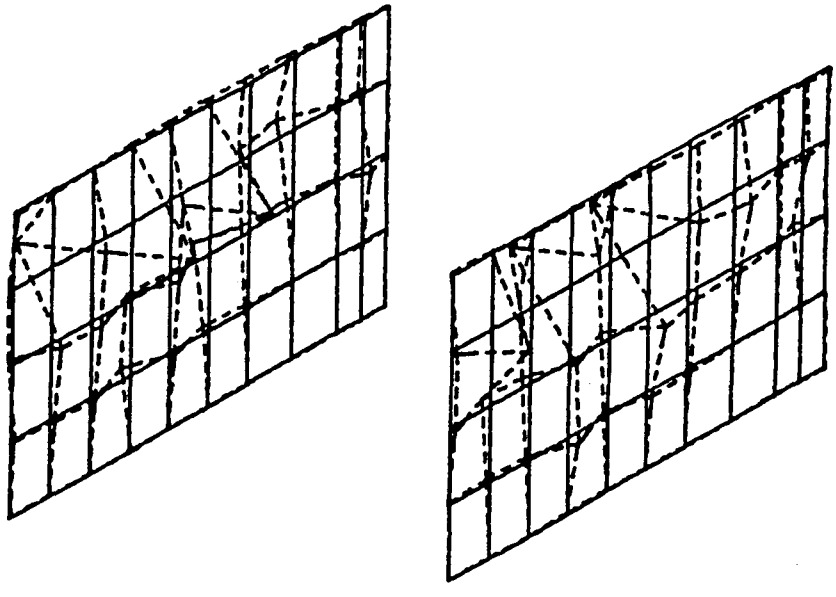
MR PORT SIDE PANELS 1P & 2P
18·1001Z+ COMP,F= 241.000 HZ (0.0, 0.0, 0.0, 180.0)=VIEW



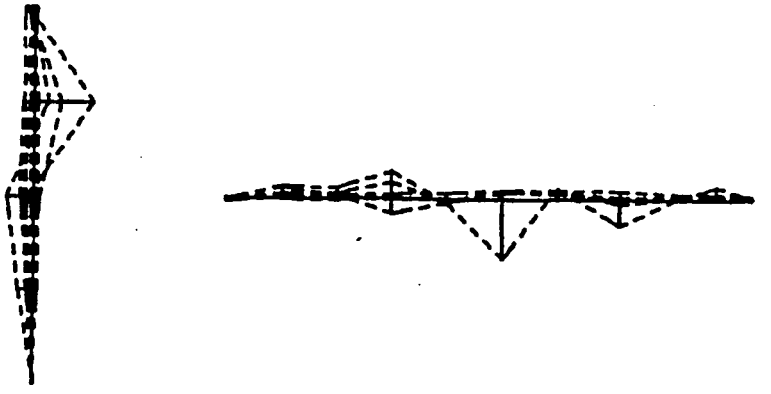
MR PORT SIDE PANELS 1P & 2P
18·1001Z+ COMP,F= 241.000 HZ (1.0, 1.0, -1.0, 0.0)=VIEW



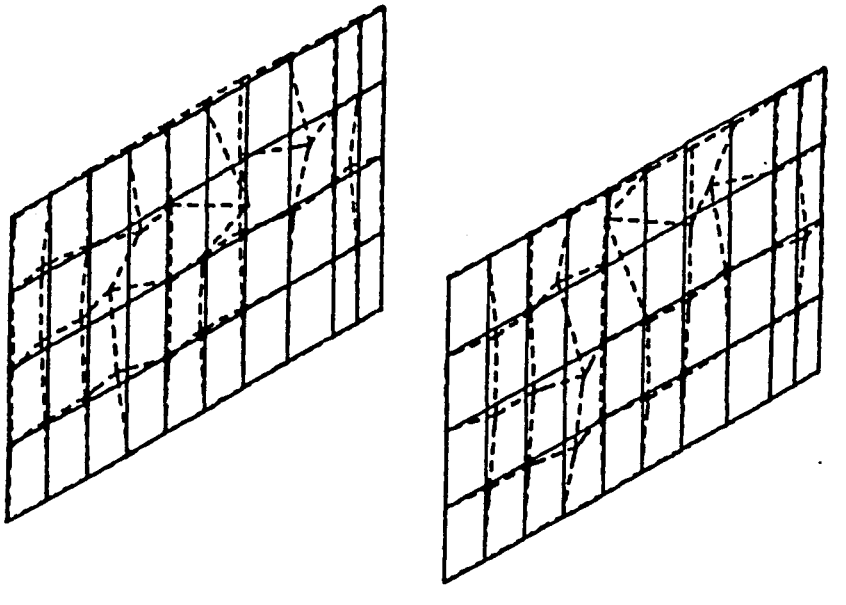
MR PORT SIDE PANELS 1P & 2P
19:1001Z+ COMP,F= 261.000 HZ < 0.0, 0.0, 0.0, 180.0>=VIEW



MR PORT SIDE PANELS 1P & 2P
19:1001Z+ COMP,F= 261.000 HZ < 1.0, 1.0, -1.0, 0.0>=VIEW

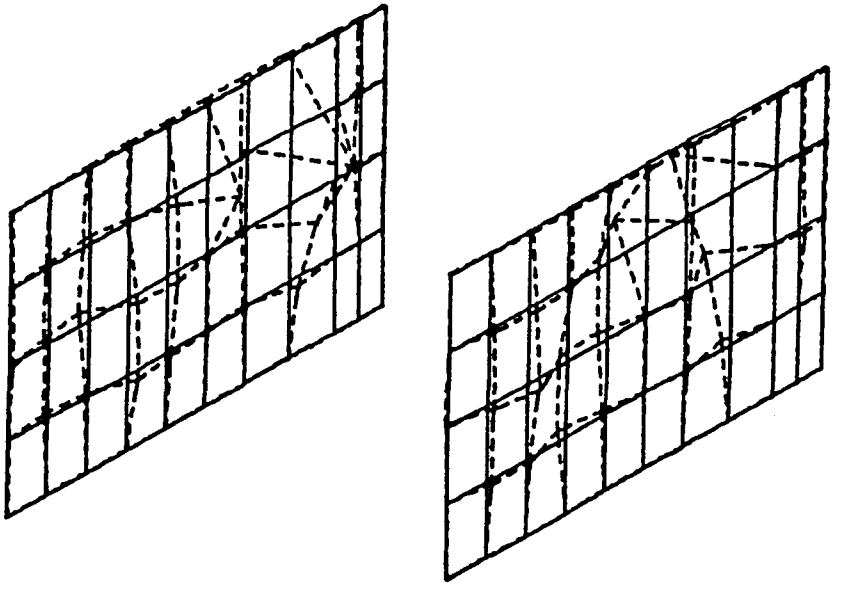


MR PORT SIDE PANELS 1P & 2P
20·1001Z+ COMP,F= 269.000 HZ (0.0, 0.0, 0.0, 180.0)=VIEW

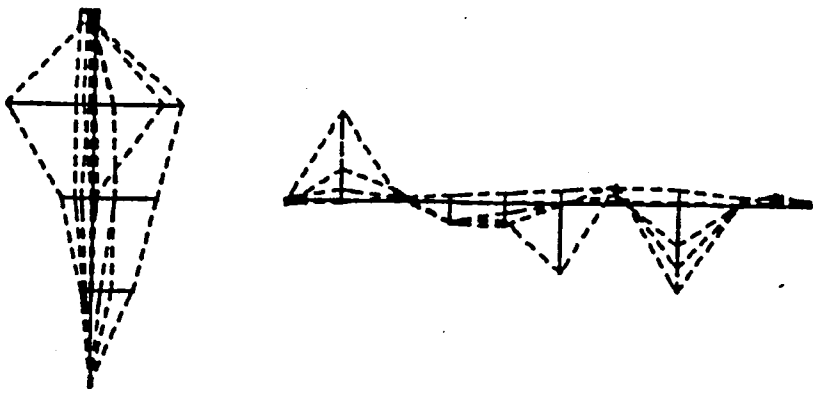


MR PORT SIDE PANELS 1P & 2P
20·1001Z+ COMP,F= 269.000 HZ (1.0, 1.0, -1.0, 0.0)=VIEW

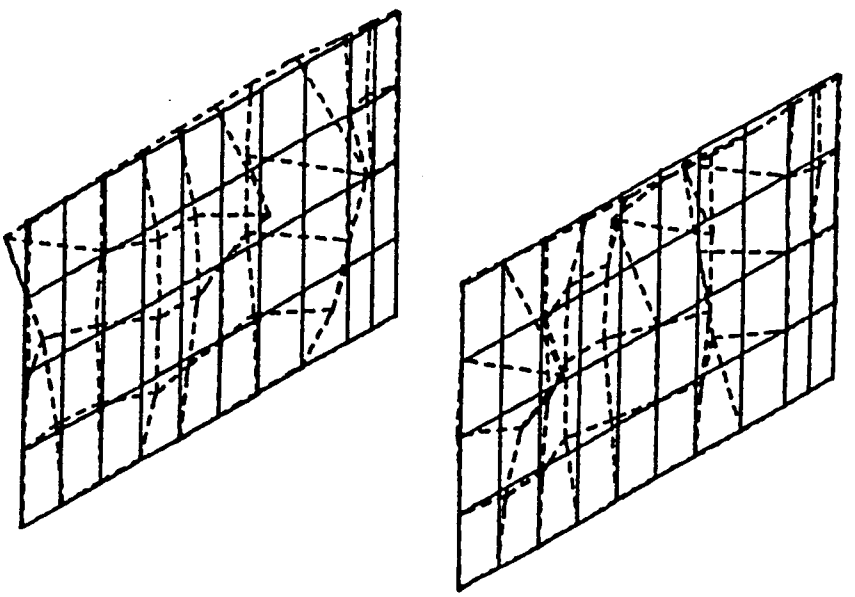
MR PORT SIDE PANELS 1P & 2P
21:1001Z+ COMP,F= 276.000 HZ < 0.0, 0.0, 0.0, 180.0>=VIEW



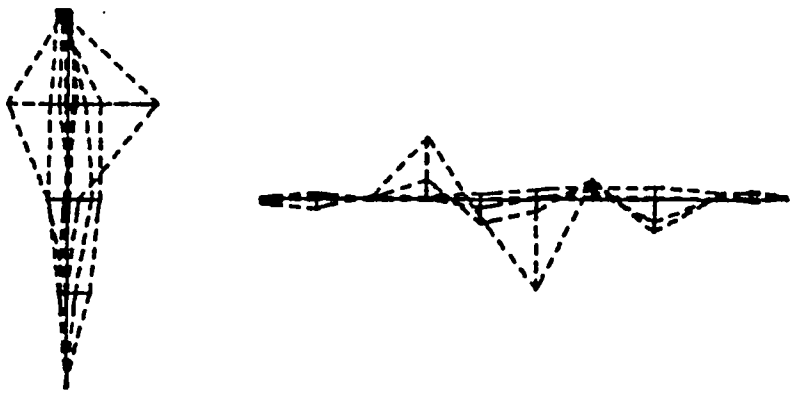
MR PORT SIDE PANELS 1P & 2P
21:1001Z+ COMP,F= 276.000 HZ < 1.0, 1.0, -1.0, 0.0>=VIEW



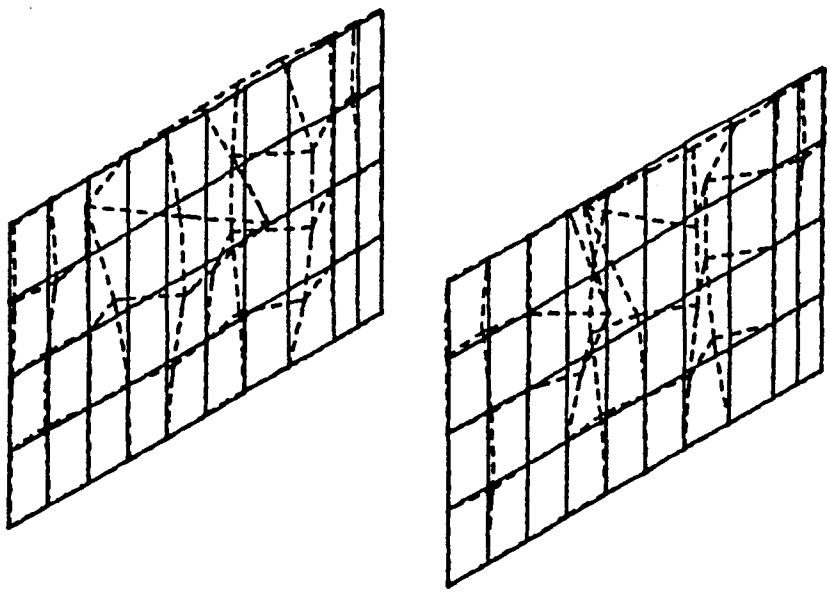
MR PORT SIDE PANELS 1P & 2P
22:1001Z+ COMP,F= 282.000 HZ < 0.0, 0.0, 0.0, 180.0>=VIEW



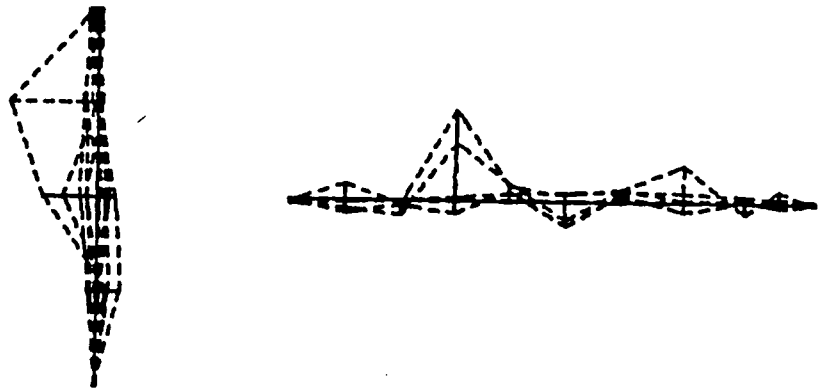
MR PORT SIDE PANELS 1P & 2P
22:1001Z+ COMP,F= 282.000 HZ < 1.0, 1.0, -1.0, 0.0>=VIEW



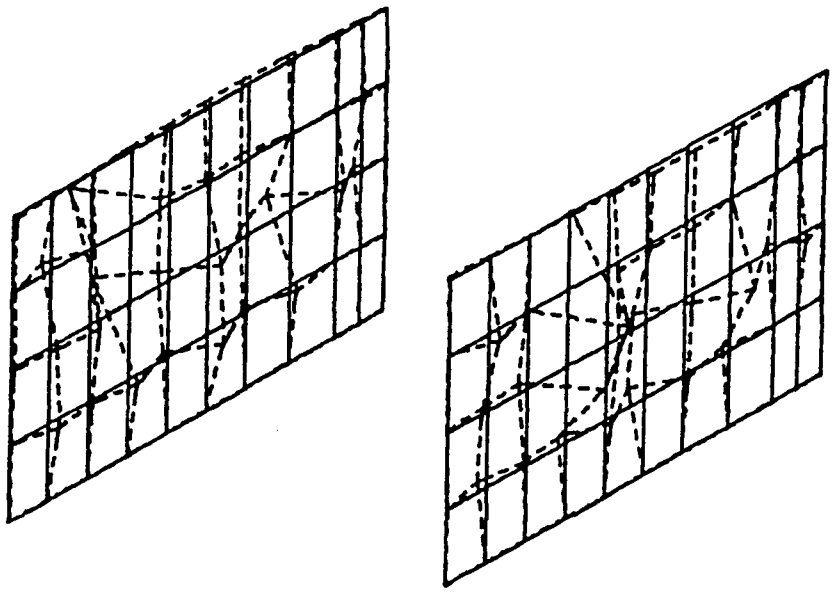
MR PORT SIDE PANELS 1P & 2P
23:1001Z+ COMP,F= 288.000 HZ (0.0, 0.0, 0.0, 180.0)=VIEW



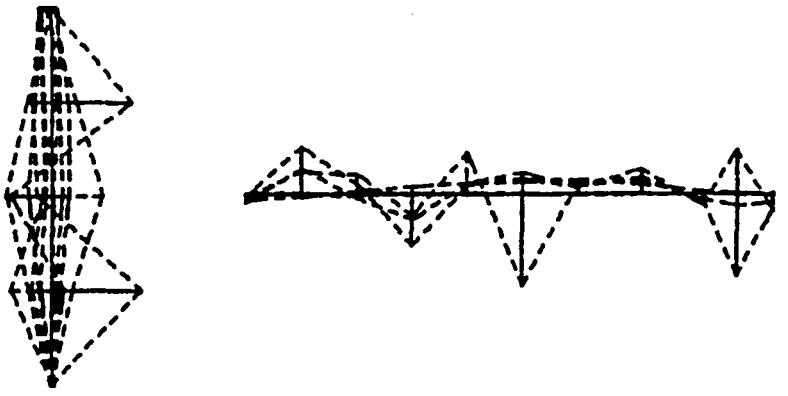
MR PORT SIDE PANELS 1P & 2P
23:1001Z+ COMP,F= 288.000 HZ (1.0, 1.0, -1.0, 0.0)=VIEW



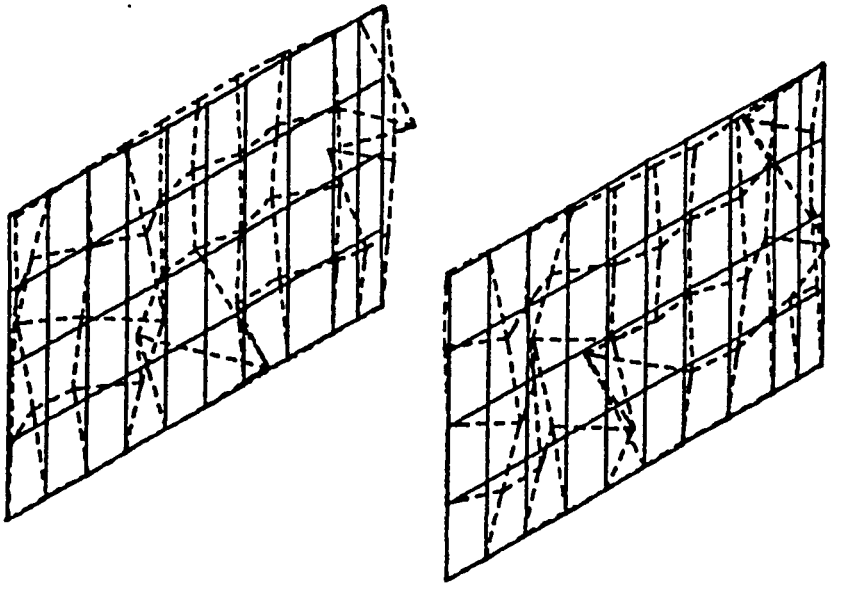
MR PORT SIDE PANELS 1P & 2P
24:1001Z+ COMP,F= 310.000 HZ < 0.0, 0.0, 0.0, 180.0>=VIEW



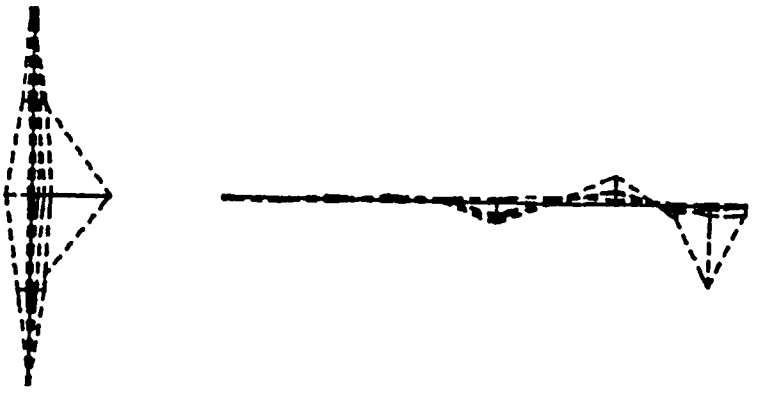
MR PORT SIDE PANELS 1P & 2P
24:1001Z+ COMP,F= 310.000 HZ < 1.0, 1.0, -1.0, 0.0>=VIEW



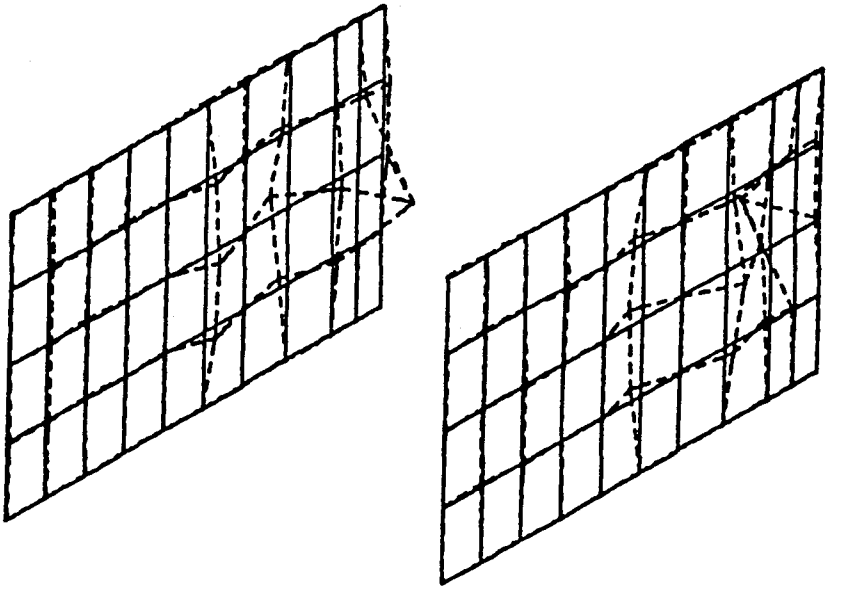
MR PORT SIDE PANELS 1P & 2P
25:1001Z+ COMP,F= 336.000 HZ (0.0, 0.0, 0.0, 180.0)=VIEW



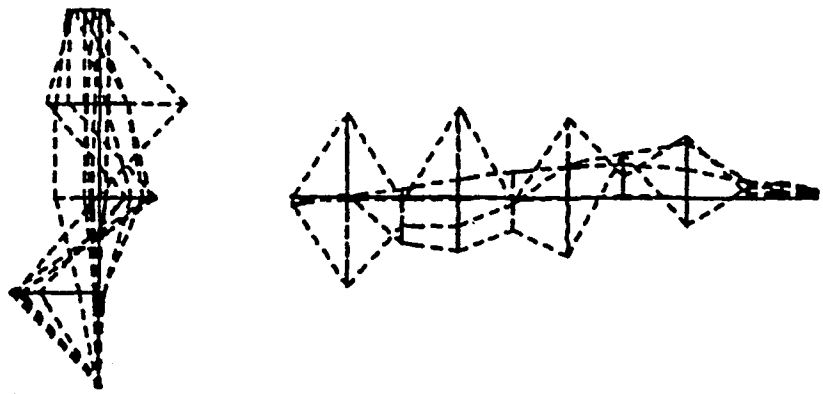
MR PORT SIDE PANELS 1P & 2P
25:1001Z+ COMP,F= 336.000 HZ (1.0, 1.0, -1.0, 0.0)=VIEW



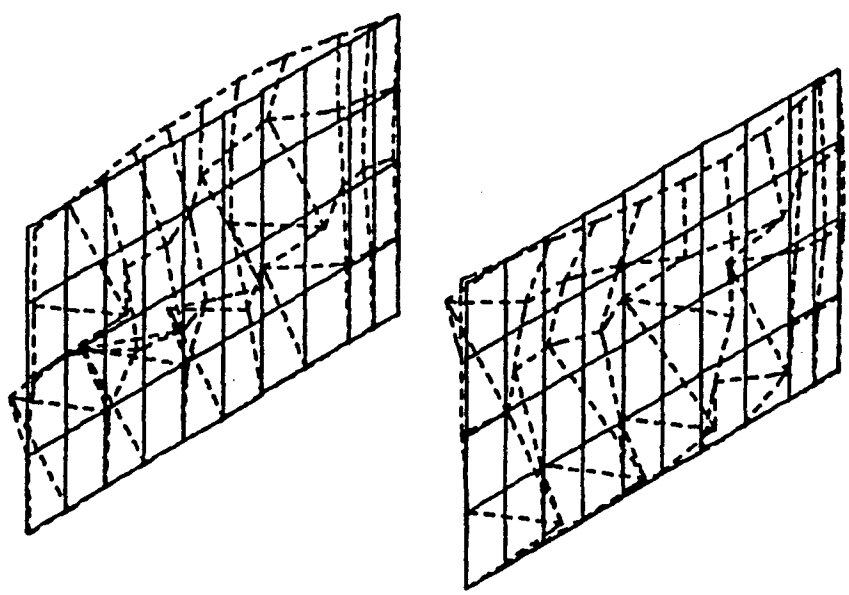
MR PORT SIDE PANELS 1P & 2P
26:1001Z+ COMP,F= 352.000 HZ (0.0, 0.0, 0.0, 180.0)=VIEW



MR PORT SIDE PANELS 1P & 2P
26:1001Z+ COMP,F= 352.000 HZ (1.0, 1.0, -1.0, 0.0)=VIEW



MR PORT SIDE PANELS 1P & 2P
28:1001Z+ COMP,F= 196.000 HZ < 0.0, 0.0, 0.0, 180.0>=VIEW



MR PORT SIDE PANELS 1P & 2P
28:1001Z+ COMP,F= 196.000 HZ < 1.0, 1.0, -1.0, 0.0>=VIEW

MODE SHAPE 28.1001Z+ REAL, FREQ = 196.000 HZ
MR PORT SIDE PANELS 1P & 2P
MODE SHAPE

LOC	X COEFF	Y COEFF	Z COEFF
1090	0.0000E-01	0.0000E-01	-1.0798E-02
1091	0.0000E-01	0.0000E-01	2.1986E-02
1092	0.0000E-01	0.0000E-01	-9.2333E-02
1093	0.0000E-01	0.0000E-01	-1.1092E-01
1094	0.0000E-01	0.0000E-01	-1.0550E-01
1095	0.0000E-01	0.0000E-01	-3.4943E-02
1096	0.0000E-01	0.0000E-01	1.0846E 00
1097	0.0000E-01	0.0000E-01	4.3546E-02
1098	0.0000E-01	0.0000E-01	-1.1221E 00
1099	0.0000E-01	0.0000E-01	1.3914E-02
1100	0.0000E-01	0.0000E-01	-1.3630E-02
1101	0.0000E-01	0.0000E-01	-6.2417E-02
1102	0.0000E-01	0.0000E-01	-5.7017E-01
1103	0.0000E-01	0.0000E-01	-3.5358E-01
1104	0.0000E-01	0.0000E-01	1.0196E-01
1105	0.0000E-01	0.0000E-01	-2.0888E-02
1106	0.0000E-01	0.0000E-01	1.1601E 00
1107	0.0000E-01	0.0000E-01	-6.7260E-01
1108	0.0000E-01	0.0000E-01	-3.5938E-01
1109	0.0000E-01	0.0000E-01	2.3681E-01
1110	0.0000E-01	0.0000E-01	-7.4348E-04
1111	0.0000E-01	0.0000E-01	-5.9301E-02
1112	0.0000E-01	0.0000E-01	-4.1160E-01
1113	0.0000E-01	0.0000E-01	-7.9092E-02
1114	0.0000E-01	0.0000E-01	3.3513E-01
1115	0.0000E-01	0.0000E-01	-2.2127E-02
1116	0.0000E-01	0.0000E-01	1.0127E 00
1117	0.0000E-01	0.0000E-01	-7.4340E-01
1118	0.0000E-01	0.0000E-01	4.2187E-01
1119	0.0000E-01	0.0000E-01	3.9117E-01
1120	0.0000E-01	0.0000E-01	2.2233E-02
1121	0.0000E-01	0.0000E-01	2.6939E-01
1122	0.0000E-01	0.0000E-01	5.8129E-01
1123	0.0000E-01	0.0000E-01	5.6617E-01
1001	0.0000E-01	0.0000E-01	4.2686E-01
1220	0.0000E-01	0.0000E-01	-8.1074E-03
1221	0.0000E-01	0.0000E-01	7.8564E-01
1222	0.0000E-01	0.0000E-01	-3.4717E-01
1223	0.0000E-01	0.0000E-01	6.9922E-01
1224	0.0000E-01	0.0000E-01	3.5609E-01
1225	0.0000E-01	0.0000E-01	7.3639E-03
1226	0.0000E-01	0.0000E-01	6.3939E-02
1227	0.0000E-01	0.0000E-01	1.2522E-01
1228	0.0000E-01	0.0000E-01	2.0824E-01
1229	0.0000E-01	0.0000E-01	1.9617E-01
1230	0.0000E-01	0.0000E-01	1.7914E-02
1231	0.0000E-01	0.0000E-01	7.3710E-02
1232	0.0000E-01	0.0000E-01	2.0116E-01
1233	0.0000E-01	0.0000E-01	1.5988E-01
1234	0.0000E-01	0.0000E-01	8.3800E-02
1235	0.0000E-01	0.0000E-01	7.9304E-03
1236	0.0000E-01	0.0000E-01	3.8909E-02
1237	0.0000E-01	0.0000E-01	9.0315E-02
1238	0.0000E-01	0.0000E-01	5.9549E-02
1239	0.0000E-01	0.0000E-01	-6.7975E-03
1064	0.0000E-01	0.0000E-01	0.0000E-01
1067	0.0000E-01	0.0000E-01	0.0000E-01
1070	0.0000E-01	0.0000E-01	0.0000E-01
1130	0.0000E-01	0.0000E-01	0.0000E-01
1134	0.0000E-01	0.0000E-01	0.0000E-01
1138	0.0000E-01	0.0000E-01	0.0000E-01
1142	0.0000E-01	0.0000E-01	0.0000E-01
1146	0.0000E-01	0.0000E-01	0.0000E-01
1240	0.0000E-01	0.0000E-01	0.0000E-01
1241	0.0000E-01	0.0000E-01	0.0000E-01
1242	0.0000E-01	0.0000E-01	0.0000E-01
1243	0.0000E-01	0.0000E-01	0.0000E-01
1244	0.0000E-01	0.0000E-01	0.0000E-01
1245	0.0000E-01	0.0000E-01	0.0000E-01
1246	0.0000E-01	0.0000E-01	0.0000E-01

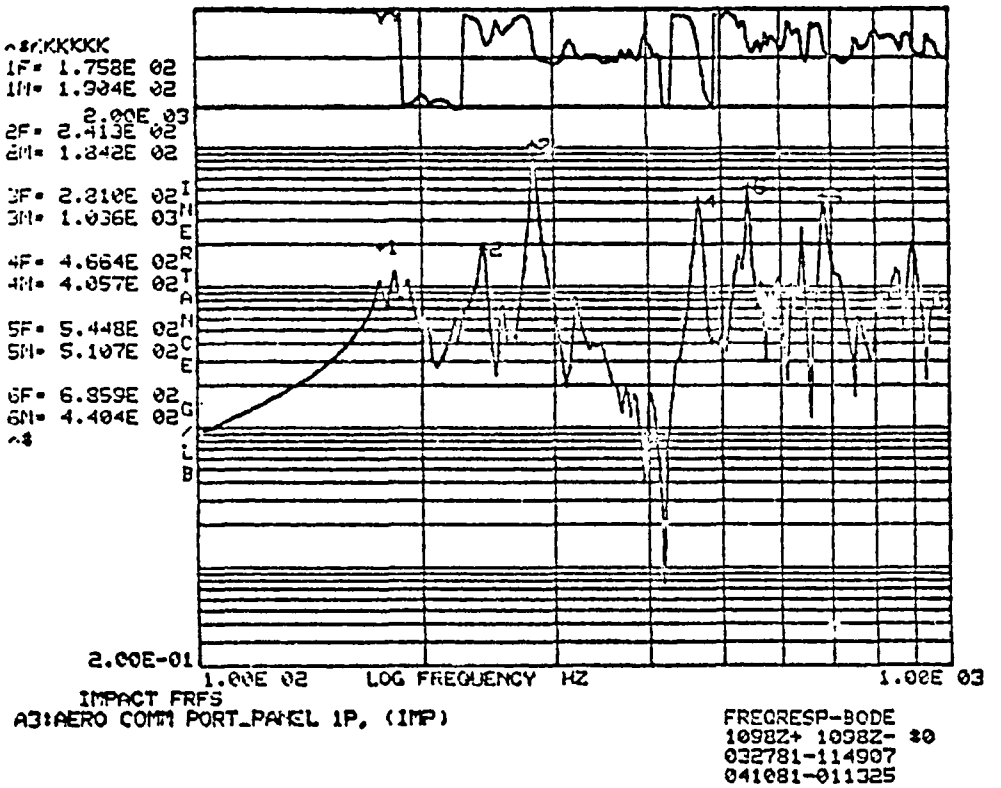


Figure V.4.1
Frequency Response, Panel 1P

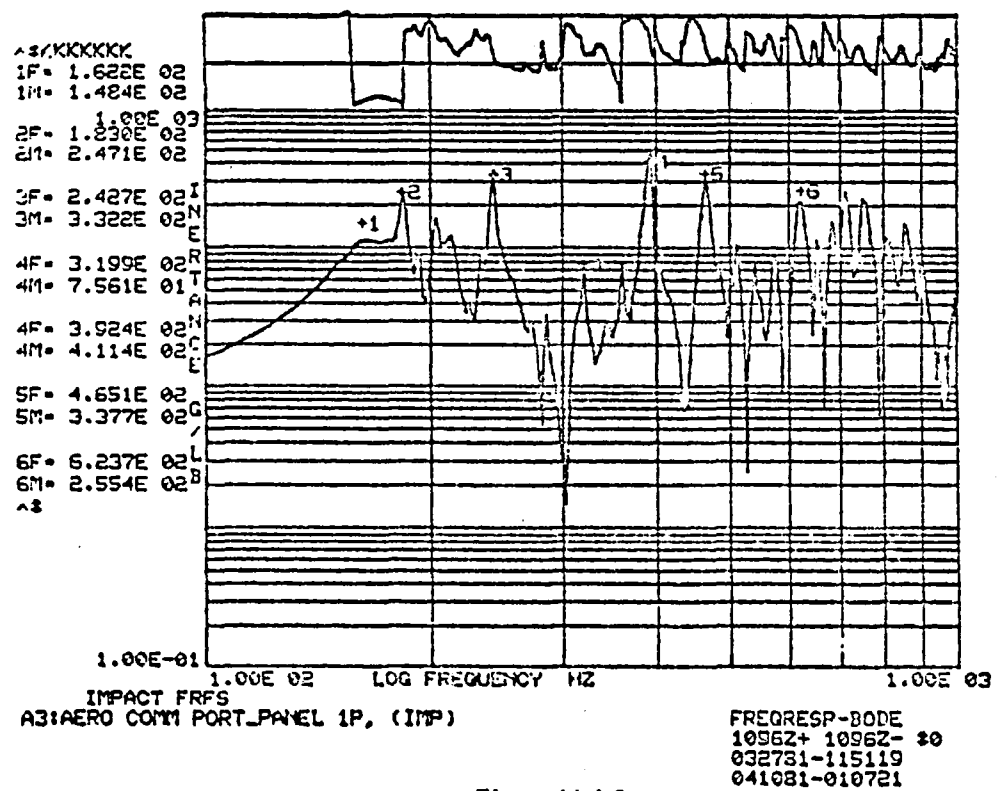


Figure V.4.2
Frequency Response, Panel 1P

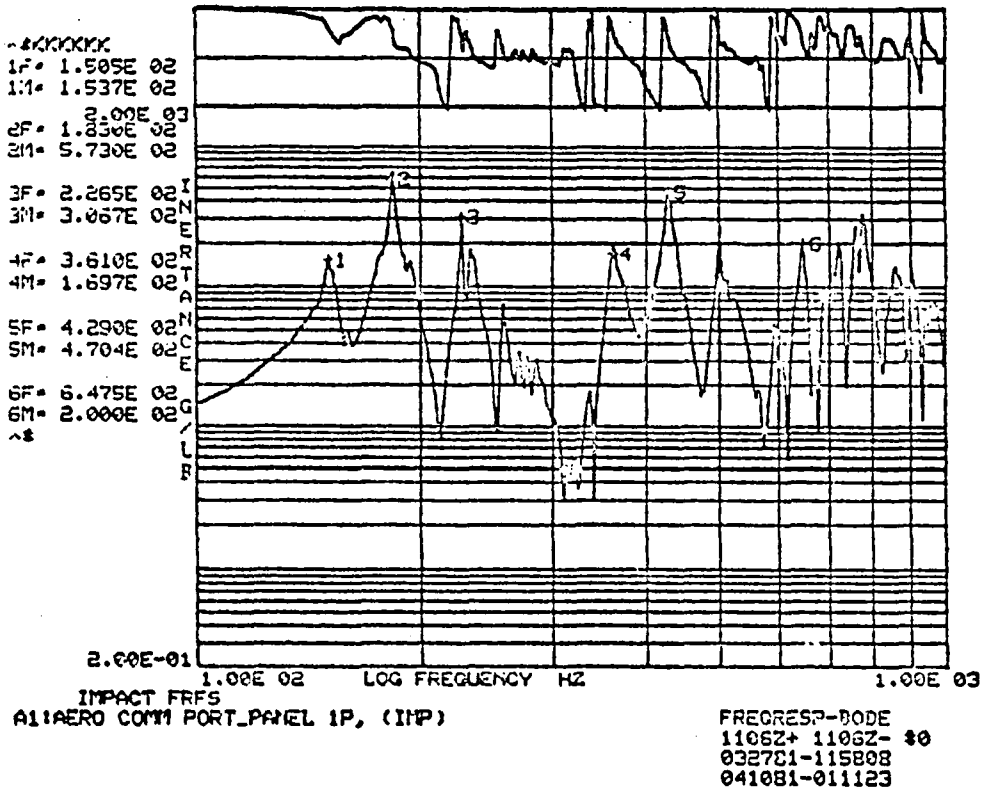


Figure V.4.3
Frequency Response, Panel 1P

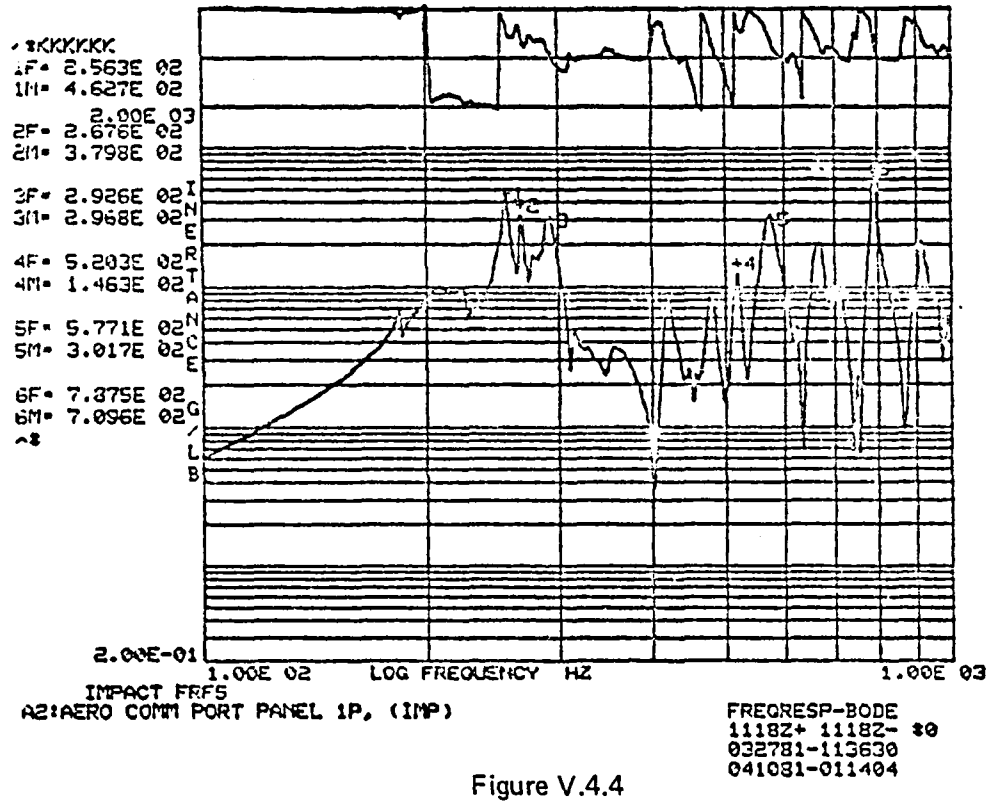


Figure V.4.4
Frequency Response, Panel 1P

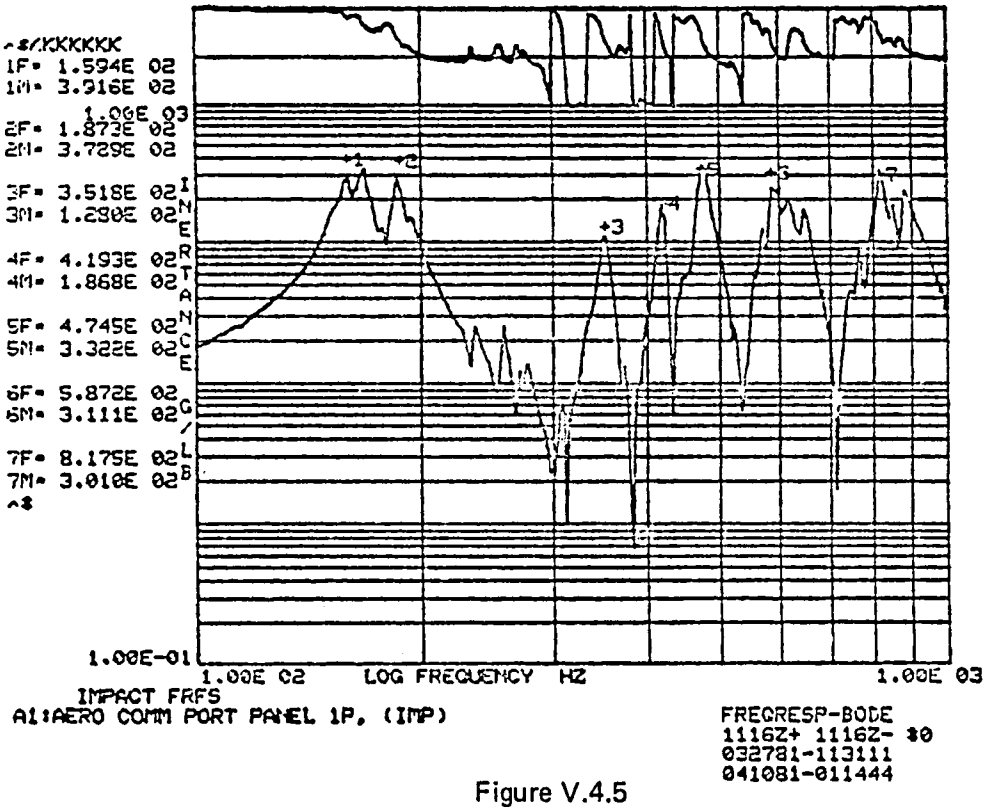


Figure V.4.5
Frequency Response, Panel 1P

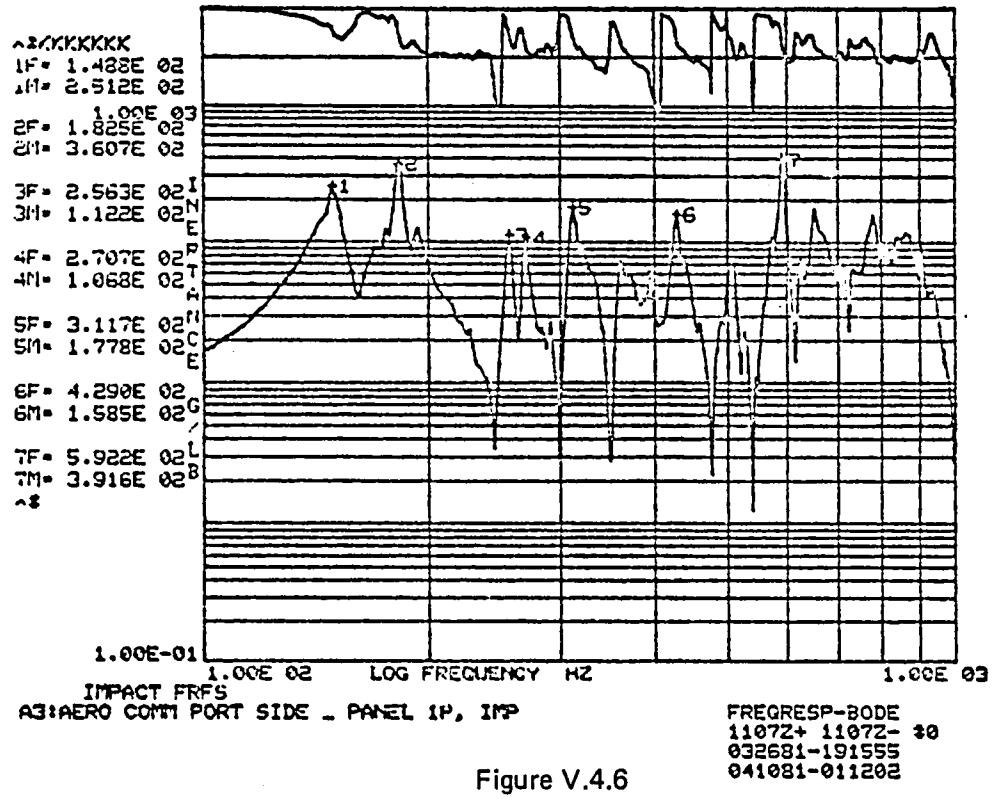


Figure V.4.6
Frequency Response, Panel 1P

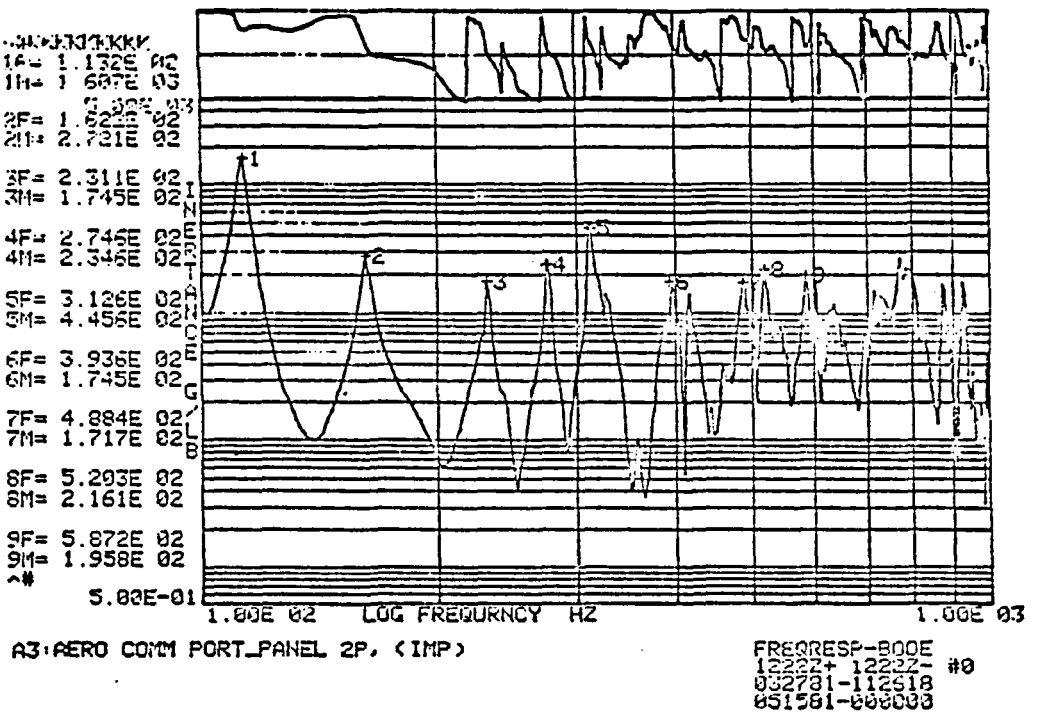


Figure V.4.7
Frequency Response, Panel 2P

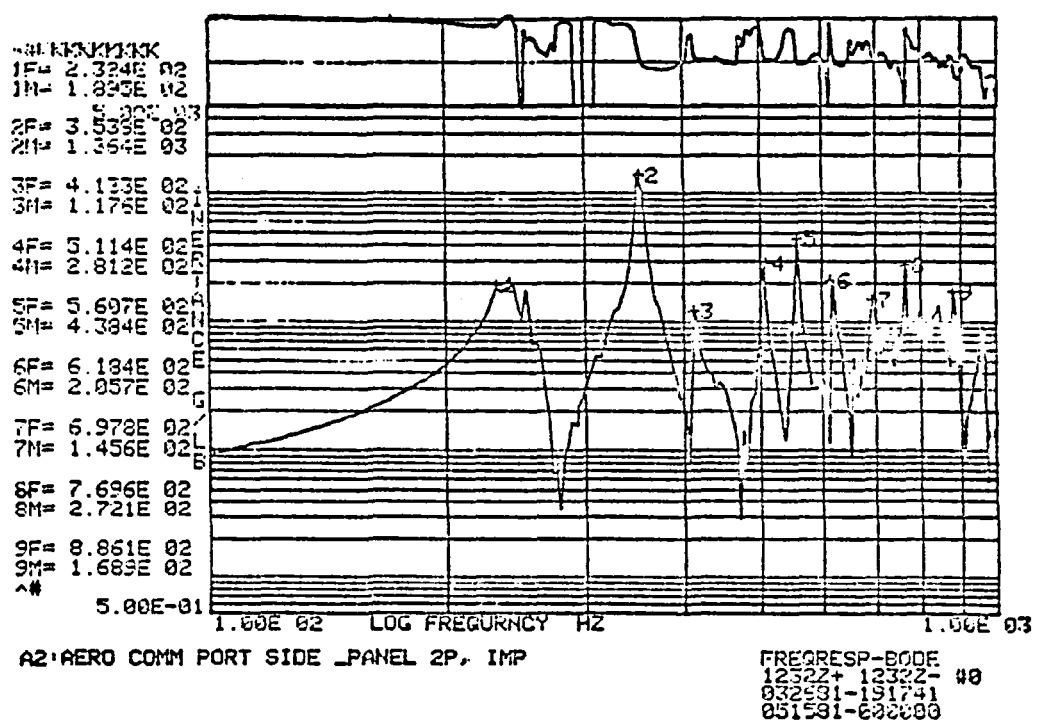


Figure V.4.8
Frequency Response, Panel 2P

V.5 Fuselage Port Side Global Mode Shapes

Each mode shape presented in this section is displayed from four viewing positions, three plan views and an isometric. The plus extreme deformation position is shown as a dashed line overlayed on top of the solid line undeformed position. In all cases the view normal to the fuselage sidewall shows no deformation because data was acquired normal to the panel only.

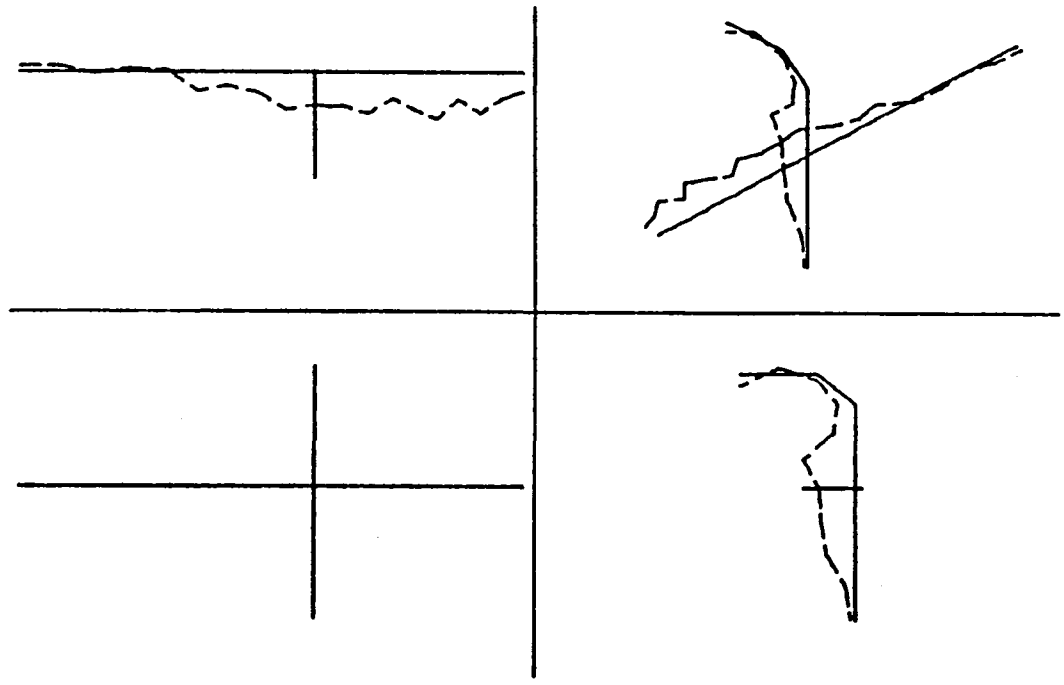


Figure V.5.1
Fuselage Port Side 61 Hz

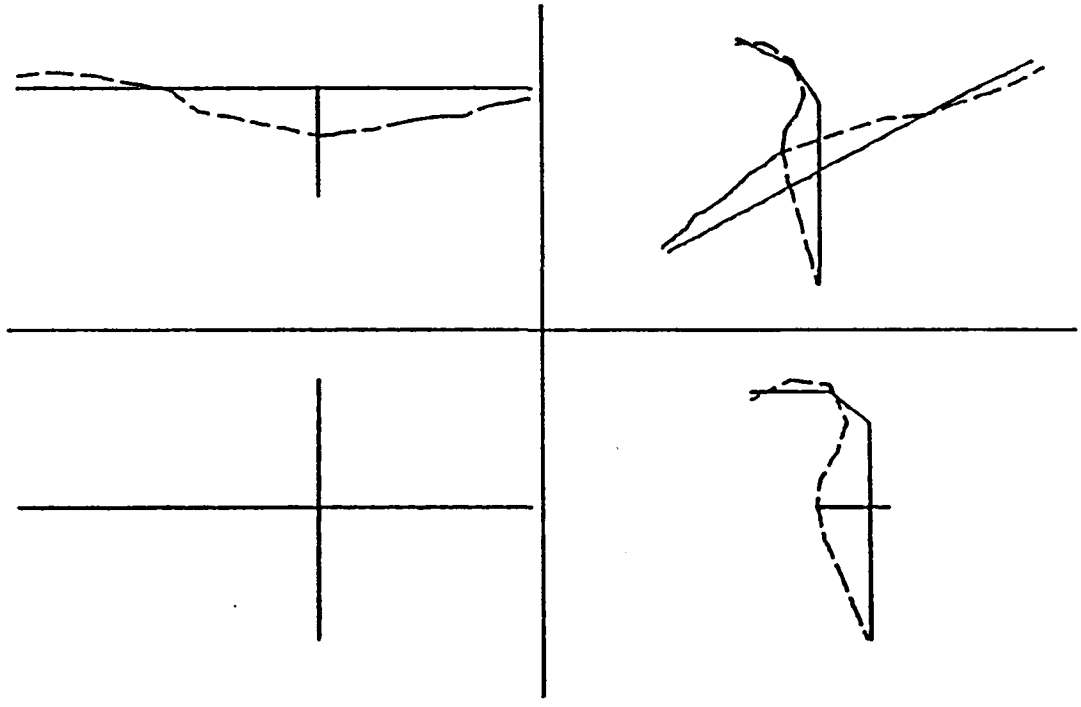


Figure V.5.2
Fuselage Port Side 71 Hz

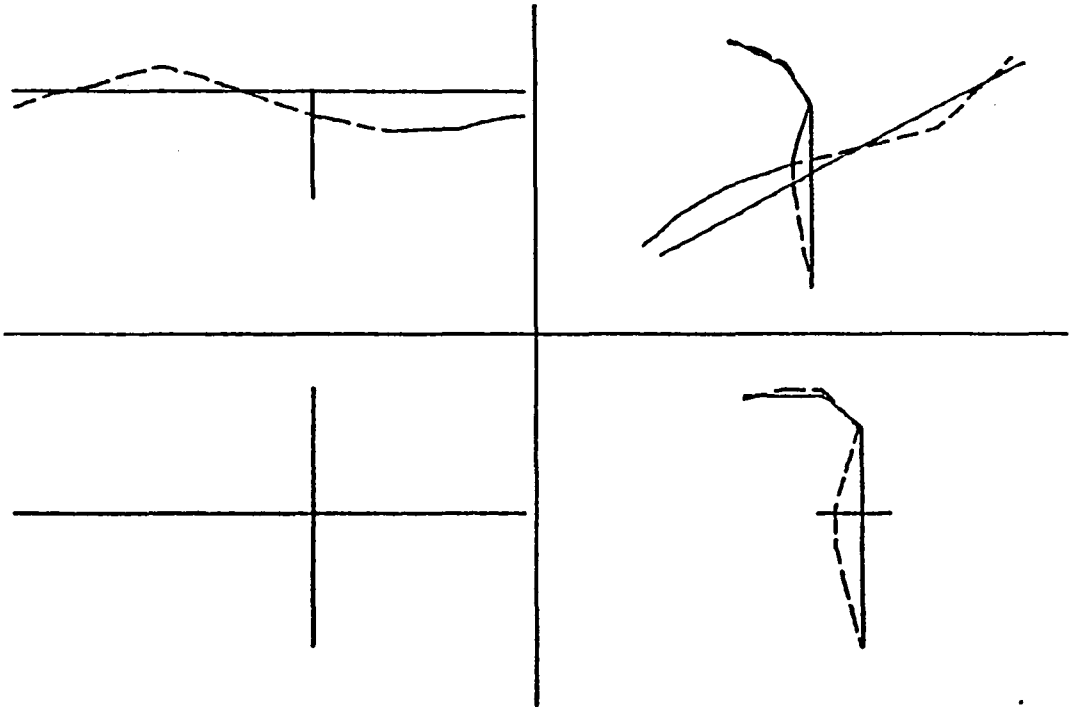


Figure V.5.3
Fuselage Port Side 86 Hz

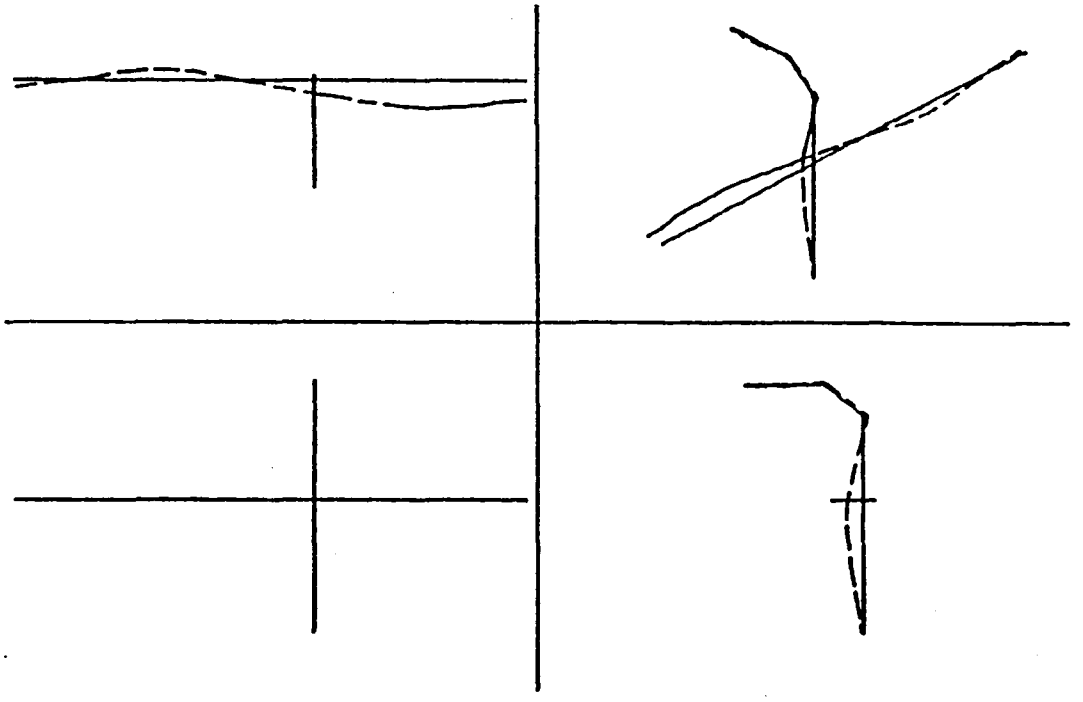


Figure V.5.4
Fuselage Port Side 94 Hz

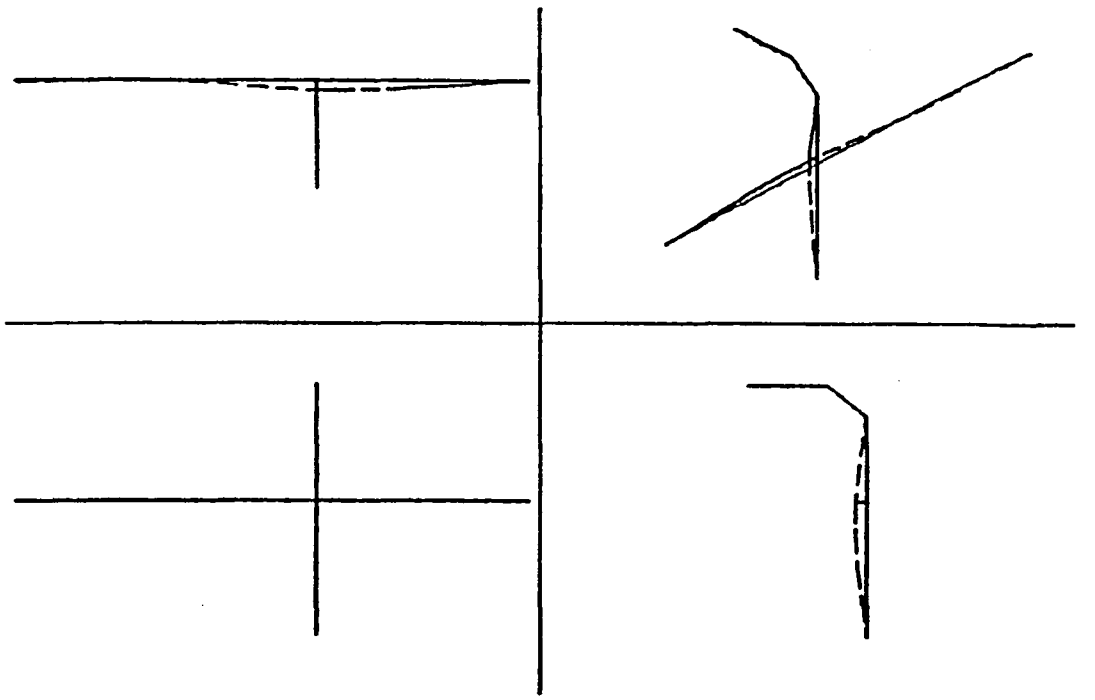


Figure V.5.5
Fuselage Port Side 114 Hz

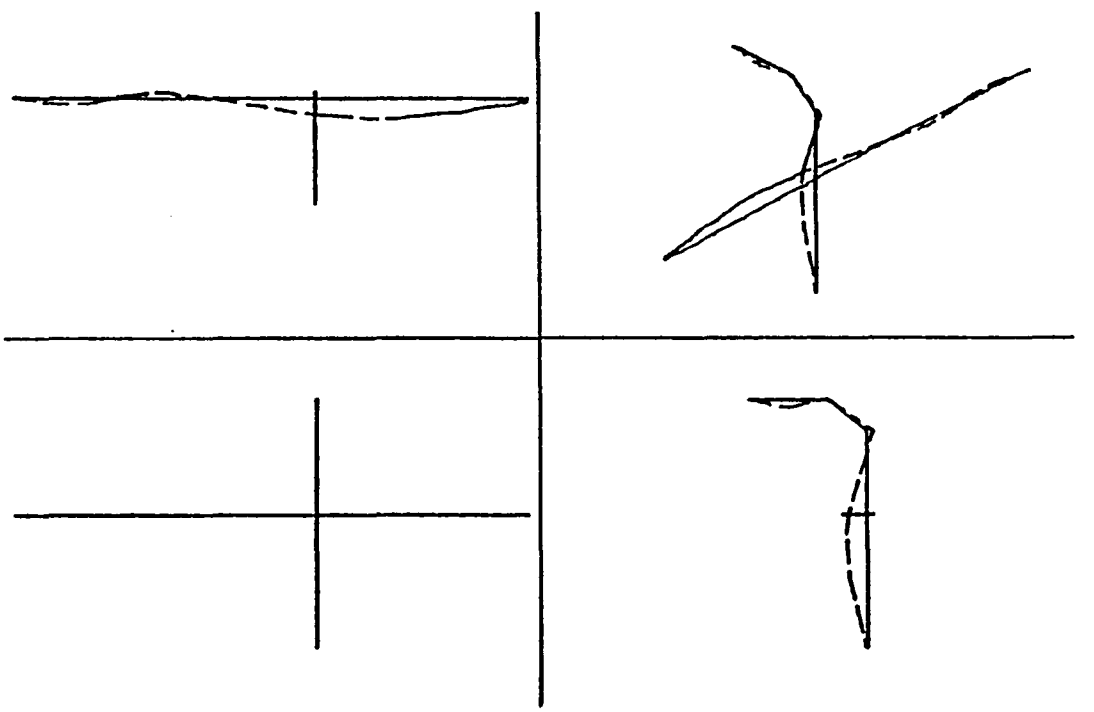


Figure V.5.6
Fuselage Port Side 137 Hz

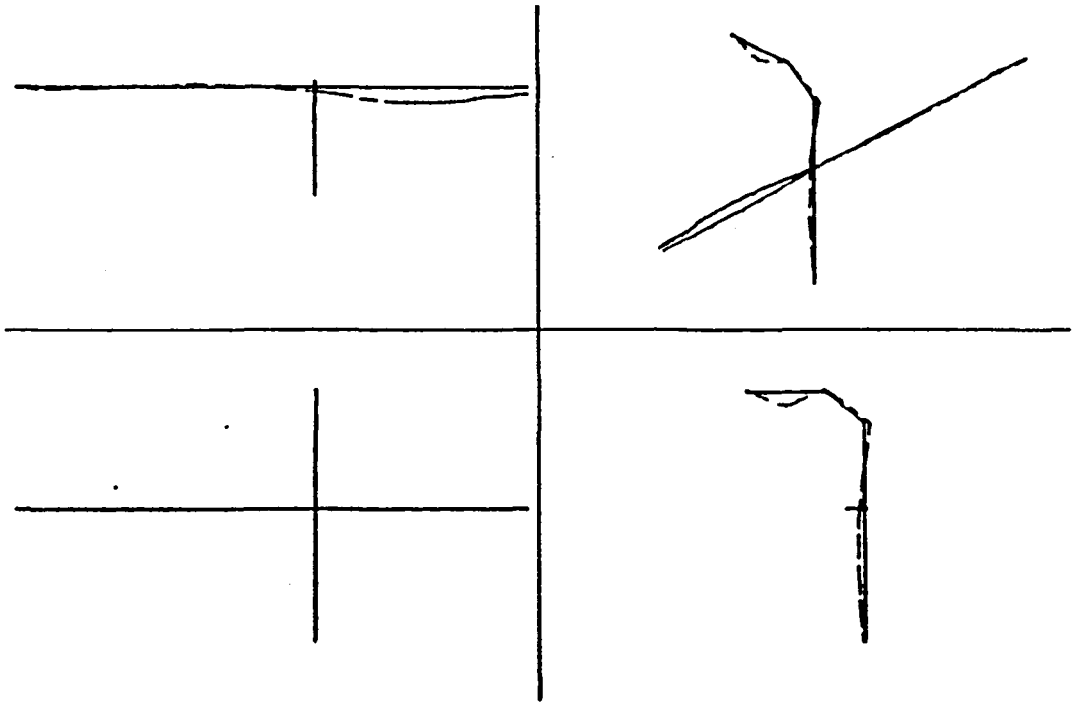


Figure V.5.7
Fuselage Port Side 146 Hz

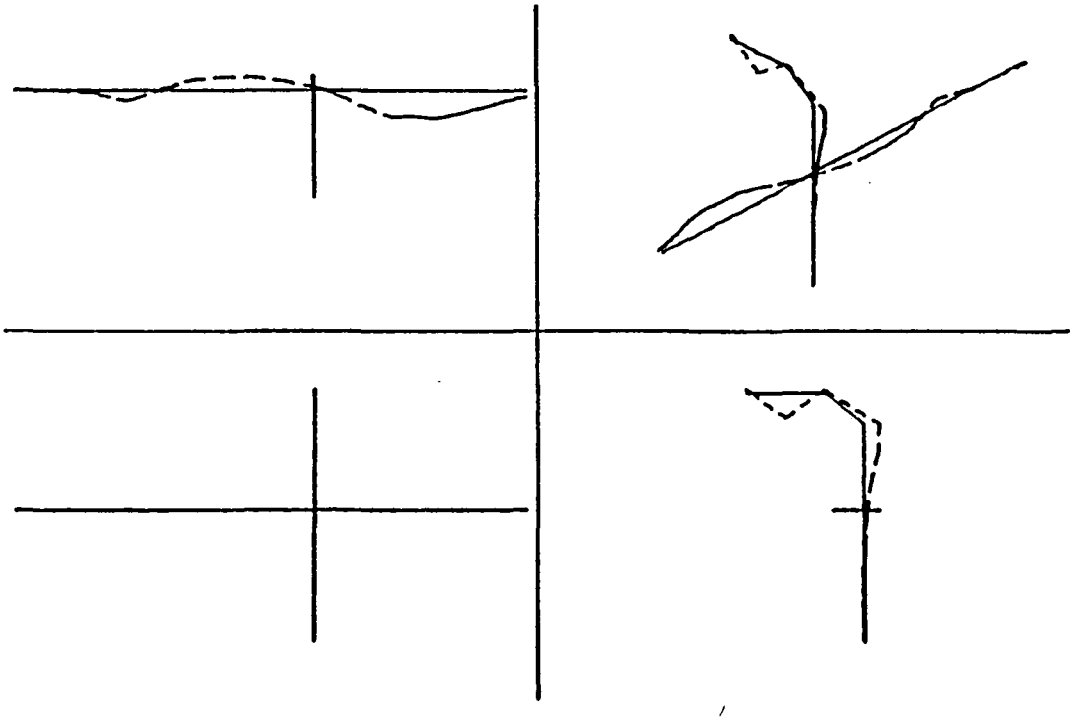


Figure V.5.8
Fuselage Port Side 157 Hz

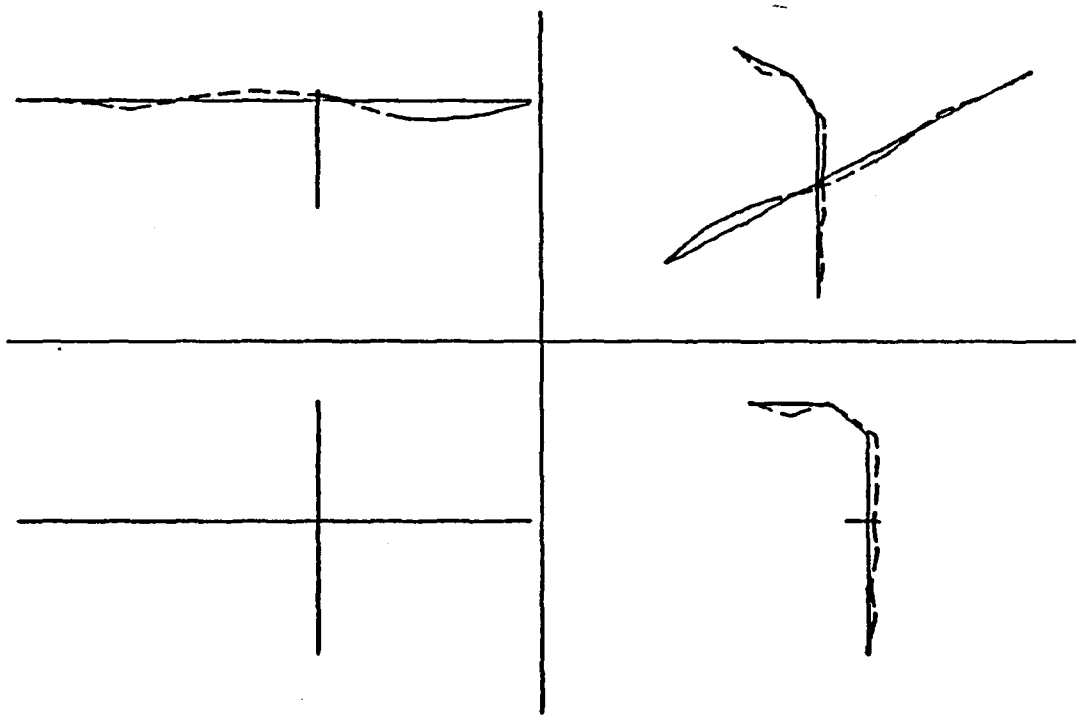


Figure V.5.9
Fuselage Port Side 161 Hz

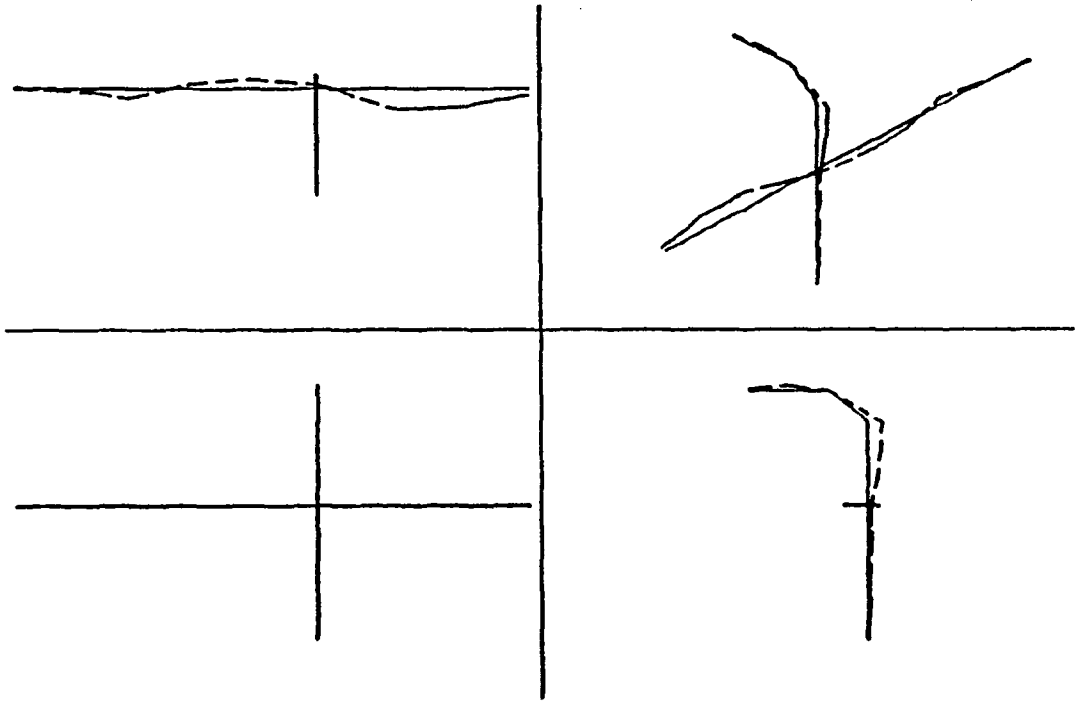


Figure V.5.10
Fuselage Port Side 166 Hz

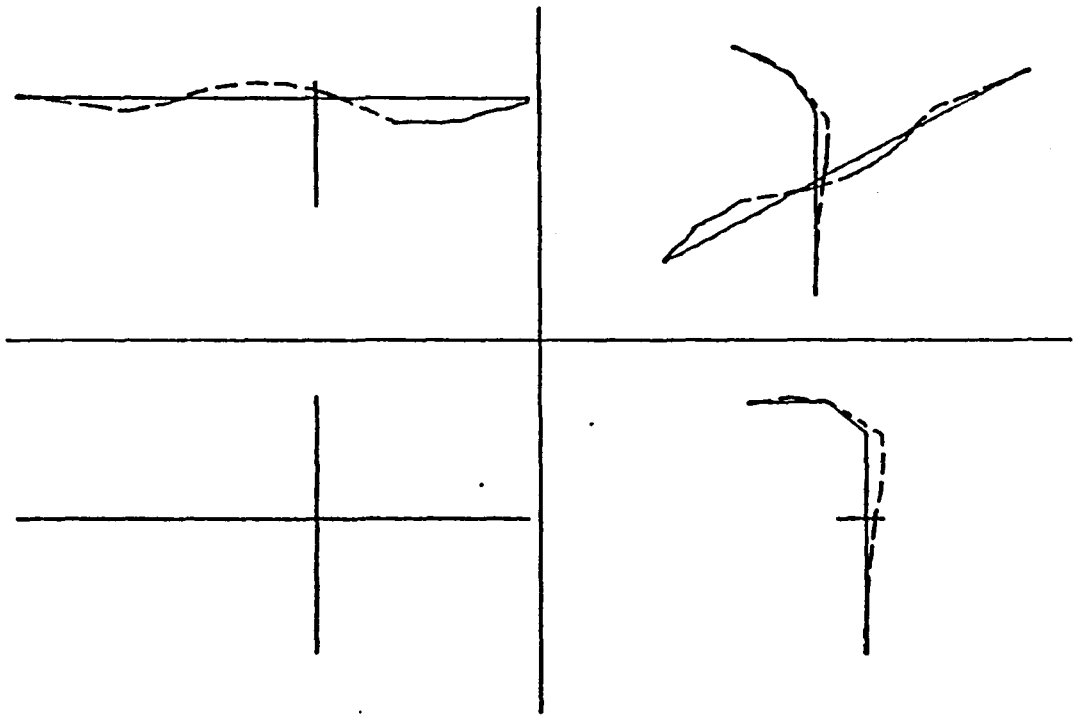


Figure V.5.11
Fuselage Port Side 172 Hz

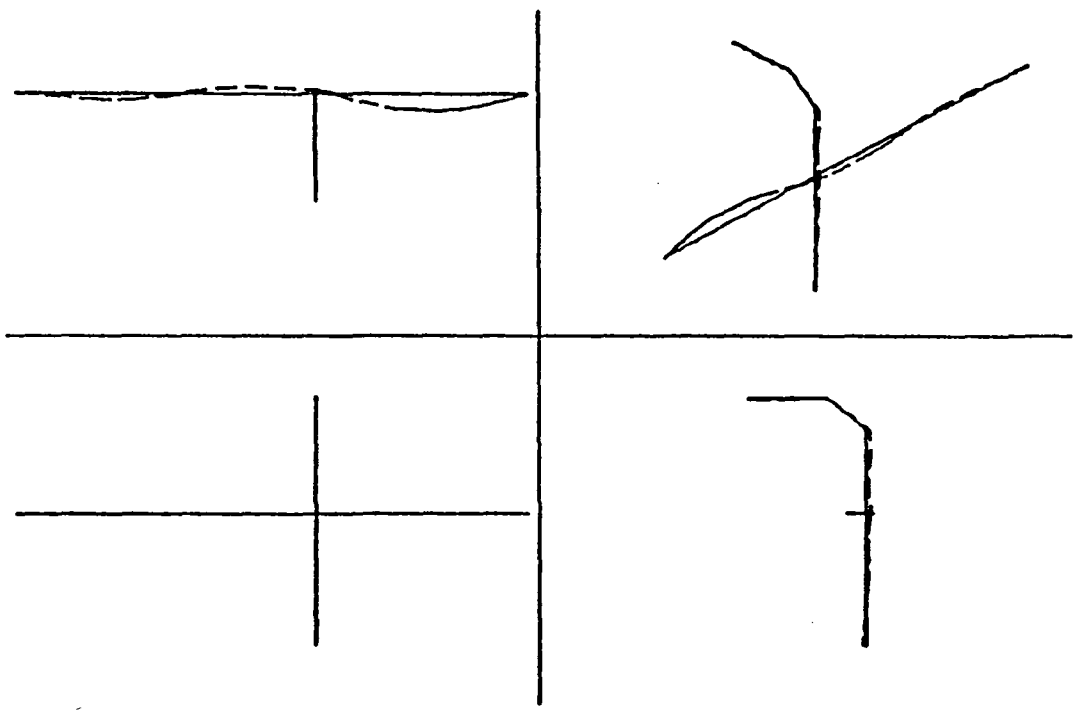


Figure V.5.12
Fuselage Port Side 177 Hz

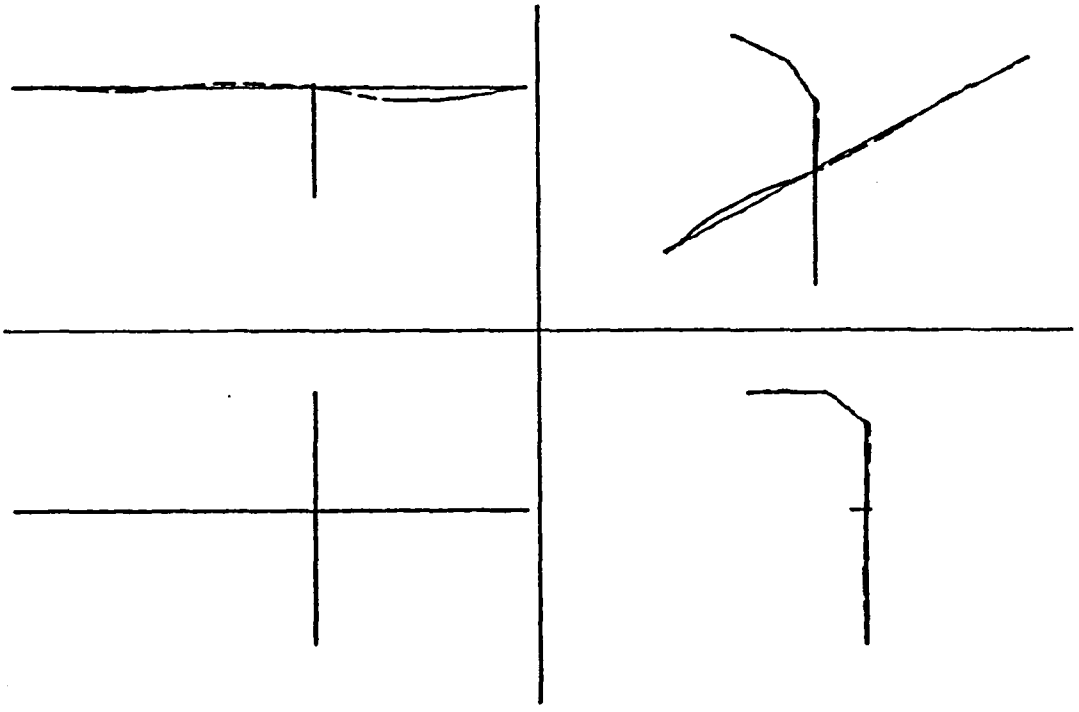


Figure V.5.13
Fuselage Port Side 183 Hz

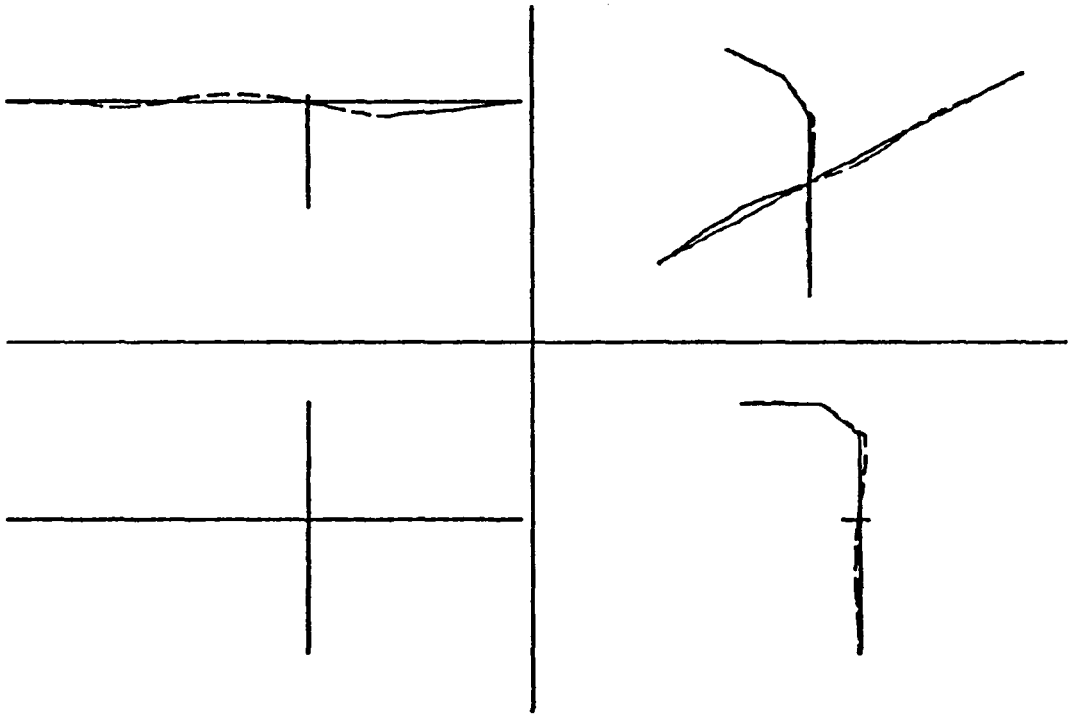


Figure V.5.14
Fuselage Port Side 189 Hz

V.6 Port Side Panels

This section contains driving point frequency response functions of port side panels, acquired via the impact technique. No mode shape data was acquired on these panels, just the following functions.

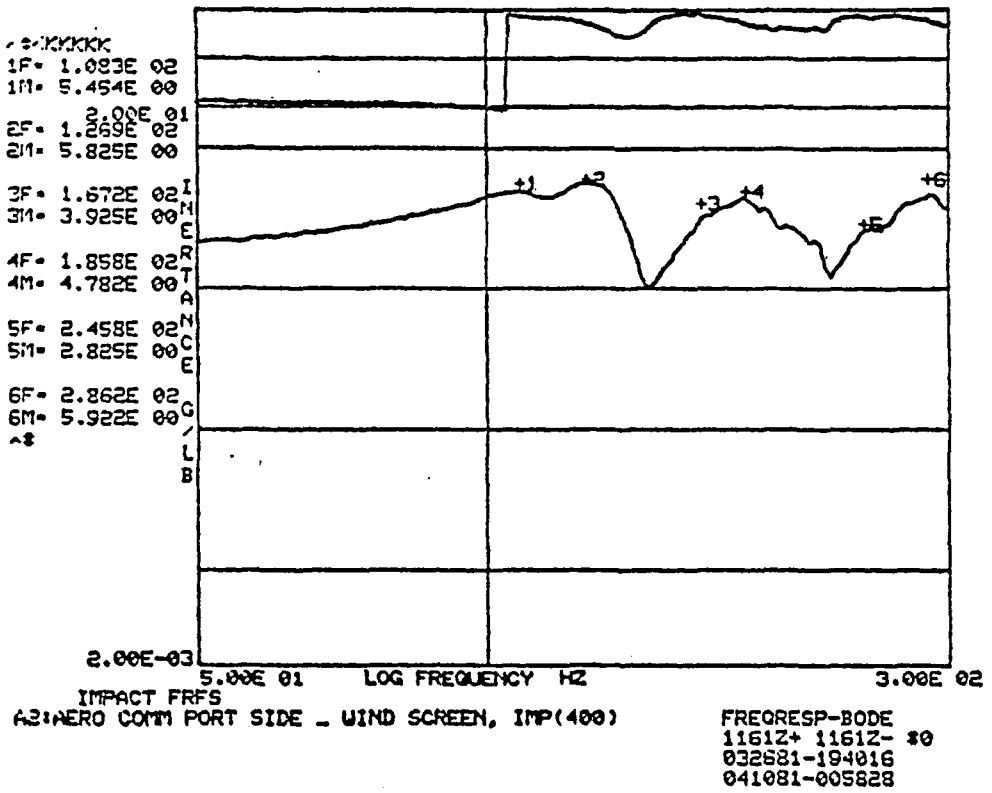


Figure V.6.1
Frequency Response, Windscreen

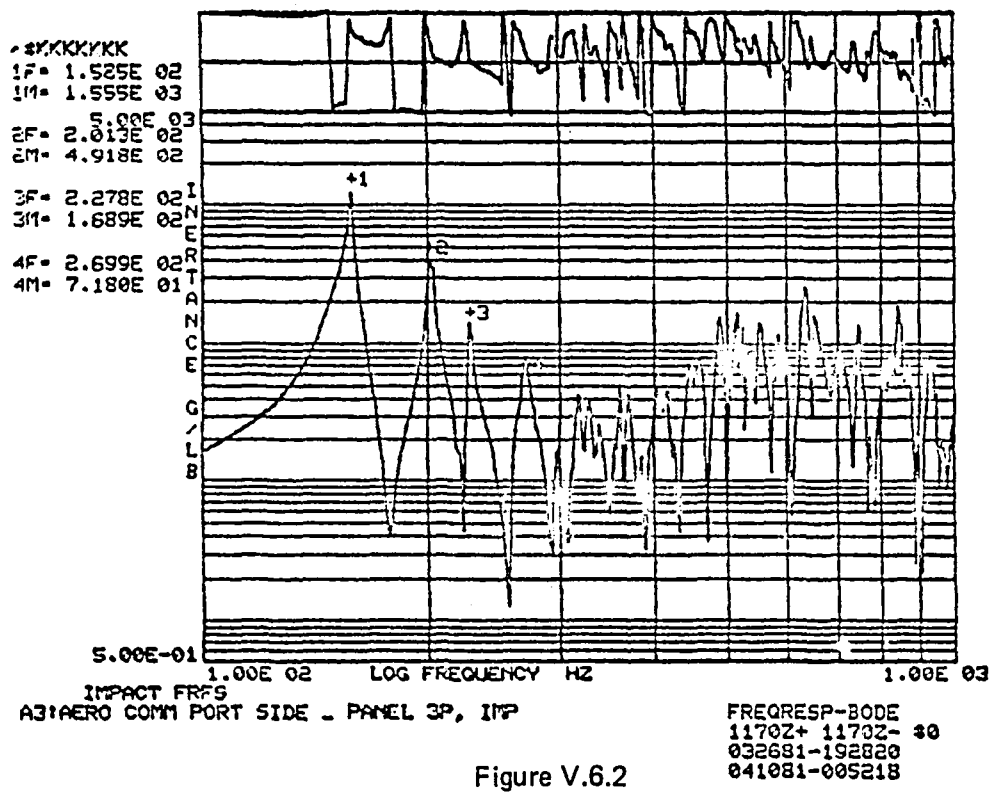


Figure V.6.2
Frequency Response, Panel 3P

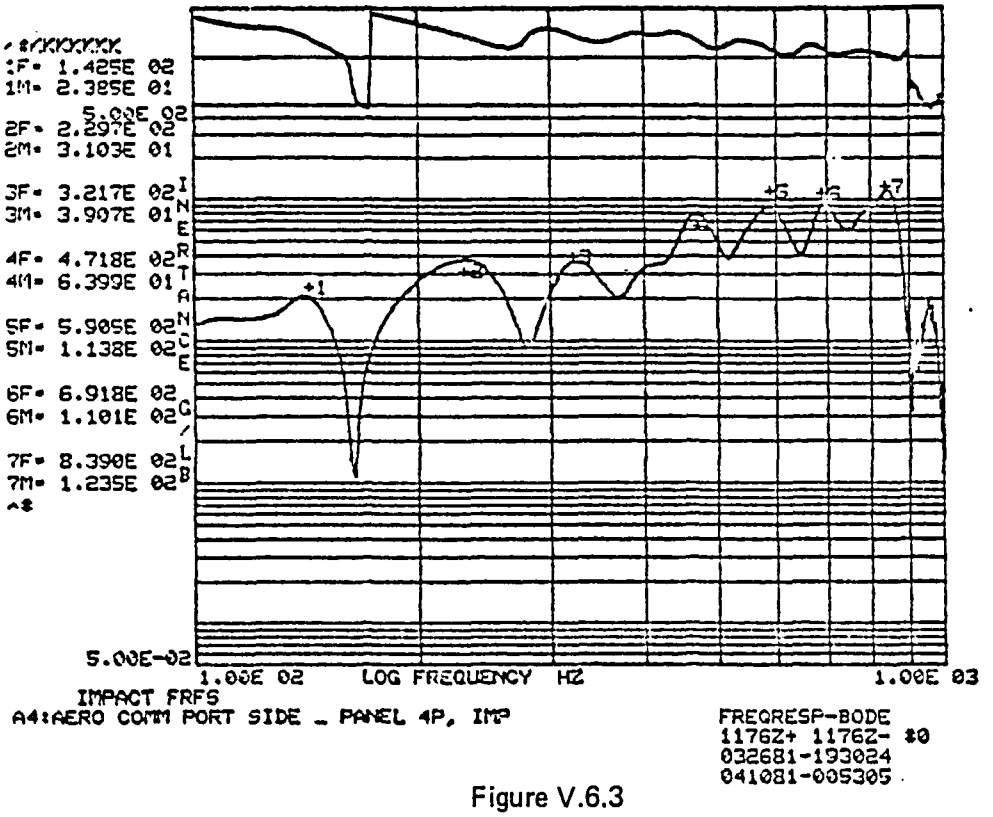


Figure V.6.3
Frequency Response, Panel 4P

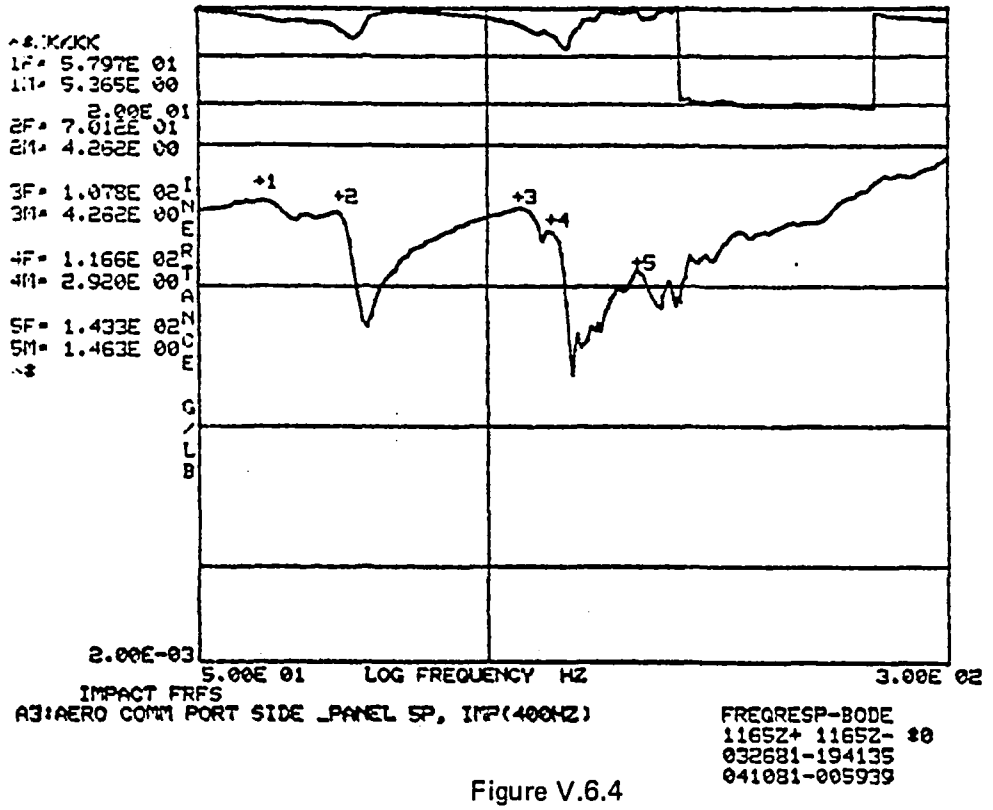


Figure V.6.4
Frequency Response, Panel 5P

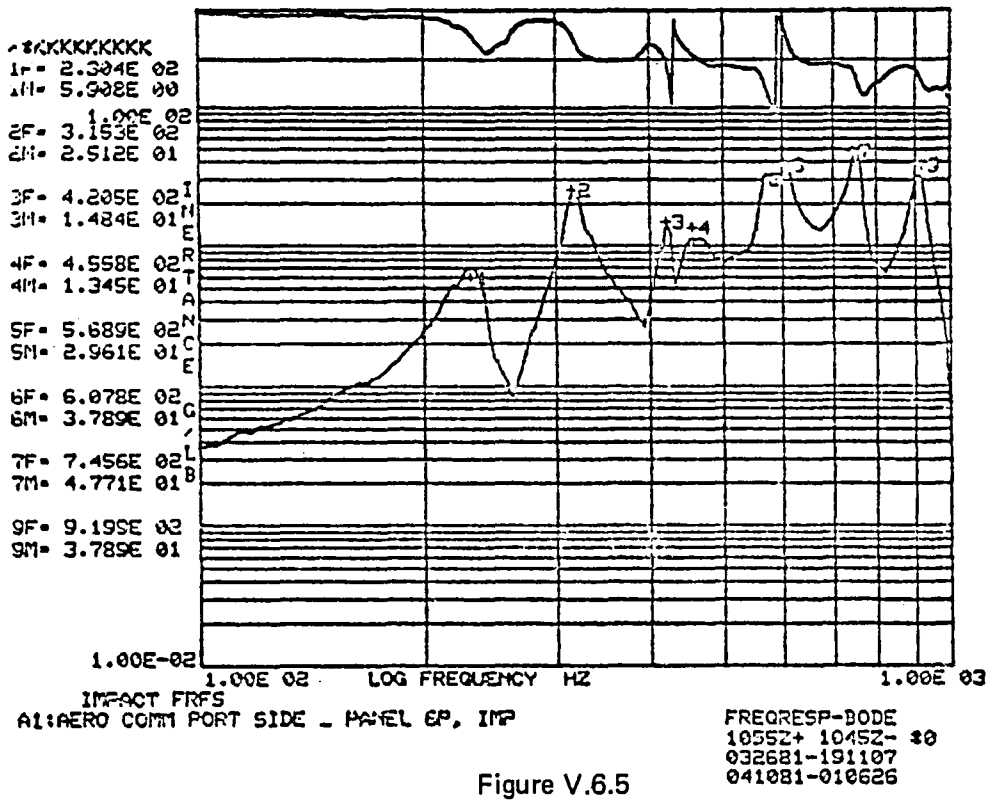


Figure V.6.5
Frequency Response, Panel 6P

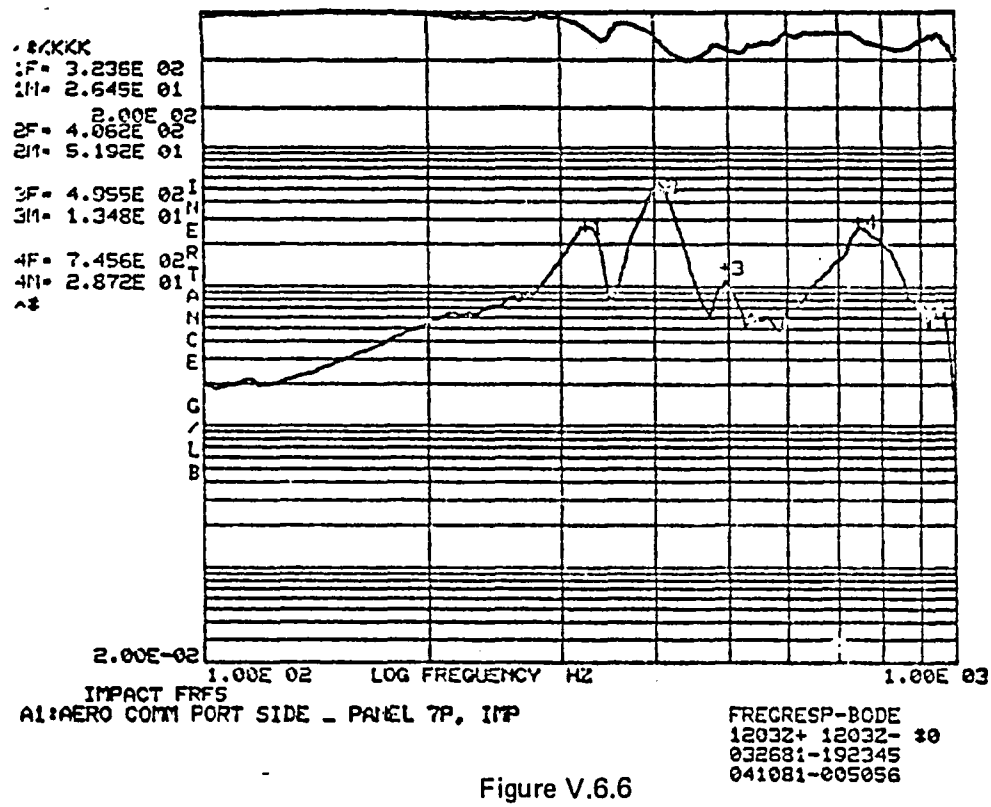


Figure V.6.6
Frequency Response, Panel 7P

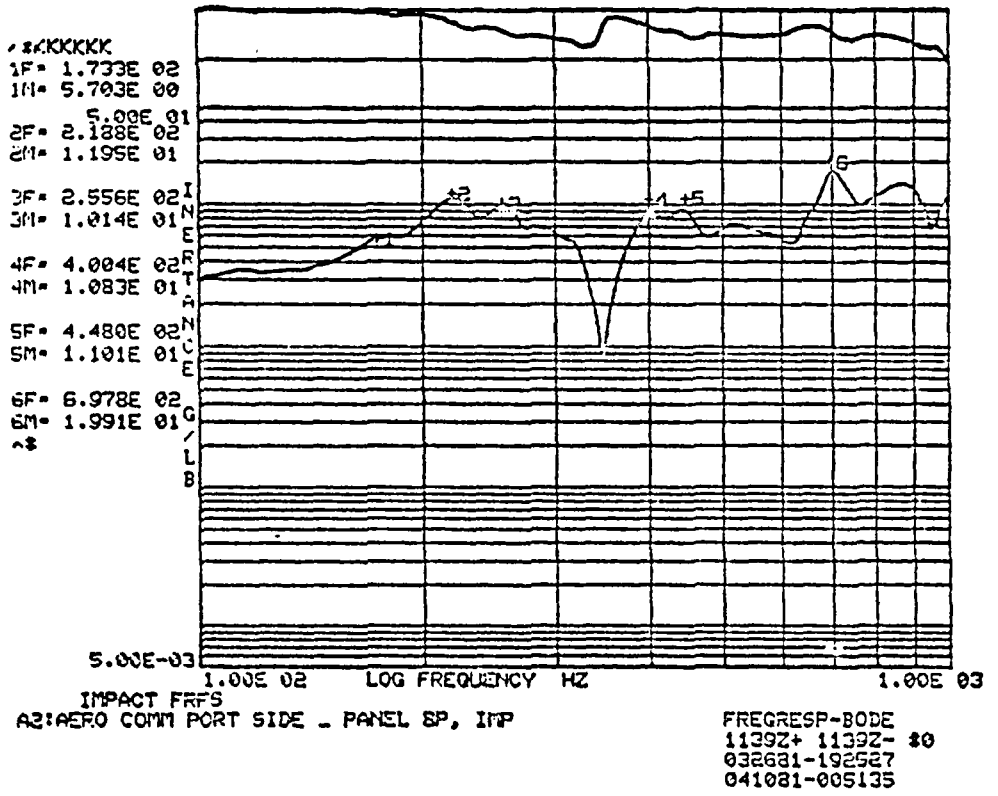


Figure V.6.7
Frequency Response, Panel 8P

V.7 Starboard Side Panels

This section contains driving point frequency response functions of starboard panels where no mode shape data was acquired. The functions were acquired via the impact technique.

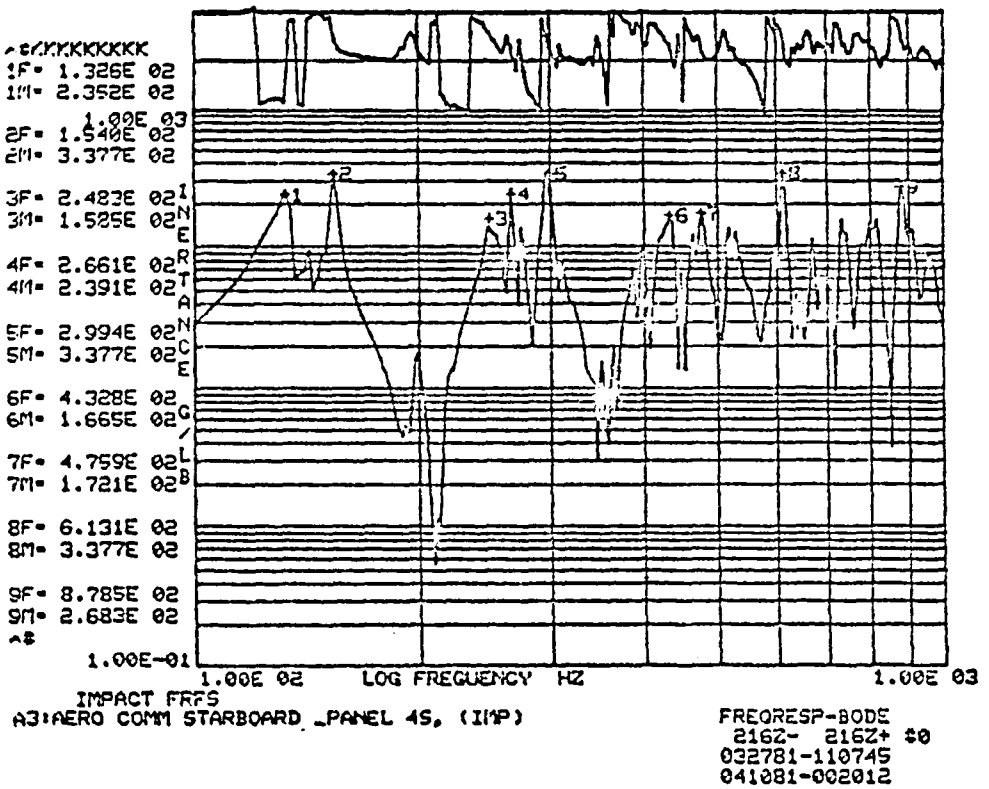


Figure V.7.1
Frequency Response, Panel 4S

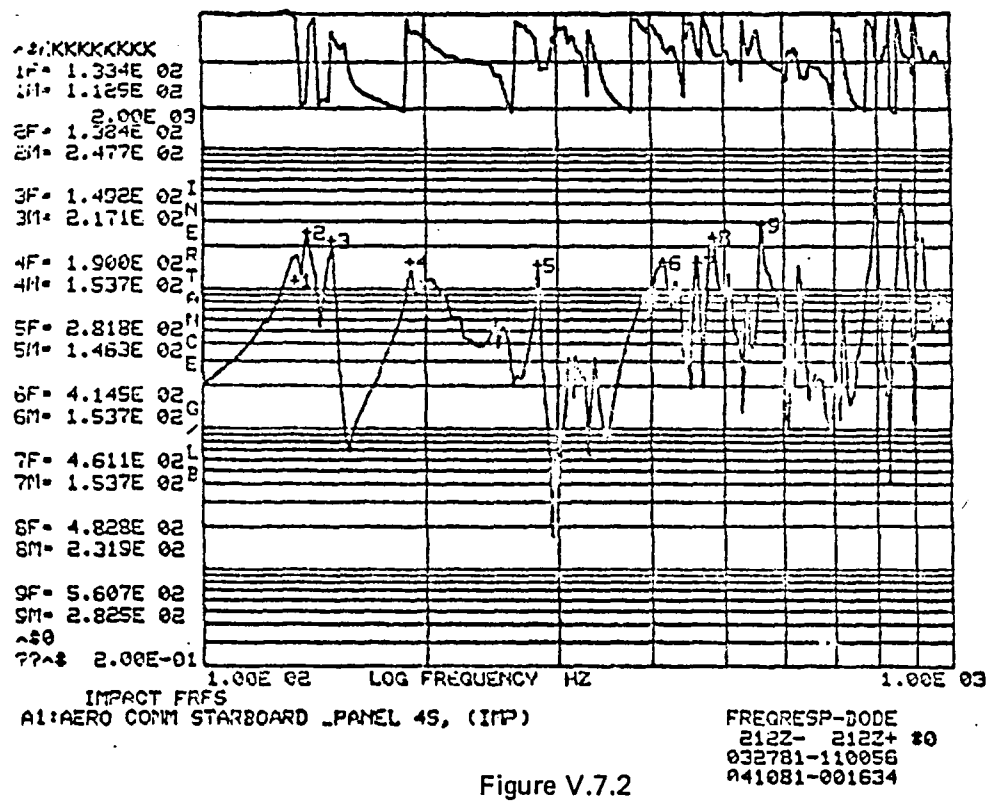


Figure V.7.2
Frequency Response, Panel 4S

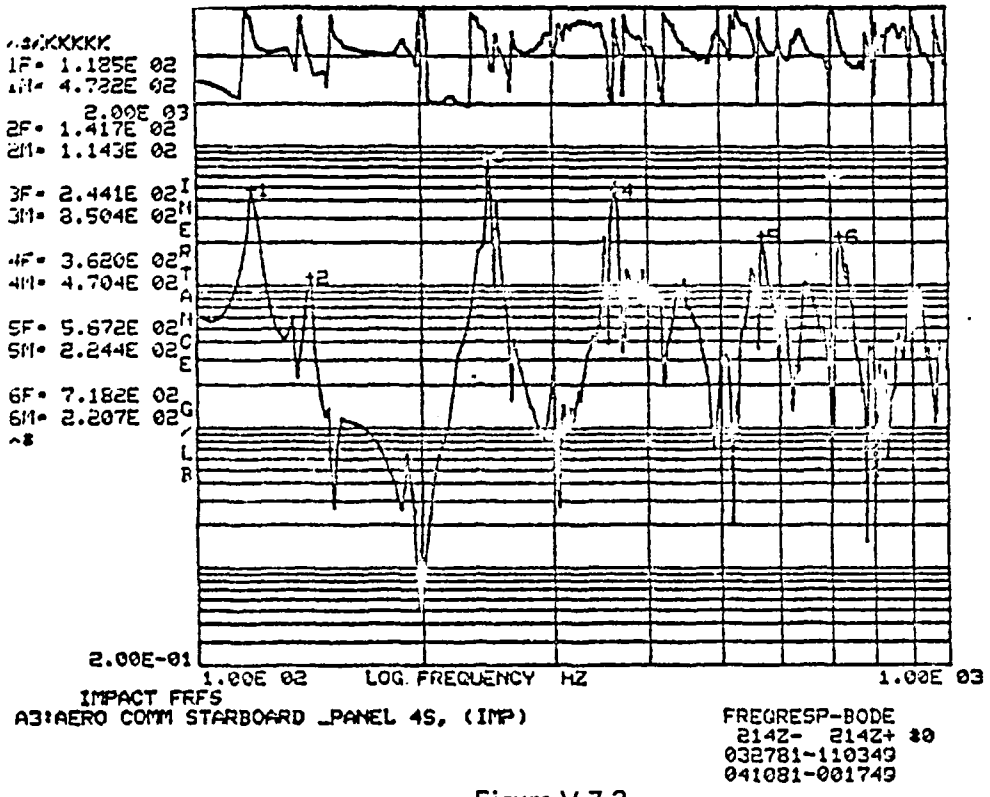


Figure V.7.3
Frequency Response, Panel 4S

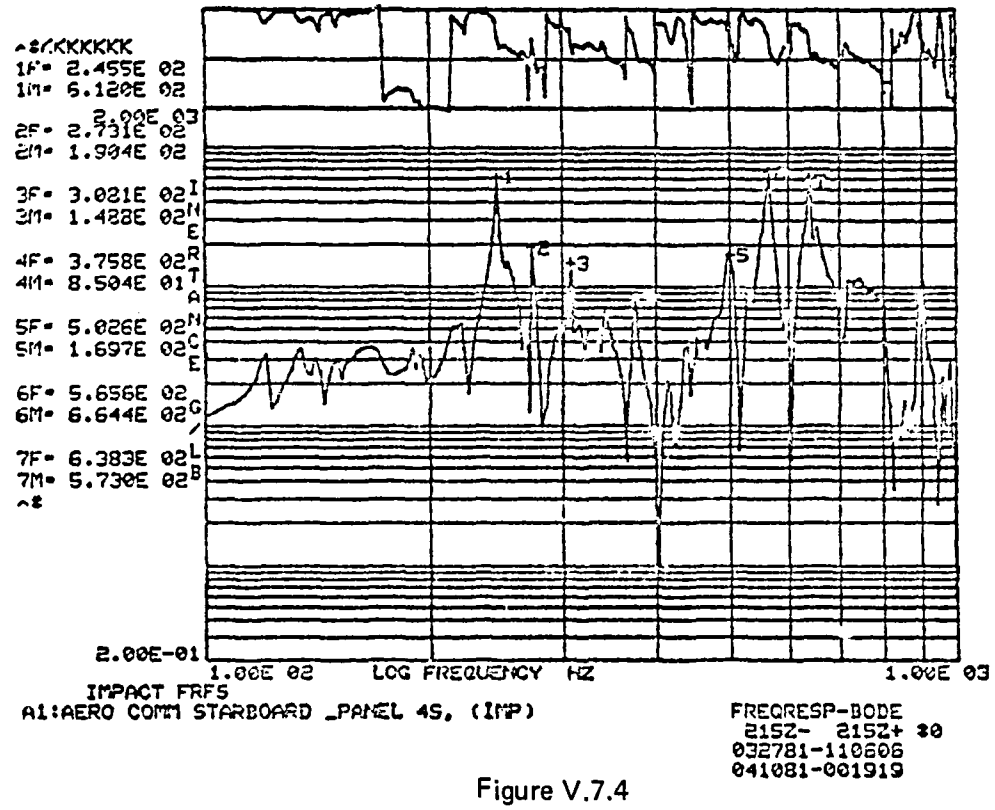


Figure V.7.4
Frequency Response, Panel 4S

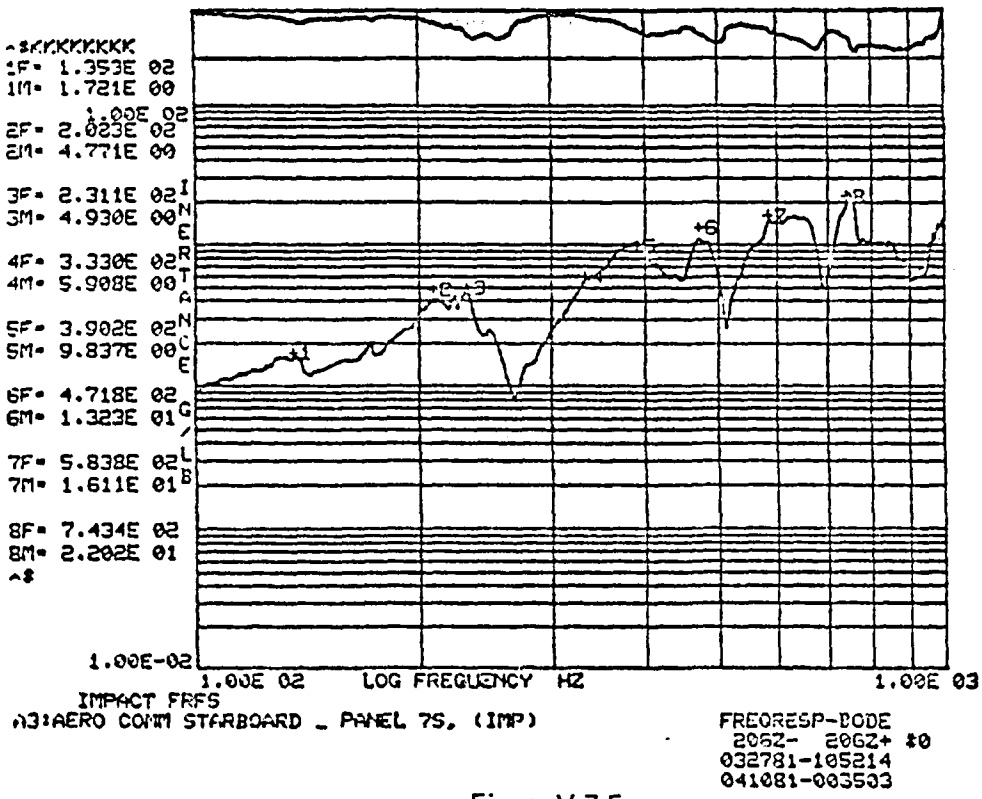


Figure V.7.5
Frequency Response, Panel 7S

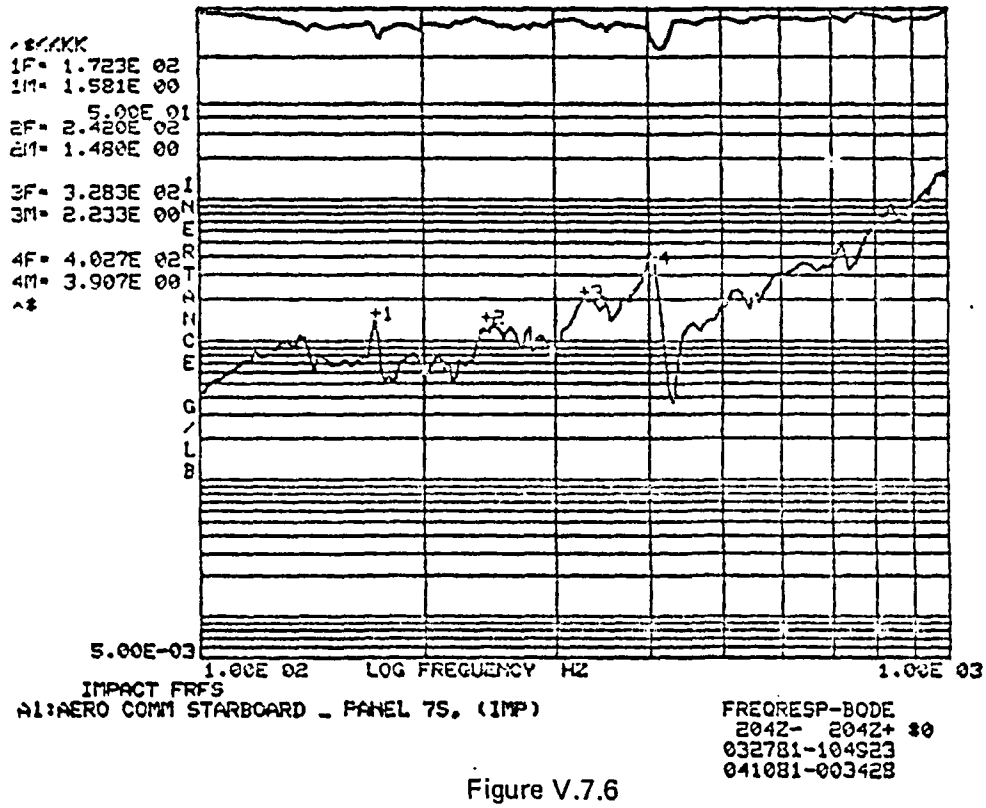


Figure V.7.6
Frequency Response, Panel 7S

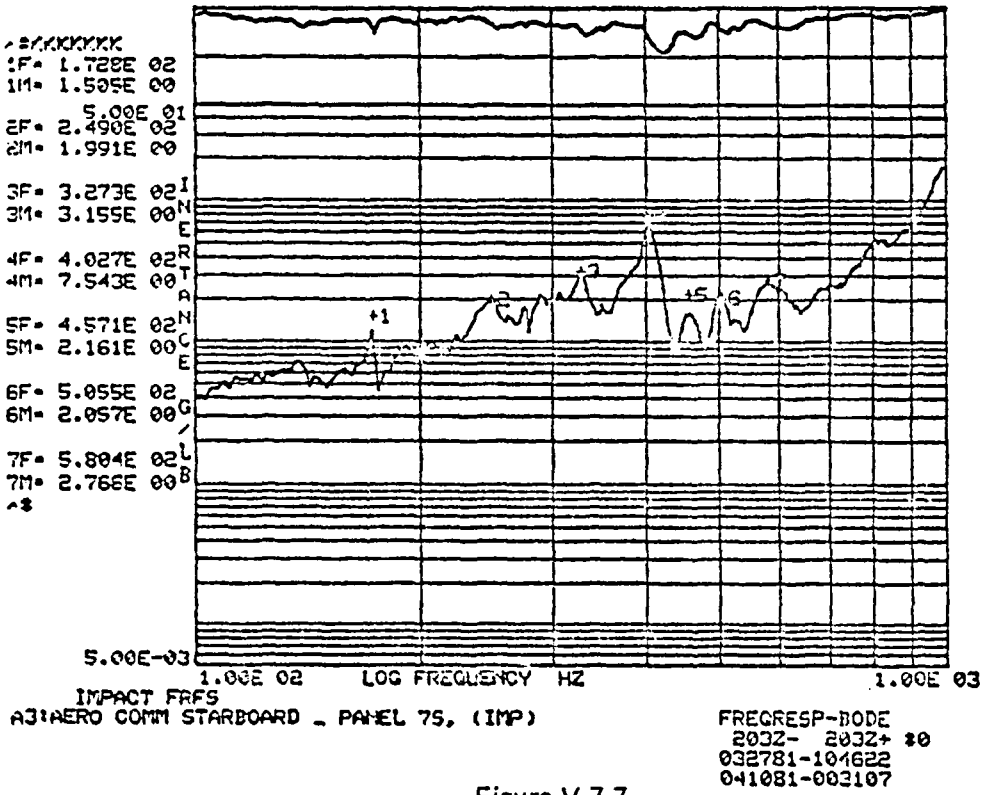


Figure V.7.7
Frequency Response, Panel 7S

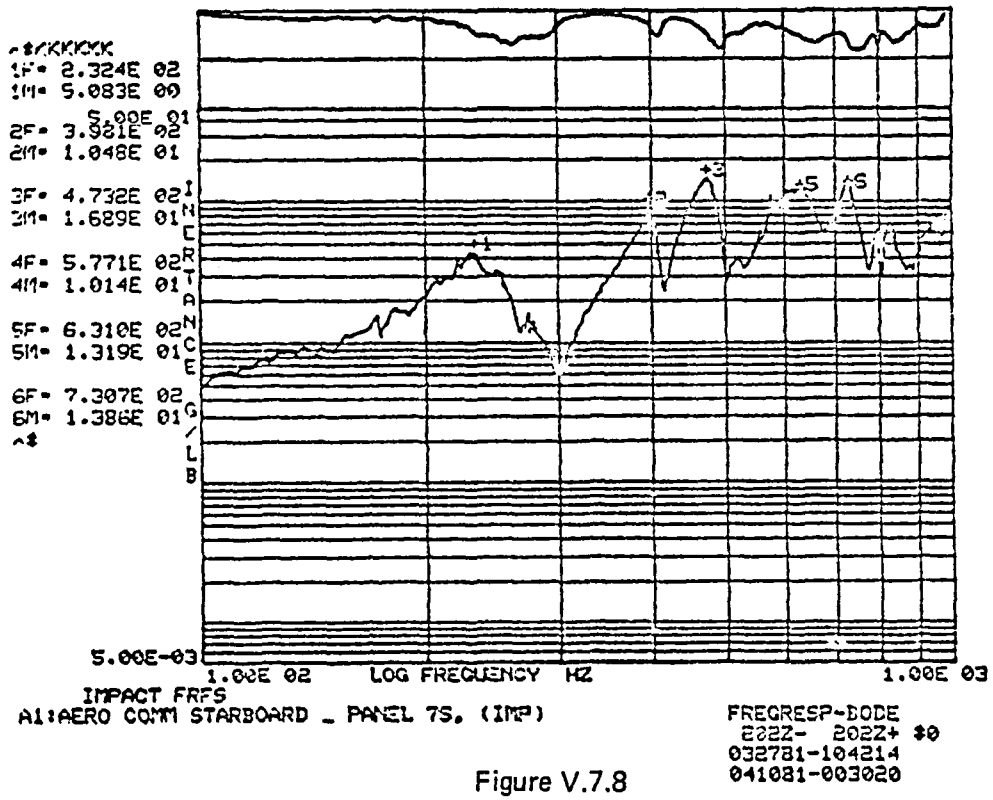


Figure V.7.8
Frequency Response, Panel 7S

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2. "Understanding Modal Analysis", Steven C. Walgrave, James M. Ehlbeck, SAE Technical Paper Series 780695.

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15. Supplementary Notes

Final Report
Langley Technical Monitor, Dr. John S. Mixon

16. Abstract

Experimental modal analysis was performed on the fuselage sidewalls of an Aero Commander aircraft for the purpose of assisting and validating the analytical modeling of these fuselage sidewalls. Modal parameters, i.e. modal damping and mode shapes were determined for both the original thin walled fuselage panels and honeycomb treated panels. The honeycomb treatment increased panel natural frequencies slightly but more significant was the change in the modal deformation patterns. Modal damping increased approximately a factor of two on the treated panels.

Ongoing research efforts aimed at the reduction of interior cabin noise of light aircraft was the original impetus for this work. One such effort involves the use of computer modeling to analyze noise transmission through the thin sidewalls of light aircraft, a major contributer to the interior cabin noise.

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Modal properties, light aircraft fuselage panels Noise transmission of same	Unclassified, unlimited

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