General Disclaimer

One or more of the Following Statements may affect this Document

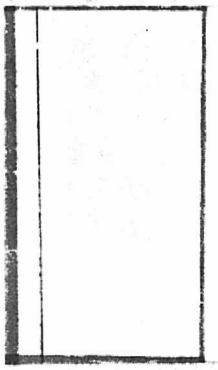
- This document has been reproduced from the best copy furnished by the organizational source. It is being released in the interest of making available as much information as possible.

- This document may contain data, which exceeds the sheet parameters. It was furnished in this condition by the organizational source and is the best copy available.

- This document may contain tone-on-tone or color graphs, charts and/or pictures, which have been reproduced in black and white.

- This document is paginated as submitted by the original source.

- Portions of this document are not fully legible due to the historical nature of some of the material. However, it is the best reproduction available from the original submission.



Nicholas, Editor
Publications Office

THE UNIVERSITY OF KANSAS CENTER FOR RESEARCH, INC.
2291 Irving Hill Rd.—Campus West Lawrence, Kansas 66044

Third Progress Report on NASA

Grant NSG-1046

AN ANALYTICAL STUDY OF EFFECTS OF AEROELASTICITY ON CONTROL EFFECTIVENESS

UNIVERSITY OF KANSAS
FLIGHT RESEARCH LAB
KU-FRL 603

Prepared by

Sudhir C. Mehrotra
Flight Research Laboratory
Center for Research, Inc.
University of Kansas
Lawrence, Kansas 66045

December 1975

Table of Contents

1. Introduction

The purpose of this report is to inform NASA Headquarters and NASA Langley of progress made on Grant NSG-1046, "An Analytical Study of Effects of Aeroelasticity on Control Effectiveness," during the period July 1975 through December 1975. This is the third progress report submitted to NASA on this grant.

Structural Complexity Study (Task-2) has been completed. All the wing planforms studied are described in Section 2. For all these planforms, structural influence coefficients (SIC's) were calculated by using the KU Aeroelastic (structural part) and NASTRAN-programs (ref. 1 and 2). The resulting matrices are compared with experimental results in Section 3.

All data needed for the Transonic Aircraft Technology (TACT) project (Task-3) are available. At the present time, an effort is underway to understand the FLEXSTAB (ref. 3) input and output for use under this task.

2. Description of Wings

The wings investigated herein were of either solid or built-up type construction. The solid wings are shown in figures 1 through 3 and their characteristics are given in Table 1. The built-up wings are shown in figures 4 through 10 and their characteristics are given in Table 2.

2.1 Wing Definitions for KU Aeroelastic Program

A list of input data needed by KU Program (Structural Part - ref. 1) for calculating structural influence coefficient matrix is given below to illustrate the extent of the work involved.

a. Unit loading points location
b. Elastic axis coordinates
c. Bending stiffness (EI) of elastic axis segments
d. Torsional stiffness (GJ) of elastic axis segments
e. IASIGN - array

The experimental layout provides the location for the unit loading points; whereas, the elastic axis coordinates and the EI - and GJ - values for all the wings must be determined. A computer program was written to provide this information for solid wings and its basis is discussed in the Appendix. The IASIGN - array is obtained manually. The unit loading points and elastic axes for solid wings are shown in figures 11 through 13; and input data listed in Tables 3 through 5.

Calculation of the input data for all built-up wings is done manually. The unit loading points and elastic axes for these wings are shown in figures 14 through 20 and input data listed in Tables 6 through 13.

2.2 Wing Definitions for NASTRAN Program

The solid wings structural influence coefficient matrices obtained from NASTRAN are calculated by assuming the wings to be composed of several traingular and/or quadrilateral plate elements. NASTRAN does not use variable thickness plate elements and thus average thickness of the elements are employed. Figures 21 through 23 show the arrangement of elements used for solid wings.

Built-up wings 1 through 7 are modeled by using triangular and/or quadrilateral plates, shear panels and rods. The upper and lower surfaces are represented by plates, the spars and ribs by shear panels, and the flanges by rods. The unit loading points of the wings are used as grid points to define all the structural elements.

Built-up wing 8 is more complicated than the others. Its experimental data is for only one unit loading point (at the wing tip) and the presented deflections and rotations are only along the center line of the outboard section. The wing is approximated by a beam, as shown in figure 24. Its grid points, bending moment of inertias (I), and torsional constants (J) for the beam elements, are determined manually and given in Table 14.

3. Discussion of Results

Theoretical and experimental results are compared in this section. Most of the experimental results presented deflection influence coefficients (DIC's) only. The KU program, which uses slender beam method (SBM), calculates streamwise rotational influence coefficients (RIC's); whereas, the NASTRAN program, which employs the actual elastic properties of structure, calculates both DIC's and RIC's. The appropriate comparisons are made for the DIC's and RIC's. All the wings studied are discussed next.

a. Solid Wing 1

Experimental deflections and rotations for this wing are given for a wing-tip load of 5 pounds (ref. 4). Figure 25 shows the deflection and rotation comparison. The NASTRAN results underestimate the experimental deflections and rotations, while the SBM results exceed both the measured and NASTRAN rotations. However, the theoretical and experimental results correlate very well for this wing.

b. Solid Wing 2

Experimental deflections for this wing are known only for a unit load at point 10 (ref. 5). Figure 26 shows comparison between experimental and NASTRAN deflections for the loading mentioned above. Under this loading, NASTRAN overestimates the deflections. RIC's, obtained by SBM and NASTRAN, are compared in Table 15. The two sets of RIC's match sporidically. Therefore, no definite trend could be established for this wing.

c. Solid Wing 3

Experimental DIC's for this wing are given in ref. 6. Measured and NASTRAN - DIC's are compared in Table 16. These DIC's match very well when the deflection and load-points are away from the root. SBM and NASTRAN - RIC's are compared in Table 17. These RIC's match, to some extent, when load- and rotation-points are near the elastic axis and away from root (see figure 13).

d. Built-up Wing 1

Measured and NASTRAN - DIC's for 100 pound loads are compared in Table 18. The agreement between the two is very good. SBM and NASTRAN - RIC's for unit loads are compared in Table 19. These RIC's are in overall fair agreement.

e. Built-up Wing 2

Measured and NASTRAN - DIC's for 100 pound loads are compared in Table 20. For most points, NASTRAN predicts lower deflections than the experiment. SBM and NASTRAN - RIC's for unit loads are given in Table 21. The RIC's predicted by the SBM are of larger magnitude than the NASTRAN ones.

f. Built-up Wing 3

Measured and NASTRAN - DIC's for 100 pound loads are given in Table 22. NASTRAN deflections are smaller than the experimental ones. The SBM and NASTRAN - RIC's for unit loads are given in Table 23. At most of the points, the two sets of RIC's have nearly the same magnitude.

g. Built-up Wing 4

Measured-and NASTRAN - DIC's for 100 pound loads are given in Table 24. NASTRAN deflections are smaller than the experimental ones. The SBM-and NASTRAN - RIC's for unit loads are given in Table 25. At most of the points, SBM predicts larger rotations than NASTRAN, but the agreement between the two is fair.

h. Built-up Wing 5

Measured-and NASTRAN - DIC's for 100 pounds loads are given in Table 26. The NASTRAN deflections are smaller than the experimental ones. The SBM-and NASTRAN - RIC's for unit loads are given in Table 27. At most of the points, the two sets of RIC's have nearly the same magnitude.

i. Built-up Wing 6

Measured-and NASTRAN - DIC's for 100 pound loads are given in Table 28. The NASTRAN deflections are smaller than the experimental ones. SBM - and NASTRAN - RIC's for unit loads are given in Table 29. These RIC's match well at only a few points for which no definite trend could be established.

j. Built-up Wing 7

Measured-and NASTRAN - DIC's for 100 pound loads are given in Table 30. The NASTRAN deflections are smaller than the experimental ones, but the difference between the two is less than for Built-up Wing 6. SBM - and NASTRAN - RIC's for unit loads

are given in Table 31. These RIC's match at only a few points. No definite trend could be established for this wing also.

k. Built-up Wing 8

Experimental deflections and rotations for this wing are given for a wing-tip load of 2,500 pounds. Figure 27 shows deflection and rotation comparison. The NASTRAN deflections and rotations are larger than the experimental ones and the SBM rotations are even larger than those of NASTRAN. The overall agreement between experiment, SBM, and NASTRAN-results is fair.

4. Conclusion

In most wings studied, experimental deflections are larger than those predicted by NASTRAN. These larger experimental deflections could be due to the mechanical construction of the wings. The reasons for the NASTRAN predicted deflections to be higher than the experimental ones in two cases are discussed below.

a. In the NASTRAN modeling of the solid cropped delta wing of aspect ratio 0.889, plate elements of large aspect ratio (2.82) have been used near the leading edge; whereas, the NASTRAN Theoretical Manual (ref. 2) suggests that aspect ratios of plate elements should be close to unity. This could not be corrected due to lack of time and may account for the difference noted.

b. In the NASTRAN modeling of the aspect ratio 4.22 built-up wing, the carry through box section at the root has been approximated by a beam, which may be an over simplification of experimental model. In making this simplification, it is possible that smaller torsional - and bending - stiffnesses have been assumed.

Rotational influence coefficients obtained by using slender beam method and NASTRAN programs do not match exactly at any particular point on all the wings studied. The smallest difference between the two sets of rotations occurs, for untapered solid- and built-up - wings of aspect

ratio between 2 and 6, when load- and rotation-points are on the elastic axis. For the load or rotation-points away from the elastic axis, this difference increases but is still reasonable. The larger difference is due to the SBM assuming the rigid links between the elastic axis endpoints and the load- and rotation-points; whereas, the NASTRAN employs the actual elastic properties of the structure.

No definite trend of agreement in RIC's of SBM and NASTRAN is established for solid wings of near unity aspect ratio and tapered built-up of aspect ratio 1.33.

5. References

1. Roskam, J., Lan, C., and Mehrotra, S.: A Computer Program for Calculating α-and q-Stability Derivatives and Induced Drag for Thin Elastic Aeroplanes at Subsonic and Supersonic Speeds. NASA CR-112229, October 1972.

2. MacNeal, R. H. (Editor): The NASTRAN Theoretical Manual. NASA SP-221 (01), December 1972.

3. Hink, G. R., Bills, G. R., and Dornfeld, G. M.: A Method for Predicting the Stability Characteristics of Control Configured Vehicles, Volume II - FLEXSTAB 2.01.00 User's Manual. AFFDL-TR-74-91, November 1974.

4. Zender, G. and Heldenfels, R.: Deflections of Solid M or W and Swept Wings. NACA Conference on Aircraft Structures, A Compilation of the Papers Presented, LAL Langley Field, Virginia, March 1951.

5. Gallagher, R. H., Buckley, W. H., Batt, J. R., and Janis, M.: A Study to Develop Design Criteria for Aerodynamically Heated Swept and Delta Wing Structures, Volume I - Summary Report. AFFDL-TR-65-127, March 1966.

6. Bennett, F. V.: Comparison of Experimental and Theoretical Static Aeroelastic Loads and Deflections of a Thin 45^{0} Delta Wing in Supersonic Flow. NASA TN D-974, October 1961.

7. Rattinger, I. and Gallagher, R. H.: Supersonic Aeroelastic Effects on Static Stability and Control, Part II - Structures. WADC TR-58-95, April 1960.

8. Zender, G. and Libove, C.: Stress and Distortion Measurements in a 45^{0} Swept Box Beam Subjected to Bending and to Torsion. NACA TN-1525, March 1948.

9. Roark, R. J.: Formulas for Stress and Strain. McGraw-Hill Book Company, Fourth Edition, 1965.

6. Appendix: Description of the Procedure Used for Calculating the Elastic Axis of Solid Wings Having Symmetrical Airfoil Sections.

Method

Elastic axis for a wing is defined by the locus of shear centers. The following definitions and assumptions are used in this Appendix for calculating shear centers, moment of inertias (I), and torsion constants (J) for solid wings.

a. Break Lines: A break line on a planform is a streamwise line which connects the leading- and trailing-edges and occurs when either the leading- or trailing-edge has a slope discontinuity. Root and tip chords are also considered as break lines. Three break lines are seen in the example presented in figure A.1, and they are 1-1', 2-2', and 3-3'.

b. The airfoil coordinates at any station, between the two break lines, are obtained by linear interpolation.

c. The center of gravity, "I," and "J" of airfoil sections are obtained by assuming the airfoil consisting of trapezoidal and triangular segments (figure A.2).

d. The distance between the center of gravity and shear center for a symmetrical section is given by (ref. 9),

$$e = \frac{(1+3\nu)}{(1+\nu)} \frac{\int_{l_e}^{t_e} x\, t^3\, dx}{\int_{l_e}^{t_e} t^3\, dx}$$

where ν is the Poisson's Ratio; and x and t are as shown in

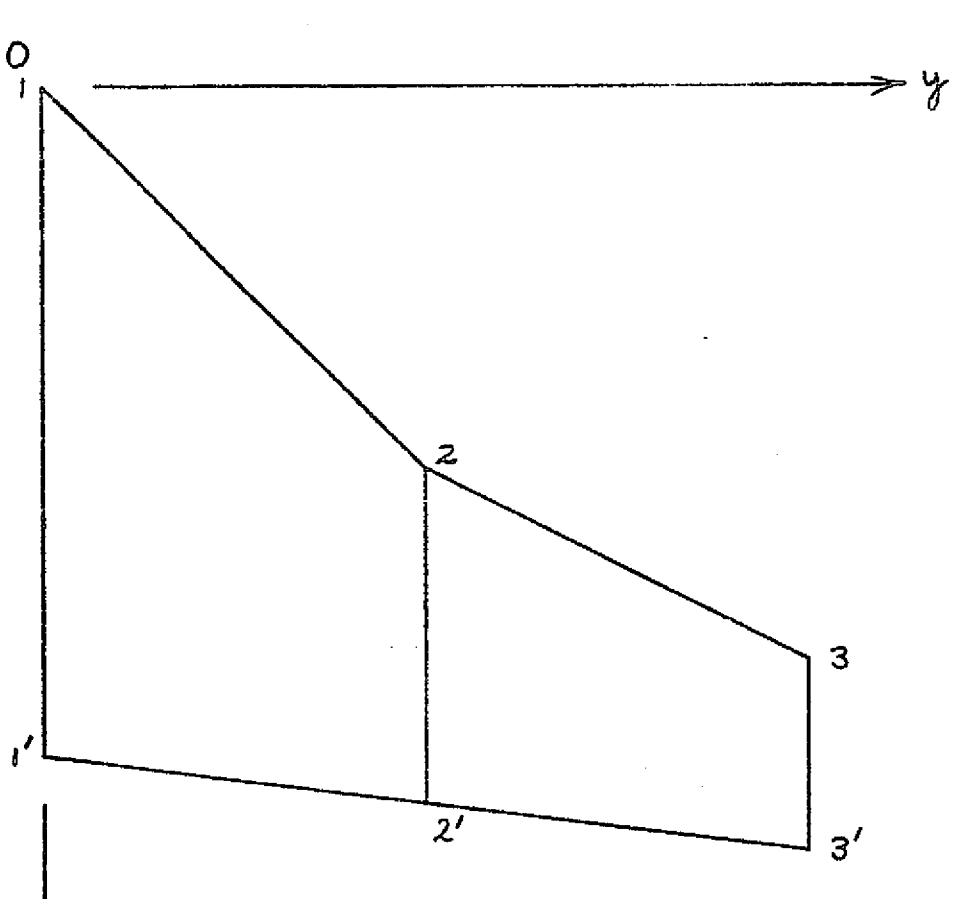


Figure A.1 Example Planform-Break Lines

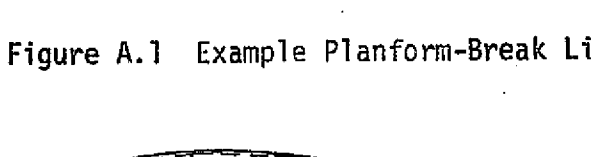


Figure A.2 Triangular and Quadrilateral Panels of Airfoil Sections

figure A.3. The e's are used along with the center of gravity locations, to find the shear centers.

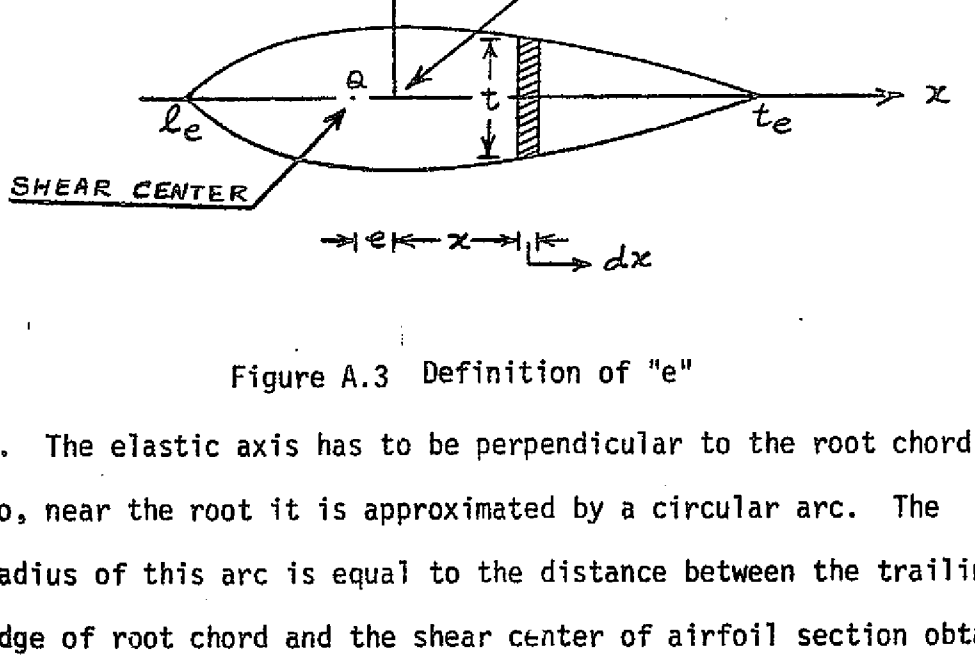


Figure A.3 Definition of "e"

e. The elastic axis has to be perpendicular to the root chord. So, near the root it is approximated by a circular arc. The radius of this arc is equal to the distance between the trailing edge of root chord and the shear center of airfoil section obtained by drawing a perpendicular from trailing edge of the root chord to the previous elastic axis.

f. Iteration Process: This process is begun by finding the shear centers of airfoil sections at all the break lines. These shear centers are connected by straight lines, and thereby give the first approximation of the elastic axis (figure A.4). Next, the shear centers of the airfoil sections perpendicular to the first approximate elastic axis are obtained. This procedure results in a second

approximation of elastic axis (figure A.4). Further, approximations are made by calculating shear centers of airfoil sections perpendicular to previous elastic axis. When two consecutive iterations yield almost the same elastic axis location, the process is terminated.

A computer program which does the preceding will be presented in the next progress report.

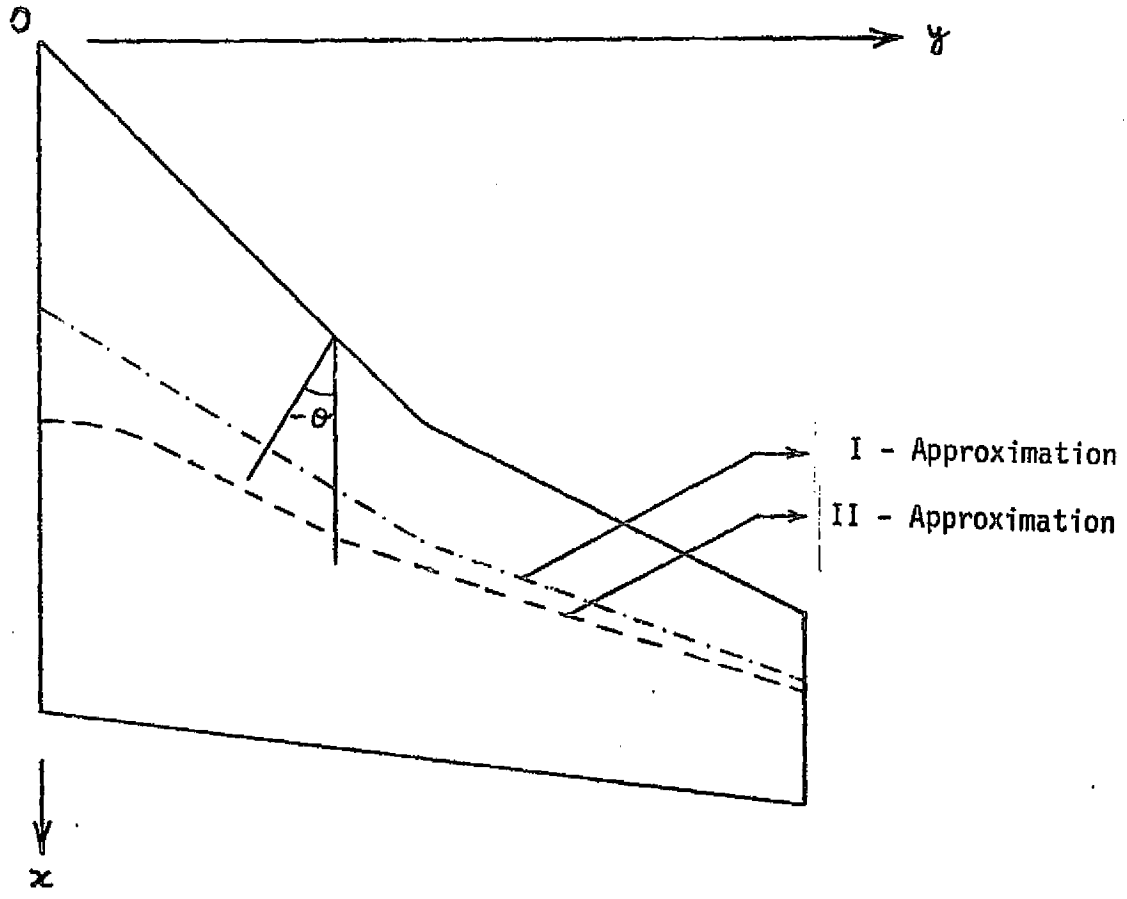


Figure A.4 Example Planform - Elastic Axis Approximations

Table 1. Characteristics of Solid Wings

Solid Wing Number	Cross-section	Thickness (Inches)	Thickness Ratio	Leading-edge sweep (deg.)	Taper Ratio	Aspect Ratio	Reference Number
1	Constant thickness	0.37	--	45	1.0	6.0	4
2	Constant thickness	0.532	--	45	0.059	0.889	5
3	Double wedge	--	0.02	45	0.0	1.0	6

Table 2. Characteristics of Built-up Wings

Built-up Wings Number	Skin thickness (Inches)	Leading-edge sweep (deg.)	Taper Ratio	Aspect Ratio	Reference Number
1*	0.063	0	1.0	4.0	7
2*	0.063	45	1.0	2.0	7
3*	0.125	45	1.0	2.0	7
4*	0.063	0	1.0	2.0	7
5*	0.063	30	1.0	3.0	7
6*	0.063	45	0.5	1.33	7
7**	0.063	45	0.5	1.33	7
8*	0.050	45	1.0	4.22	8

* Spars are parallel to the leading-edge

**Spars are parallel to the trailing-edge

Table 3 KU Program Input Data for Solid Wing 1

COORDINATES OF UNIT LOADING POINTS AND LOADING POINT ASSIGNMENT

I	XCG INCHES	YCG INCHES	IASIGN
1	5.22590	.55180	2
2	5.38690	1.08240	3
3	5.64830	1.57140	4
4	6.00000	2.00000	5
5	10.00000	6.00000	6
6	14.00000	10.00000	7
7	18.00000	14.00000	8
8	22.00000	18.00000	9
9	26.00000	22.00000	10
10	26.39780	22.39780	11
11	26.82840	22.82840	12
12	27.33640	23.33640	13
13	28.00000	24.00000	14

COORDINATES OF ELASTIC AXIS SEGMENTS

I	XEA INCHES	YEA INCHES
1	5.17160	0.00000
2	5.22590	.55180
3	5.38690	1.08240
4	5.64830	1.57140
5	6.00000	2.00000
6	10.00000	6.00000
7	14.00000	10.00000
8	18.00000	14.00000
9	22.00000	18.00000
10	26.00000	22.00000
11	26.39780	22.39780
12	26.82840	22.82840
13	27.33640	23.33640
14	28.00000	24.00000

ELASTIC AXIS TORSIONAL AND BENDING STIFFNESS

I	EI LB.-IN.**2	GJ LB.-IN.**2
1	.33120E+06	.60518E+08
2	.28920E+06	.35363E+08
3	.26600E+06	.26182E+08
4	.25560E+06	.22960E+08
5	.25310E+06	.22281E+08
6	.25310E+06	.22281E+08
7	.25310E+06	.22281E+08
8	.25310E+06	.22281E+08
9	.25310E+06	.22281E+08
10	.25560E+06	.22947E+08
11	.26600E+06	.25925E+08
12	.28920E+06	.33474E+08
13	.33120E+06	.50798E+08

Table 4 KU Program Input Data for Solid Wing 2

COORDINATES OF UNIT LOADING POINTS AND LOADING POINT ASSIGNMENT

I	XCG INCHES	YCG INCHES	IASIGN
1	7.75000	5.00000	3
2	15.25000	5.00000	4
3	22.75000	5.00000	6
4	30.25000	5.00000	7
5	15.25000	12.50000	8
6	22.75000	12.50000	9
7	30.25000	12.50000	10
8	22.75000	20.00000	11
9	30.25000	20.00000	12
10	30.25000	27.50000	13

COORDINATES OF ELASTIC AXIS SEGMENTS

I	XEA INCHES	YEA INCHES
1	21.00001	0.00000
2	21.06328	1.28100
3	21.25247	2.54952
4	21.56573	3.79323
5	22.00002	5.00002
6	22.10000	5.24163
7	23.20000	7.89997
8	23.66000	9.01164
9	24.72000	11.57331
10	25.84000	14.27998
11	27.40000	18.04998
12	28.50000	20.70832
13	31.20000	27.23333
14	33.00000	31.58333
15	33.00000	31.80000
16	33.00000	32.00000

ELASTIC AXIS TORSIONAL AND BENDING STIFFNESS

I	EI LB.-IN.**2	GJ LB.-IN.**2
1	.43284E+07	.69001E+10
2	.39889E+07	.50512E+10
3	.37329E+07	.39825E+10
4	.35404E+07	.33415E+10
5	.34437E+07	.30602E+10
6	.32708E+07	.26405E+10
7	.30460E+07	.21209E+10
8	.28270E+07	.17081E+10
9	.25129E+07	.12041E+10
10	.21267E+07	.74541E+09
11	.17434E+07	.40742E+09
12	.11959E+07	.16923E+09
13	.54753E+06	.20775E+08
14	.27972E+06	.17487E+07
15	.26864E+06	.15535E+07

Table 5 KU Program Input Data for Solid Wing 3

COORDINATES OF UNIT LOADING POINTS AND LOADING POINT ASSIGNMENT

I	XCG INCHES	YCG INCHES	IASIGN
1	1.05000	.50000	2
2	2.15000	.50000	2
3	3.25000	.50000	3
4	4.35000	.50000	4
5	5.45000	.50000	6
6	1.95000	1.50000	4
7	2.85000	1.50000	5
8	3.75000	1.50000	7
9	4.65000	1.50000	8
10	5.55000	1.50000	10
11	2.85000	2.50000	9
12	3.55000	2.50000	10
13	4.25000	2.50000	11
14	4.95000	2.50000	12
15	5.65000	2.50000	13
16	3.75000	3.50000	13
17	4.25000	3.50000	14
18	4.75000	3.50000	15
19	5.25000	3.50000	16
20	5.75000	3.50000	17
21	4.65000	4.50000	18
22	4.95000	4.50000	19
23	5.25000	4.50000	20
24	5.55000	4.50000	21
25	5.85000	4.50000	22
26	5.55000	5.50000	23
27	5.75000	5.50000	24
28	5.95000	5.50000	25

Table 5 (Continued) KU Program Input Data for Solid Wing 3

COORDINATES OF ELASTIC AXIS SEGMENTS

I	XEA INCHES	YEA INCHES
1	3.42698	0.00000
2	3.44276	.28452
3	3.48991	.56556
4	3.56784	.83966
5	3.67561	1.10346
6	3.77190	1.30630
7	3.84617	1.46276
8	4.01756	1.82381
9	4.07469	1.94416
10	4.20038	2.20894
11	4.32607	2.47371
12	4.45747	2.75052
13	4.62315	3.09954
14	4.70884	3.28006
15	4.80597	3.48466
16	4.89738	3.67722
17	4.99450	3.88182
18	5.17160	4.25491
19	5.22873	4.37526
20	5.28587	4.49561
21	5.34300	4.61596
22	5.40013	4.73631
23	5.72577	5.42231
24	5.76576	5.50656
25	5.80004	5.57877
26	5.85717	5.69912
27	6.00000	6.00000

ELASTIC AXIS TORSIONAL AND BENDING STIFFNESS

I	EI LB.-IN.**2	GJ LB.-IN.**2
1	.55427E+04	.52859E+07
2	.43128E+04	.35874E+07
3	.34297E+04	.27210E+07
4	.27685E+04	.22355E+07
5	.22887E+04	.18941E+07
6	.19626E+04	.16242E+07
7	.15715E+04	.13006E+07
8	.12407E+04	.10268E+07
9	.10300E+04	.85245E+06
10	.77968E+03	.64526E+06
11	.57447E+03	.47543E+06
12	.39346E+03	.32563E+06
13	.27093E+03	.22422E+06
14	.20456E+03	.16929E+06
15	.14925E+03	.12352E+06
16	.10629E+03	.67968E+05
17	.63475E+02	.52532E+05
18	.35063E+02	.29018E+05
19	.26100E+02	.21600E+05
20	.18978E+02	.15706E+05
21	.13426E+02	.11111E+05
22	.57453E+01	.47548E+04
23	.36839E+00	.30488E+03
24	.19594E+00	.16216E+03
25	.85653E-01	.70886E+02
26	.17691E-01	.14642E+02

Table 6 KU Program Input Data for Built-up Wing 1

COORDINATES OF UNIT LOADING POINTS AND LOADING POINT ASSIGNMENT

I	XCG INCHES	YCG INCHES	IASIGN
1	0.00000	30.00000	4
2	3.75000	30.00000	4
3	7.50000	30.00000	4
4	11.25000	30.00000	4
5	15.00000	30.00000	4
6	0.00000	20.00000	3
7	3.75000	20.00000	3
8	7.50000	20.00000	3
9	11.25000	20.00000	3
10	15.00000	20.00000	3
11	0.00000	10.00000	2
12	3.75000	10.00000	2
13	7.50000	10.00000	2
14	11.25000	10.00000	2
15	15.00000	10.00000	2

COORDINATES OF ELASTIC AXIS SEGMENTS

I	XEA INCHES	YEA INCHES
1	7.50000	0.00000
2	7.50000	10.00000
3	7.50000	20.00000
4	7.50000	30.00000

ELASTIC AXIS TORSIONAL AND BENDING STIFFNESS

I	EI LB.-IN.**2	GJ LB.-IN.**2
1	.65140E+07	.64564E+07
2	.65140E+07	.64564E+07
3	.65140E+07	.64564E+07

Table 7 KU Program Input Data for Built-up Wing 2

COORDINATES OF UNIT LOADING POINTS AND LOADING POINT ASSIGNMENT

I	XCG INCHES	YCG INCHES	IASIGN
1	21.21000	21.21000	12
2	26.51000	21.21000	15
3	31.81000	21.21000	16
4	37.11000	21.21000	16
5	42.41000	21.21000	16
6	14.14000	14.14000	9
7	19.44000	14.14000	10
8	24.74000	14.14000	11
9	30.04000	14.14000	13
10	35.34000	14.14000	15
11	7.07000	7.07000	4
12	12.37000	7.07000	5
13	17.67000	7.07000	6
14	22.97000	7.07000	7
15	28.27000	7.07000	8

Table 7 (Continued) KU Program Input Data for Built-up Wing 2

COORDINATES OF ELASTIC AXIS SEGMENTS

I	XEA INCHES	YEA INCHES
1	13.70000	0.00000
2	13.84000	1.46000
3	14.27000	2.87000
4	14.96000	4.17000
5	15.90000	5.30000
6	17.67000	7.07000
7	19.44000	8.84000
8	20.32000	9.72000
9	22.09000	11.49000
10	22.97000	12.37000
11	24.74000	14.14000
12	26.51000	15.90000
13	27.56000	16.95000
14	28.71000	18.10000
15	30.05000	19.63000
16	31.81000	21.21000

ELASTIC AXIS TORSIONAL AND BENDING STIFFNESS

I	EI LB.-IN.**2	GJ LB.-IN.**2
1	.82573E+07	.77256E+08
2	.73187E+07	.21108E+08
3	.67993E+07	.86944E+07
4	.65669E+07	.66101E+07
5	.65140E+07	.64564E+07
6	.65140E+07	.64564E+07
7	.65140E+07	.64564E+07
8	.65140E+07	.64564E+07
9	.65140E+07	.64564E+07
10	.65140E+07	.64564E+07
11	.65140E+07	.64564E+07
12	.65669E+07	.65216E+07
13	.67993E+07	.68096E+07
14	.73187E+07	.74531E+07
15	.82573E+07	.86171E+07

Table 8 KU Program Input Data for Built-up Wing 3

COORDINATES OF UNIT LOADING POINTS AND LOADING POINT ASSIGNMENT

I	XCG INCHES	YCG INCHES	IASIGN
1	21.21000	21.21000	12
2	26.51000	21.21000	15
3	31.81000	21.21000	16
4	37.11000	21.21000	16
5	42.41000	21.21000	16
6	14.14000	14.14000	9
7	19.44000	14.14000	10
8	24.74000	14.14000	11
9	30.04000	14.14000	13
10	35.34000	14.14000	15
11	7.07000	7.07000	4
12	12.37000	7.07000	5
13	17.67000	7.07000	6
14	22.97000	7.07000	7
15	28.27000	7.07000	8

Table 8 (Continued) KU Program Input Data for Built-up Wing 3

COORDINATES OF ELASTIC AXIS SEGMENTS

I	XEA INCHES	YEA INCHES
1	13.70000	0.00000
2	13.84000	1.46000
3	14.27000	2.87000
4	14.96000	4.17000
5	15.90000	5.30000
6	17.67000	7.07000
7	19.44000	8.84000
8	20.32000	9.72000
9	22.09000	11.49000
10	22.97000	12.37000
11	24.74000	14.14000
12	26.51000	15.90000
13	27.56000	16.95000
14	28.71000	18.10000
15	30.05000	19.63000
16	31.81000	21.21000

ELASTIC AXIS TORSIONAL AND BENDING STIFFNESS

I	EI LB.-IN.**2	GJ LB.-IN.**2
1	.17362E+08	.14170E+09
2	.15270E+08	.38508E+08
3	.14113E+08	.15920E+08
4	.13595E+08	.12131E+08
5	.13477E+08	.11846E+08
6	.13477E+08	.11846E+08
7	.13477E+08	.11846E+08
8	.13477E+08	.11846E+08
9	.13477E+08	.11846E+08
10	.13477E+08	.11846E+08
11	.13477E+08	.11846E+08
12	.13595E+08	.11973E+08
13	.14113E+08	.12533E+08
14	.15270E+08	.13787E+08
15	.17362E+08	.16061E+08

Table 9 KU Program Input Data for Built-up Wing 4

COORDINATES OF UNIT LOADING POINTS AND LOADING POINT ASSIGNMENT

I	XCG INCHES	YCG INCHES	IASIGN
1	0.00000	15.00000	4
2	3.75000	15.00000	4
3	7.50000	15.00000	4
4	11.25000	15.00000	4
5	15.00000	15.00000	4
6	0.00000	10.00000	3
7	3.75000	10.00000	3
8	7.50000	10.00000	3
9	11.25000	10.00000	3
10	15.00000	10.00000	3
11	0.00000	5.00000	2
12	3.75000	5.00000	2
13	7.50000	5.00000	2
14	11.25000	5.00000	2
15	15.00000	5.00000	2

COORDINATES OF ELASTIC AXIS SEGMENTS

I	XEA INCHES	YEA INCHES
1	7.50000	0.00000
2	7.50000	5.00000
3	7.50000	10.00000
4	7.50000	15.00000

ELASTIC AXIS TORSIONAL AND BENDING STIFFNESS

I	EI LB.-IN.**2	GJ LB.-IN.**2
1	.65140E+07	.64564E+07
2	.65140E+07	.64564E+07
3	.65140E+07	.64564E+07

Table 10 KU Program Input Data for Built-up Wing 5

COORDINATES OF UNIT LOADING POINTS AND LOADING POINT ASSIGNMENT

I	XCG INCHES	YCG INCHES	IASIGN
1	15.00000	25.98000	16
2	19.33000	25.98000	19
3	23.66000	25.98000	20
4	27.99000	25.98000	20
5	32.32000	25.98000	20
6	10.00000	17.32000	11
7	14.33000	17.32000	12
8	18.66000	17.32000	13
9	22.99000	17.32000	14
10	27.32000	17.32000	15
11	5.00000	8.66000	6
12	9.33000	8.66000	7
13	13.66000	8.66000	8
14	17.99000	8.66000	9
15	22.32000	8.66000	10

Table 10 (Continued) KU Program Input Data for Built-up Wing 5

COORDINATES OF ELASTIC AXIS SEGMENTS

I	XEA INCHES	YEA INCHES
1	9.82000	0.00000
2	9.88000	.98000
3	10.08000	1.94000
4	10.39000	2.87000
5	10.83000	3.75000
6	11.50000	4.91000
7	12.58000	6.79000
8	13.66000	8.66000
9	14.74000	10.54000
10	15.82000	12.41000
11	16.50000	13.57000
12	17.58000	15.45000
13	18.66000	17.32000
14	19.74000	19.20000
15	20.82000	21.07000
16	21.50000	22.23000
17	21.99000	23.09000
18	22.50000	23.97000
19	23.05000	24.92000
20	23.66000	25.98000

ELASTIC AXIS TORSIONAL AND BENDING STIFFNESS

I	EI LB.-IN.**2	GJ LB.-IN.**2
1	.71856E+07	.15811E+08
2	.68472E+07	.89948E+07
3	.66383E+07	.69476E+07
4	.65385E+07	.65051E+07
5	.65140E+07	.64564E+07
6	.65140E+07	.64564E+07
7	.65140E+07	.64564E+07
8	.65140E+07	.64564E+07
9	.65140E+07	.64564E+07
10	.65140E+07	.64564E+07
11	.65140E+07	.64564E+07
12	.65140E+07	.64564E+07
13	.65140E+07	.64564E+07
14	.65140E+07	.64564E+07
15	.65140E+07	.64564E+07
16	.65385E+07	.64864E+07
17	.66383E+07	.66098E+07
18	.68472E+07	.68685E+07
19	.71856E+07	.72870E+07

Table 11 KU Program Input Data for Built-up Wing 6

COORDINATES OF UNIT LOADING POINTS AND LOADING POINT ASSIGNMENT

I	XCG INCHES	YCG INCHES	IASIGN
1	21.21000	21.21000	13
2	26.51000	21.21000	14
3	31.81000	21.21000	14
4	37.11000	21.21000	14
5	42.41000	21.21000	14
6	14.14000	14.14000	8
7	19.44000	14.14000	9
8	24.74000	14.14000	10
9	30.04000	14.14000	11
10	35.34000	14.14000	12
11	42.41000	14.14000	13
12	7.07000	7.07000	3
13	12.37000	7.07000	4
14	17.67000	7.07000	5
15	22.97000	7.07000	6
16	28.27000	7.07000	7
17	35.34000	7.07000	9
18	42.41000	7.07000	10

Table 11 (Continued) KU Program Input Data for Built-up Wing 6

COORDINATES OF ELASTIC AXIS SEGMENTS

I	XEA INCHES	YEA INCHES
1	25.95000	0.00000
2	26.05000	1.75000
3	26.33000	3.50000
4	26.48000	4.13000
5	26.68000	4.75000
6	26.98000	5.75000
7	27.68000	7.38000
8	28.00000	8.38000
9	28.80000	10.25000
10	29.75000	12.30000
11	30.45000	14.00000
12	31.25000	15.75000
13	31.58000	16.75000
14	31.81000	21.21000

ELASTIC AXIS TORSIONAL AND BENDING STIFFNESS

I	EI LB.-IN.**2	GJ LB.-IN.**2
1	.15574E+08	.40195E+09
2	.14360E+08	.14051E+09
3	.13719E+08	.55320E+08
4	.13436E+08	.37059E+08
5	.13158E+08	.22310E+08
6	.12717E+08	.15207E+08
7	.12290E+08	.14067E+08
8	.11859E+08	.13512E+08
9	.11154E+08	.12659E+08
10	.10464E+08	.11817E+08
11	.99140E+07	.11104E+08
12	.94820E+07	.10555E+08
13	.88450E+07	.98650E+07

Table 12 KU Program Input Data for Built-up Wing 7

COORDINATES OF UNIT LOADING POINTS AND LOADING POINT ASSIGNMENT

I	XCG INCHES	YCG INCHES	IASIGN
1	21.21000	21.21000	10
2	26.51000	21.21000	11
3	31.81000	21.21000	11
4	37.11000	21.21000	11
5	42.41000	21.21000	11
6	14.14000	14.14000	6
7	21.21000	14.14000	7
8	26.51000	14.14000	8
9	31.81000	14.14000	9
10	37.11000	14.14000	10
11	42.41000	14.14000	11
12	7.07000	7.07000	2
13	14.14000	7.07000	3
14	21.21000	7.07000	4
15	26.51000	7.07000	5
16	31.81000	7.07000	6
17	37.11000	7.07000	7
18	42.41000	7.07000	8

Table 12 (Continued) KU Program Input Data for Built-up Wing 7

COORDINATES OF ELASTIC AXIS SEGMENTS

I	XEA INCHES	YEA INCHES
1	26.13000	0.00000
2	26.30000	2.55000
3	26.55000	3.75000
4	27.00000	5.25000
5	27.55000	6.75000
6	28.33000	8.63000
7	29.25000	11.00000
8	29.95000	12.80000
9	30.68000	14.58000
10	31.63000	17.00000
11	31.81000	21.21000

ELASTIC AXIS TORSIONAL AND BENDING STIFFNESS

I	EI LB.-IN.**2	GJ LB.-IN.**2
1	.15373E+08	.32579E+09
2	.14032E+08	.82452E+08
3	.13301E+08	.32730E+08
4	.12602E+08	.16955E+08
5	.12005E+08	.13964E+08
6	.11389E+08	.13197E+08
7	.10721E+08	.12323E+08
8	.10156E+08	.11592E+08
9	.94070E+07	.10680E+08
10	.86470E+07	.97440E+07

Table 13 KU Program Input Data for Built-up Wing 8

COORDINATES OF UNIT LOADING POINTS AND LOADING POINT ASSIGNMENT

I	XCG INCHES	YCG INCHES	IASIGN
1	94.70000	88.50000	14
2	88.40000	82.20000	13
3	82.10000	75.90000	12
4	75.80000	69.60000	11
5	69.50000	63.30000	10
6	63.20000	57.00000	9
7	56.90000	50.70000	8
8	50.60000	44.40000	7
9	44.30000	38.10000	6
10	38.00000	31.80000	5
11	31.80000	25.60000	4

COORDINATES OF ELASTIC AXIS SEGMENTS

I	XEA INCHES	YEA INCHES
1	28.20000	0.00000
2	28.60000	8.00000
3	30.00000	15.00000
4	34.00000	25.00000
5	40.00000	34.00000
6	44.30000	38.10000
7	50.60000	44.40000
8	56.90000	50.70000
9	63.20000	57.00000
10	69.50000	63.30000
11	75.80000	69.60000
12	82.10000	75.90000
13	88.40000	82.20000
14	94.70000	88.50000

ELASTIC AXIS TORSIONAL AND BENDING STIFFNESS

I	EI LB.-IN.**2	GJ LB.-IN.**2
1	.14190E+10	.80000E+34
2	.12870E+10	.80000E+34
3	.11170E+10	.60110E+09
4	.94710E+09	.55550E+09
5	.94710E+09	.50960E+09
6	.94710E+09	.50960E+09
7	.94710E+09	.50960E+09
8	.94710E+09	.50960E+09
9	.94710E+09	.50960E+09
10	.94710E+09	.50960E+09
11	.94710E+09	.50960E+09
12	.94710E+09	.50960E+09
13	.94710E+09	.50960E+09

Table 14 Details of Beam Elements Used in NASTRAM Modeling of Built-up Wing 8

END-POINT	X INCHES	Y INCHES
1	21.2	0.0
2	21.2	5.0
3	21.2	15.0
4	31.8	25.6
5	38.0	31.8
6	44.3	38.1
7	50.6	44.4
8	56.9	50.7
9	63.2	57.0
10	69.5	63.3
11	75.8	69.6
12	82.1	75.9
13	88.4	82.2
14	94.7	88.5

BEAM ELEMENT	MOM. OF INERTIA INCHES**4	TORS. CONSTANT INCHES**4
1- 2	135.15	2.0E+27
2- 3	122.58	2.0E+27
3- 4	106.39	150.267
4- 5	90.20	127.400
5- 6	90.20	127.400
6- 7	90.20	127.400
7- 8	90.20	127.400
8- 9	90.20	127.400
9-10	90.20	127.400
10-11	90.20	127.400
11-12	90.20	127.400
12-13	90.20	127.400
13-14	90.20	127.400

Table 15

KU- AND NASTRAN- ROTATIONAL INFLUENCE COEFFICIENTS FOR SOLID WING 2
(ALL ROTATIONS ARE BASED ON A 1LB. LOAD)

LOAD AT POINT 1

ROTATIONS AT	1	2	3	4	5	6	7	8
KU	-.99022E-07	-.99022E-07	-.99022E-07	-.99022E-07	-.99022E-07	-.99022E-07	-.99022E-07	-.99022E-07
NASTRAN	.11332E-05	.18715E-05	.32143E-06	.26231E-06	.25922E-05	.13619E-05	.98179E-06	.19334E-05
ROTATIONS AT	9	10						
KU	-.99022E-07	-.99022E-07						
NASTRAN	.14902E-05	.16704E-05						

LOAD AT POINT 2

ROTATIONS AT	1	2	3	4	5	6	7	8
KU	-.16015E-06	-.18071E-06	-.18071E-06	-.18071E-06	-.18071E-06	-.18071E-06	-.18071E-06	-.18071E-06
NASTRAN	-.10612E-05	-.90396E-07	.12854E-05	.42836E-06	.32344E-06	.14908E-05	.13501E-05	.15297E-05
ROTATIONS AT	9	10						
KU	-.18071E-06	-.18071E-06						
NASTRAN	.15539E-05	.16562E-05						

LOAD AT POINT 3

ROTATIONS AT	1	2	3	4	5	6	7	8
KU	-.22129E-06	-.39785E-06	-.51250E-06	-.51250E-06	-.51250E-06	-.51250E-06	-.51250E-06	-.51250E-06
NASTRAN	-.62302E-06	-.12682E-05	-.93218E-07	.12121E-05	-.12805E-05	-.38142E-06	.75668E-06	-.36552E-06
ROTATIONS AT	9	10						
KU	-.51250E-06	-.51250E-06						
NASTRAN	.34356E-06	.98700E-07						

LOAD AT POINT 4

ROTATIONS AT	1	2	3	4	5	6	7	8
KU	-.28242E-06	-.61498E-06	-.11275E-05	-.16243E-05	-.16243E-05	-.16243E-05	-.16243E-05	-.16243E-05
NASTRAN	-.22871E-06	-.37590E-06	-.16685E-05	-.11024E-05	-.18307E-05	-.23358E-05	-.21784E-05	-.27629E-05
ROTATIONS AT	9	10						
KU	-.16243E-05	-.16243E-05						
NASTRAN	-.27329E-05	-.28255E-05						

Table 15 (Continued)

KU= AND NASTRAN= ROTATIONAL INFLUENCE COEFFICIENTS FOR SOLID WING 2
(ALL ROTATIONS ARE BASED ON A 1LB. LOAD)

LOAD AT POINT 5

ROTATIONS AT	1	2	3	4	5	6	7	8
KU	-.62112E-06	-.12514E-05	-.20339E-05	-.29157E-05	-.30030E-05	-.30030E-05	-.30030E-05	-.30030E-05
NASTRAN	-.26062E-05	.89955E-06	.15881E-05	.18621E-05	.19561E-05	.59202E-05	.58612E-05	.79324E-05
ROTATIONS AT	9	10						
KU	-.30030E-05	-.30030E-05						
NASTRAN	.78994E-05	.86543E-05						

LOAD AT POINT 6

ROTATIONS AT	1	2	3	4	5	6	7	8
KU	-.68225E-06	-.14686E-05	-.26489E-05	-.45021E-05	-.50261E-05	-.55812E-05	-.55812E-05	-.55812E-05
NASTRAN	-.20794E-05	-.15750E-05	-.54737E-06	.12831E-05	-.59244E-05	-.17755E-05	.31684E-05	-.17714E-05
ROTATIONS AT	9	10						
KU	-.55812E-05	-.55812E-05						
NASTRAN	.20658E-05	.11801E-05						

LOAD AT POINT 7

ROTATIONS AT	1	2	3	4	5	6	7	8
KU	-.74338E-06	-.16857E-05	-.32639E-05	-.60985E-05	-.70492E-05	-.86899E-05	-.93719E-05	-.93719E-05
NASTRAN	-.10859E-05	-.20847E-05	-.29538E-05	-.22095E-05	-.82982E-05	-.97454E-05	-.79953E-05	-.12910E-04
ROTATIONS AT	9	10						
KU	-.93719E-05	-.93719E-05						
NASTRAN	-.11845E-04	-.13082E-04						

LOAD AT POINT 8

ROTATIONS AT	1	2	3	4	5	6	7	8
KU	-.11432E-05	-.25393E-05	-.47854E-05	-.89664E-05	-.10535E-04	-.13685E-04	-.16155E-04	-.17644E-04
NASTRAN	-.28553E-05	-.24956E-05	-.11519E-05	.15177E-05	-.11177E-04	-.28191E-05	.37445E-05	-.35580E-05
ROTATIONS AT	9	10						
KU	-.17644E-04	-.17644E-04						
NASTRAN	.52026E-05	.51351E-05						

Table 15 (Continued)

KU- AND NASTRAN- ROTATIONAL INFLUENCE COEFFICIENTS FOR SOLID WING 2
(ALL ROTATIONS ARE BASED ON A 1LB. LOAD)

LOAD AT POINT 9

ROTATIONS AT	1	2	3	4	5	6	7	8
KU	-.12044E-05	-.27564E-05	-.54004E-05	-.10553E-04	-.12558E-04	-.16793E-04	-.20558E-04	-.24185E-04
NASTRAN	-.21237E-05	-.35496E-05	-.40018E-05	-.23442E-05	-.15192E-04	-.14030E-04	-.10751E-04	-.25933E-04
ROTATIONS AT	9	10						
KU	-.25114E-04	-.25114E-04						
NASTRAN	-.21309E-04	-.25587E-04						

LOAD AT POINT 10

ROTATIONS AT	1	2	3	4	5	6	7	8
KU	-.16653E-05	-.38272E-05	-.75368E-05	-.15017E-04	-.18068E-04	-.24897E-04	-.31743E-04	-.40439E-04
NASTRAN	-.33623E-05	-.49720E-05	-.49271E-05	-.18027E-05	-.21489E-04	-.18313E-04	-.11047E-04	-.37704E-04
ROTATIONS AT	9	10						
KU	-.45722E-04	-.53392E-04						
NASTRAN	-.25491E-04	-.37321E-04						

R.M.S. OF DIFFERENCES = .66216E-06

MAXIMUM ERROR = .26913E-05

Table 16

EXPERIMENTAL- AND NASTRAN- DEFLECTION INFLUENCE COEFFICIENTS FOR SOLID WING 3
(ALL DEFLECTIONS ARE BASED ON A 1.0LB. LOAD)

LOAD AT POINT 1

DEFL. AT	1	2	3	4	5	6	7	8
EXP.	.4310E-03	.7900E-04	.7900E-04	.5600E-04	.3400E-04	.1590E-03	.1020E-03	.9000E-04
NASTRAN	.1115E-03	.7222E-05	.7314E-06	-.4564E-05	-.8279E-06	.6435E-04	.9072E-05	.1158E-05
DEFL. AT	9	10	11	12	13	14	15	16
EXP.	.5600E-04	.4500E-04	.1020E-03	.1240E-03	.9100E-04	.6800E-04	.3400E-04	.9900E-04
NASTRAN	-.2526E-05	-.5026E-05	.8532E-05	.1413E-05	-.2508E-05	-.5852E-05	-.8966E-05	-.2389E-05
DEFL. AT	17	18	19	20	21	22	23	24
EXP.	.9100E-04	.6200E-04	.7500E-04	.3000E-04	.8400E-04	.1210E-03	.8700E-04	.9100E-04
NASTRAN	-.4890E-05	-.7355E-05	-.9729E-05	-.1221E-04	-.9433E-05	-.1090E-04	-.1237E-04	-.1384E-04
DEFL. AT	25	26	27	28				
EXP.	.9100E-04	.1000E-03	.1000E-03	.1000E-03				
NASTRAN	-.1531E-04	-.1642E-04	-.1740E-04	-.1838E-04				

LOAD AT POINT 2

DEFL. AT	1	2	3	4	5	6	7	8
EXP.	.7900E-04	.1130E-03	.6800E-04	.7900E-04	.5700E-04	.1700E-03	.1360E-03	.1020E-03
NASTRAN	.7222E-05	.1522E-04	.3422E-05	.3026E-06	-.1331E-05	.4660E-04	.2664E-04	.1254E-04
DEFL. AT	9	10	11	12	13	14	15	16
EXP.	.9100E-04	.9100E-04	.1590E-03	.1950E-03	.1360E-03	.1360E-03	.1020E-03	.1600E-03
NASTRAN	.3586E-05	-.4175E-05	.3845E-04	.2588E-04	.1632E-04	.7652E-05	-.9816E-06	.3140E-04
DEFL. AT	17	18	19	20	21	22	23	24
EXP.	.1850E-03	.1420E-03	.1420E-03	.1200E-03	.1660E-03	.1660E-03	.1550E-03	.2500E-03
NASTRAN	.2458E-04	.1806E-04	.1163E-04	.5180E-05	.2715E-04	.2325E-04	.1937E-04	.1549E-04
DEFL. AT	25	26	27	28				
EXP.	.1500E-03	.2000E-03	.2000E-03	.3000E-03				
NASTRAN	.1161E-04	.2319E-04	.2060E-04	.1801E-04				

LOAD AT POINT 3

DEFL. AT	1	2	3	4	5	6	7	8
EXP.	.7900E-04	.6800E-04	.9100E-04	.1020E-03	.9100E-04	.1240E-03	.1700E-03	.1470E-03
NASTRAN	.7314E-06	.3422E-05	.1063E-04	.4912E-05	.1590E-05	.2122E-04	.3415E-04	.3501E-04
DEFL. AT	9	10	11	12	13	14	15	16
EXP.	.1470E-03	.1700E-03	.2040E-03	.2150E-03	.2040E-03	.1920E-03	.1820E-03	.2830E-03
NASTRAN	.2877E-04	.2035E-04	.6416E-04	.6347E-04	.6006E-04	.5552E-04	.5029E-04	.9210E-04
DEFL. AT	17	18	19	20	21	22	23	24
EXP.	.2610E-03	.2950E-03	.2420E-03	.2000E-03	.3100E-03	.3500E-03	.3000E-03	.3500E-03
NASTRAN	.8930E-04	.8632E-04	.8324E-04	.8011E-04	.1166E-03	.1148E-03	.1130E-03	.1112E-03
DEFL. AT	25	26	27	28				
EXP.	.3400E-03	.2800E-03	.4000E-03	.4250E-03				
NASTRAN	.1094E-03	.1410E-03	.1398E-03	.1386E-03				

Table 16 (Continued)

EXPERIMENTAL- AND NASTRAN- DEFLECTION INFLUENCE COEFFICIENTS FOR SOLID WING 3
(ALL DEFLECTIONS ARE BASED ON A 1.0LB. LOAD)

LOAD AT POINT 4

DEFL. AT	1	2	3	4	5	6	7	8
EXP.	.5600E-04	.7900E-04	.1020E-03	.1590E-03	.1360E-03	.7900E-04	.1130E-03	.1700E-03
NASTRAN	-.4564E-06	.3026E-06	.4912E-05	.2890E-04	.1876E-04	.1031E-05	.1663E-04	.4564E-04
DEFL. AT	9	10	11	12	13	14	15	16
EXP.	.2490E-03	.2720E-03	.1920E-03	.2270E-03	.1700E-03	.3400E-03	.3630E-03	.3200E-03
NASTRAN	.7903E-04	.1032E-03	.3957E-04	.6843E-04	.9664E-04	.1249E-03	.1540E-03	.1079E-03
DEFL. AT	17	18	19	20	21	22	23	24
EXP.	.3510E-03	.3780E-03	.4120E-03	.4200E-03	.4420E-03	.4540E-03	.4800E-03	.4900E-03
NASTRAN	.1288E-03	.1495E-03	.1701E-03	.1909E-03	.1778E-03	.1903E-03	.2027E-03	.2151E-03
DEFL. AT	25	26	27	28				
EXP.	.5500E-03	.3000E-03	.6000E-03	.4500E-03				
NASTRAN	.2275E-03	.2476E-03	.2559E-03	.2641E-03				

LOAD AT POINT 5

DEFL. AT	1	2	3	4	5	6	7	8
EXP.	.3400E-04	.5700E-04	.9100E-04	.1360E-03	.6590E-03	.4500E-04	.7900E-04	.1360E-03
NASTRAN	-.8279E-06	-.1331E-05	.1590E-05	.1876E-04	.3246E-03	-.1240E-04	-.4136E-05	.2842E-04
DEFL. AT	9	10	11	12	13	14	15	16
EXP.	.2720E-03	.4650E-03	.9000E-04	.1360E-03	.2380E-03	.2950E-03	.4080E-03	.1950E-03
NASTRAN	.1105E-03	.3459E-03	-.1661E-04	.2471E-04	.8242E-04	.1532E-03	.2363E-03	.3764E-04
DEFL. AT	17	18	19	20	21	22	23	24
EXP.	.2570E-03	.2800E-03	.3550E-03	.4000E-03	.3330E-03	.3300E-03	.3900E-03	.3800E-03
NASTRAN	.8136E-04	.1264E-03	.1727E-03	.2189E-03	.1093E-03	.1363E-03	.1634E-03	.1906E-03
DEFL. AT	25	26	27	28				
EXP.	.4200E-03	.4600E-03	.4600E-03	.4700E-03				
NASTRAN	.2177E-03	.1808E-03	.1988E-03	.2168E-03				

LOAD AT POINT 6

DEFL. AT	1	2	3	4	5	6	7	8
EXP.	.1590E-03	.1700E-03	.1240E-03	.7900E-04	.4500E-04	.1043E-02	.3740E-03	.2260E-03
NASTRAN	.6435E-04	.4660E-04	.2122E-04	.1031E-05	-.1240E-04	.6845E-03	.2278E-03	.1016E-03
DEFL. AT	9	10	11	12	13	14	15	16
EXP.	.1360E-03	.4500E-04	.5210E-03	.4070E-03	.3180E-03	.2000E-03	.1240E-03	.4780E-03
NASTRAN	.2522E-04	-.4321E-04	.4261E-03	.2371E-03	.1421E-03	.6048E-04	-.2002E-04	.2816E-03
DEFL. AT	17	18	19	20	21	22	23	24
EXP.	.4000E-03	.3630E-03	.2600E-03	.1360E-03	.4530E-03	.4500E-03	.3000E-03	.3000E-03
NASTRAN	.2146E-03	.1529E-03	.9207E-04	.3139E-04	.2311E-03	.1944E-03	.1578E-03	.1212E-03
DEFL. AT	25	26	27	28				
EXP.	.3400E-03	.7000E-03	.2950E-03	.5500E-03				
NASTRAN	.8453E-04	.1865E-03	.1620E-03	.1376E-03				

Table 16 (Continued)

EXPERIMENTAL- AND NASTRAN- DEFLECTION INFLUENCE COEFFICIENTS FOR SOLID WING 3
(ALL DEFLECTIONS ARE BASED ON A 1.0LB. LOAD)

LOAD AT POINT 7

DEFL. AT	1	2	3	4	5	6	7	8
EXP.	.1020E-03	.1360E-03	.1700E-03	.1130E-03	.7900E-04	.3740E-03	.4310E-03	.3740E-03
NASTRAN	.9072E-05	.2664E-04	.3415E-04	.1663E-04	-.4136E-05	.2278E-03	.2712E-03	.2056E-03
DEFL. AT	9	10	11	12	13	14	15	16
EXP.	.2950E-03	.2040E-03	.7370E-03	.6460E-03	.5780E-03	.4990E-03	.4650E-03	.8450E-03
NASTRAN	.1306E-03	.4811E-04	.5437E-03	.4573E-03	.3740E-03	.2935E-03	.2087E-03	.6504E-03
DEFL. AT	17	18	19	20	21	22	23	24
EXP.	.8070E-03	.7900E-03	.7100E-03	.6900E-03	.1000E-02	.9500E-03	.9600E-03	.8900E-03
NASTRAN	.5871E-03	.5265E-03	.4664E-03	.4058E-03	.7485E-03	.7121E-03	.6760E-03	.6398E-03
DEFL. AT	25	26	27	28				
EXP.	.9500E-03	.1150E-02	.1120E-02	.1050E-02				
NASTRAN	.6037E-03	.8491E-03	.8249E-03	.8008E-03				

LOAD AT POINT 8

DEFL. AT	1	2	3	4	5	6	7	8
EXP.	.9000E-04	.1020E-03	.1470E-03	.1700E-03	.1360E-03	.2260E-03	.3740E-03	.4540E-03
NASTRAN	.1158E-05	.1254E-04	.3501E-04	.4564E-04	.2842E-04	.1016E-03	.2058E-03	.2936E-03
DEFL. AT	9	10	11	12	13	14	15	16
EXP.	.4870E-03	.4870E-03	.7270E-03	.8160E-03	.9180E-03	.8730E-03	.9070E-03	.1250E-02
NASTRAN	.3072E-03	.2785E-03	.5057E-03	.5890E-03	.6262E-03	.6433E-03	.6497E-03	.9374E-03
DEFL. AT	17	18	19	20	21	22	23	24
EXP.	.1185E-02	.1229E-02	.1270E-02	.1380E-02	.1636E-02	.1650E-02	.1645E-02	.1640E-02
NASTRAN	.9599E-03	.9778E-03	.9937E-03	.1009E-02	.1317E-02	.1328E-02	.1338E-02	.1348E-02
DEFL. AT	25	26	27	28				
EXP.	.1724E-02	.1900E-02	.2000E-02	.2000E-02				
NASTRAN	.1358E-02	.1693E-02	.1700E-02	.1707E-02				

LOAD AT POINT 9

DEFL. AT	1	2	3	4	5	6	7	8
EXP.	.5600E-04	.9100E-04	.1470E-03	.2490E-03	.2720E-03	.1360E-03	.2950E-03	.4870E-03
NASTRAN	-.2526E-05	.3588E-05	.2877E-04	.7903E-04	.1105E-03	.2522E-04	.1306E-03	.3072E-03
DEFL. AT	9	10	11	12	13	14	15	16
EXP.	.7480E-03	.1009E-02	.5780E-03	.7840E-03	.1042E-02	.1292E-02	.1543E-02	.1220E-02
NASTRAN	.5575E-03	.7392E-03	.3355E-03	.5644E-03	.8060E-03	.1052E-02	.1302E-02	.9749E-03
DEFL. AT	17	18	19	20	21	22	23	24
EXP.	.1424E-02	.1661E-02	.1665E-02	.1950E-02	.1916E-02	.1965E-02	.2160E-02	.2300E-02
NASTRAN	.1160E-02	.1341E-02	.1523E-02	.1706E-02	.1663E-02	.1773E-02	.1882E-02	.1991E-02
DEFL. AT	25	26	27	28				
EXP.	.2380E-02	.2560E-02	.2800E-02	.2500E-02				
NASTRAN	.2100E-02	.2350E-02	.2422E-02	.2495E-02				

Table 16 (Continued)

EXPERIMENTAL- AND NASTRAN- DEFLECTION INFLUENCE COEFFICIENTS FOR SOLID WING 3
(ALL DEFLECTIONS ARE BASED ON A 1.0LB. LOAD)

LOAD AT POINT 10

DEFL. AT	1	2	3	4	5	6	7	8
EXP.	.4500E-04	.9100E-04	.1700E-03	.2720E-03	.4650E-03	.4500E-04	.2040E-03	.4870E-03
NASTRAN	-.5026E-05	-.4175E-05	.2035E-04	.1032E-03	.3459E-03	-.4321E-04	.4811E-04	.2765E-03
DEFL. AT	9	10	11	12	13	14	15	16
EXP.	.1009E-02	.2568E-02	.3280E-03	.6690E-03	.1111E-02	.1666E-02	.2336E-02	.1125E-02
NASTRAN	.7392E-03	.2242E-02	.9409E-04	.4109E-03	.8455E-03	.1412E-02	.2217E-02	.7230E-03
DEFL. AT	17	18	19	20	21	22	23	24
EXP.	.1400E-02	.1760E-02	.2100E-02	.2494E-02	.1848E-02	.2112E-02	.2290E-02	.2610E-02
NASTRAN	.1088E-02	.1465E-02	.1854E-02	.2253E-02	.1576E-02	.1802E-02	.2028E-02	.2255E-02
DEFL. AT	25	26	27	28				
EXP.	.2730E-02	.2550E-02	.3010E-02	.3100E-02				
NASTRAN	.2482E-02	.2425E-02	.2575E-02	.2725E-02				

LOAD AT POINT 11

DEFL. AT	1	2	3	4	5	6	7	8
EXP.	.1020E-03	.1590E-03	.2040E-03	.1920E-03	.9000E-04	.5210E-03	.7370E-03	.7270E-03
NASTRAN	.8532E-05	.3845E-04	.6416E-04	.3957E-04	-.1661E-04	.4261E-03	.5437E-03	.5057E-03
DEFL. AT	9	10	11	12	13	14	15	16
EXP.	.5780E-03	.3280E-03	.2676E-02	.1700E-02	.1360E-02	.1156E-02	.8730E-03	.2305E-02
NASTRAN	.3355E-03	.9409E-04	.2007E-02	.1421E-02	.1117E-02	.8420E-03	.5481E-03	.2208E-02
DEFL. AT	17	18	19	20	21	22	23	24
EXP.	.2150E-02	.1904E-02	.1685E-02	.1520E-02	.2638E-02	.2560E-02	.2490E-02	.2358E-02
NASTRAN	.1891E-02	.1654E-02	.1427E-02	.1198E-02	.2418E-02	.2277E-02	.2139E-02	.2002E-02
DEFL. AT	25	26	27	28				
EXP.	.2190E-02	.2700E-02	.2870E-02	.2750E-02				
NASTRAN	.1864E-02	.2708E-02	.2616E-02	.2524E-02				

LOAD AT POINT 12

DEFL. AT	1	2	3	4	5	6	7	8
EXP.	.1240E-03	.1950E-03	.2150E-03	.2270E-03	.1360E-03	.4070E-03	.6460E-03	.8160E-03
NASTRAN	.1413E-05	.2588E-04	.6347E-04	.6843E-04	.2471E-04	.2371E-03	.4573E-03	.5890E-03
DEFL. AT	9	10	11	12	13	14	15	16
EXP.	.7840E-03	.6690E-03	.1700E-02	.1859E-02	.1799E-02	.1700E-02	.1587E-02	.2958E-02
NASTRAN	.5644E-03	.4109E-03	.1421E-02	.1586E-02	.1535E-02	.1416E-02	.1254E-02	.2733E-02
DEFL. AT	17	18	19	20	21	22	23	24
EXP.	.2850E-02	.2810E-02	.2730E-02	.2650E-02	.3888E-02	.3760E-02	.3750E-02	.3700E-02
NASTRAN	.2635E-02	.2531E-02	.2426E-02	.2313E-02	.3651E-02	.3586E-02	.3522E-02	.3456E-02
DEFL. AT	25	26	27	28				
EXP.	.3720E-02	.4720E-02	.4560E-02	.4600E-02				
NASTRAN	.3394E-02	.4555E-02	.4512E-02	.4470E-02				

Table 16 (Continued)

EXPERIMENTAL- AND NASTRAN- DEFLECTION INFLUENCE COEFFICIENTS FOR SOLID WING 3
(ALL DEFLECTIONS ARE BASED ON A 1.0LB. LOAD)

LOAD AT POINT 13

DEFL. AT	1	2	3	4	5	6	7	8
EXP.	.9100E-04	.1360E-03	.2040E-03	.1700E-03	.2380E-03	.3180E-03	.5780E-03	.9180E-03
NASTRAN	-.2508E-05	.1632E-04	.6006E-04	.9664E-04	.8242E-04	.1421E-03	.3740E-03	.6262E-03
DEFL. AT	9	10	11	12	13	14	15	16
EXP.	.1042E-02	.1111E-02	.1360E-02	.1799E-02	.2063E-02	.2301E-02	.2473E-02	.3078E-02
NASTRAN	.8060E-03	.8455E-03	.1117E-02	.1535E-02	.1867E-02	.2072E-02	.2200E-02	.2930E-02
DEFL. AT	17	18	19	20	21	22	23	24
EXP.	.3360E-02	.3580E-02	.3674E-02	.3755E-02	.4730E-02	.5000E-02	.5110E-02	.5200E-02
NASTRAN	.3169E-02	.3357E-02	.3524E-02	.3682E-02	.4691E-02	.4800E-02	.4906E-02	.5012E-02
DEFL. AT	25	26	27	28				
EXP.	.5215E-02	.6400E-02	.6450E-02	.6500E-02				
NASTRAN	.5118E-02	.6404E-02	.6476E-02	.6548E-02				

LOAD AT POINT 14

DEFL. AT	1	2	3	4	5	6	7	8
EXP.	.6800E-04	.1360E-03	.1920E-03	.3400E-03	.2950E-03	.2000E-03	.4990E-03	.8730E-03
NASTRAN	-.5852E-05	.7652E-05	.5552E-04	.1249E-03	.1532E-03	.6048E-04	.2936E-03	.6433E-03
DEFL. AT	9	10	11	12	13	14	15	16
EXP.	.1292E-02	.1666E-02	.1156E-02	.1700E-02	.2301E-02	.3062E-02	.3662E-02	.3035E-02
NASTRAN	.1052E-02	.1412E-02	.8420E-03	.1416E-02	.2072E-02	.2817E-02	.3495E-02	.2803E-02
DEFL. AT	17	18	19	20	21	22	23	24
EXP.	.3685E-02	.4190E-02	.4760E-02	.5385E-02	.5366E-02	.5800E-02	.6140E-02	.6490E-02
NASTRAN	.3430E-02	.4046E-02	.4659E-02	.5281E-02	.5344E-02	.5721E-02	.6094E-02	.6467E-02
DEFL. AT	25	26	27	28				
EXP.	.6803E-02	.7600E-02	.8130E-02	.8160E-02				
NASTRAN	.6840E-02	.7905E-02	.8154E-02	.8403E-02				

LOAD AT POINT 15

DEFL. AT	1	2	3	4	5	6	7	8
EXP.	.3400E-04	.1020E-03	.1820E-03	.3630E-03	.4080E-03	.1240E-03	.4650E-03	.9070E-03
NASTRAN	-.8966E-05	-.9816E-06	.5029E-04	.1540E-03	.2363E-03	-.2002E-04	.2087E-03	.6497E-03
DEFL. AT	9	10	11	12	13	14	15	16
EXP.	.1543E-02	.2336E-02	.8730E-03	.1587E-02	.2473E-02	.3662E-02	.6075E-02	.2790E-02
NASTRAN	.1302E-02	.2217E-02	.5481E-03	.1254E-02	.2200E-02	.3495E-02	.6115E-02	.2429E-02
DEFL. AT	17	18	19	20	21	22	23	24
EXP.	.3835E-02	.4750E-02	.5800E-02	.6810E-02	.5617E-02	.6350E-02	.6990E-02	.7550E-02
NASTRAN	.3420E-02	.4511E-02	.5699E-02	.7065E-02	.5478E-02	.6165E-02	.6849E-02	.7536E-02
DEFL. AT	25	26	27	28				
EXP.	.8180E-02	.8450E-02	.9100E-02	.9700E-02				
NASTRAN	.8226E-02	.8647E-02	.9095E-02	.9544E-02				

Table 16 (Continued)

EXPERIMENTAL- AND NASTRAN- DEFLECTION INFLUENCE COEFFICIENTS FOR SOLID WING 3
(ALL DEFLECTIONS ARE BASED ON A 1.0LB. LOAD)

LOAD AT POINT 16

DEFL. AT	1	2	3	4	5	6	7	8
EXP.	.9900E-04	.1600E-03	.2830E-03	.3200E-03	.1950E-03	.4780E-03	.8450E-03	.1250E-02
NASTRAN	-.2389E-05	.3140E-04	.9210E-04	.1079E-03	.3764E-04	.2816E-03	.6504E-03	.9374E-03
DEFL. AT	9	10	11	12	13	14	15	16
EXP.	.1220E-02	.1125E-02	.2305E-02	.2958E-02	.3078E-02	.3035E-02	.2790E-02	.6910E-02
NASTRAN	.9749E-03	.7230E-03	.2208E-02	.2733E-02	.2930E-02	.2803E-02	.2429E-02	.6676E-02
DEFL. AT	17	18	19	20	21	22	23	24
EXP.	.6090E-02	.5800E-02	.5480E-02	.5110E-02	.8585E-02	.8490E-02	.8500E-02	.8300E-02
NASTRAN	.6139E-02	.5794E-02	.5426E-02	.5015E-02	.9221E-02	.8884E-02	.8610E-02	.8347E-02
DEFL. AT	25	26	27	28				
EXP.	.8010E-02	.1060E-01	.1080E-01	.1300E-01				
NASTRAN	.8082E-02	.1148E-01	.1129E-01	.1111E-01				

LOAD AT POINT 17

DEFL. AT	1	2	3	4	5	6	7	8
EXP.	.9100E-04	.1850E-03	.2610E-03	.3510E-03	.2570E-03	.4000E-03	.8070E-03	.1185E-02
NASTRAN	-.4890E-05	.2458E-04	.8930E-04	.1288E-03	.8136E-04	.2146E-03	.5871E-03	.9599E-03
DEFL. AT	9	10	11	12	13	14	15	16
EXP.	.1424E-02	.1400E-02	.2150E-02	.2850E-02	.3360E-02	.3685E-02	.3835E-02	.6090E-02
NASTRAN	.1160E-02	.1088E-02	.1891E-02	.2635E-02	.3169E-02	.3430E-02	.3420E-02	.6134E-02
DEFL. AT	17	18	19	20	21	22	23	24
EXP.	.6652E-02	.6740E-02	.6940E-02	.6975E-02	.1033E-01	.1020E-01	.1040E-01	.1050E-01
NASTRAN	.6624E-02	.6807E-02	.6852E-02	.6816E-02	.1077E-01	.1078E-01	.1078E-01	.1078E-01
DEFL. AT	25	26	27	28				
EXP.	.1065E-01	.1390E-01	.1490E-01	.1400E-01				
NASTRAN	.1077E-01	.1477E-01	.1477E-01	.1478E-01				

LOAD AT POINT 18

DEFL. AT	1	2	3	4	5	6	7	8
EXP.	.6200E-04	.1420E-03	.2950E-03	.3780E-03	.2800E-03	.3630E-03	.7900E-03	.1229E-02
NASTRAN	-.7355E-05	.1806E-04	.8632E-04	.1495E-03	.1264E-03	.1529E-03	.5265E-03	.9778E-03
DEFL. AT	9	10	11	12	13	14	15	16
EXP.	.1661E-02	.1760E-02	.1904E-02	.2810E-02	.3580E-02	.4190E-02	.4750E-02	.5800E-02
NASTRAN	.1341E-02	.1465E-02	.1654E-02	.2531E-02	.3357E-02	.4046E-02	.4511E-02	.5794E-02
DEFL. AT	17	18	19	20	21	22	23	24
EXP.	.6740E-02	.7620E-02	.8313E-02	.8880E-02	.1141E-01	.1185E-01	.1239E-01	.1268E-01
NASTRAN	.6807E-02	.7681E-02	.8375E-02	.8942E-02	.1190E-01	.1241E-01	.1288E-01	.1333E-01
DEFL. AT	25	26	27	28				
EXP.	.1320E-01	.1690E-01	.1650E-01	.1600E-01				
NASTRAN	.1377E-01	.1796E-01	.1828E-01	.1860E-01				

Table 16 (Continued)

EXPERIMENTAL- AND NASTRAN- DEFLECTION INFLUENCE COEFFICIENTS FOR SOLID WING 3
(ALL DEFLECTIONS ARE BASED ON A 1.0LB. LOAD)

LOAD AT POINT 19

DEFL. AT	1	2	3	4	5	6	7	8
EXP.	.7500E-04	.1420E-03	.2420E-03	.4120E-03	.3550E-03	.2600E-03	.7100E-03	.1270E-02
NASTRAN	-.9789E-05	.1163E-04	.8324E-04	.1701E-03	.1727E-03	.9207E-04	.4664E-03	.9937E-03
DEFL. AT	9	10	11	12	13	14	15	16
EXP.	.1665E-02	.2100E-02	.1685E-02	.2730E-02	.3674E-02	.4760E-02	.5800E-02	.5480E-02
NASTRAN	.1523E-02	.1854E-02	.1427E-02	.2426E-02	.3524E-02	.4659E-02	.5699E-02	.5426E-02
DEFL. AT	17	18	19	20	21	22	23	24
EXP.	.6940E-02	.8313E-02	.9797E-02	.1092E-01	.1195E-01	.1320E-01	.1430E-01	.1526E-01
NASTRAN	.6852E-02	.8375E-02	.9992E-02	.1152E-01	.1252E-01	.1367E-01	.1479E-01	.1590E-01
DEFL. AT	25	26	27	28				
EXP.	.1600E-01	.1900E-01	.1950E-01	.1900E-01				
NASTRAN	.1701E-01	.2069E-01	.2145E-01	.2221E-01				

LOAD AT POINT 20

DEFL. AT	1	2	3	4	5	6	7	8
EXP.	.3000E-04	.1200E-03	.2000E-03	.4200E-03	.4000E-03	.1360E-03	.6900E-03	.1380E-02
NASTRAN	-.1221E-04	.5180E-05	.8011E-04	.1909E-03	.2189E-03	.3139E-04	.4058E-03	.1009E-02
DEFL. AT	9	10	11	12	13	14	15	16
EXP.	.1950E-02	.2494E-02	.1520E-02	.2650E-02	.3755E-02	.5385E-02	.6810E-02	.5110E-02
NASTRAN	.1706E-02	.2253E-02	.1198E-02	.2313E-02	.3682E-02	.5281E-02	.7065E-02	.5015E-02
DEFL. AT	17	18	19	20	21	22	23	24
EXP.	.6975E-02	.8880E-02	.1092E-01	.1560E-01	.1200E-01	.1365E-01	.1535E-01	.1670E-01
NASTRAN	.6816E-02	.8942E-02	.1152E-01	.1556E-01	.1261E-01	.1444E-01	.1632E-01	.1823E-01
DEFL. AT	25	26	27	28				
EXP.	.1850E-01	.2030E-01	.2160E-01	.2300E-01				
NASTRAN	.2029E-01	.2253E-01	.2377E-01	.2501E-01				

LOAD AT POINT 21

DEFL. AT	1	2	3	4	5	6	7	8
EXP.	.8400E-04	.1660E-03	.3100E-03	.4420E-03	.3330E-03	.4530E-03	.1000E-02	.1636E-02
NASTRAN	-.9433E-05	.2715E-04	.1166E-03	.1778E-03	.1093E-03	.2311E-03	.7485E-03	.1317E-02
DEFL. AT	9	10	11	12	13	14	15	16
EXP.	.1916E-02	.1848E-02	.2638E-02	.3888E-02	.4730E-02	.5366E-02	.5617E-02	.8585E-02
NASTRAN	.1663E-02	.1576E-02	.2416E-02	.3651E-02	.4691E-02	.5344E-02	.5478E-02	.9221E-02
DEFL. AT	17	18	19	20	21	22	23	24
EXP.	.1033E-01	.1141E-01	.1195E-01	.1200E-01	.2343E-01	.2275E-01	.2275E-01	.2277E-01
NASTRAN	.1077E-01	.1190E-01	.1252E-01	.1261E-01	.2424E-01	.2424E-01	.2423E-01	.2402E-01
DEFL. AT	25	26	27	28				
EXP.	.2255E-01	.3857E-01	.2390E-01	.3400E-01				
NASTRAN	.2363E-01	.3790E-01	.3757E-01	.3726E-01				

Table 16 (Continued)

EXPERIMENTAL- AND NASTRAN- DEFLECTION INFLUENCE COEFFICIENTS FOR SOLID WING 3
(ALL DEFLECTIONS ARE BASED ON A 1.0LB. LOAD)

LOAD AT POINT 22

DEFL. AT	1	2	3	4	5	6	7	8
EXP.	.1210E-03	.1660E-03	.3500E-03	.4540E-03	.3300E-03	.4500E-03	.9500E-03	.1650E-02
NASTRAN	-.1090E-04	.2325E-04	.1148E-03	.1903E-03	.1363E-03	.1944E-03	.7121E-03	.1328E-02
DEFL. AT	9	10	11	12	13	14	15	16
EXP.	.1965E-02	.2112E-02	.2560E-02	.3760E-02	.5000E-02	.5800E-02	.6350E-02	.6490E-02
NASTRAN	.1773E-02	.1802E-02	.2277E-02	.3586E-02	.4800E-02	.5721E-02	.6165E-02	.6664E-02
DEFL. AT	17	18	19	20	21	22	23	24
EXP.	.1020E-01	.1185E-01	.1320E-01	.1365E-01	.2275E-01	.2350E-01	.2472E-01	.2530E-01
NASTRAN	.1078E-01	.1241E-01	.1367E-01	.1444E-01	.2424E-01	.2558E-01	.2650E-01	.2712E-01
DEFL. AT	25	26	27	28				
EXP.	.2630E-01	.3855E-01	.3800E-01	.3900E-01				
NASTRAN	.2752E-01	.4295E-01	.4326E-01	.4356E-01				

LOAD AT POINT 23

DEFL. AT	1	2	3	4	5	6	7	8
EXP.	.8700E-04	.1550E-03	.3000E-03	.4800E-03	.3900E-03	.3000E-03	.9600E-03	.1645E-02
NASTRAN	-.1237E-04	.1937E-04	.1130E-03	.2027E-03	.1634E-03	.1578E-03	.6760E-03	.1338E-02
DEFL. AT	9	10	11	12	13	14	15	16
EXP.	.2160E-02	.2290E-02	.2490E-02	.3750E-02	.5110E-02	.6140E-02	.6990E-02	.8500E-02
NASTRAN	.1882E-02	.2028E-02	.2139E-02	.3522E-02	.4906E-02	.6094E-02	.6849E-02	.8610E-02
DEFL. AT	17	18	19	20	21	22	23	24
EXP.	.1040E-01	.1239E-01	.1430E-01	.1535E-01	.2275E-01	.2472E-01	.2493E-01	.2690E-01
NASTRAN	.1078E-01	.1288E-01	.1479E-01	.1632E-01	.2423E-01	.2650E-01	.2857E-01	.3036E-01
DEFL. AT	25	26	27	28				
EXP.	.3040E-01	.4450E-01	.4340E-01	.4350E-01				
NASTRAN	.3190E-01	.4771E-01	.4906E-01	.5037E-01				

LOAD AT POINT 24

DEFL. AT	1	2	3	4	5	6	7	8
EXP.	.9100E-04	.2500E-03	.3500E-03	.4900E-03	.3800E-03	.3000E-03	.8900E-03	.1640E-02
NASTRAN	-.1384E-04	.1549E-04	.1112E-03	.2151E-03	.1906E-03	.1212E-03	.6398E-03	.1348E-02
DEFL. AT	9	10	11	12	13	14	15	16
EXP.	.2300E-02	.2610E-02	.2358E-02	.3700E-02	.5200E-02	.6490E-02	.7550E-02	.8300E-02
NASTRAN	.1991E-02	.2255E-02	.2002E-02	.3458E-02	.5012E-02	.6467E-02	.7536E-02	.8347E-02
DEFL. AT	17	18	19	20	21	22	23	24
EXP.	.1050E-01	.1268E-01	.1526E-01	.1670E-01	.2277E-01	.2530E-01	.2690E-01	.3148E-01
NASTRAN	.1078E-01	.1333E-01	.1590E-01	.1823E-01	.2402E-01	.2712E-01	.3036E-01	.3366E-01
DEFL. AT	25	26	27	28				
EXP.	.3520E-01	.4680E-01	.4850E-01	.5000E-01				
NASTRAN	.3682E-01	.5185E-01	.5466E-01	.5744E-01				

Table 16 (Continued)

EXPERIMENTAL- AND NASTRAN- DEFLECTION INFLUENCE COEFFICIENTS FOR SOLID WING 3
(ALL DEFLECTIONS ARE BASED ON A 1.0LB. LOAD)

LOAD AT POINT 25

DEFL. AT	1	2	3	4	5	6	7	8
EXP.	.9100E-04	.1500E-03	.3400E-03	.5500E-03	.4200E-03	.3400E-03	.9500E-03	.1724E-02
NASTRAN	-.1531E-04	.1161E-04	.1094E-03	.2275E-03	.2177E-03	.8453E-04	.6037E-03	.1358E-02
DEFL. AT	9	10	11	12	13	14	15	16
EXP.	.2380E-02	.2730E-02	.2190E-02	.3720E-02	.5215E-02	.6803E-02	.8180E-02	.8010E-02
NASTRAN	.2100E-02	.2482E-02	.1864E-02	.3394E-02	.5118E-02	.6840E-02	.8226E-02	.8082E-02
DEFL. AT	17	18	19	20	21	22	23	24
EXP.	.1065E-01	.1320E-01	.1600E-01	.1850E-01	.2255E-01	.2630E-01	.3040E-01	.3520E-01
NASTRAN	.1077E-01	.1377E-01	.1701E-01	.2029E-01	.2363E-01	.2752E-01	.3190E-01	.3682E-01
DEFL. AT	25	26	27	28				
EXP.	.4300E-01	.4900E-01	.5320E-01	.5600E-01				
NASTRAN	.4316E-01	.5498E-01	.5957E-01	.6419E-01				

LOAD AT POINT 26

DEFL. AT	1	2	3	4	5	6	7	8
EXP.	.1000E-03	.2000E-03	.2800E-03	.3000E-03	.4600E-03	.7000E-03	.1150E-02	.1900E-02
NASTRAN	-.1642E-04	.2319E-04	.1410E-03	.2476E-03	.1808E-03	.1865E-03	.8491E-03	.1693E-02
DEFL. AT	9	10	11	12	13	14	15	16
EXP.	.2560E-02	.2550E-02	.2700E-02	.4720E-02	.6400E-02	.7600E-02	.8450E-02	.1060E-01
NASTRAN	.2350E-02	.2425E-02	.2708E-02	.4555E-02	.6404E-02	.7905E-02	.8647E-02	.1148E-01
DEFL. AT	17	18	19	20	21	22	23	24
EXP.	.1390E-01	.1690E-01	.1900E-01	.2030E-01	.3857E-01	.3855E-01	.4450E-01	.4680E-01
NASTRAN	.1477E-01	.1796E-01	.2069E-01	.2253E-01	.3790E-01	.4295E-01	.4771E-01	.5185E-01
DEFL. AT	25	26	27	28				
EXP.	.4900E-01	.1240E+00	.1270E+00	.1285E+00				
NASTRAN	.5498E-01	.1469E+00	.1501E+00	.1496E+00				

LOAD AT POINT 27

DEFL. AT	1	2	3	4	5	6	7	8
EXP.	.1000E-03	.2000E-03	.4000E-03	.6000E-03	.4600E-03	.2950E-03	.1120E-02	.2000E-02
NASTRAN	-.1740E-04	.2060E-04	.1398E-03	.2559E-03	.1988E-03	.1620E-03	.8249E-03	.1700E-02
DEFL. AT	9	10	11	12	13	14	15	16
EXP.	.2800E-02	.3010E-02	.2870E-02	.4560E-02	.6450E-02	.8130E-02	.9100E-02	.1080E-01
NASTRAN	.2422E-02	.2575E-02	.2616E-02	.4512E-02	.6476E-02	.8154E-02	.9095E-02	.1129E-01
DEFL. AT	17	18	19	20	21	22	23	24
EXP.	.1490E-01	.1650E-01	.1950E-01	.2160E-01	.2390E-01	.3800E-01	.4340E-01	.4850E-01
NASTRAN	.1477E-01	.1828E-01	.2145E-01	.2377E-01	.3757E-01	.4326E-01	.4906E-01	.5466E-01
DEFL. AT	25	26	27	28				
EXP.	.5320E-01	.1270E+00	.1411E+00	.1480E+00				
NASTRAN	.5957E-01	.1501E+00	.1612E+00	.1693E+00				

Table 16 (Continued)

EXPERIMENTAL- AND NASTRAN- DEFLECTION INFLUENCE COEFFICIENTS FOR SOLID WING 3
(ALL DEFLECTIONS ARE BASED ON A 1.0LB. LOAD)

LOAD AT POINT 28

DEFL. AT	1	2	3	4	5	6	7	8
EXP.	.1000E-03	.3000E-03	.4250E-03	.4500E-03	.4700E-03	.5500E-03	.1050E-02	.2000E-02
NASTRAN	-.1838E-04	.1801E-04	.1386E-03	.2641E-03	.2168E-03	.1376E-03	.8008E-03	.1707E-02
DEFL. AT	9	10	11	12	13	14	15	16
EXP.	.2500E-02	.3100E-02	.2750E-02	.4600E-02	.6500E-02	.8160E-02	.9700E-02	.1300E-01
NASTRAN	.2495E-02	.2725E-02	.2524E-02	.4470E-02	.6548E-02	.8403E-02	.9544E-02	.1111E-01
DEFL. AT	17	18	19	20	21	22	23	24
EXP.	.1400E-01	.1600E-01	.1900E-01	.2300E-01	.3400E-01	.3900E-01	.4350E-01	.5000E-01
NASTRAN	.1478E-01	.1860E-01	.2221E-01	.2501E-01	.3726E-01	.4356E-01	.5037E-01	.5744E-01
DEFL. AT	25	26	27	28				
EXP.	.5600E-01	.1285E+00	.1480E+00	.1741E+00				
NASTRAN	.6419E-01	.1496E+00	.1693E+00	.1906E+00				

R.M.S. OF DIFFERENCES = .94925E-04

MAXIMUM ERROR = .31946E-03

Table 17

KU- AND NASTRAN- ROTATIONAL INFLUENCE COEFFICIENTS FOR SOLID WING 3
(ALL ROTATIONS ARE BASED ON A 1LB. LOAD)

LOAD AT POINT 1

ROTATIONS AT	1	2	3	4	5	6	7	8
KU	-.51169E-06	-.51169E-06	-.51169E-06	-.51169E-06	-.51169E-06	-.51169E-06	-.51169E-06	-.51169E-06
NASTRAN	.13837E-03	.22874E-04	.17071E-05	.74683E-06	-.20637E-07	.12787E-03	.15471E-04	.51455E-05
ROTATIONS AT	9	10	11	12	13	14	15	16
KU	-.51169E-06	-.51169E-06	-.51169E-06	-.51169E-06	-.51169E-06	-.51169E-06	-.51169E-06	-.51169E-06
NASTRAN	.33503E-05	.24246E-05	.16237E-04	.64597E-05	.50699E-05	.45586E-05	.44386E-05	.51338E-05
ROTATIONS AT	17	18	19	20	21	22	23	24
KU	-.51169E-06	-.51169E-06	-.51169E-06	-.51169E-06	-.51169E-06	-.51169E-06	-.51169E-06	-.51169E-06
NASTRAN	.49490E-05	.49010E-05	.48468E-05	.48517E-05	.48761E-05	.48971E-05	.48974E-05	.48949E-05
ROTATIONS AT	25	26	27	28				
KU	-.51169E-06	-.51169E-06	-.51169E-06	-.51169E-06				
NASTRAN	.49017E-05	.49047E-05	.49044E-05	.49038E-05				

LOAD AT POINT 2

ROTATIONS AT	1	2	3	4	5	6	7	8
KU	-.74423E-06	-.74423E-06	-.74423E-06	-.74423E-06	-.74423E-06	-.74423E-06	-.74423E-06	-.74423E-06
NASTRAN	-.79917E-05	.73521E-05	.67898E-05	.20722E-05	.11386E-05	.15966E-04	.20693E-04	.11188E-04
ROTATIONS AT	9	10	11	12	13	14	15	16
KU	-.74423E-06	-.74423E-06	-.74423E-06	-.74423E-06	-.74423E-06	-.74423E-06	-.74423E-06	-.74423E-06
NASTRAN	.91376E-05	.86761E-05	.21215E-04	.15038E-04	.12683E-04	.12233E-04	.12644E-04	.14082E-04
ROTATIONS AT	17	18	19	20	21	22	23	24
KU	-.74423E-06	-.74423E-06	-.74423E-06	-.74423E-06	-.74423E-06	-.74423E-06	-.74423E-06	-.74423E-06
NASTRAN	.13232E-04	.12918E-04	.12863E-04	.12946E-04	.13022E-04	.12965E-04	.12941E-04	.12939E-04
ROTATIONS AT	25	26	27	28				
KU	-.74423E-06	-.74423E-06	-.74423E-06	-.74423E-06				
NASTRAN	.12947E-04	.12963E-04	.12962E-04	.12963E-04				

LOAD AT POINT 3

ROTATIONS AT	1	2	3	4	5	6	7	8
KU	-.97677E-06	-.97677E-06	-.13759E-05	-.13759E-05	-.13759E-05	-.13759E-05	-.13759E-05	-.13759E-05
NASTRAN	-.15295E-05	-.44343E-05	-.29242E-05	.67501E-05	.32696E-05	-.17470E-04	-.80686E-05	.46048E-05
ROTATIONS AT	9	10	11	12	13	14	15	16
KU	-.13759E-05	-.13759E-05	-.13759E-05	-.13759E-05	-.13759E-05	-.13759E-05	-.13759E-05	-.13759E-05
NASTRAN	.80853E-05	.10728E-04	-.23074E-05	.35669E-05	.59075E-05	.69662E-05	.78580E-05	.53419E-05
ROTATIONS AT	17	18	19	20	21	22	23	24
KU	-.13759E-05	-.13759E-05	-.13759E-05	-.13759E-05	-.13759E-05	-.13759E-05	-.13759E-05	-.13759E-05
NASTRAN	.58181E-05	.60925E-05	.62268E-05	.62069E-05	.60209E-05	.60384E-05	.60623E-05	.60697E-05
ROTATIONS AT	25	26	27	28				
KU	-.13759E-05	-.13759E-05	-.13759E-05	-.13759E-05				
NASTRAN	.60508E-05	.60289E-05	.60310E-05	.60311E-05				

Table 17 (Continued)

KU- AND NASTRAN- ROTATIONAL INFLUENCE COEFFICIENTS FOR SOLID WING 3
(ALL ROTATIONS ARE BASED ON A 1LB. LOAD)

LOAD AT POINT 4

ROTATIONS AT	1	2	3	4	5	6	7	8
KU	-.12093E-05	-.12093E-05	-.36829E-05	-.44426E-05	-.44426E-05	-.44426E-05	-.44426E-05	-.44426E-05
NASTRAN	-.21231E-06	-.17844E-05	-.90653E-05	-.28462E-04	.19314E-04	-.98321E-05	-.25623E-04	-.36968E-04
ROTATIONS AT	9	10	11	12	13	14	15	16
KU	-.44426E-05	-.44426E-05	-.44426E-05	-.44426E-05	-.44426E-05	-.44426E-05	-.44426E-05	-.44426E-05
NASTRAN	-.34798E-04	-.22595E-04	-.41290E-04	-.40589E-04	-.40210E-04	-.40577E-04	-.43181E-04	-.42180E-04
ROTATIONS AT	17	18	19	20	21	22	23	24
KU	-.44426E-05	-.44426E-05	-.44426E-05	-.44426E-05	-.44426E-05	-.44426E-05	-.44426E-05	-.44426E-05
NASTRAN	-.41436E-04	-.41287E-04	-.41405E-04	-.41776E-04	-.41477E-04	-.41364E-04	-.41339E-04	-.41346E-04
ROTATIONS AT	25	26	27	28				
KU	-.44426E-05	-.44426E-05	-.44426E-05	-.44426E-05				
NASTRAN	-.41344E-04	-.41335E-04	-.41335E-04	-.41337E-04				

LOAD AT POINT 5

ROTATIONS AT	1	2	3	4	5	6	7	8
KU	-.14418E-05	-.14418E-05	-.59898E-05	-.13692E-04	-.28388E-04	-.13692E-04	-.23834E-04	-.28388E-04
NASTRAN	.79586E-06	-.34627E-06	-.68216E-05	-.35386E-04	-.64744E-03	-.69235E-06	-.20042E-04	-.55362E-04
ROTATIONS AT	9	10	11	12	13	14	15	16
KU	-.28388E-04	-.28388E-04	-.28388E-04	-.28388E-04	-.28388E-04	-.28388E-04	-.28388E-04	-.28388E-04
NASTRAN	-.13999E-03	-.38528E-03	-.44771E-04	-.72643E-04	-.91753E-04	-.11109E-03	-.11831E-03	-.86232E-04
ROTATIONS AT	17	18	19	20	21	22	23	24
KU	-.28388E-04	-.28388E-04	-.28388E-04	-.28388E-04	-.28388E-04	-.28388E-04	-.28388E-04	-.28388E-04
NASTRAN	-.88805E-04	-.91503E-04	-.93149E-04	-.90197E-04	-.89551E-04	-.90054E-04	-.90516E-04	-.90647E-04
ROTATIONS AT	25	26	27	28				
KU	-.28388E-04	-.28388E-04	-.28388E-04	-.28388E-04				
NASTRAN	-.90244E-04	-.90031E-04	-.90087E-04	-.90092E-04				

LOAD AT POINT 6

ROTATIONS AT	1	2	3	4	5	6	7	8
KU	-.35416E-05	-.35416E-05	-.12257E-04	-.19699E-04	-.19699E-04	-.19699E-04	-.19699E-04	-.19699E-04
NASTRAN	-.26881E-04	.26976E-04	.24128E-04	.18507E-04	.90252E-05	.72405E-03	.22858E-03	.94495E-04
ROTATIONS AT	9	10	11	12	13	14	15	16
KU	-.19699E-04	-.19699E-04	-.19699E-04	-.19699E-04	-.19699E-04	-.19699E-04	-.19699E-04	-.19699E-04
NASTRAN	.80211E-04	.76775E-04	.42008E-03	.16123E-03	.12077E-03	.11449E-03	.11775E-03	.14575E-03
ROTATIONS AT	17	18	19	20	21	22	23	24
KU	-.19699E-04	-.19699E-04	-.19699E-04	-.19699E-04	-.19699E-04	-.19699E-04	-.19699E-04	-.19699E-04
NASTRAN	.12563E-03	.12222E-03	.12129E-03	.12178E-03	.12265E-03	.12209E-03	.12207E-03	.12207E-03
ROTATIONS AT	25	26	27	28				
KU	-.19699E-04	-.19699E-04	-.19699E-04	-.19699E-04				
NASTRAN	.12215E-03	.12224E-03	.12227E-03	.12227E-03				

Table 17 (Continued)

KU- AND NASTRAN- ROTATIONAL INFLUENCE COEFFICIENTS FOR SOLID WING 3
(ALL ROTATIONS ARE BASED ON A 1LB. LOAD)

LOAD AT POINT 7

ROTATIONS AT	1	2	3	4	5	6	7	8
KU	-.37318E-05	-.37318E-05	-.14145E-04	-.27266E-04	-.34841E-04	-.27266E-04	-.34841E-04	-.34841E-04
NASTRAN	-.16202E-04	-.16085E-04	.64234E-05	.26752E-04	.19732E-04	-.10597E-03	.39883E-04	.84004E-04
ROTATIONS AT	9	10	11	12	13	14	15	16
KU	-.34841E-04	-.34841E-04	-.34841E-04	-.34841E-04	-.34841E-04	-.34841E-04	-.34841E-04	-.34841E-04
NASTRAN	.87183E-04	.10129E-03	.11162E-03	.12422E-03	.11441E-03	.11678E-03	.12711E-03	.13072E-03
ROTATIONS AT	17	18	19	20	21	22	23	24
KU	-.34841E-04	-.34841E-04	-.34841E-04	-.34841E-04	-.34841E-04	-.34841E-04	-.34841E-04	-.34841E-04
NASTRAN	.12283E-03	.12070E-03	.12053E-03	.12173E-03	.12161E-03	.12073E-03	.12048E-03	.12052E-03
ROTATIONS AT	25	26	27	28				
KU	-.34841E-04	-.34841E-04	-.34841E-04	-.34841E-04				
NASTRAN	.12050E-03	.12059E-03	.12059E-03	.12061E-03				

LOAD AT POINT 8

ROTATIONS AT	1	2	3	4	5	6	7	8
KU	-.39221E-05	-.39221E-05	-.16032E-04	-.34834E-04	-.67435E-04	-.34834E-04	-.55755E-04	-.70414E-04
NASTRAN	-.76848E-05	-.17253E-04	-.22990E-04	.10124E-04	.32429E-04	-.10368E-03	-.11883E-03	-.56914E-04
ROTATIONS AT	9	10	11	12	13	14	15	16
KU	-.70414E-04	-.70414E-04	-.70414E-04	-.70414E-04	-.70414E-04	-.70414E-04	-.70414E-04	-.70414E-04
NASTRAN	.13686E-04	.52591E-04	-.16156E-03	-.76847E-04	-.34721E-04	-.16548E-04	-.47390E-05	-.51709E-04
ROTATIONS AT	17	18	19	20	21	22	23	24
KU	-.70414E-04	-.70414E-04	-.70414E-04	-.70414E-04	-.70414E-04	-.70414E-04	-.70414E-04	-.70414E-04
NASTRAN	-.39085E-04	-.33158E-04	-.30794E-04	-.31480E-04	-.35038E-04	-.34287E-04	-.33776E-04	-.33651E-04
ROTATIONS AT	25	26	27	28				
KU	-.70414E-04	-.70414E-04	-.70414E-04	-.70414E-04				
NASTRAN	-.33982E-04	-.34421E-04	-.34387E-04	-.34390E-04				

LOAD AT POINT 9

ROTATIONS AT	1	2	3	4	5	6	7	8
KU	-.41124E-05	-.41124E-05	-.17920E-04	-.42402E-04	-.10467E-03	-.42402E-04	-.76670E-04	-.12234E-03
NASTRAN	-.24920E-05	-.13167E-04	-.39255E-04	-.50699E-04	.23072E-04	-.79048E-04	-.15682E-03	-.23507E-03
ROTATIONS AT	9	10	11	12	13	14	15	16
KU	-.14201E-03	-.14201E-03	-.14201E-03	-.14201E-03	-.14201E-03	-.14201E-03	-.14201E-03	-.14201E-03
NASTRAN	-.29442E-03	-.15177E-03	-.30781E-03	-.34089E-03	-.34744E-03	-.35454E-03	-.37065E-03	-.37714E-03
ROTATIONS AT	17	18	19	20	21	22	23	24
KU	-.14201E-03	-.14201E-03	-.14201E-03	-.14201E-03	-.14201E-03	-.14201E-03	-.14201E-03	-.14201E-03
NASTRAN	-.36416E-03	-.36249E-03	-.36434E-03	-.36947E-03	-.36559E-03	-.36378E-03	-.36344E-03	-.36355E-03
ROTATIONS AT	25	26	27	28				
KU	-.14201E-03	-.14201E-03	-.14201E-03	-.14201E-03				
NASTRAN	-.36357E-03	-.36340E-03	-.36339E-03	-.36342E-03				

Table 17 (Continued)

KU- AND NASTRAN- ROTATIONAL INFLUENCE COEFFICIENTS FOR SOLID WING 3
(ALL ROTATIONS ARE BASED ON A 1LB. LOAD)

LOAD AT POINT 10

ROTATIONS AT	1	2	3	4	5	6	7	8
KU	-.43026E-05	-.43026E-05	-.19807E-04	-.49970E-04	-.14191E-03	-.49970E-04	-.97584E-04	-.17426E-03
NASTRAN	.23277E-05	-.80722E-05	-.47625E-04	-.12440E-03	-.32795E-03	-.43401E-04	-.17085E-03	-.34979E-03
ROTATIONS AT	9	10	11	12	13	14	15	16
KU	-.23625E-03	-.26098E-03	-.25015E-03	-.26098E-03	-.26098E-03	-.26098E-03	-.26098E-03	-.26098E-03
NASTRAN	-.74102E-03	-.27732E-02	-.36430E-03	-.53987E-03	-.70417E-03	-.93585E-03	-.13447E-02	-.71493E-03
ROTATIONS AT	17	18	19	20	21	22	23	24
KU	-.26098E-03	-.26098E-03	-.26098E-03	-.26098E-03	-.26098E-03	-.26098E-03	-.26098E-03	-.26098E-03
NASTRAN	-.74318E-03	-.76564E-03	-.79141E-03	-.78234E-03	-.75232E-03	-.75317E-03	-.75636E-03	-.75418E-03
ROTATIONS AT	25	26	27	28				
KU	-.26098E-03	-.26098E-03	-.26098E-03	-.26098E-03				
NASTRAN	-.75312E-03	-.75056E-03	-.75107E-03	-.75127E-03				

LOAD AT POINT 11

ROTATIONS AT	1	2	3	4	5	6	7	8
KU	-.65715E-05	-.65715E-05	-.27752E-04	-.62703E-04	-.13958E-03	-.62703E-04	-.10627E-03	-.16202E-03
NASTRAN	-.30726E-04	-.34403E-04	-.73513E-05	.57653E-04	.58681E-04	-.24248E-03	-.47354E-04	.13227E-03
ROTATIONS AT	9	10	11	12	13	14	15	16
KU	-.19546E-03	-.19731E-03	-.19731E-03	-.19731E-03	-.19731E-03	-.19731E-03	-.19731E-03	-.19731E-03
NASTRAN	.24115E-03	.30661E-03	.10146E-02	.53362E-03	.39248E-03	.40371E-03	.44579E-03	.40772E-03
ROTATIONS AT	17	18	19	20	21	22	23	24
KU	-.19731E-03	-.19731E-03	-.19731E-03	-.19731E-03	-.19731E-03	-.19731E-03	-.19731E-03	-.19731E-03
NASTRAN	.50475E-03	.45730E-03	.45416E-03	.46237E-03	.48160E-03	.46053E-03	.45884E-03	.45920E-03
ROTATIONS AT	25	26	27	28				
KU	-.19731E-03	-.19731E-03	-.19731E-03	-.19731E-03				
NASTRAN	.45924E-03	.46092E-03	.46132E-03	.46153E-03				

LOAD AT POINT 12

ROTATIONS AT	1	2	3	4	5	6	7	8
KU	-.67195E-05	-.67195E-05	-.29220E-04	-.68589E-04	-.16855E-03	-.68589E-04	-.12253E-03	-.20241E-03
NASTRAN	-.17835E-04	-.35378E-04	-.32352E-04	.30402E-04	.69351E-04	-.24851E-03	-.21897E-03	-.57477E-04
ROTATIONS AT	9	10	11	12	13	14	15	16
KU	-.26876E-03	-.30022E-03	-.28451E-03	-.30022E-03	-.30022E-03	-.30022E-03	-.30022E-03	-.30022E-03
NASTRAN	.11025E-03	.23759E-03	-.41579E-03	-.31672E-04	.14251E-03	.20082E-03	.26633E-03	.17510E-03
ROTATIONS AT	17	18	19	20	21	22	23	24
KU	-.30022E-03	-.30022E-03	-.30022E-03	-.30022E-03	-.30022E-03	-.30022E-03	-.30022E-03	-.30022E-03
NASTRAN	.20842E-03	.20734E-03	.21669E-03	.23083E-03	.21984E-03	.21450E-03	.21243E-03	.21264E-03
ROTATIONS AT	25	26	27	28				
KU	-.30022E-03	-.30022E-03	-.30022E-03	-.30022E-03				
NASTRAN	.21267E-03	.21236E-03	.21215E-03	.21228E-03				

Table 17 (Continued)

KU- AND NASTRAN- ROTATIONAL INFLUENCE COEFFICIENTS FOR SOLID WING 3
(ALL ROTATIONS ARE BASED ON A 1LB. LOAD)

LOAD AT POINT 13

ROTATIONS AT	1	2	3	4	5	6	7	8
KU	-.68674E-05	-.68674E-05	-.30688E-04	-.74475E-04	-.19751E-03	-.74475E-04	-.13880E-03	-.24279E-03
NASTRAN	-.11300E-04	-.32130E-04	-.52107E-04	-.88329E-05	.63915E-04	-.21617E-03	-.28895E-03	-.25320E-03
ROTATIONS AT	9	10	11	12	13	14	15	16
KU	-.34206E-03	-.42424E-03	-.37170E-03	-.42424E-03	-.44640E-03	-.44640E-03	-.44640E-03	-.44640E-03
NASTRAN	-.13127E-03	.52378E-04	-.62891E-03	-.54734E-03	-.38029E-03	-.22524E-03	-.14523E-03	-.55012E-03
ROTATIONS AT	17	18	19	20	21	22	23	24
KU	-.44640E-03	-.44640E-03	-.44640E-03	-.44640E-03	-.44640E-03	-.44640E-03	-.44640E-03	-.44640E-03
NASTRAN	-.40953E-03	-.34890E-03	-.32456E-03	-.31778E-03	-.36927E-03	-.35835E-03	-.35305E-03	-.35168E-03
ROTATIONS AT	25	26	27	28				
KU	-.44640E-03	-.44640E-03	-.44640E-03	-.44640E-03				
NASTRAN	-.35407E-03	-.35974E-03	-.35950E-03	-.35956E-03				

LOAD AT POINT 14

ROTATIONS AT	1	2	3	4	5	6	7	8
KU	-.70154E-05	-.70154E-05	-.32156E-04	-.80361E-04	-.22648E-03	-.80361E-04	-.15507E-03	-.28318E-03
NASTRAN	-.57070E-05	-.28263E-04	-.69161E-04	-.55200E-04	.41887E-04	-.18437E-03	-.33488E-03	-.43270E-03
ROTATIONS AT	9	10	11	12	13	14	15	16
KU	-.41536E-03	-.54827E-03	-.45890E-03	-.54827E-03	-.61908E-03	-.65099E-03	-.65099E-03	-.65099E-03
NASTRAN	-.45867E-03	-.30518E-03	-.75535E-03	-.87649E-03	-.99782E-03	-.10954E-02	-.90276E-03	-.12655E-02
ROTATIONS AT	17	18	19	20	21	22	23	24
KU	-.65099E-03	-.65099E-03	-.65099E-03	-.65099E-03	-.65099E-03	-.65099E-03	-.65099E-03	-.65099E-03
NASTRAN	-.12437E-02	-.12233E-02	-.12323E-02	-.12709E-02	-.12674E-02	-.12481E-02	-.12425E-02	-.12430E-02
ROTATIONS AT	25	26	27	28				
KU	-.65099E-03	-.65099E-03	-.65099E-03	-.65099E-03				
NASTRAN	-.12462E-02	-.12457E-02	-.12451E-02	-.12454E-02				

LOAD AT POINT 15

ROTATIONS AT	1	2	3	4	5	6	7	8
KU	-.71634E-05	-.71634E-05	-.33624E-04	-.86248E-04	-.25544E-03	-.86248E-04	-.17134E-03	-.32356E-03
NASTRAN	-.16123E-06	-.23898E-04	-.85445E-04	-.10764E-03	.56171E-05	-.14813E-03	-.37[illegible]E-03	-.60672E-03
ROTATIONS AT	9	10	11	12	13	14	15	16
KU	-.48866E-03	-.67229E-03	-.54609E-03	-.67229E-03	-.79175E-03	-.89269E-03	-.93267E-03	-.93267E-03
NASTRAN	-.85462E-03	-.11578E-02	-.84788E-03	-.11721E-02	-.15412E-02	-.22804E-02	-.53970E-02	-.18645E-02
ROTATIONS AT	17	18	19	20	21	22	23	24
KU	-.93267E-03	-.93267E-03	-.93267E-03	-.93267E-03	-.93267E-03	-.93267E-03	-.93267E-03	-.93267E-03
NASTRAN	-.20959E-02	-.22709E-02	-.25102E-02	-.28967E-02	-.23001E-02	-.22818E-02	-.22827E-02	-.22959E-02
ROTATIONS AT	25	26	27	28				
KU	-.93267E-03	-.93267E-03	-.93267E-03	-.93267E-03				
NASTRAN	-.22780E-02	-.22432E-02	-.22432E-02	-.22450E-02				

Table 17 (Continued)

KU= AND NASTRAN= ROTATIONAL INFLUENCE COEFFICIENTS FOR SOLID WING 3
(ALL ROTATIONS ARE BASED ON A 1LB. LOAD)

LOAD AT POINT 16

ROTATIONS AT	1	2	3	4	5	6	7	8
KU	-.96014E-05	-.96014E-05	-.43247E-04	-.10571E-03	-.28621E-03	-.10571E-03	-.19861E-03	-.35748E-03
NASTRAN	-.21951E-04	-.52940E-04	-.58793E-04	.40128E-04	.11971E-03	-.38645E-03	-.40936E-03	-.19778E-03
ROTATIONS AT	9	10	11	12	13	14	15	16
KU	-.53164E-03	-.72925E-03	-.59291E-03	-.72925E-03	-.86211E-03	-.98207E-03	-.10571E-02	-.10571E-02
NASTRAN	.12420E-03	.44657E-03	-.10032E-02	-.53184E-03	-.32340E-04	.38540E-03	.67860E-03	.11515E-02
ROTATIONS AT	17	18	19	20	21	22	23	24
KU	-.10571E-02	-.10571E-02	-.10571E-02	-.10571E-02	-.10571E-02	-.10571E-02	-.10571E-02	-.10571E-02
NASTRAN	.74957E-03	.70821E-03	.78570E-03	.87803E-03	.13307E-02	.95853E-03	.88428E-03	.87851E-03
ROTATIONS AT	25	26	27	28				
KU	-.10571E-02	-.10571E-02	-.10571E-02	-.10571E-02				
NASTRAN	.88945E-03	.92390E-03	.91916E-03	.92182E-03				

LOAD AT POINT 17

ROTATIONS AT	1	2	3	4	5	6	7	8
KU	-.97071E-05	-.97071E-05	-.44296E-04	-.10991E-03	-.30690E-03	-.10991E-03	-.21023E-03	-.38633E-03
NASTRAN	-.17198E-04	-.50178E-04	-.72942E-04	.99841E-05	.11467E-03	-.35414E-03	-.45502E-03	-.34377E-03
ROTATIONS AT	9	10	11	12	13	14	15	16
KU	-.58400E-03	-.81783E-03	-.65519E-03	-.81783E-03	-.98545E-03	-.11547E-02	-.13205E-02	-.13205E-02
NASTRAN	-.83806E-04	.26604E-03	-.11569E-02	-.93589E-03	-.57072E-03	-.17135E-03	.19440E-03	-.13193E-02
ROTATIONS AT	17	18	19	20	21	22	23	24
KU	-.13523E-02	-.13523E-02	-.13523E-02	-.13523E-02	-.13523E-02	-.13523E-02	-.13523E-02	-.13523E-02
NASTRAN	-.60471E-03	-.18344E-03	.10814E-04	.14258E-03	-.72744E-04	-.69624E-05	-.47332E-05	.33330E-05
ROTATIONS AT	25	26	27	28				
KU	-.13523E-02	-.13523E-02	-.13523E-02	-.13523E-02				
NASTRAN	.22023E-04	-.13415E-04	-.19261E-04	-.20021E-04				

LOAD AT POINT 18

ROTATIONS AT	1	2	3	4	5	6	7	8
KU	-.98128E-05	-.98128E-05	-.45344E-04	-.11412E-03	-.32759E-03	-.11412E-03	-.22185E-03	-.41518E-03
NASTRAN	-.12939E-04	-.47347E-04	-.86340E-04	-.21206E-04	.10812E-03	-.32773E-03	-.49288E-03	-.48363E-03
ROTATIONS AT	9	10	11	12	13	14	15	16
KU	-.63636E-03	-.90642E-03	-.71747E-03	-.90642E-03	-.11088E-02	-.13274E-02	-.15839E-02	-.15839E-02
NASTRAN	-.30144E-03	.61084E-04	-.12424E-02	-.12363E-02	-.10965E-02	-.84601E-03	-.46850E-03	-.21245E-02
ROTATIONS AT	17	18	19	20	21	22	23	24
KU	-.16839E-02	-.17328E-02	-.17328E-02	-.17328E-02	-.17328E-02	-.17328E-02	-.17328E-02	-.17328E-02
NASTRAN	-.19064E-02	-.15654E-02	-.12356E-02	-.10458E-02	-.17925E-02	-.16115E-02	-.15223E-02	-.14873E-02
ROTATIONS AT	25	26	27	28				
KU	-.17328E-02	-.17328E-02	-.17328E-02	-.17328E-02				
NASTRAN	-.14815E-02	-.15994E-02	-.15954E-02	-.15960E-02				

Table 17 (Continued)

KU- AND NASTRAN- ROTATIONAL INFLUENCE COEFFICIENTS FOR SOLID WING 3
(ALL ROTATIONS ARE BASED ON A 1LB. LOAD)

LOAD AT POINT 19

ROTATIONS AT	1	2	3	4	5	6	7	8
KU	-.99185E-05	-.99185E-05	-.46393E-04	-.11832E-03	.34828E-03	-.11832E-03	-.23347E-03	-.44402E-03
NASTRAN	-.87578E-05	-.44695E-04	-.99441E-04	-.53148E-04	.10041E-03	-.30212E-03	-.52868E-03	-.62112E-03
ROTATIONS AT	9	10	11	12	13	14	15	16
KU	-.68971E-03	-.99501E-03	-.77976E-03	-.99501E-03	-.12321E-02	-.15000E-02	-.18473E-02	-.18473E-02
NASTRAN	-.5[illegible]802E-03	-.16042E-03	-.13256E-02	-.15100E-02	-.16078E-02	-.15991E-02	-.13169E-02	-.27389E-02
ROTATIONS AT	17	18	19	20	21	22	23	24
KU	-.20155E-02	-.21667E-02	-.22272E-02	-.22272E-02	-.22272E-02	-.22272E-02	-.22272E-02	-.22272E-02
NASTRAN	-.29433E-02	-.31503E-02	-.32743E-02	-.29189E-02	-.38709E-02	-.37721E-02	-.37083E-02	-.36990E-02
ROTATIONS AT	25	26	27	28				
KU	-.22272E-02	-.22272E-02	-.22272E-02	-.22272E-02				
NASTRAN	-.37392E-02	-.37969E-02	-.37814E-02	-.37799E-02				

LOAD AT POINT 20

ROTATIONS AT	1	2	3	4	5	6	7	8
KU	-.10024E-04	-.10024E-04	-.47441E-04	-.12253E-03	-.36897E-03	-.12253E-03	-.24509E-03	-.47287E-03
NASTRAN	-.45838E-05	-.41593E-04	-.11257E-03	-.85395E-04	.93675E-04	-.27611E-03	-.56382E-03	-.75935E-03
ROTATIONS AT	9	10	11	12	13	14	15	16
KU	-.74107E-03	-.10836E-02	-.84204E-03	-.10836E-02	-.13555E-02	-.16727E-02	-.21107E-02	-.21107E-02
NASTRAN	-.76003E-03	-.39024E-03	-.14026E-02	-.17780E-02	-.21209E-[illegible]	-.24278E-02	-.25767E-02	-.32975E-02
ROTATIONS AT	17	18	19	20	21	22	23	24
KU	-.23471E-02	-.26007E-02	-.27931E-02	-.28794E-02	-.28794E-02	-.28794E-02	-.28794E-02	-.28794E-02
NASTRAN	-.38974E-02	-.46232E-02	-.59007E-02	-.10431E-01	-.60112E-02	-.61967E-02	-.63024E-02	-.65216E-02
ROTATIONS AT	25	26	27	28				
KU	-.28794E-02	-.28794E-02	-.28794E-02	-.28794E-02				
NASTRAN	-.71381E-02	-.62318E-02	-.61904E-02	-.61906E-02				

LOAD AT POINT 21

ROTATIONS AT	1	2	3	4	5	6	7	8
KU	-.12631E-04	-.12631E-04	-.58742E-04	-.14871E-03	-.43284E-03	-.14871E-03	-.29095E-03	-.55294E-03
NASTRAN	-.19183E-04	-.66065E-04	-.10608E-03	.69676E-05	.17048E-03	-.46724E-03	-.66157E-03	-.55908E-03
ROTATIONS AT	9	10	11	12	13	14	15	16
KU	-.86783E-03	-.12823E-02	-.98850E-03	-.12823E-02	-.16232E-02	-.20383E-02	-.26566E-02	-.26566E-02
NASTRAN	-.17922E-03	.40999E-03	-.17951E-02	-.16744E-02	-.12464E-02	-.58498E-03	.22077E-03	-.34425E-02
ROTATIONS AT	17	18	19	20	21	22	23	24
KU	-.30283E-02	-.34851E-02	-.39398E-02	-.44172E-02	-.49829E-02	-.49829E-02	-.49829E-02	-.49829E-02
NASTRAN	-.27407E-02	-.17813E-02	-.70197E-03	.28046E-03	-.25091E-03	-.27928E-03	.39914E-03	.10955E-02
ROTATIONS AT	25	26	27	28				
KU	-.49829E-02	-.49829E-02	-.49829E-02	-.49829E-02				
NASTRAN	.15512E-02	.17201E-02	.15713E-02	.15380E-02				

Table 17 (Continued)

KU= AND NASTRAN= ROTATIONAL INFLUENCE COEFFICIENTS FOR SOLID WING 3
(ALL ROTATIONS ARE BASED ON A 1LB. LOAD)

LOAD AT POINT 22

ROTATIONS AT	1	2	3	4	5	6	7	8
KU	-.12695E-04	-.12695E-04	-.59371E-04	-.15124E-03	-.44525E-03	-.15124E-03	-.29792E-03	-.57025E-03
NASTRAN	-.16652E-04	-.64347E-04	-.11410E-03	-.11825E-04	.16699E-03	-.45128E-03	-.68370E-03	-.64313E-03
ROTATIONS AT	9	10	11	12	13	14	15	16
KU	-.89924E-03	-.13355E-02	-.10259E-02	-.13355E-02	-.16972E-02	-.21419E-02	-.28146E-02	-.28146E-02
NASTRAN	-.31130E-03	.29161E-03	-.18395E-02	-.18492E-02	-.15680E-02	-.10174E-02	-.20981E-03	-.39337E-02
ROTATIONS AT	17	18	19	20	21	22	23	24
KU	-.32273E-02	-.37455E-02	-.42793E-02	-.48750E-02	-.58016E-02	-.58977E-02	-.58977E-02	-.58977E-02
NASTRAN	-.35673E-02	-.29219E-02	-.20596E-02	-.10643E-02	-.52134E-02	-.37354E-02	-.25202E-02	-.16154E-02
ROTATIONS AT	25	26	27	28				
KU	-.58977E-02	-.58977E-02	-.58977E-02	-.58977E-02				
NASTRAN	-.97584E-03	-.16160E-02	-.15142E-02	-.14966E-02				

LOAD AT POINT 23

ROTATIONS AT	1	2	3	4	5	6	7	8
KU	-.12758E-04	-.12758E-04	-.60000E-04	-.15376E-03	-.45767E-03	-.15376E-03	-.30489E-03	-.58756E-03
NASTRAN	-.14132E-04	-.62638E-04	-.12207E-03	-.30678E-04	.16325E-03	-.43574E-03	-.70563E-03	-.72668E-03
ROTATIONS AT	9	10	11	12	13	14	15	16
KU	-.93065E-03	-.13886E-02	-.10632E-02	-.13886E-02	-.17712E-02	-.22454E-02	-.29727E-02	-.29727E-02
NASTRAN	-.44380E-03	.17156E-03	-.18870E-02	-.20190E-02	-.18853E-02	-.14508E-02	-.64194E-03	-.43180E-02
ROTATIONS AT	17	18	19	20	21	22	23	24
KU	-.34262E-02	-.40059E-02	-.46189E-02	-.53327E-02	-.66202E-02	-.69271E-02	-.70477E-02	-.70477E-02
NASTRAN	-.42969E-02	-.40409E-02	-.34937E-02	-.25647E-02	-.78112E-02	-.72818E-02	-.64584E-02	-.55185E-02
ROTATIONS AT	25	26	27	28				
KU	-.70477E-02	-.70477E-02	-.70477E-02	-.70477E-02				
NASTRAN	-.47024E-02	-.68803E-02	-.66160E-02	-.64930E-02				

LOAD AT POINT 24

ROTATIONS AT	1	2	3	4	5	6	7	8
KU	-.12822E-04	-.12822E-04	-.60629E-04	-.15628E-03	-.47008E-03	-.15628E-03	-.31187E-03	-.60486E-03
NASTRAN	-.11613E-04	-.60930E-04	-.13002E-03	-.49576E-04	.15938E-03	-.42024E-03	-.72751E-03	-.81004E-03
ROTATIONS AT	9	10	11	12	13	14	15	16
KU	-.96207E-03	-.14418E-02	-.11006E-02	-.14418E-02	-.18452E-02	-.23490E-02	-.31307E-02	-.31307E-02
NASTRAN	-.57680E-03	.50145E-04	-.19353E-02	-.21879E-02	-.22009E-02	-.18877E-02	-.10788E-02	-.46994E-02
ROTATIONS AT	17	18	19	20	21	22	23	24
KU	-.36252E-02	-.42662E-02	-.49585E-02	-.57905E-02	-.74389E-02	-.79565E-02	-.83602E-02	-.85144E-02
NASTRAN	-.49959E-02	-.51383E-02	-.49852E-02	-.41914E-02	-.10053E-01	-.10590E-01	-.10969E-01	-.11027E-01
ROTATIONS AT	25	26	27	28				
KU	-.85144E-02	-.85144E-02	-.85144E-02	-.85144E-02				
NASTRAN	-.10026E-01	-.14152E-01	-.13978E-01	-.13848E-01				

Table 17 (Continued)

KU- AND NASTRAN- ROTATIONAL INFLUENCE COEFFICIENTS FOR SOLID WING 3
(ALL ROTATIONS ARE BASED ON A 1LB. LOAD)

LOAD AT POINT 25

ROTATIONS AT	1	2	3	4	5	6	7	8
KU	-.12885E-04	-.12885E-04	-.61258E-04	-.15880E-03	-.48249E-03	-.15880E-03	-.31884E-03	-.62217E-03
NASTRAN	-.90927E-05	-.59221E-04	-.13790E-03	-.68464E-04	.15557E-03	-.40473E-03	-.74941E-03	-.89347E-03
ROTATIONS AT	9	10	11	12	13	14	15	16
KU	-.99348E-03	-.14949E-02	-.11380E-02	-.14949E-02	-.19192E-02	-.24526E-02	-.32888E-02	-.32888E-02
NASTRAN	-.70973E-03	-.70550E-04	-.19836E-02	-.23568E-02	-.25171E-02	-.23257E-02	-.15176E-02	-.50771E-02
ROTATIONS AT	17	18	19	20	21	22	23	24
KU	-.38242E-02	-.45266E-02	-.52981E-02	-.62483E-02	-.82575E-02	-.89859E-02	-.96727E-02	-.10216E-01
NASTRAN	-.56915E-02	-.62346E-02	-.65385E-02	-.62755E-02	-.12093E-01	-.13721E-01	-.15428E-01	-.17709E-01
ROTATIONS AT	25	26	27	28				
KU	-.10418E-01	-.10418E-01	-.10418E-01	-.10418E-01				
NASTRAN	-.24368E-01	-.22903E-01	-.23056E-01	-.23253E-01				

LOAD AT POINT 26

ROTATIONS AT	1	2	3	4	5	6	7	8
KU	-.15661E-04	-.15661E-04	-.74237E-04	-.19172E-03	-.57947E-03	-.19172E-03	-.38329E-03	-.74840E-03
NASTRAN	-.16950E-04	-.79074E-04	-.15277E-03	-.26827E-04	.22264E-03	-.55320E-03	-.90532E-03	-.91667E-03
ROTATIONS AT	9	10	11	12	13	14	15	16
KU	-.12040E-02	-.18354E-02	-.13841E-02	-.18354E-02	-.23842E-02	-.30945E-02	-.42561E-02	-.42561E-02
NASTRAN	-.48940E-03	.38786E-03	-.24955E-02	-.27102E-02	-.24857E-02	-.17084E-02	-.32005E-03	-.64757E-02
ROTATIONS AT	17	18	19	20	21	22	23	24
KU	-.50360E-02	-.61054E-02	-.73503E-02	-.90067E-02	-.13173E-01	-.15160E-01	-.17539E-01	-.20410E-01
NASTRAN	-.65585E-02	-.60192E-02	-.46811E-02	-.24566E-02	-.16939E-01	-.16446E-01	-.14973E-01	-.12256E-01
ROTATIONS AT	25	26	27	28				
KU	-.23900E-01	-.45099E-01	-.45099E-01	-.45099E-01				
NASTRAN	-.83387E-02	-.26292E-01	-.66612E-02	.16215E-01				

LOAD AT POINT 27

ROTATIONS AT	1	2	3	4	5	6	7	8
KU	-.15704E-04	-.15704E-04	-.74656E-04	-.19340E-03	-.58775E-03	-.19340E-03	-.38794E-03	-.75994E-03
NASTRAN	-.15267E-04	-.77936E-04	-.15809E-03	-.39363E-04	.22018E-03	-.54282E-03	-.92002E-03	-.97243E-03
ROTATIONS AT	9	10	11	12	13	14	15	16
KU	-.12250E-02	-.18708E-02	-.14090E-02	-.18708E-02	-.24336E-02	-.31635E-02	-.43615E-02	-.43615E-02
NASTRAN	-.57730E-03	.30897E-03	-.25274E-02	-.28244E-02	-.26979E-02	-.19934E-02	-.59006E-03	-.67436E-02
ROTATIONS AT	17	18	19	20	21	22	23	24
KU	-.51686E-02	-.62790E-02	-.75767E-02	-.93119E-02	-.13718E-01	-.15847E-01	-.18414E-01	-.21544E-01
NASTRAN	-.70535E-02	-.67757E-02	-.56300E-02	-.33593E-02	-.18657E-01	-.19236E-01	-.19035E-01	-.17544E-01
ROTATIONS AT	25	26	27	28				
KU	-.25402E-01	-.51488E-01	-.55169E-01	-.55169E-01				
NASTRAN	-.14260E-01	-.59769E-01	-.48449E-01	-.30335E-01				

Table 17 (Continued)

KU- AND NASTRAN- ROTATIONAL INFLUENCE COEFFICIENTS FOR SOLID WING 3
(ALL ROTATIONS ARE BASED ON A 1LB. LOAD)

LOAD AT POINT 28

ROTATIONS AT	1	2	3	4	5	6	7	8
KU	-.15746E-04	-.15746E-04	-.75076E-04	-.19508E-03	-.59602E-03	-.19508E-03	-.39259E-03	-.77147E-03
NASTRAN	-.13584E-04	-.76799E-04	-.16341E-03	-.51901E-04	.21771E-03	-.53243E-03	-.93473E-03	-.10262E-02
ROTATIONS AT	9	10	11	12	13	14	15	16
KU	-.12459E-02	-.19062E-02	-.14339E-02	-.19062E-02	-.24829E-02	-.32326E-02	-.44668E-02	-.44668E-02
NASTRAN	-.66524E-03	.22995E-03	-.25594E-02	-.29385E-02	-.29101E-02	-.22786E-02	-.86063E-03	-.70140E-02
ROTATIONS AT	17	18	19	20	21	22	23	24
KU	-.53013E-02	-.64526E-02	-.78031E-02	-.96171E-02	-.14264E-01	-.16533E-01	-.19289E-01	-.22679E-01
NASTRAN	-.75475E-02	-.75296E-02	-.65770E-02	-.42551E-02	-.20326E-01	-.21929E-01	-.23046E-01	-.22940E-01
ROTATIONS AT	25	26	27	28				
KU	-.26903E-01	-.57876E-01	-.70919E-01	-.76787E-01				
NASTRAN	-.20437E-01	-.93190E-01	-.10142E+00	-.10638E+00				

R.M.S. OF DIFFERENCES = .14014E-03

MAXIMUM ERROR = .13888E-03

Table 18

EXPERIMENTAL- AND NASTRAN- DEFLECTION INFLUENCE COEFFICIENTS FOR BUILT-UP WING 1
(ALL DEFLECTIONS ARE BASED ON A 100LB. LOAD)

LOAD AT POINT 1

DEFL. AT	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
EXP.	.1746	.1621	.1510	.1415	.1296	.0987	.0902	.0827	.0750	.0610	.0312	.0265	.0252	.0216	.0175
NASTRAN	.1841	.1698	.1577	.1463	.1353	.0951	.0888	.0819	.0745	.0663	.0274	.0260	.0236	.0206	.0164

LOAD AT POINT 2

DEFL. AT	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
EXP.	.1621	.1631	.1554	.1494	.1428	.0914	.0880	.0846	.0802	.0747	.0280	.0279	.0257	.0238	.0213
NASTRAN	.1698	.1676	.1596	.1530	.1463	.0876	.0855	.0823	.0782	.0733	.0246	.0247	.0237	.0220	.0191

LOAD AT POINT 3

DEFL. AT	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
EXP.	.1510	.1554	.1572	.1566	.1546	.0832	.0836	.0854	.0844	.0823	.0244	.0257	.0254	.0255	.0242
NASTRAN	.1577	.1596	.1618	.1596	.1577	.0804	.0819	.0826	.0819	.0804	.0218	.0233	.0237	.0233	.0218

LOAD AT POINT 4

DEFL. AT	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
EXP.	.1415	.1494	.1566	.1645	.1664	.0772	.0804	.0854	.0895	.0914	.0216	.0248	.0264	.0276	.0284
NASTRAN	.1463	.1530	.1596	.1676	.1698	.0733	.0782	.0823	.0855	.0876	.0191	.0220	.0237	.0247	.0246

LOAD AT POINT 5

DEFL. AT	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
EXP.	.1296	.1428	.1546	.1664	.1804	.0706	.0766	.0847	.0930	.1014	.0184	.0234	.0262	.0292	.0318
NASTRAN	.1353	.1463	.1577	.1698	.1841	.0663	.0745	.0819	.0888	.0951	.0164	.0206	.0236	.0260	.0274

LOAD AT POINT 6

DEFL. AT	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
EXP.	.0987	.0914	.0832	.0772	.0706	.0687	.0591	.0502	.0444	.0373	.0250	.0216	.0173	.0136	.0106
NASTRAN	.0951	.0876	.0804	.0733	.0663	.0606	.0518	.0453	.0393	.0333	.0194	.0170	.0142	.0115	.0083

Table 18 (Continued)

EXPERIMENTAL- AND NASTRAN- DEFLECTION INFLUENCE COEFFICIENTS FOR BUILT-UP WING 1
(ALL DEFLECTIONS ARE BASED ON A 100LB. LOAD)

LOAD AT POINT 7

DEFL. AT	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
EXP.	.0902	.0880	.0836	.0804	.0766	.0591	.0573	.0512	.0468	.0426	.0208	.0178	.0173	.0151	.0130
NASTRAN	.0888	.0855	.0819	.0782	.0745	.0518	.0515	.0463	.0428	.0393	.0164	.0158	.0145	.0129	.0108

LOAD AT POINT 8

DEFL. AT	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
EXP.	.0827	.0846	.0854	.0854	.0847	.0502	.0512	.0540	.0515	.0492	.0118	.0174	.0180	.0172	.0165
NASTRAN	.0819	.0823	.0826	.0823	.0819	.0453	.0463	.0480	.0463	.0453	.0135	.0144	.0147	.0144	.0135

LOAD AT POINT 9

DEFL. AT	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
EXP.	.0750	.0802	.0844	.0895	.0930	.0444	.0468	.0515	.0580	.0583	.0130	.0158	.0178	.0196	.0809
NASTRAN	.0745	.0782	.0819	.0855	.0888	.0393	.0428	.0463	.0515	.0518	.0108	.0129	.0145	.0158	.0164

LOAD AT POINT 10

DEFL. AT	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
EXP.	.0660	.0747	.0823	.0914	.1014	.0379	.0426	.0492	.0583	.0714	.0105	.0142	.0170	.0205	.0250
NASTRAN	.0663	.0733	.0804	.0876	.0951	.0333	.0393	.0453	.0518	.0606	.0083	.0115	.0142	.0170	.0194

LOAD AT POINT 11

DEFL. AT	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
EXP.	.0312	.0280	.0244	.0216	.0184	.0250	.0208	.0168	.0139	.0105	.0174	.0124	.0071	.0048	.0028
NASTRAN	.0274	.0246	.0218	.0191	.0164	.0194	.0164	.0135	.0108	.0083	.0115	.0070	.0049	.0033	.0018

LOAD AT POINT 12

DEFL. AT	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
EXP.	.0302	.0286	.0266	.0251	.0234	.0226	.0160	.0175	.0160	.0139	.0127	.0137	.0080	.0061	.0050
NASTRAN	.0260	.0247	.0233	.0220	.0206	.0170	.0158	.0144	.0129	.0115	.0070	.0086	.0055	.0044	.0033

Table 18 (Continued)

EXPERIMENTAL- AND NASTRAN- DEFLECTION INFLUENCE COEFFICIENTS FOR BUILT-UP WING 1
(ALL DEFLECTIONS ARE BASED ON A 100LB. LOAD)

LOAD AT POINT 13

DEFL. AT	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
EXP.	.0252	.0257	.0254	.0264	.0262	.0173	.0173	.0180	.0170	.0170	.0071	.0082	.0105	.0081	.0073
NASTRAN	.0236	.0237	.0237	.0237	.0236	.0142	.0145	.0147	.0145	.0142	.0049	.0055	.0069	.0055	.0049

LOAD AT POINT 14

DEFL. AT	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
EXP.	.0216	.0238	.0255	.0276	.0292	.0136	.0151	.0172	.0196	.0205	.0048	.0064	.0081	.0125	.0119
NASTRAN	.0206	.0220	.0233	.0247	.0260	.0115	.0129	.0144	.0158	.0170	.0033	.0044	.0055	.0086	.0070

LOAD AT POINT 15

DEFL. AT	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
EXP.	.0175	.0212	.0242	.0284	.0318	.0106	.0130	.0165	.0209	.0250	.0028	.0052	.0073	.0119	.0169
NASTRAN	.0164	.0191	.0218	.0246	.0274	.0083	.0108	.0135	.0164	.0194	.0018	.0033	.0049	.0070	.0115

R.M.S. OF DIFFERENCES = 3.79374E-04

MAXIMUM ERROR = 9.48000E-03

Table 19

KU= AND NASTRAN= ROTATIONAL INFLUENCE COEFFICIENTS FOR BUILT=UP WING 1
(ALL ROTATIONS ARE BASED ON A 1LB. LOAD)

LOAD AT POINT 1

ROTATIONS AT	1	2	3	4	5	6	7	8
KU	3.48491E-05	3.48491E-05	3.48491E-05	3.48491E-05	3.48491E-05	2.32328E-05	2.32328E-05	2.32328E-05
NASTRAN	3.72818E-05	3.51742E-05	3.11774E-05	2.97003E-05	3.00359E-05	1.53465E-05	1.75438E-05	1.48995E-05
ROTATIONS AT	9	10	11	12	13	14	15	
KU	2.32328E-05	2.32328E-05	1.16164E-05	1.16164E-05	1.16164E-05	1.16164E-05	1.16164E-05	
NASTRAN	2.07417E-05	2.31138E-05	9.21831E-07	4.68882E-06	6.93465E-06	9.64162E-06	1.25986E-05	

LOAD AT POINT 2

ROTATIONS AT	1	2	3	4	5	6	7	8
KU	1.74246E-05	1.74246E-05	1.74246E-05	1.74246E-05	1.74246E-05	1.16164E-05	1.16164E-05	1.16164E-05
NASTRAN	4.19507E-06	1.40774E-05	1.99484E-05	1.77129E-05	1.87403E-05	3.61912E-06	7.44688E-06	1.01064E-05
ROTATIONS AT	9	10	11	12	13	14	15	
KU	1.16164E-05	1.16164E-05	5.80819E-06	5.80819E-06	5.80819E-06	5.80819E-06	5.80819E-06	
NASTRAN	1.16871E-05	1.45329E-05	-2.44087E-06	9.73136E-07	3.48859E-06	6.14863E-06	9.34100E-06	

LOAD AT POINT 3

ROTATIONS AT	1	2	3	4	5	6	7	8
KU	0.	0.	0.	0.	0.	0.	0.	0.
NASTRAN	-6.07577E-06	-5.62194E-06	-1.19392E-16	5.62194E-06	6.07577E-06	-5.18037E-06	-3.19043E-06	-5.85906E-17
ROTATIONS AT	9	10	11	12	13	14	15	
KU	0.	0.	0.	0.	0.	0.	0.	
NASTRAN	3.19043E-06	5.18037E-06	-5.85000E-06	-2.70163E-06	-2.00469E-17	2.70163E-06	5.85000E-06	

LOAD AT POINT 4

ROTATIONS AT	1	2	3	4	5	6	7	8
KU	-1.74246E-05	-1.74246E-05	-1.74246E-05	-1.74246E-05	-1.74246E-05	-1.16164E-05	-1.16164E-05	-1.16164E-05
NASTRAN	-1.87403E-05	-1.77129E-05	-1.99484E-05	-1.40774E-05	-4.19507E-06	-1.45329E-05	-1.16871E-05	-1.01064E-05
ROTATIONS AT	9	10	11	12	13	14	15	
KU	-1.16164E-05	-1.16164E-05	-5.80819E-06	-5.80819E-06	-5.80819E-06	-5.80819E-06	-5.80819E-06	
NASTRAN	-7.44688E-06	-3.61912E-06	-9.34100E-06	-6.14863E-06	-3.48859E-06	-9.73136E-07	2.44087E-06	

Table 19 (Continued)

KU= AND NASTRAN= ROTATIONAL INFLUENCE COEFFICIENTS FOR BUILT-UP WING 1
(ALL ROTATIONS ARE BASED ON A 1LB. LOAD)

LOAD AT POINT 5

ROTATIONS AT	1	2	3	4	5	6	7	8
KU	-3.48491E-05	-3.48491E-05	-3.48491E-05	-3.48491E-05	-3.48491E-05	-2.32328E-05	-2.32328E-05	-2.32328E-05
NASTRAN	-3.00359E-05	-2.97003E-05	-3.11774E-05	-3.51742E-05	-3.72818E-05	-2.31138E-05	-2.07417E-05	-1.88995E-05
ROTATIONS AT	9	10	11	12	13	14	15	
KU	-2.32328E-05	-2.32328E-05	-1.16164E-05	-1.16164E-05	-1.16164E-05	-1.16164E-05	-1.16164E-05	
NASTRAN	-1.75438E-05	-1.53465E-05	-1.25986C-05	-9.64162E-06	-6.93465E-06	-4.68882E-06	-9.21831E-07	

LOAD AT POINT 6

ROTATIONS AT	1	2	3	4	5	6	7	8
KU	2.32328E-05	2.32328E-05	2.32328E-05	2.32328E-05	2.32328E-05	2.32328E-05	2.32328E-05	2.32328E-05
NASTRAN	2.22198E-05	2.00960E-05	1.88633E-05	1.88162E-05	1.90033E-05	2.51610E-05	2.15225E-05	1.67965E-05
ROTATIONS AT	9	10	11	12	13	14	15	
KU	2.32328E-05	2.32328E-05	1.16164E-05	1.16164E-05	1.16164E-05	1.16164E-05	1.16164E-05	
NASTRAN	1.61665E-05	1.64232E-05	5.52071E-06	6.38812E-06	6.86754E-06	7.92142E-06	9.14721E-06	

LOAD AT POINT 7

ROTATIONS AT	1	2	3	4	5	6	7	8
KU	1.16164E-05	1.16164E-05	1.16164E-05	1.16164E-05	1.16164E-05	1.16164E-05	1.16164E-05	1.16164E-05
NASTRAN	6.09989E-06	9.68691E-06	1.08197E-05	9.04384E-06	1.03807E-05	-2.59119E-06	8.29728E-06	1.31612E-05
ROTATIONS AT	9	10	11	12	13	14	15	
KU	1.16164E-05	1.16164E-05	5.80819E-06	5.80819E-06	5.80819E-06	5.80819E-06	5.80819E-06	
NASTRAN	9.01065E-06	1.01720E-05	-2.47848E-07	2.79727E-06	4.03004E-06	4.48890E-06	6.38705E-06	

LOAD AT POINT 8

ROTATIONS AT	1	2	3	4	5	6	7	8
KU	0.	0.	0.	0.	0.	0.	0.	0.
NASTRAN	-2.70386E-07	-1.76720E-06	-6.18472E-17	1.76720E-06	2.70386E-07	-2.67500E-06	-4.53533E-06	-2.79377E-17
ROTATIONS AT	9	10	11	12	13	14	15	
KU	0.	0.	0.	0.	0.	0.	0.	
NASTRAN	4.53533E-06	2.67500E-06	-2.86802E-06	-1.95001E-06	-1.04821E-17	1.95001E-06	2.86802E-06	

Table 19 (Continued)

KU- AND NASTRAN- ROTATIONAL INFLUENCE COEFFICIENTS FOR BUILT-UP WING 1
(ALL ROTATIONS ARE BASED ON A 1LB. LOAD)

LOAD AT POINT 9

ROTATIONS AT	1	2	3	4	5	6	7	8
KU	-1.16164E-05	-1.16164E-05	-1.16164E-05	-1.16164E-05	-1.16164E-05	-1.16164E-05	-1.16164E-05	-1.16164E-05
NASTRAN	-1.03807E-05	-9.04384E-06	-1.08197E-05	-9.68691E-06	-6.09989E-06	-1.01720E-05	-9.01065E-06	-1.31612E-05
ROTATIONS AT	9	10	11	12	13	14	15	
KU	-1.16164E-05	-1.16164E-05	-5.80819E-06	-5.80819E-06	-5.80819E-06	-5.80819E-06	-5.80819E-06	
NASTRAN	-8.29728E-06	2.59119E-06	-6.38705E-06	-4.48890E-06	-4.03004E-06	-2.79727E-06	2.47848E-07	

LOAD AT POINT 10

ROTATIONS AT	1	2	3	4	5	6	7	8
KU	-2.32328E-05	-2.32328E-05	-2.32328E-05	-2.32328E-05	-2.32328E-05	-2.32328E-05	-2.32328E-05	-2.32328E-05
NASTRAN	-1.90033E-05	-1.88162E-05	-1.88633E-05	-2.00960E-05	-2.22198E-05	-1.64232E-05	-1.61665E-05	-1.67965E-05
ROTATIONS AT	9	10	11	12	13	14	15	
KU	-2.32328E-05	-2.32328E-05	-1.16164E-05	-1.16164E-05	-1.16164E-05	-1.16164E-05	-1.16164E-05	
NASTRAN	-2.15225E-05	-2.51610E-05	-9.14721E-06	-7.92142E-06	-6.86754E-06	-6.38812E-06	-5.52071E-06	

LOAD AT POINT 11

ROTATIONS AT	1	2	3	4	5	6	7	8
KU	1.16164E-05	1.16164E-05	1.16164E-05	1.16164E-05	1.16164E-05	1.16164E-05	1.16164E-05	1.16164E-05
NASTRAN	6.70281E-06	7.23151E-06	7.31808E-06	7.24456E-06	7.36918E-06	8.79097E-06	7.84368E-06	7.21936E-06
ROTATIONS AT	9	10	11	12	13	14	15	
KU	1.16164E-05	1.16164E-05	1.16164E-05	1.16164E-05	1.16164E-05	1.16164E-05	1.16164E-05	
NASTRAN	7.05253E-06	7.04324E-06	1.23486E-05	9.79912E-06	4.78986E-06	4.19730E-06	4.06894E-06	

LOAD AT POINT 12

ROTATIONS AT	1	2	3	4	5	6	7	8
KU	5.80819E-06	5.80819E-06	5.80819E-06	5.80819E-06	5.80819E-06	5.80819E-06	5.80819E-06	5.80819E-06
NASTRAN	3.88865E-06	3.64691E-06	3.58097E-06	3.55646E-06	3.83017E-06	2.58119E-06	3.93076E-06	4.17896E-06
ROTATIONS AT	9	10	11	12	13	14	15	
KU	5.80819E-06	5.80819E-06	5.80819E-06	5.80819E-06	5.80819E-06	5.80819E-06	5.80819E-06	
NASTRAN	3.49286E-06	4.02581E-06	-7.47480E-06	2.58796E-06	6.99333E-06	2.62149E-06	3.07832E-06	

Table 19 (Continued)

KU= AND NASTRAN= ROTATIONAL INFLUENCE COEFFICIENTS FOR BUILT-UP WING 1
(ALL ROTATIONS ARE BASED ON A 1LB. LOAD)

LOAD AT POINT 13

ROTATIONS AT	1	2	3	4	5	6	7	8
KU	0.	0.	0.	0.	0.	0.	0.	0.
NASTRAN	3.63133E-08	-1.69869E-07	-1.79349E-17	1.69869E-07	-3.63133E-08	-2.62261E-07	-8.50349E-07	-7.88649E-18
ROTATIONS AT	9	10	11	12	13	14	15	
KU	0.	0.	0.	0.	0.	0.	0.	
NASTRAN	8.50349E-07	2.62261E-07	-1.62485E-06	-3.57159E-06	-2.83465E-18	3.57159E-06	1.62485E-06	

LOAD AT POINT 14

ROTATIONS AT	1	2	3	4	5	6	7	8
KU	-5.80819E-06	-5.80819E-06	-5.80819E-06	-5.80819E-06	-5.80819E-06	-5.80819E-06	-5.80819E-06	-5.80819E-06
NASTRAN	-3.83017E-06	-3.55646E-06	-3.58097E-06	-3.64691E-06	-3.88865E-06	-4.02581E-06	-3.49286E-06	-4.17896E-06
ROTATIONS AT	9	10	11	12	13	14	15	
KU	-5.80819E-06	-5.80819E-06	-5.80819E-06	-5.80819E-06	-5.80819E-06	-5.80819E-06	-5.80819E-06	
NASTRAN	-3.93076E-06	-2.58119E-06	-3.07832E-06	-2.62149E-06	-6.99333E-06	-2.58796E-06	7.47480E-06	

LOAD AT POINT 15

ROTATIONS AT	1	2	3	4	5	6	7	8
KU	-1.16164E-05	-1.16164E-05	-1.16164E-05	-1.16164E-05	-1.16164E-05	-1.16164E-05	-1.16164E-05	-1.16164E-05
NASTRAN	-7.36918E-06	-7.24456E-06	-7.31808E-06	-7.23151E-06	-6.70281E-06	-7.04324E-06	-7.05253E-06	-7.21936E-06
ROTATIONS AT	9	10	11	12	13	14	15	
KU	-1.16164E-05	-1.16164E-05	-1.16164E-05	-1.16164E-05	-1.16164E-05	-1.16164E-05	-1.16164E-05	
NASTRAN	-7.84368E-06	-8.79097E-06	-4.06894E-06	-4.19730E-06	-4.78986E-06	-9.79912E-06	-1.23486E-05	

R.M.S. OF DIFFERENCES = 2.95788E-07

MAXIMUM ERROR = 1.06946E-05

Table 20

EXPERIMENTAL- AND NASTRAN- DEFLECTION INFLUENCE COEFFICIENTS FOR BUILT-UP WING 2
(ALL DEFLECTIONS ARE BASED ON A 100LB. LOAD)

LOAD AT POINT 1

DEFL. AT	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
EXP.	.0854	.0863	.0987	.0917	.0968	.0423	.0475	.0502	.0532	.0575	.0128	.0156	.0172	.0190	.0215
NASTRAN	.0636	.0636	.0651	.0666	.0678	.0276	.0319	.0346	.0367	.0384	.0058	.0083	.0102	.0116	.0127

LOAD AT POINT 2

DEFL. AT	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
EXP.	.0863	.0999	.1117	.1207	.1319	.0374	.0505	.0582	.0676	.0781	.0090	.0135	.0189	.0231	.0294
NASTRAN	.0636	.0771	.0838	.0920	.0999	.0255	.0339	.0416	.0490	.0566	.0046	.0078	.0111	.0147	.0190

LOAD AT POINT 3

DEFL. AT	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
EXP.	.0897	.1117	.1360	.1541	.1715	.0353	.0527	.0674	.0835	.0997	.0066	.0135	.0209	.0272	.0377
NASTRAN	.0651	.0838	.1047	.1217	.1393	.0237	.0352	.0482	.0623	.0778	.0035	.0072	.0119	.0178	.0260

LOAD AT POINT 4

DEFL. AT	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
EXP.	.0917	.1207	.1541	.1923	.2215	.0332	.0548	.0760	.0994	.1254	.0044	.0130	.0230	.0319	.0479
NASTRAN	.0666	.0920	.1217	.1568	.1875	.0220	.0364	.0540	.0759	.1017	.0024	.0067	.0126	.0208	.0332

LOAD AT POINT 5

DEFL. AT	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
EXP.	.0968	.1319	.1715	.2215	.2776	.0323	.0582	.0839	.1139	.1514	.0022	.0123	.0235	.0355	.0565
NASTRAN	.0678	.0999	.1393	.1875	.2450	.0201	.0376	.0598	.0890	.1261	.0014	.0061	.0133	.0237	.0404

LOAD AT POINT 6

DEFL. AT	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
EXP.	.0423	.0374	.0353	.0332	.0323	.0339	.0288	.0232	.0215	.0209	.0147	.0129	.0108	.0093	.0082
NASTRAN	.0276	.0255	.0237	.0220	.0201	.0204	.0166	.0147	.0132	.0116	.0056	.0060	.0055	.0048	.0039

Table 20 (Continued)

EXPERIMENTAL- AND NASTRAN- DEFLECTION INFLUENCE COEFFICIENTS FOR BUILT-UP WING 2
(ALL DEFLECTIONS ARE BASED ON A 100LB. LOAD)

LOAD AT POINT 7

DEFL. AT	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
EXP.	.0475	.0505	.0527	.0549	.0582	.0288	.0354	.0328	.0337	.0359	.0100	.0126	.0135	.0139	.0153
NASTRAN	.0319	.0339	.0352	.0364	.0376	.0166	.0215	.0204	.0213	.0224	.0040	.0057	.0067	.0073	.0081

LOAD AT POINT 8

DEFL. AT	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
EXP.	.0502	.0582	.0674	.0760	.0839	.0232	.0328	.0422	.0462	.0519	.0055	.0096	.0151	.0175	.0222
NASTRAN	.0346	.0416	.0482	.0540	.0598	.0147	.0209	.0274	.0310	.0362	.0028	.0050	.0076	.0101	.0135

LOAD AT POINT 9

DEFL. AT	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
EXP.	.0532	.0676	.0835	.0994	.1139	.0215	.0337	.0462	.0627	.0744	.0039	.0088	.0154	.0218	.0318
NASTRAN	.0367	.0490	.0623	.0759	.0890	.0132	.0213	.0310	.0447	.0546	.0017	.0043	.0080	.0131	.0202

LOAD AT POINT 10

DEFL. AT	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
EXP.	.0575	.0781	.0997	.1254	.1514	.0209	.0359	.0519	.0744	.1007	.0018	.0083	.0160	.0248	.0409
NASTRAN	.0384	.0566	.0778	.1017	.1261	.0116	.0224	.0362	.0546	.0792	.0007	.0038	.0086	.0158	.0278

LOAD AT POINT 11

DEFL. AT	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
EXP.	.0128	.0090	.0066	.0044	.0022	.0147	.0100	.0055	.0039	.0018	.0177	.0096	.0046	.0025	.0008
NASTRAN	.0098	.0046	.0035	.0024	.0014	.0056	.0040	.0028	.0017	.0007	.0061	.0027	.0015	.0008	.0001

LOAD AT POINT 12

DEFL. AT	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
EXP.	.0156	.0135	.0135	.0130	.0123	.0129	.0126	.0096	.0088	.0083	.0096	.0117	.0071	.0049	.0040
NASTRAN	.0083	.0078	.0072	.0067	.0061	.0060	.0057	.0050	.0043	.0038	.0027	.0054	.0025	.0019	.0014

Table 20 (Continued)

EXPERIMENTAL- AND NASTRAN- DEFLECTION INFLUENCE COEFFICIENTS FOR BUILT-UP WING 2
(ALL DEFLECTIONS ARE BASED ON A 100LB. LOAD)

LOAD AT POINT 13

DEFL. AT	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
EXP.	.0172	.0189	.0209	.0230	.0235	.0108	.0135	.0151	.0154	.0160	.0046	.0071	.0108	.0085	.0081
NASTRAN	.0102	.0111	.0119	.0126	.0133	.0055	.0067	.0076	.0080	.0086	.0015	.0025	.0046	.0035	.0037

LOAD AT POINT 14

DEFL. AT	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
EXP.	.0190	.0231	.0272	.0319	.0355	.0093	.0139	.0175	.0218	.0248	.0025	.0049	.0085	.0137	.0143
NASTRAN	.0116	.0147	.0178	.0208	.0237	.0048	.0073	.0101	.0131	.0158	.0008	.0019	.0035	.0077	.0074

LOAD AT POINT 15

DEFL. AT	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
EXP.	.0215	.0294	.0377	.0479	.0565	.0082	.0153	.0222	.0318	.0409	.0008	.0040	.0081	.0143	.0257
NASTRAN	.0127	.0190	.0260	.0332	.0404	.0039	.0081	.0135	.0202	.0278	.0001	.0014	.0037	.0074	.0155

R.M.S. OF DIFFERENCES = 1.01217E-03

MAXIMUM ERROR = 3.36469E-02

Table 21

KU= AND NASTRAN= ROTATIONAL INFLUENCE COEFFICIENTS FOR BUILT=UP WING 2
(ALL ROTATIONS ARE BASED ON A 1LB. LOAD)

LOAD AT POINT 1

ROTATIONS AT	1	2	3	4	5	6	7	8
KU	-4.47816E-06	-4.47816E-06	-4.47816E-06	-4.47816E-06	-4.47816E-06	-7.48382E-06	-7.22260E-06	-6.18802E-06
NASTRAN	-4.36780E-06	1.74350E-06	-2.84517E-06	-2.79705E-06	-1.29764E-06	-9.86688E-06	-6.67318E-06	-4.21993E-06
ROTATIONS AT	9	10	11	12	13	14	15	
KU	-4.47816E-06	-4.47816E-06	-3.27010E-06	-4.57068E-06	-6.25292E-06	-7.25500E-06	-7.50007E-06	
NASTRAN	-3.48463E-06	-2.55542E-06	-4.96116E-06	-4.35271E-06	-3.01349E-06	-2.37424E-06	-7.36408E-07	

LOAD AT POINT 2

ROTATIONS AT	1	2	3	4	5	6	7	8
KU	-1.94068E-05	-1.81126E-05	-1.81126E-05	-1.81126E-05	-1.81126E-05	-1.73097E-05	-1.80656E-05	-1.90767E-05
NASTRAN	-2.58666E-05	-2.13302E-05	-1.03989E-05	-1.56740E-05	-1.40696E-05	-1.55973E-05	-1.51659E-05	-1.40558E-05
ROTATIONS AT	9	10	11	12	13	14	15	
KU	-1.92839E-05	-1.81126E-05	-4.75999E-06	-7.24229E-06	-1.09703E-05	-1.40181E-05	-1.52802E-05	
NASTRAN	-1.43319E-05	-1.42818E-05	-5.11846E-06	-6.55367E-06	-6.26487E-06	-7.35829E-06	-8.29664E-06	

LOAD AT POINT 3

ROTATIONS AT	1	2	3	4	5	6	7	8
KU	-3.43354E-05	-3.69684E-05	-3.72205E-05	-3.72205E-05	-3.72205E-05	-2.71356E-05	-2.89086E-05	-3.19655E-05
NASTRAN	-3.37273E-05	-3.71355E-05	-3.82017E-05	-3.07953E-05	-3.28031E-05	-1.94959E-05	-2.33503E-05	-2.54999E-05
ROTATIONS AT	9	10	11	12	13	14	15	
KU	-3.54152E-05	-3.69684E-05	-6.24989E-06	-9.91390E-06	-1.56876E-05	-2.07812E-05	-2.30604E-05	
NASTRAN	-2.81327E-05	-3.08487E-05	-5.02527E-06	-8.03977E-06	-9.72260E-06	-1.29613E-05	-1.77245E-05	

LOAD AT POINT 4

ROTATIONS AT	1	2	3	4	5	6	7	8
KU	-4.92641E-05	-5.58242E-05	-5.75661E-05	-5.75661E-05	-5.75661E-05	-3.69615E-05	-3.97516E-05	-4.48542E-05
NASTRAN	-4.45095E-05	-5.11039E-05	-6.10616E-05	-6.67856E-05	-5.40349E-05	-2.43430E-05	-2.98543E-05	-3.66986E-05
ROTATIONS AT	9	10	11	12	13	14	15	
KU	-5.15464E-05	-5.58242E-05	-7.73978E-06	-1.25855E-05	-2.04049E-05	-2.75442E-05	-3.08406E-05	
NASTRAN	-4.49666E-05	-5.24228E-05	-5.48273E-06	-9.33659E-06	-1.25380E-05	-1.92583E-05	-2.80424E-05	

Table 21 (Continued)

KU= AND NASTRAN= ROTATIONAL INFLUENCE COEFFICIENTS FOR BUILT-UP WING 2
(ALL ROTATIONS ARE BASED ON A 1LB. LOAD)

LOAD AT POINT 5

ROTATIONS AT	1	2	3	4	5	6	7	8
KU	-6.41927E-05	-7.46801E-05	-7.79118E-05	-7.79118E-05	-7.79118E-05	-4.67874E-05	-5.05945E-05	-5.77429E-05
NASTRAN	-5.52395E-05	-6.62788E-05	-8.19864E-05	-9.94549E-05	-1.17224E-04	-2.84430E-05	-3.71381E-05	-4.76766E-05
ROTATIONS AT	9	10	11	12	13	14	15	
KU	-6.76776E-05	-7.46801E-05	-9.22968E-06	-1.52571E-05	-2.51223E-05	-3.43073E-05	-3.86207E-05	
NASTRAN	-6.22898E-05	-7.82436E-05	-5.82513E-06	-1.10290E-05	-1.56697E-05	-2.48058E-05	-3.89529E-05	

LOAD AT POINT 6

ROTATIONS AT	1	2	3	4	5	6	7	8
KU	6.09053E-06	6.09053E-06	6.09053E-06	6.09053E-06	6.09053E-06	6.09053E-06	6.09053E-06	6.09053E-06
NASTRAN	7.54032E-06	1.10836E-06	3.07722E-06	3.54322E-06	3.61655E-06	6.61681E-06	6.82645E-06	2.91652E-06
ROTATIONS AT	9	10	11	12	13	14	15	
KU	6.09053E-06	6.09053E-06	-7.78376E-07	-4.97515E-07	5.37058E-07	2.25180E-06	3.35746E-06	
NASTRAN	2.89605E-06	3.11592E-06	-2.06016E-06	-1.63198E-07	1.17294E-06	1.53012E-06	3.27353E-06	

LOAD AT POINT 7

ROTATIONS AT	1	2	3	4	5	6	7	8
KU	-3.14051E-06	-3.14051E-06	-3.14051E-06	-3.14051E-06	-3.14051E-06	-3.73537E-06	-3.14051E-06	-3.14051E-06
NASTRAN	-6.55338E-06	-4.38194E-07	-3.93402E-06	-3.09013E-06	-1.07302E-06	-1.30403E-05	-3.04124E-06	2.59510E-06
ROTATIONS AT	9	10	11	12	13	14	15	
KU	-3.14051E-06	-3.14051E-06	-2.26827E-06	-3.16912E-06	-4.18028E-06	-4.51128E-06	-4.42270E-06	
NASTRAN	-2.47636E-06	-2.10175E-06	-1.88382E-06	-2.93687E-06	-1.16350E-06	-1.65698E-06	-5.69316E-07	

LOAD AT POINT 8

ROTATIONS AT	1	2	3	4	5	6	7	8
KU	-1.43236E-05	-1.43236E-05	-1.43236E-05	-1.43236E-05	-1.43236E-05	-1.35613E-05	-1.39835E-05	-1.43236E-05
NASTRAN	-1.32974E-05	-1.32520E-05	-1.03621E-05	-1.16304E-05	-1.15812E-05	-9.09101E-06	-1.32712E-05	-1.02450E-05
ROTATIONS AT	9	10	11	12	13	14	15	
KU	-1.43236E-05	-1.43236E-05	-3.75816E-06	-5.84073E-06	-8.89763E-06	-1.12744E-05	-1.22029E-05	
NASTRAN	-6.76358E-06	-1.13206E-05	-3.05527E-06	-4.54160E-06	-5.05201E-06	-5.24158E-06	-7.00057E-06	

Table 21 (Continued)

KU- AND NASTRAN- ROTATIONAL INFLUENCE COEFFICIENTS FOR BUILT-UP WING 2
(ALL ROTATIONS ARE BASED ON A 1LB. LOAD)

LOAD AT POINT 9

ROTATIONS AT	1	2	3	4	5	6	7	8
KU	-2.89131E-05	-2.95967E-05	-2.95967E-05	-2.95967E-05	-2.95967E-05	-2.33872E-05	-2.48265E-05	-2.72123E-05
NASTRAN	-2.25774E-05	-2.38006E-05	-2.65735E-05	-2.31894E-05	-2.61913E-05	-1.37003E-05	-1.59324E-05	-2.37568E-05
ROTATIONS AT	9	10	11	12	13	14	15	
KU	-2.95967E-05	-2.95967E-05	-5.24806E-06	-8.51234E-06	-1.36150E-05	-1.80374E-05	-1.99830E-05	
NASTRAN	-2.47005E-05	-1.52731E-05	-3.54489E-06	-5.79175E-06	-7.23359E-06	-1.16474E-05	-1.54902E-05	

LOAD AT POINT 10

ROTATIONS AT	1	2	3	4	5	6	7	8
KU	-4.38417E-05	-4.90771E-05	-4.90771E-05	-4.90771E-05	-4.90771E-05	-3.32131E-05	-3.56695E-05	-4.01010E-05
NASTRAN	-3.19788E-05	-3.69196E-05	-4.30886E-05	-4.73173E-05	-4.47177E-05	-1.74408E-05	-2.29217E-05	-2.92287E-05
ROTATIONS AT	9	10	11	12	13	14	15	
KU	-4.57280E-05	-4.90771E-05	-6.73795E-06	-1.11839E-05	-1.83323E-05	-2.48005E-05	-2.77632E-05	
NASTRAN	-4.05038E-05	-5.23965E-05	-3.49421E-06	-7.20531E-06	-1.06473E-05	-1.69226E-05	-2.86916E-05	

LOAD AT POINT 11

ROTATIONS AT	1	2	3	4	5	6	7	8
KU	1.71335E-06	1.71335E-06	1.71335E-06	1.71335E-06	1.71335E-06	1.71335E-06	1.71335E-06	1.71335E-06
NASTRAN	9.56511E-07	3.38524E-06	2.01604E-06	2.00239E-06	2.22236E-06	4.94037E-06	1.06310E-06	1.96914E-06
ROTATIONS AT	9	10	11	12	13	14	15	
KU	1.71335E-06	1.71335E-06	1.71335E-06	1.71335E-06	1.71335E-06	1.71335E-06	1.71335E-06	
NASTRAN	1.96607E-06	2.07422E-06	6.05044E-06	6.02020E-06	1.86993E-06	1.39170E-06	1.84020E-06	

LOAD AT POINT 12

ROTATIONS AT	1	2	3	4	5	6	7	8
KU	9.04046E-07	9.04046E-07	9.04046E-07	9.04046E-07	9.04046E-07	9.04046E-07	9.04046E-07	9.04046E-07
NASTRAN	-1.46167E-07	1.25644E-06	2.05291E-06	5.77098E-07	1.27621E-06	-4.30312E-07	2.08388E-06	1.06247E-07
ROTATIONS AT	9	10	11	12	13	14	15	
KU	9.04046E-07	9.04046E-07	2.23454E-07	9.04046E-07	9.04046E-07	9.04046E-07	9.04046E-07	
NASTRAN	9.28396E-07	1.31064E-06	-8.16830E-06	7.71006E-08	5.44711E-06	7.95772E-07	1.45321E-06	

Table 21 (Continued)

KU= AND NASTRAN= ROTATIONAL INFLUENCE COEFFICIENTS FOR BUILT-UP WING 2
(ALL ROTATIONS ARE BASED ON A 1LB. LOAD)

LOAD AT POINT 13

ROTATIONS AT	1	2	3	4	5	6	7	8
KU	-2.10764E-06	-2.10764E-06	-2.10764E-06	-2.10764E-06	-2.10764E-06	-2.10764E-06	-2.10764E-06	-2.10764E-06
NASTRAN	-1.91382E-06	-1.80027E-06	-1.36246E-06	-6.39902E-07	-1.56545E-06	-2.49322E-06	-2.20339E-06	-6.82339E-07
ROTATIONS AT	9	10	11	12	13	14	15	
KU	-2.10764E-06	-2.10764E-06	-1.26644E-06	-1.76756E-06	-2.10764E-06	-2.10764E-06	-2.10764E-06	
NASTRAN	-1.45254E-06	-1.51737E-06	-9.54309E-07	-4.06517E-06	-1.30001E-06	2.26023E-06	-3.10880E-07	

LOAD AT POINT 14

ROTATIONS AT	1	2	3	4	5	6	7	8
KU	-8.53064E-06	-8.53064E-06	-8.53064E-06	-8.53064E-06	-8.53064E-06	-8.53064E-06	-8.53064E-06	-8.53064E-06
NASTRAN	-5.81645E-06	-5.65005E-06	-6.08718E-06	-6.14393E-06	-3.52653E-06	-4.85864E-06	-4.85044E-06	-5.49052E-06
ROTATIONS AT	9	10	11	12	13	14	15	
KU	-8.53064E-06	-8.53064E-06	-2.75634E-06	-4.43917E-06	-6.82498E-06	-8.53064E-06	-8.53064E-06	
NASTRAN	-4.17262E-06	-8.17244E-06	-1.26566E-06	-1.96906E-06	-6.96069E-06	-5.27994E-06	4.17600E-06	

LOAD AT POINT 15

ROTATIONS AT	1	2	3	4	5	6	7	8
KU	-1.69057E-05	-1.69057E-05	-1.69057E-05	-1.69057E-05	-1.69057E-05	-1.69057E-05	-1.69057E-05	-1.69057E-05
NASTRAN	-1.12148E-05	-1.23957E-05	-1.34304E-05	-1.38335E-05	-1.27175E-05	-7.16116E-06	-9.14182E-06	-1.15494E-05
ROTATIONS AT	9	10	11	12	13	14	15	
KU	-1.69057E-05	-1.69057E-05	-4.24623E-06	-7.11077E-06	-1.15423E-05	-1.52937E-05	-1.69057E-05	
NASTRAN	-1.39397E-05	-1.37448E-05	-1.25197E-06	-3.13084E-06	-4.73471E-06	-1.18975E-05	-1.90929E-05	

R.M.S. OF DIFFERENCES = 3.89450E-07

MAXIMUM ERROR = 6.76366E-06

Table 22

EXPERIMENTAL- AND NASTRAN- DEFLECTION INFLUENCE COEFFICIENTS FOR BUILT-UP WING 3
(ALL DEFLECTIONS ARE BASED ON A 100LB. LOAD)

LOAD AT POINT 1

DEFL. AT	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
EXP.	.0461	.0463	.0472	.0489	.0527	.0231	.0251	.0272	.0295	.0317	.0078	.0095	.0104	.0109	.0124
NASTRAN	.0375	.0362	.0366	.0376	.0384	.0163	.0186	.0199	.0211	.0222	.0036	.0050	.0061	.0069	.0078

LOAD AT POINT 2

DEFL. AT	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
EXP.	.0463	.0543	.0588	.0640	.0712	.0208	.0272	.0326	.0363	.0424	.0065	.0093	.0115	.0132	.0165
NASTRAN	.0362	.0447	.0474	.0520	.0567	0148	.0198	.0241	.0283	.0328	.0027	.0047	.0067	.0088	.0115

LOAD AT POINT 3

DEFL. AT	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
EXP.	.0472	.0588	.0726	.0812	.0900	.0202	.0285	.0376	.0458	.0544	.0052	.0090	.0128	.0166	.0216
NASTRAN	.0366	.0474	.0600	.0691	.0791	.0136	.0204	.0281	.0362	.0451	.0019	.0043	.0072	.0108	.0157

LOAD AT POINT 4

DEFL. AT	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
EXP.	.0489	.0640	.0812	.0988	.1150	.0197	.0308	.0421	.0531	.0681	.0043	.0089	.0138	.0192	.0267
NASTRAN	.0376	.0520	.0691	.0901	.1065	.0125	.0212	.0315	.0442	.0588	.0012	.0040	.0077	.0127	.0201

LOAD AT POINT 5

DEFL. AT	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
EXP.	.0527	.0712	.0900	.1150	.1475	.0191	.0350	.0448	.0601	.0844	.0031	.0080	.0147	.0218	.0296
NASTRAN	.0384	.0567	.0791	.1065	.1400	.0114	.0220	.0350	.0518	.0730	.0004	.0036	.0082	.0145	.0244

LOAD AT POINT 6

DEFL. AT	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
EXP.	.0231	.0208	.0202	.0197	.0191	.0187	.0156	.0135	.0126	.0120	.0084	.0076	.0067	.0057	.0053
NASTRAN	.0163	.0148	.0136	.0125	.0114	.0137	.0104	.0088	.0078	.0068	.0039	.0039	.0035	.0030	.0025

Table 22 (Continued)

EXPERIMENTAL- AND NASTRAN- DEFLECTION INFLUENCE COEFFICIENTS FOR BUILT-UP WING 3
(ALL DEFLECTIONS ARE BASED ON A 100LB. LOAD)

LOAD AT POINT 7

DEFL. AT	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
EXP.	.0251	.0272	.0285	.0308	.0350	.0156	.0189	.0190	.0191	.0206	.0058	.0072	.0081	.0080	.0085
NASTRAN	.0186	.0198	.0204	.0212	.0220	.0104	.0138	.0125	.0127	.0135	.0026	.0038	.0043	.0047	.0052

LOAD AT POINT 8

DEFL. AT	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
EXP.	.0272	.0326	.0376	.0421	.0448	.0135	.0190	.0235	.0259	.0288	.0040	.0065	.0090	.0108	.0129
NASTRAN	.0199	.0241	.0281	.0315	.0350	.0088	.0125	.0170	.0188	.0218	.0017	.0031	.0049	.0065	.0085

LOAD AT POINT 9

DEFL. AT	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
EXP.	.0295	.0363	.0458	.0531	.0601	.0126	.0191	.0259	.0340	.0405	.0032	.0060	.0094	.0131	.0183
NASTRAN	.0211	.0283	.0362	.0442	.0518	.0078	.0127	.0188	.0276	.0327	.0009	.0027	.0051	.0084	.0127

LOAD AT POINT 10

DEFL. AT	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
EXP.	.0317	.0424	.0544	.0681	.0844	.0120	.0206	.0288	.0405	.0571	.0025	.0056	.0101	.0150	.0240
NASTRAN	.0222	.0328	.0451	.0588	.0730	.0068	.0135	.0218	.0327	.0479	.0002	.0023	.0055	.0100	.0172

LOAD AT POINT 11

DEFL. AT	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
EXP.	.0078	.0065	.0052	.0043	.0031	.0084	.0058	.0040	.0032	.0025	.0089	.0053	.0030	.0018	.0011
NASTRAN	.0036	.0027	.0019	.0012	.0004	.0039	.0026	.0017	.0009	.0002	.0052	.0022	.0010	.0005	.0000

LOAD AT POINT 12

DEFL. AT	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
EXP.	.0095	.0093	.0090	.0089	.0080	.0076	.0072	.0065	.0060	.0056	.0053	.0069	.0045	.0032	.0028
NASTRAN	.0050	.0047	.0043	.0040	.0036	.0039	.0038	.0031	.0027	.0023	.0022	.0042	.0019	.0013	.0010

Table 22 (Continued)

EXPERIMENTAL- AND NASTRAN- DEFLECTION INFLUENCE COEFFICIENTS FOR BUILT-UP WING 3
(ALL DEFLECTIONS ARE BASED ON A 100LB. LOAD)

LOAD AT POINT 13

DEFL. AT	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
EXP.	.0104	.0115	.0128	.0138	.0147	.0067	.0081	.0090	.0094	.0101	.0030	.0045	.0064	.0053	.0050
NASTRAN	.0061	.0067	.0072	.0077	.0082	.0035	.0043	.0049	.0051	.0055	.0010	.0019	.0035	.0026	.0025

LOAD AT POINT 14

DEFL. AT	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
EXP.	.0109	.0132	.0166	.0192	.0218	.0057	.0080	.0108	.0131	.0150	.0018	.0032	.0053	.0088	.0092
NASTRAN	.0069	.0088	.0108	.0127	.0145	.0030	.0047	.0065	.0084	.0100	.0005	.0013	.0026	.0058	.0052

LOAD AT POINT 15

DEFL. AT	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
EXP.	.0124	.0165	.0216	.0267	.0296	.0053	.0085	.0129	.0183	.0240	.0011	.0028	.0050	.0092	.0154
NASTRAN	.0078	.0115	.0157	.0201	.0244	.0025	.0052	.0085	.0127	.0172	.0000	.0010	.0025	.0052	.0110

R.M.S. OF DIFFERENCES = 4.50924E-04

MAXIMUM ERROR = 1.42625E-02

Table 23

KU- AND NASTRAN- ROTATIONAL INFLUENCE COEFFICIENTS FOR BUILT-UP WING 3
(ALL ROTATIONS ARE BASED ON A 1LB. LOAD)

LOAD AT POINT 1

ROTATIONS AT	1	2	3	4	5	6	7	8
KU	-1.31896E-06	-1.31896E-06	-1.31896E-06	-1.31896E-06	-1.31896E-06	-3.08756E-06	-2.89830E-06	-2.27153E-06
NASTRAN	-5.88390E-07	3.37729E-06	-1.47872E-06	-1.96391E-06	-1.09807E-06	-5.42448E-06	-3.42184E-06	-2.20064E-06
ROTATIONS AT	9	10	11	12	13	14	15	
KU	-1.31896E-06	-1.31896E-06	-1.55878E-06	-2.12263E-06	-2.80903E-06	-3.16667E-06	-3.22212E-06	
NASTRAN	-2.14736E-06	-1.91981E-06	-3.02132E-06	-2.47786E-06	-1.69478E-06	-1.54687E-06	-8.36256E-07	

LOAD AT POINT 2

ROTATIONS AT	1	2	3	4	5	6	7	8
KU	-9.02787E-06	-8.28327E-06	-8.28327E-06	-8.28327E-06	-8.28327E-06	-8.17240E-06	-8.50625E-06	-8.93164E-06
NASTRAN	-1.61884E-05	-1.28310E-05	-3.67792E-06	-9.25360E-06	-8.52245E-06	-9.38455E-06	-8.68902E-06	-7.88868E-06
ROTATIONS AT	9	10	11	12	13	14	15	
KU	-8.93126E-06	-8.28327E-06	-2.35015E-06	-3.52788E-06	-5.26644E-06	-6.67624E-06	-7.25481E-06	
NASTRAN	-8.34722E-06	-8.59647E-06	-3.28600E-06	-4.12535E-06	-3.67339E-06	-4.51562E-06	-5.21086E-06	

LOAD AT POINT 3

ROTATIONS AT	1	2	3	4	5	6	7	8
KU	-1.67368E-05	-1.80084E-05	-1.81283E-05	-1.81283E-05	-1.81283E-05	-1.32572E-05	-1.41142E-05	-1.55917E-05
NASTRAN	-1.93756E-05	-2.18310E-05	-2.24645E-05	-1.62950E-05	-1.87943E-05	-1.17627E-05	-1.38488E-05	-1.47088E-05
ROTATIONS AT	9	10	11	12	13	14	15	
KU	-1.72583E-05	-1.80084E-05	-3.14152E-06	-4.93314E-06	-7.72386E-06	-1.01858E-05	-1.12875E-05	
NASTRAN	-1.60424E-05	-1.77894E-05	-3.15762E-06	-5.22156E-06	-6.02389E-06	-7.78938E-06	-1.05656E-05	

LOAD AT POINT 4

ROTATIONS AT	1	2	3	4	5	6	7	8
KU	-2.44457E-05	-2.77336E-05	-2.86015E-05	-2.86015E-05	-2.86015E-05	-1.83421E-05	-1.97222E-05	-2.22519E-05
NASTRAN	-2.54409E-05	-2.91068E-05	-3.56376E-05	-3.94019E-05	-2.70431E-05	-1.50188E-05	-1.76285E-05	-2.12645E-05
ROTATIONS AT	9	10	11	12	13	14	15	
KU	-2.55853E-05	-2.77336E-05	-3.93289E-06	-6.33840E-06	-1.01813E-05	-1.36954E-05	-1.53202E-05	
NASTRAN	-2.56413E-05	-2.98394E-05	-3.60100E-06	-6.06784E-06	-7.93205E-06	-1.17585E-05	-1.62985E-05	

Table 23 (Continued)

KU- AND NASTRAN- ROTATIONAL INFLUENCE COEFFICIENTS FOR BUILT-UP WING 3
(ALL ROTATIONS ARE BASED ON A 1LB. LOAD)

LOAD AT POINT 5

ROTATIONS AT	1	2	3	4	5	6	7	8
KU	-3.21546E-05	-3.74587E-05	-3.90748E-05	-3.90748E-05	-3.90748E-05	-2.34269E-05	-2.53301E-05	-2.89120E-05
NASTRAN	-3.17239E-05	-3.76014E-05	-4.63980E-05	-5.70422E-05	-6.90056E-05	-1.76612E-05	-2.20993E-05	-2.76722E-05
ROTATIONS AT	9	10	11	12	13	14	15	
KU	-3.39123E-05	-3.74587E-05	-4.72426E-06	-7.74365E-06	-1.26387E-05	-1.72050E-05	-1.93529E-05	
NASTRAN	-3.55763E-05	-4.46584E-05	-3.98141E-06	-7.33751E-06	-9.81070E-06	-1.50028E-05	-2.28185E-05	

LOAD AT POINT 6

ROTATION AT	1	2	3	4	5	6	7	8
KU	3.53342E-06	3.53342E-06	3.53342E-06	3.53342E-06	3.53342E-06	3.53342E-06	3.53342E-06	3.53342E-06
NASTRAN	6.27258E-06	2.98698E-07	1.78291E-06	2.21745E-06	2.23038E-06	6.13207E-06	5.90620E-06	2.17607E-06
ROTATIONS AT	9	10	11	12	13	14	15	
KU	3.53342E-06	3.53342E-06	-3.03757E-07	-9.40324E-08	5.32738E-07	1.48827E-06	2.08569E-06	
NASTRAN	1.72788E-06	1.80191E-06	-1.07528E-06	1.82669E-07	9.17406E-07	9.37185E-07	1.88724E-06	

LOAD AT POINT 7

ROTATIONS AT	1	2	3	4	5	6	7	8
KU	-1.23240E-06	-1.23240E-06	-1.23240E-06	-1.23240E-06	-1.23240E-06	-1.55142E-06	-1.23240E-06	-1.23240E-06
NASTRAN	-4.20770E-06	2.46841E-07	-2.63769E-06	-2.26645E-06	-5.48689E-07	-9.61245E-06	-1.54527E-06	3.04675E-06
ROTATIONS AT	9	10	11	12	13	14	15	
KU	-1.23240E-06	-1.23240E-06	-1.09513E-06	-1.49929E-06	-1.92468E-06	-2.02131E-06	-1.94700E-06	
NASTRAN	-1.37533E-06	-1.76060E-06	-1.19018E-06	-1.97374E-06	-5.11650E-07	-1.12793E-06	-5.55563E-07	

LOAD AT POINT 8

ROTATIONS AT	1	2	3	4	5	6	7	8
KU	-7.00472E-06	-7.00472E-06	-7.00472E-06	-7.00472E-06	-7.00472E-06	-6.63626E-06	-6.84035E-06	-7.00472E-06
NASTRAN	-8.00204E-06	-8.02181E-06	-5.97129E-06	-7.09140E-06	-7.29530E-06	-5.79826E-06	-8.87319E-06	-6.17858E-06
ROTATIONS AT	9	10	11	12	13	14	15	
KU	-7.00472E-06	-7.00472E-06	-1.88650E-06	-2.90455E-06	-4.38209E-06	-5.53089E-06	-5.97968E-06	
NASTRAN	-3.17503E-06	-6.67531E-06	-1.88232E-06	-3.00420E-06	-3.34406E-06	-3.24931E-06	-4.30602E-06	

Table 23 (Continued)

KU- AND NASTRAN- ROTATIONAL INFLUENCE COEFFICIENTS FOR BUILT-UP WING 3
(ALL ROTATIONS ARE BASED ON A 1LB. LOAD)

LOAD AT POINT 9

ROTATIONS AT	1	2	3	4	5	6	7	8
KU	-1.45497E-05	-1.49171E-05	-1.49171E-05	-1.49171E-05	-1.49171E-05	-1.17211E-05	-1.24483E-05	-1.36648E-05
NASTRAN	-1.32551E-05	-1.39985E-05	-1.58097E-05	-1.30257E-05	-1.59584E-05	-8.39618E-06	-9.67144E-06	-1.55854E-05
ROTATIONS AT	9	10	11	12	13	14	15	
KU	-1.49171E-05	-1.49171E-05	-2.67786E-06	-4.30980E-06	-6.83951E-06	-9.04046E-06	-1.00124E-05	
NASTRAN	-1.50581E-05	-6.48548E-06	-2.58275E-06	-3.86653E-06	-4.58934E-06	-7.37266E-06	-9.06092E-06	

LOAD AT POINT 10

ROTATIONS AT	1	2	3	4	5	6	7	8
KU	-2.22586E-05	-2.50270E-05	-2.50270E-05	-2.50270E-05	-2.50270E-05	-1.68059E-05	-1.80562E-05	-2.03249E-05
NASTRAN	-1.87069E-05	-2.13202E-05	-2.48968E-05	-2.76352E-05	-2.54402E-05	-1.11141E-05	-1.38432E-05	-1.71952E-05
ROTATIONS AT	9	10	11	12	13	14	15	
KU	-2.32441E-05	-2.50270E-05	-3.46923E-06	-5.71506E-06	-9.29693E-06	-1.25500E-05	-1.40450E-05	
NASTRAN	-2.45888E-05	-3.29315E-05	-2.50158E-06	-4.98467E-06	-6.82638E-06	-1.02615E-05	-1.75072E-05	

LOAD AT POINT 11

ROTATIONS AT	1	2	3	4	5	6	7	8
KU	9.51269E-07	9.51269E-07	9.51269E-07	9.51269E-07	9.51269E-07	9.51269E-07	9.51269E-07	9.51269E-07
NASTRAN	4.10027E-07	2.64720E-06	1.53872E-06	1.38471E-06	1.60645E-06	4.35697E-06	6.02658E-07	1.27414E-06
ROTATIONS AT	9	10	11	12	13	14	15	
KU	9.51269E-07	9.51269E-07	9.51269E-07	9.51269E-07	9.51269E-07	9.51269E-07	9.51269E-07	
NASTRAN	1.42995E-06	1.47503E-06	5.24051E-06	5.40376E-06	1.69465E-06	9.95544E-07	1.25123E-06	

LOAD AT POINT 12

ROTATIONS AT	1	2	3	4	5	6	7	8
KU	5.29306E-07	5.29306E-07	5.29306E-07	5.29306E-07	5.29306E-07	5.29306E-07	5.29306E-07	5.29306E-07
NASTRAN	-4.53560E-07	9.49678E-07	1.52093E-06	3.72360E-07	7.80418E-07	-3.73262E-07	1.61656E-06	3.59740E-08
ROTATIONS AT	9	10	11	12	13	14	15	
KU	5.29306E-07	5.29306E-07	1.59900E-07	5.29306E-07	5.29306E-07	5.29306E-07	5.29306E-07	
NASTRAN	4.14054E-07	1.02080E-06	-6.35892E-06	1.46785E-07	4.62492E-06	7.74781E-07	7.25921E-07	

Table 23 (Continued)

KU= AND NASTRAN= ROTATIONAL INFLUENCE COEFFICIENTS FOR BUILT-UP WING 3
(ALL ROTATIONS ARE BASED ON A 1LB. LOAD)

LOAD AT POINT 13

ROTATIONS AT	1	2	3	4	5	6	7	8
KU	-1.04033E-06	-1.04033E-06	-1.04033E-06	-1.04033E-06	-1.04033E-06	-1.04033E-06	-1.04033E-06	-1.04033E-06
NASTRAN	-1.22764E-06	-1.23721E-06	-9.18767E-07	-3.04712E-07	-9.99444E-07	-1.73391E-06	-1.43773E-06	-2.92250E-07
ROTATIONS AT	9	10	11	12	13	14	15	
KU	-1.04033E-06	-1.04033E-06	-6.31469E-07	-8.75951E-07	-1.04033E-06	-1.04033E-06	-1.04033E-06	
NASTRAN	-9.76760E-07	-1.26741E-06	-9.31781E-07	-3.30700E-06	-9.32723E-07	2.07006E-06	2.05897E-07	

LOAD AT POINT 14

ROTATIONS AT	1	2	3	4	5	6	7	8
KU	-4.38553E-06	-4.38553E-06	-4.38553E-06	-4.38553E-06	-4.38553E-06	-4.38553E-06	-4.38553E-06	-4.38553E-06
NASTRAN	-3.53920E-06	-3.48503E-06	-3.94170E-06	-3.93253E-06	-1.71349E-06	-3.26728E-06	-3.13442E-06	-3.52787E-06
ROTATIONS AT	9	10	11	12	13	14	15	
KU	-4.38553E-06	-4.38553E-06	-1.42284E-06	-2.28121E-06	-3.49775E-06	-4.38553E-06	-4.38553E-06	
NASTRAN	-2.32709E-06	-5.45563E-06	-7.03867E-07	-1.52563E-06	-5.61139E-06	-3.78171E-06	4.30104E-06	

LOAD AT POINT 15

ROTATIONS AT	1	2	3	4	5	6	7	8
KU	-8.73724E-06	-8.73724E-06	-8.73724E-06	-8.73724E-06	-8.73724E-06	-8.73724E-06	-8.73724E-06	-8.73724E-06
NASTRAN	-6.75665E-06	-7.37815E-06	-7.97229E-06	-8.38985E-06	-7.44691E-06	-4.81546E-06	-5.75600E-06	-7.11835E-06
ROTATIONS AT	9	10	11	12	13	14	15	
KU	-8.73724E-06	-8.73724E-06	-2.21421E-06	-3.68647E-06	-5.95516E-06	-7.89510E-06	-8.73724E-06	
NASTRAN	-8.47132E-06	-8.11935E-06	-9.76227E-07	-2.20193E-06	-3.31133E-06	-8.73960E-06	-1.34731E-05	

R.M.S. OF DIFFERENCES = 2.26268E-07

MAXIMUM ERROR = 4.69625E-06

Table 24

EXPERIMENTAL- AND NASTRAN- DEFLECTION INFLUENCE COEFFICIENTS FOR BUILT-UP WING 4
(ALL DEFLECTIONS ARE BASED ON A 100LB. LOAD)

LOAD AT POINT 1

DEFL. AT	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
EXP.	.0407	.0327	.0246	.0170	.0116	.0256	.0191	.0144	.0093	.0061	.0110	.0086	.0050	.0032	.0010
NASTRAN	.0340	.0256	.0198	.0150	.0109	.0173	.0140	.0107	.0078	.0048	.0054	.0045	.0033	.0022	.0008

LOAD AT POINT 2

DEFL. AT	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
EXP.	.0327	.0309	.0270	.0208	.0168	.0188	.0194	.0157	.0116	.0092	.0080	.0074	.0052	.0043	.0028
NASTRAN	.0256	.0263	.0213	.0180	.0150	.0136	.0128	.0113	.0094	.0073	.0041	.0040	.0035	.0028	.0017

LOAD AT POINT 3

DEFL. AT	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
EXP.	.0246	.0270	.0274	.0252	.0229	.0141	.0150	.0162	.0139	.0128	.0049	.0054	.0036	.0052	.0045
NASTRAN	.0198	.0213	.0234	.0213	.0198	.0102	.0112	.0117	.0112	.0102	.0028	.0034	.0036	.0034	.0028

LOAD AT POINT 4

DEFL. AT	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
EXP.	.0170	.0208	.0252	.0294	.0308	.0097	.0119	.0146	.0176	.0180	.0028	.0040	.0050	.0066	.0070
NASTRAN	.0150	.0180	.0213	.0263	.0256	.0073	.0094	.0113	.0128	.0136	.0017	.0028	.0035	.0040	.0041

LOAD AT POINT 5

DEFL. AT	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
EXP.	.0116	.0168	.0209	.0308	.0387	.0065	.0092	.0132	.0180	.0240	.0014	.0030	.0046	.0075	.0100
NASTRAN	.0109	.0150	.0198	.0256	.0340	.0048	.0078	.0107	.0140	.0173	.0008	.0022	.0033	.0045	.0054

LOAD AT POINT 6

DEFL. AT	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
EXP.	.0256	.0188	.0141	.0097	.0065	.0202	.0152	.0087	.0054	.0030	.0104	.0068	.0033	.0020	.0004
NASTRAN	.0173	.0136	.0102	.0073	.0048	.0139	.0086	.0059	.0039	.0020	.0045	.0032	.0020	.0011	.0002

Table 24 (Continued)

EXPERIMENTAL- AND NASTRAN- DEFLECTION INFLUENCE COEFFICIENTS FOR BUILT-UP WING 4
(ALL DEFLECTIONS ARE BASED ON A 100LB. LOAD)

LOAD AT POINT 7

DEFL. AT	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
EXP.	.0191	.0194	.0150	.0119	.0092	.0152	.0155	.0098	.0068	.0054	.0064	.0066	.0039	.0028	.0014
NASTRAN	.0140	.0128	.0112	.0094	.0078	.0086	.0100	.0066	.0052	.0039	.0030	.0029	.0023	.0017	.0009

LOAD AT POINT 8

DEFL. AT	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
EXP.	.0144	.0157	.0162	.0146	.0132	.0087	.0098	.0122	.0095	.0085	.0034	.0040	.0046	.0041	.0034
NASTRAN	.0107	.0113	.0117	.0113	.0107	.0059	.0066	.0082	.0066	.0059	.0018	.0023	.0025	.0023	.0018

LOAD AT POINT 9

D FL. AT	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
EXP.	.0093	.0116	.0139	.0176	.0180	.0054	.0068	.0095	.0133	.0133	.0016	.0026	.0035	.0059	.0060
NASTRAN	.0078	.0094	.0112	.0128	.0140	.0039	.0052	.0066	.0100	.0086	.0009	.0017	.0023	.0029	.0030

LOAD AT POINT 10

DEFL. AT	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
EXP.	.0061	.0092	.0128	.0180	.0240	.0030	.0054	.0085	.0133	.0182	.0008	.0019	.0032	.0063	.0092
NASTRAN	.0048	.0073	.0102	.0136	.0173	.0020	.0039	.0059	.0086	.0139	.0002	.0011	.0020	.0032	.0045

LOAD AT POINT 11

DEFL. AT	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
EXP.	.0110	.0080	.0049	.0028	.0014	.0104	.0064	.0034	.0016	.0008	.0092	.0048	.0016	.0006	-.0002
NASTRAN	.0054	.0041	.0028	.0017	.0008	.0045	.0030	.0018	.0009	.0002	.0048	.0016	.0007	.0003	-.0001

LOAD AT POINT 12

DEFL. AT	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
EXP.	.0086	.0074	.0054	.0040	.0030	.0065	.0066	.0040	.0026	.0019	.0048	.0060	.0023	.0013	.0006
NASTRAN	.0045	.0040	.0034	.0028	.0022	.0032	.0029	.0023	.0017	.0011	.0016	.0036	.0011	.0006	.0003

Table 24 (Continued)

EXPERIMENTAL- AND NASTRAN- DEFLECTION INFLUENCE COEFFICIENTS FOR BUILT-UP WING 4
(ALL DEFLECTIONS ARE BASED ON A 100LB. LOAD)

LOAD AT POINT 13

DEFL. AT	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
EXP.	.0050	.0052	.0056	.0050	.0046	.0033	.0039	.0046	.0035	.0032	.0016	.0023	.0036	.0022	.0014
NASTRAN	.0033	.0035	.0036	.0035	.0033	.0020	.0023	.0025	.0023	.0020	.0007	.0011	.0023	.0011	.0007

LOAD AT POINT 14

DEFL. AT	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
EXP.	.0032	.0043	.0052	.0066	.0075	.0020	.0028	.0041	.0059	.0063	.0006	.0013	.0022	.0056	.0046
NASTRAN	.0022	.0028	.0034	.0040	.0045	.0011	.0017	.0023	.0029	.0032	.0003	.0006	.0011	.0036	.0016

LOAD AT POINT 15

DEFL. AT	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
EXP.	.0010	.0028	.0045	.0070	.0100	.0004	.0014	.0034	.0060	.0092	.0002	.0006	.0014	.0046	.0081
NASTRAN	.0008	.0017	.0028	.0041	.0054	.0002	.0009	.0018	.0030	.0045	-.0001	.0003	.0007	.0016	.0048

R.M.S. OF DIFFERENCES = 2.13327E-04

MAXIMUM ERROR = 6.30690E-03

Table 25

KU= AND NASTRAN= ROTATIONAL INFLUENCE COEFFICIENTS FOR BUILT=UP WING 4
(ALL ROTATIONS ARE BASED ON A 1LB. LOAD)

LOAD AT POINT 1

ROTATIONS AT	1	2	3	4	5	6	7	8
KU	1.74246E-05	1.74246E-05	1.74246E-05	1.74246E-05	1.74246E-05	1.16164E-05	1.16164E-05	1.16164E-05
NASTRAN	2.31340E-05	1.95267E-05	1.35458E-05	1.15392E-05	1.08567E-05	8.82154E-06	9.05185E-06	8.05109E-06
ROTATIONS AT	9	10	11	12	13	14	15	
KU	1.16164E-05	1.16164E-05	5.80819E-06	5.80819E-06	5.80819E-06	5.80819E-06	5.80819E-06	
NASTRAN	7.61782E-06	8.09413E-06	1.13004E-06	3.38759E-06	3.14142E-06	3.47203E-06	4.33200E-06	

LOAD AT POINT 2

ROTATIONS AT	1	2	3	4	5	6	7	8
KU	8.71229E-06	8.71229E-06	8.71229E-06	8.71229E-06	8.71229E-06	5.80819E-06	5.80819E-06	5.80819E-06
NASTRAN	-6.09825E-06	6.93675E-06	1.28559E-05	7.59958E-06	8.32238E-06	2.72388E-07	3.45832E-06	4.99617E-06
ROTATIONS AT	9	10	11	12	13	14	15	
KU	5.80819E-06	5.80819E-06	2.90410E-06	2.90410E-06	2.90410E-06	2.90410E-06	2.90410E-06	
NASTRAN	4.77755E-06	6.31073E-06	-1.24392E-06	9.44371E-07	1.79871E-06	2.29323E-06	3.72299E-06	

LOAD AT POINT 3

ROTATIONS AT	1	2	3	4	5	6	7	8
KU	0.	0.	0.	0.	0.	0.	0.	0.
NASTRAN	-3.73900E-06	-6.24910E-06	3.46945E-18	6.24910E-06	3.73900E-06	-2.80619E-06	-2.40276E-06	4.12431E-18
ROTATIONS AT	9	10	11	12	13	14	15	
KU	0.	0.	0.	0.	0.	0.	0.	
NASTRAN	2.40276E-06	2.80619E-06	-2.53068E-06	-1.06461E-06	4.93041E-19	1.06461E-06	2.53068E-06	

LOAD AT POINT 4

ROTATIONS AT	1	2	3	4	5	6	7	8
KU	-8.71229E-06	-8.71229E-06	-8.71229E-06	-8.71229E-06	-8.71229E-06	-5.80819E-06	-5.80819E-06	-5.80819E-06
NASTRAN	-8.32238E-06	-7.59958E-06	-1.28559E-05	-6.93675E-06	6.09825E-06	-6.31073E-06	-4.77755E-06	-4.99617E-06
ROTATIONS AT	9	10	11	12	13	14	15	
KU	-5.80819E-06	-5.80819E-06	-2.90410E-06	-2.90410E-06	-2.90410E-06	-2.90410E-06	-2.90410E-06	
NASTRAN	-3.45832E-06	-2.72388E-07	-3.72299E-06	-2.29323E-06	-1.79871E-06	-9.44371E-07	1.24392E-06	

Table 25 (Continued)

KU= AND NASTRAN= ROTATIONAL INFLUENCE COEFFICIENTS FOR BUILT=UP WING 4
(ALL ROTATIONS ARE BASED ON A 1LB. LOAD)

LOAD AT POINT 5

ROTATIONS AT	1	2	3	4	5	6	7	8
KU	-1.74246E-05	-1.74246E-05	-1.74246E-05	-1.74246E-05	-1.74246E-05	-1.16164E-05	-1.16164E-05	-1.16164E-05
NASTRAN	-1.08567E-05	-1.15392E-05	-1.35458E-05	-1.95267E-05	-2.31840E-05	-8.09413E-06	-7.61782E-06	-8.05109E-06
ROTATIONS AT	9	10	11	12	13	14	15	
KU	-1.16164E-05	-1.16164E-05	-5.80819E-06	-5.80819E-06	-5.80819E-06	-5.80819E-06	-5.80819E-06	
NASTRAN	-9.05185E-06	-8.82154E-06	-4.33200E-06	-3.47203E-06	-3.14142E-06	-3.38759E-06	-1.13004E-06	

LOAD AT POINT 6

ROTATIONS AT	1	2	3	4	5	6	7	8
KU	1.16164E-05	1.16164E-05	1.16164E-05	1.16164E-05	1.16164E-05	1.16164E-05	1.16164E-05	1.16164E-05
NASTRAN	1.13252E-05	8.81725E-06	8.07256E-06	7.13158E-06	6.58887E-06	1.55226E-05	1.08542E-05	5.68445E-06
ROTATIONS AT	9	10	11	12	13	14	15	
KU	1.16164E-05	1.16164E-05	5.80819E-06	5.80819E-06	5.80819E-06	5.80819E-06	5.80819E-06	
NASTRAN	5.03051E-06	5.13710E-06	3.37545E-06	3.16613E-06	2.72240E-06	2.47521E-06	2.72593E-06	

LOAD AT POINT 7

ROTATIONS AT	1	2	3	4	5	6	7	8
KU	5.80819E-06	5.80819E-06	5.80819E-06	5.80819E-06	5.80819E-06	5.80819E-06	5.80819E-06	5.80819E-06
NASTRAN	1.89961E-06	4.04365E-06	4.77813E-06	3.92888E-06	5.08049E-06	-7.41026E-06	3.85407E-06	8.01956E-06
ROTATIONS AT	9	10	11	12	13	14	15	
KU	5.80819E-06	5.80819E-06	2.90410E-06	2.90410E-06	2.90410E-06	2.90410E-06	2.90410E-06	
NASTRAN	2.79137E-06	3.91969E-06	-4.94134E-07	1.36394E-06	1.65458E-06	1.52438E-06	2.51383E-06	

LOAD AT POINT 8

ROTATIONS AT	1	2	3	4	5	6	7	8
KU	0.	0.	0.	0.	0.	0.	0.	0.
NASTRAN	-9.91624E-07	-1.80251E-06	1.25767E-18	1.80251E-06	9.91624E-07	-1.22595E-06	-4.23280E-06	2.18358E-18
ROTATIONS AT	9	10	11	12	13	14	15	
KU	0.	0.	0.	0.	0.	0.	0.	
NASTRAN	4.23280E-06	1.22595E-06	-1.40494E-06	-1.03355E-06	5.25025E-19	1.03355E-06	1.40494E-06	

Table 25 (Continued)

KU- AND NASTRAN- ROTATIONAL INFLUENCE COEFFICIENTS FOR BUILT-UP WING 4
(ALL ROTATIONS ARE BASED ON A 1LB. LOAD)

LOAD AT POINT 9

ROTATIONS AT	1	2	3	4	5	6	7	8
KU	-5.80819E-06	-5.80819E-06	-5.80819E-06	-5.80819E-06	-5.80819E-06	-5.80819E-06	-5.80819E-06	-5.80819E-06
NASTRAN	-5.08049E-06	-3.92888E-06	-4.77813E-06	-4.04365E-06	-1.89961E-06	-3.91969E-06	-2.79137E-06	-8.01956E-06
ROTATIONS AT	9	10	11	12	13	14	15	
KU	-5.80819E-06	-5.80819E-06	-2.90410E-06	-2.90410E-06	-2.90410E-06	-2.90410E-06	-2.90410E-06	
NASTRAN	-3.85407E-06	7.41026E-06	-2.51383E-06	-1.52438E-06	-1.65458E-06	-1.36394E-06	4.94134E-07	

LOAD AT POINT 10

ROTATIONS AT	1	2	3	4	5	6	7	8
KU	-1.16164E-05	-1.16164E-05	-1.16164E-05	-1.16164E-05	-1.16164E-05	-1.16164E-05	-1.16164E-05	-1.16164E-05
NASTRAN	-6.58887E-06	-7.13158E-06	-8.07256E-06	-8.81725E-06	-1.13252E-05	-5.13710E-06	-5.03051E-06	-5.68445E-06
ROTATIONS AT	9	10	11	12	13	14	15	
KU	-1.16164E-05	-1.16164E-05	-5.80819E-06	-5.80819E-06	-5.80819E-06	-5.80819E-06	-5.80819E-06	
NASTRAN	-1.08542E-05	-1.55226E-05	-2.72593E-06	-2.47521E-06	-2.72240E-06	-3.16613E-06	-3.37545E-06	

LOAD AT POINT 11

ROTATIONS AT	1	2	3	4	5	6	7	8
KU	5.80819E-06	5.80819E-06	5.80819E-06	5.80819E-06	5.80819E-06	5.80819E-06	5.80819E-06	5.80819E-06
NASTRAN	3.30558E-06	4.06381E-06	3.10436E-06	2.69557E-06	2.48525E-06	4.66037E-06	2.99322E-06	2.48969E-06
ROTATIONS AT	9	10	11	12	13	14	15	
KU	5.80819E-06	5.80819E-06	5.80819E-06	5.80819E-06	5.80819E-06	5.80819E-06	5.80819E-06	
NASTRAN	2.16148E-06	2.00918E-06	9.29808E-06	6.59184E-06	1.13720E-06	1.17567E-06	1.01870E-06	

LOAD AT POINT 12

ROTATIONS AT	1	2	3	4	5	6	7	8
KU	2.90410E-06	2.90410E-06	2.90410E-06	2.90410E-06	2.90410E-06	2.90410E-06	2.90410E-06	2.90410E-06
NASTRAN	3.91706E-07	1.35106E-06	2.05874E-06	1.54386E-06	1.81406E-06	7.89533E-07	1.49611E-06	1.51482E-06
ROTATIONS AT	9	10	11	12	13	14	15	
KU	2.90410E-06	2.90410E-06	2.90410E-06	2.90410E-06	2.90410E-06	2.90410E-06	2.90410E-06	
NASTRAN	1.14072E-06	1.74538E-06	-9.98553E-06	1.93539E-06	6.02736E-06	1.95753E-07	1.27968E-06	

Table 25 (Continued)

KU- AND NASTRAN- ROTATIONAL INFLUENCE COEFFICIENTS FOR BUILT-UP WING 4
(ALL ROTATIONS ARE BASED ON A 1LB. LOAD)

LOAD AT POINT 13

ROTATIONS AT	1	2	3	4	5	6	7	8
KU	0.	0.	0.	0.	0.	0.	0.	0.
NASTRAN	-3.89271E-07	-6.65798E-07	4.35849E-19	6.65798E-07	3.89271E-07	-3.48091E-07	-7.72411E-07	5.65954E-19
ROTATIONS AT	9	10	11	12	13	14	15	
KU	0.	0.	0.	0.	0.	0.	0.	
NASTRAN	7.72411E-07	3.48091E-07	-2.35768E-07	-3.54293E-06	2.95445E-19	3.54293E-06	2.35768E-07	

LOAD AT POINT 14

ROTATIONS AT	1	2	3	4	5	6	7	8
KU	-2.90410E-06	-2.90410E-06	-2.90410E-06	-2.90410E-06	-2.90410E-06	-2.90410E-06	-2.90410E-06	-2.90410E-06
NASTRAN	-1.81406E-06	-1.54386E-06	-2.05874E-06	-1.35106E-06	-3.91706E-07	-1.74538E-06	-1.14072E-06	-1.51482E-06
ROTATIONS AT	9	10	11	12	13	14	15	
KU	-2.90410E-06	-2.90410E-06	-2.90410E-06	-2.90410E-06	-2.90410E-06	-2.90410E-06	-2.90410E-06	
NASTRAN	-1.49611E-06	-7.89533E-07	-1.27968E-06	-1.95753E-07	-6.02736E-06	-1.93539E-06	9.98553E-06	

LOAD AT POINT 15

ROTATIONS AT	1	2	3	4	5	6	7	8
KU	-5.80819E-06	-5.80819E-06	-5.80819E-06	-5.80819E-06	-5.80819E-06	-5.80819E-06	-5.80819E-06	-5.80819E-06
NASTRAN	-2.48525E-06	-2.69557E-06	-3.10436E-06	-4.06381E-06	-3.30558E-06	-2.00918E-06	-2.16148E-06	-2.48969E-06
ROTATIONS AT	9	10	11	12	13	14	15	
KU	-5.80819E-06	-5.80819E-06	-5.80819E-06	-5.80819E-06	-5.80819E-06	-5.80819E-06	-5.80819E-06	
NASTRAN	-2.99322E-06	-4.66037E-06	-1.01870E-06	-1.17567E-06	-1.13720E-06	-6.59184E-06	-9.29808E-06	

R.M.S. OF DIFFERENCES = 2.43809E-07

MAXIMUM ERROR = 6.56790E-06

Table 26

EXPERIMENTAL- AND NASTRAN- DEFLECTION INFLUENCE COEFFICIENTS FOR BUILT-UP WING 5
(ALL DEFLECTIONS ARE BASED ON A 100LB. LOAD)

LOAD AT POINT 1

DEFL. AT	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
EXP.	.1499	.1555	.1586	.1533	.1554	.0891	.0927	.0884	.0914	.0914	.0284	.0368	.0349	.0342	.0389
NASTRAN	.1099	.1079	.1072	.1066	.1058	.0517	.0550	.0567	.0575	.0575	.0125	.0150	.0165	.0174	.0173

LOAD AT POINT 2

DEFL. AT	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
EXP.	.1555	.1742	.1852	.1884	.1976	.0881	.1009	.1033	.1130	.1184	.0262	.0416	.0416	.0442	.0507
NASTRAN	.1079	.1181	.1218	.1266	.1311	.0490	.0562	.0621	.0672	.0718	.0110	.0145	.0174	.0200	.0223

LOAD AT POINT 3

DEFL. AT	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
EXP.	.1586	.1852	.2071	.2184	.2290	.0839	.1046	.1118	.1270	.1345	.0240	.0414	.0446	.0486	.0568
NASTRAN	.1072	.1218	.1371	.1479	.1592	.0464	.0569	.0672	.0771	.0871	.0096	.0139	.0182	.0226	.0274

LOAD AT POINT 4

DEFL. AT	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
EXP.	.1533	.1884	.2184	.2511	.2802	.0804	.1062	.1170	.1445	.1620	.0209	.0414	.0488	.0569	.0718
NASTRAN	.1066	.1266	.1479	.1721	.1909	.0439	.0574	.0715	.0869	.1031	.0081	.0134	.0189	.0251	.0325

LOAD AT POINT 5

DEFL. AT	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
EXP.	.1554	.1976	.2290	.2802	.3330	.0810	.1106	.1226	.1584	.1880	.0198	.0424	.0517	.0622	.0840
NASTRAN	.1058	.1311	.1592	.1909	.2273	.0414	.0579	.0759	.0962	.1193	.0067	.0128	.0195	.0275	.0376

LOAD AT POINT 6

DEFL. AT	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
EXP.	.0891	.0881	.0839	.0804	.0810	.0680	.0642	.0545	.0518	.0494	.0279	.0304	.0248	.0218	.0222
NASTRAN	.0517	.0490	.0464	.0439	.0414	.0339	.0297	.0273	.0252	.0230	.0097	.0099	.0092	.0084	.0070

Table 26 (Continued)

EXPERIMENTAL- AND NASTRAN- DEFLECTION INFLUENCE COEFFICIENTS FOR BUILT-UP WING 5
(ALL DEFLECTIONS ARE BASED ON A 100LB. LOAD)

LOAD AT POINT 7

DEFL. AT	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
EXP.	.0927	.1009	.1046	.1062	.1106	.0642	.0712	.0672	.0680	.0696	.0219	.0336	.0310	.0288	.0328
NASTRAN	.0550	.0562	.0569	.0574	.0579	.0297	.0339	.0325	.0328	.0333	.0080	.0096	.0103	.0108	.0110

LOAD AT POINT 8

DEFL. AT	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
EXP.	.0884	.1033	.1118	.1170	.1226	.0545	.0672	.0729	.0744	.0748	.0159	.0293	.0335	.0314	.0364
NASTRAN	.0567	.0621	.0672	.0715	.0759	.0273	.0325	.0384	.0411	.0448	.0064	.0089	.0113	.0133	.0155

LOAD AT POINT 9

DEFL. AT	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
EXP.	.0914	.1130	.1270	.1445	.1584	.0518	.0680	.0744	.1005	.0992	.0136	.0291	.0354	.0397	.0496
NASTRAN	.0575	.0672	.0771	.0869	.0962	.0252	.0328	.0411	.0520	.0584	.0050	.0082	.0117	.0159	.0207

LOAD AT POINT 10

DEFL. AT	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
EXP.	.0914	.1184	.1345	.1620	.1882	.0494	.0696	.0748	.0992	.1267	.0118	.0288	.0364	.0427	.0604
NASTRAN	.0575	.0718	.0871	.1031	.1193	.0230	.0333	.0448	.0584	.0759	.0036	.0076	.0123	.0182	.0261

LOAD AT POINT 11

DEFL. AT	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
EXP.	.0284	.0262	.0240	.0209	.0198	.0279	.0219	.0159	.0136	.0118	.0226	.0171	.0094	.0066	.0054
NASTRAN	.0125	.0110	.0096	.0081	.0067	.0097	.0080	.0064	.0050	.0036	.0076	.0041	.0027	.0019	.0009

LOAD AT POINT 12

DEFL. AT	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
EXP.	.0368	.0416	.0614	.0414	.0424	.0304	.0336	.0293	.0291	.0288	.0171	.0269	.0190	.0148	.0151
NASTRAN	.0150	.0145	.0139	.0134	.0128	.0099	.0096	.0089	.0082	.0076	.0041	.0065	.0038	.0031	.0026

Table 26 (Continued)

EXPERIMENTAL- AND NASTRAN- DEFLECTION INFLUENCE COEFFICIENTS FOR BUILT-UP WING 5
(ALL DEFLECTIONS ARE BASED ON A 100LB. LOAD)

LOAD AT POINT 13

DEFL. AT	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
EXP.	.0349	.0416	.0466	.0488	.0517	.0248	.0310	.0335	.0354	.0364	.0094	.0190	.0253	.0200	.0206
NASTRAN	.0165	.0174	.0182	.0189	.0195	.0092	.0103	.0113	.0117	.0123	.0027	.0038	.0057	.0047	.0048

LOAD AT POINT 14

DEFL. AT	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
EXP.	.0342	.0442	.0486	.0569	.0622	.0218	.0288	.0314	.0397	.0427	.0066	.0148	.0200	.0253	.0282
NASTRAN	.0174	.0200	.0226	.0251	.0275	.0084	.0108	.0133	.0159	.0182	.0019	.0031	.0047	.0087	.0081

LOAD AT POINT 15

DEFL. AT	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
EXP.	.0389	.0507	.0568	.0718	.0840	.0222	.0328	.0364	.0496	.0604	.0054	.0151	.0206	.0282	.0407
NASTRAN	.0173	.0223	.0274	.0325	.0376	.0076	.0110	.0155	.0207	.0261	.0009	.0026	.0048	.0081	.0147

R.M.S. OF DIFFERENCES = 2.46414E-03

MAXIMUM ERROR = 5.13620E-02

Table 27

KU= AND NASTRAN= ROTATIONAL INFLUENCE COEFFICIENTS FOR BUILT=UP WING 5
(ALL ROTATIONS ARE BASED ON A 1LB. LOAD)

LOAD AT POINT 1

ROTATIONS AT	1	2	3	4	5	6	7	8
KU	.14545E=05	.14545E=05	.14545E=05	.14545E=05	.14545E=05	=.47675E=05	=.40693E=05	=.30158E=05
NASTRAN	.37013E=06	.50428E=05	.17616E=05	.16249E=05	.27431E=05	=.97316E=05	=.58186E=05	=.2874EE=05
ROTATIONS AT	9	10	11	12	13	14	15	
KU	=.15985E=05	.17105E=06	=.33140E=05	=.42800E=05	=.48840E=05	=.51310E=05	=.50190E=05	
NASTRAN	=.10326E=05	.10257E=05	=.70230E=05	=.49336E=05	=.26020E=05	=.72278E=06	.23102E=05	

LOAD AT POINT 2

ROTATIONS AT	1	2	3	4	5	6	7	8
KU	=.14841E=04	=.13472E=04	=.13472E=04	=.13472E=04	=.13472E=04	=.14372E=04	=.15125E=04	=.15516E=04
NASTRAN	=.25034E=04	=.17644E=04	=.72589E=05	=.10658E=04	=.95879E=05	=.17742E=04	=.14985E=04	=.12457E=04
ROTATIONS AT	9	10	11	12	13	14	15	
KU	=.15550E=04	=.15225E=04	=.62267E=05	=.86436E=05	=.10693E=04	=.12391E=04	=.13724E=04	
NASTRAN	=.11586E=04	=.10080E=04	=.81027E=05	=.77516E=05	=.61662E=05	=.54515E=05	=.37452E=05	

LOAD AT POINT 3

ROTATIONS AT	1	2	3	4	5	6	7	8
KU	=.31137E=04	=.31786E=04	=.31838E=04	=.31838E=04	=.31838E=04	=.23976E=04	=.26180E=04	=.26016E=04
NASTRAN	=.34006E=04	=.33965E=04	=.31787E=04	=.24295E=04	=.25154E=04	=.23586E=04	=.24239E=04	=.23334E=04
ROTATIONS AT	9	10	11	12	13	14	15	
KU	=.29501E=04	=.30621E=04	=.91395E=05	=.13007E=04	=.16501E=04	=.19650E=04	=.22428E=04	
NASTRAN	=.23037E=04	=.23605E=04	=.91851E=05	=.10208E=04	=.98149E=05	=.10343E=04	=.10506E=04	

LOAD AT POINT 4

ROTATIONS AT	1	2	3	4	5	6	7	8
KU	=.47633E=04	=.50099E=04	=.50881E=04	=.50881E=04	=.50881E=04	=.33581E=04	=.37235E=04	=.40517E=04
NASTRAN	=.45741E=04	=.47009E=04	=.51967E=04	=.52731E=04	=.40538E=04	=.30319E=04	=.31519E=04	=.33913E=04
ROTATIONS AT	9	10	11	12	13	14	15	
KU	=.43452E=04	=.46018E=04	=.12052E=04	=.17371E=04	=.22310E=04	=.26910E=04	=.31133E=04	
NASTRAN	=.36712E=04	=.38761E=04	=.10542E=04	=.12467E=04	=.13194E=04	=.15554E=04	=.17430E=04	

Table 27 (Continued)

KU- AND NASTRAN- ROTATIONAL INFLUENCE COEFFICIENTS FOR BUILT-UP WING 5
(ALL ROTATIONS ARE BASED ON A 1LB. LOAD)

LOAD AT POINT 5

ROTATIONS AT	1	2	3	4	5	6	7	8
KU	-.63729E-04	-.68413E-04	-.69923E-04	-.69923E-04	-.69923E-04	-.63185E-04	-.48290E-0	-.53017E-04
NASTRAN	-.57161E-04	-.60805E-04	-.68167E-04	-.77868E-04	-.88428E-04	-.36409E-04	-.39734E-04	-.43877E-04
ROTATIONS AT	9	10	11	12	13	14	15	
KU	-.57403E-04	-.61414E-04	-.14965E-04	-.21734E-04	-.28119E-04	-.34169E-04	-.39837E-04	
NASTRAN	-.50229E-04	-.56908E-04	-.11803E-04	-.14942E-04	-.16571E-04	-.20476E-04	-.24689E-04	

LOAD AT POINT 6

ROTATIONS AT	1	2	3	4	5	6	7	8
KU	.63776E-05	.63776E-05	.63776E-05	.63776E-05	.63776E-05	.63776E-05	.63776E-05	.63776E-05
NASTRAN	.94055E-05	.47271E-05	.51969E-05	.59283E-05	.59879E-05	.96914E-05	.87648E-05	.51295E-05
ROTATIONS AT	9	10	11	12	13	14	15	
KU	.63776E-05	.63776E-05	.15553E-06	.85379E-06	.19073E-05	.33245E-05	.50941E-05	
NASTRAN	.50284E-05	.54178E-05	-.18428E-05	.23534E-06	.17107E-05	.26987E-05	.48400E-05	

LOAD AT POINT 7

ROTATIONS AT	1	2	3	4	5	6	7	8
KU	-.23151E-05	-.23151E-05	-.23151E-05	-.23151E-05	-.23151E-05	-.32268E-05	-.23151E-05	-.23151E-05
NASTRAN	-.58448E-05	-.54880E-07	-.16852E-05	-.24880E-05	-.49339E-06	-.13375E-04	-.25707E-05	.20547E-05
ROTATIONS AT	9	10	11	12	13	14	15	
KU	-.23151E-05	-.23151E-05	-.27572E-05	-.35098E-05	-.39014E-05	-.39350E-05	-.36105E-05	
NASTRAN	-.13862E-05	-.79729E-06	-.36627E-05	-.27751E-05	-.93219E-06	-.97172E-06	.72489E-06	

LOAD AT POINT 8

ROTATIONS AT	1	2	3	4	5	6	7	8
KU	-.13549E-04	-.13549E-04	-.13549E-04	-.13549E-04	-.13549E-04	-.12831E-04	-.13370E-04	-.13549E-04
NASTRAN	-.12874E-04	-.12703E-04	-.98568E-05	-.98166E-05	-.11123E-04	-.11298E-04	-.13978E-04	-.10052E-04
ROTATIONS AT	9	10	11	12	13	14	15	
KU	-.13549E-04	-.13549E-04	-.56700E-05	-.78735E-05	-.97100E-05	-.11195E-04	-.12315E-04	
NASTRAN	-.62333E-05	-.95131E-05	-.49373E-05	-.57931E-05	-.51550E-05	-.44717E-05	-.48572E-05	

Table 27 (Continued)

KU= AND NASTRAN= ROTATIONAL INFLUENCE COEFFICIENTS FOR BUILT-UP WING 5
(ALL ROTATIONS ARE BASED ON A 1LB. LOAD)

LOAD AT POINT 9

ROTATIONS AT	1	2	3	4	5	6	7	8
KU	-.27321E-04	-.27321E-04	-.27321E-04	-.27321E-04	-.27321E-04	-.22435E-04	-.24426E-04	-.26050E-04
NASTRAN	-.23065E-04	-.22143E-04	-.23698E-04	-.20739E-04	-.21008E-04	-.17243E-04	-.17836E-04	-.23742E-04
ROTATIONS AT	9	10	11	12	13	14	15	
KU	-.27321E-04	-.27321E-04	-.85827E-05	-.12237E-04	-.15519E-04	-.18454E-04	-.21020E-04	
NASTRAN	-.21711E-04	-.11852E-04	-.65538E-05	-.75251E-05	-.82791E-05	-.10508E-04	-.10814E-04	

LOAD AT POINT 10

ROTATIONS AT	1	2	3	4	5	6	7	8
KU	-.43625E-04	-.43625E-04	-.43625E-04	-.43625E-04	-.43625E-04	-.32040E-04	-.35481E-04	-.38550E-04
NASTRAN	-.32959E-04	-.33923E-04	-.36304E-04	-.38514E-04	-.37174E-04	-.22495E-04	-.25098E-04	-.28447E-04
ROTATIONS AT	9	10	11	12	13	14	15	
KU	-.41272E-04	-.43625E-04	-.11496E-04	-.16601E-04	-.21327E-04	-.25714E-04	-.29724E-04	
NASTRAN	-.36478E-04	-.44590E-04	-.74475E-05	-.10088E-04	-.11782E-04	-.15184E-04	-.20710E-04	

LOAD AT POINT 11

ROTATIONS AT	1	2	3	4	5	6	7	8
KU	.36250E-05	.36250E-05	.36250E-05	.36250E-05	.36250E-05	.36250E-05	.36250E-05	.36250E-05
NASTRAN	.24763E-05	.38970E-05	.35571E-05	.33137E-05	.33401E-05	.54196E-05	.29552E-05	.31048E-05
ROTATIONS AT	9	10	11	12	13	14	15	
KU	.36250E-05	.36250E-05	.36250E-05	.36250E-05	.36250E-05	.36250E-05	.36250E-05	
NASTRAN	.32014E-05	.33300E-05	.78986E-05	.69116E-05	.26692E-05	.22522E-05	.27230E-05	

LOAD AT POINT 12

ROTATIONS AT	1	2	3	4	5	6	7	8
KU	.16239E-05	.16239E-05	.16239E-05	.16239E-05	.16239E-05	.16239E-05	.16239E-05	.16239E-05
NASTRAN	.66310E-06	.12091E-05	.17052E-05	.12369E-05	.14733E-05	-.20733E-06	.19175E-05	.11611E-05
ROTATIONS AT	9	10	11	12	13	14	15	
KU	.16239E-05	.16239E-05	.71225E-06	.16239E-05	.16239E-05	.16239E-05	.16239E-05	
NASTRAN	.10434E-05	.16186E-05	-.85939E-05	.60984E-06	.56380E-05	.12151E-05	.18673E-05	

Table 27 (Continued)

KU- AND NASTRAN- ROTATIONAL INFLUENCE COEFFICIENTS FOR BUILT-UP WING 5
(ALL ROTATIONS ARE BASED ON A 1LB. LOAD)

LOAD AT POINT 13

ROTATIONS AT	1	2	3	4	5	6	7	8
KU	-.29187E-05	-.29187E-05	-.29187E-05	-.29187E-05	-.29187E-05	-.29187E-05	-.29187E-05	-.29187E-05
NASTRAN	-.20565E-05	-.19462E-05	-.17013E-05	-.12803E-05	-.16584E-05	-.24863E-05	-.25706E-05	-.13380E-05
ROTATIONS AT	9	10	11	12	13	14	15	
KU	-.29187E-05	-.29187E-05	-.22005E-05	-.27397E-05	-.29187E-05	-.29187E-05	-.29187E-05	
NASTRAN	-.12908E-05	-.19354E-05	-.18889E-05	-.44820E-05	-.12264E-05	.21918E-05	.10110E-07	

LOAD AT POINT 14

ROTATIONS AT	1	2	3	4	5	6	7	8
KU	-.99985E-05	-.99985E-05	-.99985E-05	-.99985E-05	-.99985E-05	-.99985E-05	-.99985E-05	-.99985E-05
NASTRAN	-.62683E-05	-.57842E-05	-.60349E-05	-.61439E-05	-.50516E-05	-.57407E-05	-.54305E-05	-.60865E-05
ROTATIONS AT	9	10	11	12	13	14	15	
KU	-.99985E-05	-.99985E-05	-.51133E-05	-.71033E-05	-.87274E-05	-.99985E-05	-.99985E-05	
NASTRAN	-.54517E-05	-.68472E-05	-.24822E-05	-.30441E-05	-.78327E-05	-.47854E-05	.46586E-05	

LOAD AT POINT 15

ROTATIONS AT	1	2	3	4	5	6	7	8
KU	-.19611E-04	-.19611E-04	-.19611E-04	-.19611E-04	-.19611E-04	-.19611E-04	-.19611E-04	-.19611E-04
NASTRAN	-.11351E-04	-.11372E-04	-.11611E-04	-.11673E-04	-.10984E-04	-.90599E-05	-.99229E-05	-.11123E-04
ROTATIONS AT	9	10	11	12	13	14	15	
KU	-.19611E-04	-.19611E-04	-.80260E-05	-.11467E-04	-.14536E-04	-.17258E-04	-.19611E-04	
NASTRAN	-.12538E-04	-.12653E-04	-.28673E-05	-.44518E-05	-.58589E-05	-.12268E-04	-.17184E-04	

R.M.S. OF DIFFERENCES = .37037E-06

MAXIMUM ERROR = .73292E-05

Table 28

EXPERIMENTAL- AND NASTRAN- DEFLECTION INFLUENCE COEFFICIENTS FOR BUILT-UP WING 6
(ALL DEFLECTIONS ARE BASED ON A 100LB. LOAD)

LOAD AT POINT 1

DEFL. AT	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18
EXP.	.0604	.0552	.0480	.0410	.0328	.0342	.0351	.0336	.0288	.0246	.0183	.0112	.0144	.0148	.0144	.0113	.0076	.0060
NASTRAN	.0375	.0322	.0281	.0243	.0205	.0170	.0179	.0170	.0153	.0131	.0098	.0038	.0050	.0055	.0054	.0049	.0038	.0023

LOAD AT POINT 2

DEFL. AT	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18
EXP.	.0552	.0610	.0580	.0512	.0430	.0286	.0344	.0367	.0332	.0284	.0240	.0089	.0126	.0152	.0154	.0130	.0096	.0084
NASTRAN	.0322	.0366	.0332	.0304	.0274	.0138	.0167	.0180	.0177	.0163	.0136	.0028	.0041	.0052	.0057	.0057	.0049	.0036

LOAD AT POINT 3

DEFL. AT	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18
EXP.	.0480	.0580	.0644	.0620	.0543	.0228	.0296	.0364	.0360	.0324	.0299	.0061	.0102	.0138	.0154	.0136	.0114	.0109
NASTRAN	.0281	.0332	.0382	.0371	.0356	.0111	.0146	.0177	.0194	.0195	.0183	.0020	.0033	.0046	.0056	.0062	.0060	.0052

LOAD AT POINT 4

DEFL. AT	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18
EXP.	.0410	.0512	.0620	.0713	.0688	.0176	.0252	.0330	.0382	.0371	.0379	.0038	.0077	.0115	.0141	.0143	.0138	.0142
NASTRAN	.0243	.0304	.0371	.0450	.0456	.0088	.0124	.0161	.0198	.0222	.0240	.0014	.0025	.0038	.0051	.0062	.0071	.0072

LOAD AT POINT 5

DEFL. AT	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18
EXP.	.0328	.0430	.0543	.0688	.0811	.0137	.0207	.0272	.0342	.0398	.0478	.0025	.0060	.0088	.0118	.0134	.0152	.0180
NASTRAN	.0205	.0274	.0356	.0456	.0586	.0068	.0104	.0144	.0189	.0219	.0305	.0009	.0019	.0031	.0045	.0059	.0080	.0095

LOAD AT POINT 6

DEFL. AT	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18
EXP.	.0342	.0286	.0228	.0176	.0137	.0349	.0276	.0194	.0152	.0108	.0074	.0148	.0144	.0107	.0096	.0071	.0038	.0022
NASTRAN	.0170	.0138	.0111	.0088	.0068	.0156	.0110	.0085	.0066	.0050	.0031	.0045	.0045	.0037	.0029	.0022	.0014	.0006

C.2

Table 28 (Continued)

EXPERIMENTAL- AND NASTRAN- DEFLECTION INFLUENCE COEFFICIENTS FOR BUILT-UP WING 6
(ALL DEFLECTIONS ARE BASED ON A 100LB. LOAD)

LOAD AT POINT 7

DEFL. AT	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18
EXP.	.0351	.0344	.0298	.0252	.0204	.0276	.0328	.0266	.0204	.0158	.0118	.0106	.0148	.0140	.0120	.0088	.0056	.0040
NASTRAN	.0179	.0167	.0146	.0124	.0104	.0110	.0138	.0105	.0087	.0071	.0051	.0030	.0040	.0040	.0037	.0030	.0022	.0012

LOAD AT POINT 8

DEFL. AT	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18
EXP.	.0336	.0367	.0364	.0330	.0272	.0194	.0266	.0328	.0265	.0202	.0164	.0070	.0114	.0154	.0144	.0109	.0074	.0062
NASTRAN	.0170	.0180	.0177	.0161	.0144	.0085	.0105	.0129	.0110	.0095	.0076	.0019	.0030	.0040	.0042	.0039	.0031	.0021

LOAD AT POINT 9

DEFL. AT	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18
EXP.	.0288	.0332	.0360	.0382	.0342	.0152	.0204	.0265	.0349	.0276	.0216	.0043	.0080	.0120	.0158	.0144	.0098	.0083
NASTRAN	.0153	.0177	.0194	.0198	.0189	.0066	.0087	.0110	.0148	.0122	.0107	.0013	.0022	.0032	.0043	.0045	.0041	.0033

LOAD AT POINT 10

DEFL. AT	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18
EXP.	.0246	.0284	.0324	.0371	.0398	.0108	.0158	.0202	.0276	.0341	.0284	.0078	.0055	0028	.0120	.0146	.0122	.0122
NASTRAN	.0131	.0163	.0195	.0222	.0239	.0050	.0071	.0095	.0122	.0165	.0146	.0008	.0016	.0025	.0035	.0047	.0050	.0050

LOAD AT POINT 11

DEFL. AT	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18
EXP.	.0183	.0240	.0299	.0379	.0478	.0074	.0118	.0164	.0216	.0284	.0387	.0010	.0031	.0051	.0076	.0100	.0128	.0164
NASTRAN	.0098	.0136	.0183	.0240	.0305	.0031	.0051	.0076	.0107	.0146	.0228	.0003	.0009	.0016	.0026	.0038	.0058	.0078

LOAD AT POINT 12

DEFL. AT	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18
EXP.	.0112	.0089	.0061	.0038	.0025	.0148	.0106	.0070	.0043	.0028	.0010	.0161	.0108	.0053	.0040	.0023	.0010	.0004
NASTRAN	.0038	.0028	.0020	.0014	.0009	.0045	.0030	.0019	.0013	.0008	.0003	.0058	.0024	.0012	.0007	.0004	.0002	-.0000

Table 28 (Continued)

EXPERIMENTAL- AND NASTRAN- DEFLECTION INFLUENCE COEFFICIENTS FOR BUILT-UP WING 6
(ALL DEFLECTIONS ARE BASED ON A 100LB. LOAD)

LOAD AT POINT 13

DEFL. AT	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18
EXP.	.0144	.0126	.0102	.0077	.0060	.0144	.0148	.0114	.0080	.0055	.0031	.0108	.0140	.0091	.0065	.0042	.0021	.0012
NASTRAN	.0050	.0041	.0033	.0025	.0019	.0045	.0040	.0030	.0022	.0016	.0009	.0024	.0049	.0019	.0012	.0008	.0005	.0002

LOAD AT POINT 14

DEFL. AT	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18
EXP.	.0148	.0152	.0138	.0115	.0088	.0107	.0140	.0154	.0120	.0078	.0051	.0053	.0091	.0133	.0097	.0052	.0029	.0020
NASTRAN	.0055	.0052	.0046	.0038	.0031	.0037	.0040	.0040	.0032	.0025	.0016	.0012	.0019	.0036	.0020	.0014	.0008	.0004

LOAD AT POINT 15

DEFL. AT	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18
EXP.	.0144	.0154	.0154	.0141	.0118	.0096	.0120	.0144	.0158	.0120	.0076	.0040	.0065	.0097	.0188	.0124	.0054	.0034
NASTRAN	.0054	.0057	.0056	.0051	.0045	.0029	.0037	.0042	.0043	.0035	.0026	.0007	.0012	.0020	.0049	.0024	.0014	.0008

LOAD AT POINT 16

DEFL. AT	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18
EXP.	.0113	.0130	.0136	.0143	.0134	.0071	.0088	.0109	.0144	.0146	.0100	.0023	.0042	.0052	.0124	.0183	.0082	.0051
NASTRAN	.0049	.0057	.0062	.0062	.0059	.0022	.0030	.0039	.0045	.0047	.0038	.0004	.0008	.0014	.0024	.0052	.0023	.0014

LOAD AT POINT 17

DEFL. AT	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18
EXP.	.0076	.0096	.0114	.0138	.0152	.0038	.0056	.0074	.0098	.0122	.0128	.0010	.0021	.0029	.0054	.0082	.0133	.0084
NASTRAN	.0038	.0049	.0060	.0071	.0080	.0014	.0022	.0031	.0041	.0050	.0058	.0002	.0005	.0008	.0014	.0023	.0055	.0027

LOAD AT POINT 18

DEFL. AT	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18
EXP.	.0060	.0084	.0109	.0142	.0180	.0022	.0040	.0062	.0083	.0122	.0164	.0004	.0012	.0020	.0034	.0051	.0084	.0128
NASTRAN	.0023	.0036	.0052	.0072	.0095	.0006	.0012	.0021	.0033	.0050	.0078	-.0000	.0002	.0004	.0008	.0014	.0027	.0068

R.M.S. OF DIFFERENCES = 6.13165E-04

MAXIMUM ERROR = 2.29859E-02

Table 29

KU= AND NASTRAN= ROTATIONAL INFLUENCE COEFFICIENTS FOR BUILT-UP WING 6
(ALL ROTATIONS ARE BASED ON A 1LB. LOAD)

LOAD AT POINT 1

ROTATIONS AT	1	2	3	4	5	6	7	8
KU	7.17000E-06	7.17000E-06	7.17000E-06	7.17000E-06	7.17000E-06	7.52046E-07	1.76743E-06	3.14996E-06
NASTRAN	5.47109E-06	1.17969E-05	7.56486E-06	7.20416E-06	7.30061E-06	-3.69215E-06	-8.17913E-08	2.65880E-06
ROTATIONS AT	9	10	11	12	13	14	15	16
KU	4.50190E-06	6.15723E-06	7.17000E-06	-3.47402E-07	-4.15829E-07	-4.57226E-07	-3.22103E-07	2.92299E-07
NASTRAN	3.98847E-06	4.58475E-06	5.27416E-06	-2.91878E-06	-1.77022E-06	-4.28698E-07	6.43143E-07	1.60519E-06
ROTATIONS AT	17	18						
KU	1.76743E-06	3.14996E-06						
NASTRAN	2.21428E-06	3.39134E-06						

LOAD AT POINT 2

ROTATIONS AT	1	2	3	4	5	6	7	8
KU	1.48681E-06	3.82881E-06	3.82881E-06	3.82881E-06	3.82881E-06	-8.35471E-07	-6.35091E-07	-2.21087E-07
NASTRAN	-9.57763E-06	-3.46990E-06	9.59104E-06	5.48[illegible]14E-06	6.24175E-06	-6.11950E-06	-3.99326E-06	-9.93277E-07
ROTATIONS AT	9	10	11	12	13	14	15	16
KU	2.90827E-07	1.00868E-06	1.48681E-06	-4.53891E-07	-5.94456E-07	-7.44461E-07	-8.71604E-07	-8.94316E-07
NASTRAN	1.69604E-06	3.44610E-06	4.52703E-06	-2.56153E-06	-2.66756E-06	-1.57816E-06	-5.41112E-07	8.29443E-07
ROTATIONS AT	17	18						
KU	-6.35091E-07	-2.21087E-07						
NASTRAN	1.83741E-06	3.35394E-06						

LOAD AT POINT 3

ROTATIONS AT	1	2	3	4	5	6	7	8
KU	-4.19639E-06	-4.25445E-06	-4.25445E-06	-4.25445E-06	-4.25445E-06	-2.42299E-06	-3.03761E-06	-3.59213E-06
NASTRAN	-9.60289E-06	-9.59190E-06	-6.02483E-06	4.99394E-06	3.56736E-06	-6.13668E-06	-6.66989E-06	-4.85239E-06
ROTATIONS AT	9	10	11	12	13	14	15	16
KU	-3.92025E-06	-4.13988E-06	-4.19639E-06	-5.60380E-07	-7.73084E-07	-1.03170E-06	-1.42110E-06	-2.08093E-06
NASTRAN	-1.51014E-06	7.32851E-07	2.69718E-06	-1.90972E-06	-2.64251E-06	-2.50835E-06	-1.60771E-06	-3.61338E-07
ROTATIONS AT	17	18						
KU	-3.03761E-06	-3.59213E-06						
NASTRAN	9.78653E-07	2.80371E-06						

Table 29 (Continued)

KU- AND NASTRAN- ROTATIONAL INFLUENCE COEFFICIENTS FOR BUILT-UP WING 6
(ALL ROTATIONS ARE BASED ON A 1LB. LOAD)

LOAD AT POINT 4

ROTATIONS AT	1	2	3	4	5	6	7	8
KU	-9.87959E-06	-1.23377E-05	-1.23377E-05	-1.23377E-05	-1.23377E-05	-4.01050E-06	-5.44013E-06	-6.96318E-06
NASTRAN	-1.11752E-05	-1.18544E-05	-1.36719E-05	-1.17822E-05	4.12527E-06	-6.60661E-06	-6.77735E-06	-7.10919E-06
ROTATIONS AT	9	10	11	12	13	14	15	16
KU	-8.13132E-06	-9.28843E-06	-9.87959E-06	-6.66869E-07	-9.51712E-07	-1.31893E-06	-1.97061E-06	-3.26754E-06
NASTRAN	-5.52702E-06	-3.80958E-06	-1.80399E-06	-1.79362E-06	-2.26014E-06	-2.54532E-06	-2.65623E-06	-1.55501E-06
ROTATIONS AT	17	18						
KU	-5.44013E-06	-6.96318E-06						
NASTRAN	-6.14315E-07	1.54516E-06						

LOAD AT POINT 5

ROTATIONS AT	1	2	3	4	5	6	7	8
KU	-1.55628E-05	-2.04210E-05	-2.04210E-05	-2.04210E-05	-2.04210E-05	-5.59802E-06	-7.84265E-06	-1.03342E-05
NASTRAN	-1.18703E-05	-1.39114E-05	-1.67703E-05	-2.08533E-05	-2.68964E-05	-6.10821E-06	-7.22876E-06	-8.08103E-06
ROTATIONS AT	9	10	11	12	13	14	15	16
KU	-1.23424E-05	-1.44370E-05	-1.55628E-05	-7.73358E-07	-1.13034E-06	-1.60617E-06	-2.52011E-06	-4.45416E-06
NASTRAN	-9.39933E-06	-9.11472E-06	-8.17889E-06	-1.55149E-06	-2.22872E-06	-2.41795E-06	-2.55415E-06	-3.04959E-06
ROTATIONS AT	17	18						
KU	-7.84265E-06	-1.03342E-05						
NASTRAN	-2.65622E-06	-8.44580E-07						

LOAD AT POINT 6

ROTATIONS AT	1	2	3	4	5	6	7	8
KU	3.29994E-06	3.29994E-06	3.29994E-06	3.29994E-06	3.29994E-06	3.29994E-06	3.29994E-06	3.29994E-06
NASTRAN	9.78436E-06	2.94848E-06	4.46382E-06	4.24450E-06	3.65383E-06	8.31537E-06	8.24740E-06	3.89505E-06
ROTATIONS AT	9	10	11	12	13	14	15	16
KU	3.29994E-06	3.29994E-06	3.29994E-06	-3.95713E-08	4.47824E-08	2.12109E-07	7.60421E-07	2.28326E-06
NASTRAN	3.27177E-06	2.76388E-06	2.77138E-06	-1.26193E-06	5.92124E-07	1.63580E-06	1.57423E-06	1.56019E-06
ROTATIONS AT	17	18						
KU	3.29994E-06	3.29994E-06						
NASTRAN	1.35033E-06	1.65365E-06						

Table 29 (Continued)

KU= AND NASTRAN= ROTATIONAL INFLUENCE COEFFICIENTS FOR BUILT=UP WING 6
(ALL ROTATIONS ARE BASED ON A 1LB. LOAD)

LOAD AT POINT 7

ROTATIONS AT	1	2	3	4	5	6	7	8
KU	3.05363E-06	3.05363E-06	3.05363E-06	3.05363E-06	3.05363E-06	1.71242E-06	3.05363E-06	3.05363E-06
NASTRAN	-6.66246E-07	5.69108E-06	2.54173E-06	3.31051E-06	4.59609E-06	-9.37751E-06	1.03760E-06	7.08791E-06
ROTATIONS AT	9	10	11	12	13	14	15	16
KU	3.05363E-06	3.05363E-06	3.05363E-06	-1.46060E-07	-1.33845E-07	-7.51270E-08	2.10919E-07	1.09664E-06
NASTRAN	2.63892E-06	3.12159E-06	2.84227E-06	-7.56750E-07	-1.38624E-06	5.43282E-07	7.64431E-07	1.58449E-06
ROTATIONS AT	17	18						
KU	3.05363E-06	3.05363E-06						
NASTRAN	1.53132E-06	2.01579E-06						

LOAD AT POINT 8

ROTATIONS AT	1	2	3	4	5	6	7	8
KU	1.45352E-06	1.45352E-06	1.45352E-06	1.45352E-06	1.45352E-06	1.24908E-07	6.51112E-07	1.45352E-06
NASTRAN	-2.55603E-06	-1.29236E-06	3.21852E-06	2.84526E-06	2.72583E-06	-2.88523E-06	-5.65449E-06	-8.79196E-07
ROTATIONS AT	9	10	11	12	13	14	15	16
KU	1.45352E-06	1.45352E-06	1.45352E-06	-2.52550E-07	-3.12473E-07	-3.62363E-07	-3.38582E-07	-8.99709E-08
NASTRAN	4.77766E-06	2.57443E-06	3.15817E-06	-1.55330E-06	-1.97813E-06	-1.63243E-06	3.86690E-07	9.98417E-07
ROTATIONS AT	17	18						
KU	6.51112E-07	1.45352E-06						
NASTRAN	1.62635E-06	2.08709E-06						

LOAD AT POINT 9

ROTATIONS AT	1	2	3	4	5	6	7	8
KU	-1.91503E-06	-1.91503E-06	-1.91503E-06	-1.91503E-06	-1.91503E-06	-1.46261E-06	-1.75141E-06	-1.91753E-06
NASTRAN	-5.22956E-06	-3.71659E-06	-3.11004E-06	2.99678E-06	-5.54922E-07	-4.14982E-06	-3.37921E-06	-7.64736E-06
ROTATIONS AT	9	10	11	12	13	14	15	16
KU	-1.91503E-06	-1.91503E-06	-1.91503E-06	-3.59039E-07	-4.91101E-07	-6.49598E-07	-8.88083E-07	-1.27659E-06
NASTRAN	-2.22414E-06	6.99997E-06	-4.83237E-07	-1.62185E-06	-1.84947E-06	-1.63345E-06	-1.82658E-06	3.48201E-07
ROTATIONS AT	17	18						
KU	-1.75141E-06	-1.91753E-06						
NASTRAN	1.05727E-06	2.36676E-06						

Table 29 (Continued)

KU= AND NASTRAN= ROTATIONAL INFLUENCE COEFFICIENTS FOR BUILT-UP WING 6
(ALL ROTATIONS ARE BASED ON A 1LB. LOAD)

LOAD AT POINT 10

ROTATIONS AT	1	2	3	4	5	6	7	8
KU	-6.91453E-06	-6.91453E-06	-6.91453E-06	-6.91453E-06	-6.91453E-06	-3.05012E-06	-4.15393E-06	-5.28857E-06
NASTRAN	-6.01507E-06	-6.11666E-06	-5.71362E-06	-5.15479E-06	2.16254E-07	-3.68060E-06	-4.35620E-06	-4.09332E-06
ROTATIONS AT	9	10	11	12	13	14	15	16
KU	-6.12610E-06	-6.91453E-06	-6.91453E-06	-4.65528E-07	-6.69729E-07	-9.36834E-07	-1.43758E-06	-2.46320E-06
NASTRAN	-7.92334E-06	-5.49955E-06	8.63450E-06	-1.07057E-06	-1.71325E-06	-1.83504E-06	-1.56863E-06	-1.51931E-06
ROTATIONS AT	17	18						
KU	-4.15393E-06	-5.28857E-06						
NASTRAN	-3.24664E-08	3.21426E-07						

LOAD AT POINT 11

ROTATIONS AT	1	2	3	4	5	6	7	8
KU	-1.48845E-05	-1.48845E-05	-1.48845E-05	-1.48845E-05	-1.48845E-05	-5.16781E-06	-7.35880E-06	-9.78542E-06
NASTRAN	-6.64141E-06	-7.90978E-06	-9.83624E-06	-1.16910E-05	-1.34265E-05	-3.32986E-06	-4.13138E-06	-5.07960E-06
ROTATIONS AT	9	10	11	12	13	14	15	16
KU	-1.17435E-05	-1.37825E-05	-1.48845E-05	-6.07580E-07	-9.08012E-07	-1.31999E-06	-2.17060E-06	-4.04610E-06
NASTRAN	-6.04648E-06	-9.32330E-06	-1.49138E-05	-7.87755E-07	-1.23323E-06	-1.61034E-06	-2.04902E-06	-2.50437E-05
ROTATIONS AT	17	18						
KU	-7.35880E-06	-9.78542E-06						
NASTRAN	-2.72843E-06	-1.36124E-06						

LOAD AT POINT 12

ROTATIONS AT	1	2	3	4	5	6	7	8
KU	2.68259E-07	2.68259E-07	2.68259E-07	2.68259E-07	2.68259E-07	2.68259E-07	2.68259E-07	2.68259E-07
NASTRAN	7.26160E-07	2.91226E-06	1.25544E-06	9.58047E-07	9.94799E-07	4.94838E-06	8.47839E-07	1.45709E-06
ROTATIONS AT	9	10	11	12	13	14	15	16
KU	2.68259E-07	2.68259E-07	2.68259E-07	2.68259E-07	2.68259E-07	2.68259E-07	2.68259E-07	2.68259E-07
NASTRAN	1.07454E-06	7.45410E-07	6.09497E-07	6.18579E-06	6.03944E-06	1.70412E-06	8.28347E-07	4.87674E-07
ROTATIONS AT	17	18						
KU	2.68259E-07	2.68259E-07						
NASTRAN	3.14475E-07	3.47892E-07						

Table 29 (Continued)

KU= AND NASTRAN= ROTATIONAL INFLUENCE COEFFICIENTS FOR BUILT-UP WING 6
(ALL ROTATIONS ARE BASED ON A 1LB. LOAD)

LOAD AT POINT 13

ROTATIONS AT	1	2	3	4	5	6	7	8
KU	3.26766E-07	3.26766E-07	3.26766E-07	3.26766E-07	3.26766E-07	3.26766E-07	3.26766E-07	3.26766E-07
NASTRAN	5.70933E-07	1.84873E-06	2.49066E-06	8.04212E-07	1.23111E-06	1.27312E-07	2.57193E-06	4.80246E-07
ROTATIONS AT	9	10	11	12	13	14	15	16
KU	3.26766E-07	3.26766E-07	3.26766E-07	1.61770E-07	3.26766E-07	3.26766E-07	3.26766E-07	3.26766E-07
NASTRAN	1.20001E-06	1.15009E-06	8.29474E-07	-7.91934E-06	3.26377E-07	5.60474E-06	8.43985E-07	8.87246E-07
ROTATIONS AT	17	18						
KU	3.26766E-07	3.26766E-07						
NASTRAN	5.40195E-07	6.07528E-07						

LOAD AT POINT 14

ROTATIONS AT	1	2	3	4	5	6	7	8
KU	3.06972E-07	3.06972E-07	3.06972E-07	3.06972E-07	3.06972E-07	3.06972E-07	3.06972E-07	3.06972E-07
NASTRAN	4.34317E-07	7.01764E-07	1.32973E-06	2.04787E-06	9.23527E-07	-1.03804E-06	-4.93514E-07	1.34954E-06
ROTATIONS AT	9	10	11	12	13	14	15	16
KU	3.06972E-07	3.06972E-07	3.06972E-07	5.52806E-08	1.48138E-07	3.06972E-07	3.06972E-07	3.06972E-07
NASTRAN	9.66117E-07	1.06459E-06	1.20350E-06	-5.63383E-07	-3.44719E-06	-5.33042E-07	3.47799E-06	1.11209E-06
ROTATIONS AT	17	18						
KU	3.06972E-07	3.06972E-07						
NASTRAN	9.18763E-07	8.23867E-07						

LOAD AT POINT 15

ROTATIONS AT	1	2	3	4	5	6	7	8
KU	1.94440E-07	1.94440E-07	1.94440E-07	1.94440E-07	1.94440E-07	1.94440E-07	1.94440E-07	1.94440E-07
NASTRAN	-8.45517E-07	-1.52477E-08	3.72225E-07	8.78459E-07	3.18645E-06	-2.01033E-06	-1.15027E-06	-8.14306E-07
ROTATIONS AT	9	10	11	12	13	14	15	16
KU	1.94440E-07	1.94440E-07	1.94440E-07	-5.12086E-08	-3.04901E-08	1.97362E-08	1.94440E-07	1.94440E-07
NASTRAN	1.66259E-06	1.52155E-09	2.08641E-06	-6.88931E-07	-7.46428E-07	-5.14114E-06	-1.15829E-06	6.04177E-06
ROTATIONS AT	17	18						
KU	1.94440E-07	1.94440E-07						
NASTRAN	7.15738E-07	1.70439E-06						

Table 29 (Continued)

KU- AND NASTRAN- ROTATIONAL INFLUENCE COEFFICIENTS FOR BUILT-UP WING 6
(ALL ROTATIONS ARE BASED ON A 1LB. LOAD)

LOAD AT POINT 16

ROTATIONS AT	1	2	3	4	5	6	7	8
KU	-4.72241E-07	-4.72241E-07	-4.72241E-07	-4.72241E-07	-4.72241E-07	-4.72241E-07	-4.72241E-07	-4.72241E-07
NASTRAN	-1.57089E-06	-1.20816E-06	-3.79177E-07	8.57349E-08	1.08032E-06	-1.72397E-06	-1.77489E-06	-1.45909E-06
ROTATIONS AT	9	10	11	12	13	14	15	16
KU	-4.72241E-07	-4.72241E-07	-4.72241E-07	-1.57698E-07	-2.09118E-07	-2.67499E-07	-3.55061E-07	-4.72241E-07
NASTRAN	-1.04356E-06	1.78920E-06	-2.83033E-06	-4.12891E-07	-9.01490E-07	-9.60323E-07	-5.09648E-06	-2.50725E-06
ROTATIONS AT	17	18						
KU	-4.72241E-07	-4.72241E-07						
NASTRAN	6.45089E-06	-5.43373E-08						

LOAD AT POINT 17

ROTATIONS AT	1	2	3	4	5	6	7	8
KU	-3.67007E-06	-3.67007E-06	-3.67007E-06	-3.67007E-06	-3.67007E-06	-2.61992E-06	-3.67007E-06	-3.67007E-06
NASTRAN	-2.06068E-06	-2.10290E-06	-2.10438E-06	-1.69062E-06	-1.46384E-06	-1.40786E-06	-1.58554E-06	-1.93983E-06
ROTATIONS AT	9	10	11	12	13	14	15	16
KU	-3.67007E-06	-3.67007E-06	-3.67007E-06	-2.99750E-07	-4.47401E-07	-6.50661E-07	-1.08807E-06	-2.05514E-06
NASTRAN	-1.88839E-06	-2.06148E-06	2.19987E-06	-3.24231E-07	-5.74411E-07	-8.37300E-07	-1.03051E-06	-3.84407E-06
ROTATIONS AT	17	18						
KU	-3.67007E-06	-3.67007E-06						
NASTRAN	-3.16249E-06	9.66009E-06						

LOAD AT POINT 18

ROTATIONS AT	1	2	3	4	5	6	7	8
KU	-9.23662E-06	-9.23662E-06	-9.23662E-06	-9.23662E-06	-9.23662E-06	-4.73760E-06	-6.87495E-06	-9.23662E-06
NASTRAN	-2.19556E-06	-2.71759E-06	-3.41709E-06	-4.17201E-06	-4.43544E-06	-1.05055E-06	-1.44629E-06	-1.89691E-06
ROTATIONS AT	9	10	11	12	13	14	15	16
KU	-9.23662E-06	-9.23662E-06	-9.23662E-06	-4.41803E-07	-6.85684E-07	-1.03382E-06	-1.82109E-06	-3.63804E-06
NASTRAN	-2.86335E-06	-3.26371E-06	-4.56904E-06	-1.84235E-07	-3.85793E-07	-5.13285E-07	-8.22492E-07	-7.24294E-07
ROTATIONS AT	17	18						
KU	-6.87495E-06	-9.23662E-06						
NASTRAN	-3.82613E-06	-9.13196E-06						

R.M.S. OF DIFFERENCES = 1.93366E-07

MAXIMUM ERROR = 4.62691E-06

Table 30

EXPERIMENTAL- AND NASTRAN- DEFLECTION INFLUENCE COEFFICIENTS FOR BUILT-UP WING 7
(ALL DEFLECTIONS ARE BASED ON A 100LB. LOAD)

LOAD AT POINT 1

DEFL. AT	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18
EXP.	.0422	.0353	.0292	.0238	.0196	.0214	.0223	.0195	.0160	.0132	.0103	.0050	.0066	.0080	.0072	.0060	.0098	.0032
NASTRAN	.0356	.0298	.0249	.0206	.0167	.0153	.0167	.0154	.0132	.0106	.0079	.0028	.0045	.0050	.0047	.0039	.0031	.0018

LOAD AT POINT 2

DEFL. AT	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18
EXP.	.0353	.0419	.0372	.0324	.0290	.0146	.0192	.0218	.0206	.0179	.0162	.0032	.0050	.0073	.0081	.0077	.0068	.0056
NASTRAN	.0298	.0340	.0301	.0269	.0238	.0117	.0151	.0163	.0157	.0141	.0119	.0018	.0034	.0045	.0049	.0047	.0042	.0030

LOAD AT POINT 3

DEFL. AT	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18
EXP.	.0292	.0372	.0442	.0440	.0428	.0104	.0156	.0203	.0247	.0243	.0244	.0020	.0036	.0060	.0076	.0088	.0096	.0086
NASTRAN	.0249	.0301	.0352	.0341	.0328	.0087	.0128	.0156	.0175	.0178	.0169	.0011	.0025	.0038	.0047	.0052	.0054	.0047

LOAD AT POINT 4

DEFL. AT	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18
EXP.	.0238	.0324	.0440	.0560	.0606	.0078	.0132	.0186	.0260	.0318	.0344	.0008	.0026	.0051	.0070	.0094	.0127	.0125
NASTRAN	.0206	.0269	.0341	.0428	.0441	.0063	.0106	.0142	.0179	.0212	.0232	.0005	.0017	.0031	.0043	.0054	.0065	.0068

LOAD AT POINT 5

DEFL. AT	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18
EXP.	.0196	.0290	.0428	.0606	.0742	.0056	.0108	.0172	.0258	.0380	.0448	-.0001	.0016	.0042	.0065	.0098	.0142	.0167
NASTRAN	.0167	.0238	.0328	.0441	.0587	.0042	.0085	.0126	.0177	.0238	.0302	.0001	.0010	.0023	.0037	.0054	.0075	.0092

LOAD AT POINT 6

DEFL. AT	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18
EXP.	.0214	.0146	.0104	.0078	.0056	.0207	.0140	.0092	.0062	.0046	.0025	.0080	.0074	.0054	.0042	.0026	.0014	.0002
NASTRAN	.0153	.0117	.0087	.0063	.0042	.0144	.0094	.0068	.0048	.0032	.0017	.0037	.0044	.0033	.0023	.0015	.0009	.0002

Table 30 (Continued)

EXPERIMENTAL- AND NASTRAN- DEFLECTION INFLUENCE COEFFICIENTS FOR BUILT-UP WING 7
(ALL DEFLECTIONS ARE BASED ON A 100LB. LOAD)

LOAD AT POINT 7

DEFL. AT	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18
EXP.	.0223	.0192	.0156	.0132	.0108	.0146	.0187	.0138	.0098	.0079	.0062	.0038	.0054	.0072	.0060	.0042	.0030	.0018
NASTRAN	.0167	.0151	.0128	.0106	.0085	.0094	.0126	.0092	.0073	.0057	.0041	.0019	.0032	.0037	.0032	.0024	.0017	.0009

LOAD AT POINT 8

DEFL. AT	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18
EXP.	.0195	.0248	.0203	.0186	.0172	.0092	.0138	.0183	.0134	.0112	.0103	.0022	.0037	.0060	.0072	.0058	.0049	.0039
NASTRAN	.0154	.0163	.0136	.0142	.0126	.0068	.0092	.0123	.0093	.0079	.0065	.0011	.0022	.0032	.0036	.0031	.0026	.0018

LOAD AT POINT 9

DEFL. AT	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18
EXP.	.0160	.0206	.0247	.0260	.0258	.0062	.0098	.0134	.0196	.0173	.0165	.0010	.0024	.0043	.0062	.0074	.0076	.0067
NASTRAN	.0132	.0157	.0175	.0179	.0177	.0048	.0073	.0093	.0119	.0106	.0099	-.006	.0014	.0024	.0032	.0037	.0036	.0031

LOAD AT POINT 10

DEFL. AT	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18
EXP.	.0132	.0179	.0243	.0318	.0380	.0046	.0079	.0112	.0173	.0265	.0269	.0006	.0017	.0031	.0049	.0072	.0114	.0110
NASTRAN	.0106	.0141	.0178	.0212	.0238	.0032	.0057	.0079	.0106	.0154	.0147	.0002	.0009	.0017	.0026	.0036	.0047	.0051

LOAD AT POINT 11

DEFL. AT	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18
EXP.	.0103	.0162	.0244	.0344	.0448	.0025	.0062	.0103	.0165	.0264	.0389	-.0002	.0006	.0024	.0040	.0074	.0123	.0162
NASTRAN	.0079	.0119	.0169	.0232	.0302	.0017	.0041	.0065	.0099	.0147	.0228	-.0001	.0003	.0011	.0020	.0033	.0053	.0077

LOAD AT POINT 12

DEFL. AT	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18
EXP.	.0050	.0032	.0020	.0008	-.0001	.0080	.0038	.0022	.0010	.0006	-.0002	.0113	.0040	.0020	.0011	.0006	.0002	-.0003
NASTRAN	.0028	.0018	.0011	.0005	.0001	.0037	.0019	.0011	.0006	.0002	-.0001	.0051	.0019	.0008	.0004	.0002	.0000	-.0001

Table 30 (Continued)

EXPERIMENTAL- AND NASTRAN- DEFLECTION INFLUENCE COEFFICIENTS FOR BUILT-UP WING 7
(ALL DEFLECTIONS ARE BASED ON A 100LB. LOAD)

LOAD AT POINT 13

DEFL. AT	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18
EXP.	.0066	.0050	.0036	.0026	.0016	.0074	.0054	.0037	.0024	.0017	.0006	.0040	.0082	.0037	.0020	.0012	.0007	.0001
NASTRAN	.0045	.0034	.0025	.0017	.0010	.0044	.0032	.0022	.0014	.0009	.0003	.0019	.0048	.0017	.0009	.0005	.0002	-.0000

LOAD AT POINT 14

DEFL. AT	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18
EXP.	.0080	.0073	.0060	.0051	.0042	.0059	.0072	.0060	.0043	.0031	.0024	.0020	.0037	.0074	.0042	.0021	.0014	.0010
NASTRAN	.0050	.0045	.0038	.0031	.0023	.0033	.0037	.0032	.0024	.0017	.0011	.0008	.0017	.0045	.0017	.0009	.0005	.0002

LOAD AT POINT 15

DEFL. AT	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18
EXP.	.0072	.0081	.0076	.0070	.0065	.0042	.0060	.0072	.0062	.0049	.0040	.0011	.0020	.0042	.0073	.0035	.0026	.0018
NASTRAN	.0047	.0049	.0047	.0043	.0037	.0023	.0032	.0036	.0032	.0026	.0020	.0004	.0009	.0017	.0042	.0015	.0009	.0005

LOAD AT POINT 16

DEFL. AT	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18
EXP.	.0060	.0077	.0088	.0094	.0098	.0026	.0042	.0058	.0074	.0072	.0074	.0006	.0012	.0021	.0035	.0064	.0048	.0040
NASTRAN	.0039	.0047	.0052	.0054	.0054	.0015	.0024	.0031	.0037	.0036	.0033	.0002	.0005	.0009	.0015	.0031	.0017	.0012

LOAD AT POINT 17

DEFL. AT	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18
EXP.	.0048	.0068	.0096	.0127	.0142	.0014	.0030	.0049	.0076	.0114	.0123	.0002	.0007	.0014	.0026	.0048	.0108	.0096
NASTRAN	.0031	.0042	.0054	.0065	.0075	.0009	.0017	.0026	.0036	.0047	.0053	.0000	.0002	.0005	.0009	.0017	.0047	.0026

LOAD AT POINT 18

DEFL. AT	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18
EXP.	.0032	.0056	.0080	.0125	.0167	.0002	.0018	.0039	.0067	.0110	.0162	-.0003	.0001	.0010	.0018	.0040	.0096	.0189
NASTRAN	.0018	.0030	.0047	.0068	.0092	.0002	.0009	.0018	.0031	.0051	.0077	-.0001	-.0000	.0002	.0005	.0012	.0026	.0068

R.M.S. OF DIFFERENCES = 2.71512E-04

MAXIMUM ERROR = 6.72929E-03

Table 31

KU= AND NASTRAN= ROTATIONAL INFLUENCE COEFFICIENTS FOR BUILT-UP WING 7
(ALL ROTATIONS ARE BASED ON A 1LB. LOAD)

LOAD AT POINT 1

ROTATIONS AT	1	2	3	4	5	6	7	8
KU	7.49145E-06	7.49145E-06	7.49145E-06	7.49145E-06	7.49145E-06	9.67525E-07	2.34055E-06	3.60763E-06
NASTRAN	7.14854E-06	1.11700E-05	8.52619E-06	7.70711E-06	7.44906E-06	-5.53979E-06	1.25273E-06	3.84502E-06
ROTATIONS AT	9	10	11	12	13	14	15	16
KU	5.08756E-06	7.49145E-06	7.49145E-06	-1.66811E-07	-3.34951E-07	-3.58002E-07	7.68811E-08	9.67525E-07
NASTRAN	4.47375E-06	4.89421E-06	5.47393E-06	-3.52118E-06	-1.85722E-06	1.60431E-07	1.25691E-06	1.55475E-06
ROTATIONS AT	17	18						
KU	2.34055E-06	3.60763E-06						
NASTRAN	2.11519E-06	3.03535E-06						

LOAD AT POINT 2

ROTATIONS AT	1	2	3	4	5	6	7	8
KU	1.65614E-06	3.90482E-06	3.90482E-06	3.90482E-06	3.90482E-06	-7.67614E-07	-4.36818E-07	-1.66828E-08
NASTRAN	-1.13750E-05	1.44621E-07	8.61235E-06	5.53308E-06	6.42534E-06	-4.82954E-06	-3.97783E-06	-4.14954E-07
ROTATIONS AT	9	10	11	12	13	14	15	16
KU	5.65721E-07	1.65614E-06	3.90482E-06	-2.12102E-07	-4.75015E-07	-7.82243E-07	-8.67218E-07	-7.67614E-07
NASTRAN	2.66811E-06	3.23319E-06	4.83660E-06	-2.61757E-06	-2.03686E-06	-1.39982E-06	-7.74450E-08	7.89670E-07
ROTATIONS AT	17	18						
KU	-4.36818E-07	-1.66828E-08						
NASTRAN	1.49630E-06	3.03008E-06						

LOAD AT POINT 3

ROTATIONS AT	1	2	3	4	5	6	7	8
KU	-4.17918E-06	-4.22304E-06	-4.22304E-06	-4.22304E-06	-4.22304E-06	-2.50275E-06	-3.21419E-06	-3.64100E-06
NASTRAN	-9.60195E-06	-1.11634E-05	-3.77937E-06	3.76434E-06	2.59086E-06	-6.10078E-06	-5.44491E-06	-5.01830E-06
ROTATIONS AT	9	10	11	12	13	14	15	16
KU	-3.95612E-06	-4.17918E-06	-4.22304E-06	-2.57392E-07	-6.15079E-07	-1.20648E-06	-1.81132E-06	-2.50275E-06
NASTRAN	-2.05856E-06	1.01893E-06	1.89597E-06	-1.87995E-06	-2.21269E-06	-1.93840E-06	-1.43400E-06	-7.13174E-07
ROTATIONS AT	17	18						
KU	-3.21419E-06	-3.64100E-06						
NASTRAN	4.62573E-07	2.19082E-06						

Table 31 (Continued)

KU= AND NASTRAN= ROTATIONAL INFLUENCE COEFFICIENTS FOR BUILT-UP WING 7
(ALL ROTATIONS ARE BASED ON A 1LB. LOAD)

LOAD AT POINT 4

ROTATIONS AT	1	2	3	4	5	6	7	8
KU	-1.00145E-05	-1.23509E-05	-1.23509E-05	-1.23509E-05	-1.23509E-05	-4.23789E-06	-5.99156E-06	-7.26531E-06
NASTRAN	-1.14854E-05	-1.23854E-05	-1.67505E-05	-1.03573E-05	1.67561E-06	-5.49566E-06	-6.67866E-06	-6.75674E-06
ROTATIONS AT	9	10	11	12	13	14	15	16
KU	-8.47796E-06	-1.00145E-05	-1.23509E-05	-3.02683E-07	-7.55143E-07	-1.63072E-06	-2.75542E-06	-4.23784E-06
NASTRAN	-7.17732E-06	-5.34209E-06	-1.98417E-06	-1.35095E-06	-1.99097E-06	-2.36026E-06	-2.20421E-06	-2.39660E-06
ROTATIONS AT	17	18						
KU	-5.99156E-06	-7.26531E-06						
NASTRAN	-1.60081E-06	8.25332E-07						

LOAD AT POINT 5

ROTATIONS AT	1	2	3	4	5	6	7	8
KU	-1.58498E-05	-2.04787E-05	-2.04787E-05	-2.04787E-05	-2.04787E-05	-5.97303E-06	-8.76893E-06	-1.08896E-05
NASTRAN	-1.20973E-05	-1.50415E-05	-1.88469E-05	-2.50546E-05	-2.82432E-05	-5.14571E-06	-6.99559E-06	-8.65501E-06
ROTATIONS AT	9	10	11	12	13	14	15	16
KU	-1.29998E-05	-1.58498E-05	-2.04787E-05	-3.47974E-07	-8.95207E-07	-2.05497E-06	-3.69952E-06	-5.97303E-06
NASTRAN	-1.05274E-05	-1.21851E-05	-1.18045E-05	-8.37507E-07	-1.78920E-06	-2.436.7E-06	-2.90118E-06	-3.75840E-06
ROTATIONS AT	17	18						
KU	-8.76893E-06	-1.08896E-05						
NASTRAN	-4.27504E-06	-1.74973E-06						

LOAD AT POINT 6

ROTATIONS AT	1	2	3	4	5	6	7	8
KU	3.72869E-06	3.72869E-06	3.72869E-06	3.72869E-06	3.72869E-06	3.72869E-06	3.72869E-06	3.72869E-06
NASTRAN	8.30337E-06	5.81932E-06	5.17306E-06	4.10476E-06	3.93197E-06	6.64996E-06	6.46920E-06	3.99411E-06
ROTATIONS AT	9	10	11	12	13	14	15	16
KU	3.72869E-06	3.72869E-06	3.72869E-06	-3.20663E-08	2.85461E-08	5.20576E-07	1.72331E-06	3.72869E-06
NASTRAN	3.39648E-06	2.79414E-06	2.93807E-06	-2.89938E-06	1.08234E-06	1.97850E-06	1.78080E-06	1.37084E-06
ROTATIONS AT	17	18						
KU	3.72869E-06	3.72869E-06						
NASTRAN	1.23648E-06	1.46108E-06						

Table 31 (Continued)

KU= AND NASTRAN= ROTATIONAL INFLUENCE COEFFICIENTS FOR BUILT=UP WING 7
(ALL ROTATIONS ARE BASED ON A 1LB. LOAD)

LOAD AT POINT 7

ROTATIONS AT	1	2	3	4	5	6	7	8
KU	2.86005E-06	2.86005E-06	2.86005E-06	2.86005E-06	2.86005E-06	1.41408E-06	2.86005E-06	2.86005E-06
NASTRAN	2.55253E-06	4.17626E-06	3.86498E-06	4.24256E-06	3.93864E-06	-9.01209E-06	1.95891E-06	6.43467E-06
ROTATIONS AT	9	10	11	12	13	14	15	16
KU	2.86005E-06	2.86005E-06	2.86005E-06	-9.24824E-08	-1.58294E-07	-4.53452E-08	4.63915E-07	1.41408E-06
NASTRAN	2.85693E-06	2.98343E-06	3.09985E-06	-1.64181E-06	-1.51641E-06	5.15624E-07	1.32810E-06	1.27605E-06
ROTATIONS AT	17	18						
KU	2.86005E-06	2.86005E-06						
NASTRAN	1.45607E-06	1.77290E-06						

LOAD AT POINT 8

ROTATIONS AT	1	2	3	4	5	6	7	8
KU	5.58745E-07	5.58745E-07	5.58745E-07	5.58745E-07	5.58745E-07	-3.21056E-07	8.26792E-08	5.58745E-07
NASTRAN	-3.18676E-06	-1.23377E-07	2.46176E-06	2.33086E-06	3.59575E-06	-2.01797E-06	-6.71431E-06	1.85337E-07
ROTATIONS AT	9	10	11	12	13	14	15	16
KU	5.58745E-07	5.58745E-07	5.58745E-07	-1.37773E-07	-2.98358E-07	-4.69586E-07	-4.80184E-07	-3.21056E-07
NASTRAN	5.72686E-06	1.89364E-06	2.90980E-06	-1.88521E-06	-1.46314E-06	-1.26406E-06	1.55917E-07	1.06957E-06
ROTATIONS AT	17	18						
KU	8.26792E-08	5.58745E-07						
NASTRAN	1.04998E-06	2.05496E-06						

LOAD AT POINT 9

ROTATIONS AT	1	2	3	4	5	6	7	8
KU	-3.32245E-06	-3.32245E-06	-3.32245E-06	-3.32245E-06	-3.32245E-06	-2.05619E-06	-2.69469E-06	-3.06557E-06
NASTRAN	-4.47113E-06	-4.62407E-06	-2.13944E-06	3.68078E-07	1.03565E-08	-3.46295E-06	-3.25024E-06	-5.48427E-06
ROTATIONS AT	9	10	11	12	13	14	15	16
KU	-3.32245E-06	-3.32245E-06	-3.32245E-06	-1.83064E-07	-4.38422E-07	-8.93827E-07	-1.42428E-06	-2.05619E-06
NASTRAN	-1.28370E-06	3.03363E-06	8.19595E-07	-1.07946E-06	-1.43389E-06	-1.37079E-06	-1.46504E-06	-4.84091E-07
ROTATIONS AT	17	18						
KU	-2.69469E-06	-3.06557E-06						
NASTRAN	7.46976E-07	1.29234E-06						

Table 31 (Continued)

KU- AND NASTRAN- ROTATIONAL INFLUENCE COEFFICIENTS FOR BUILT-UP WING 7
(ALL ROTATIONS ARE BASED ON A 1LB. LOAD)

LOAD AT POINT 10

ROTATIONS AT	1	2	3	4	5	6	7	8
KU	-9.30160E-06	-9.30160E-06	-9.30160E-06	-9.30160E-06	-9.30160E-06	-3.79133E-06	-5.47206E-06	-6.68989E-06
NASTRAN	-6.44358E-06	-6.30179E-06	-7.01552E-06	-5.93288E-06	-3.96049E-06	-2.99216E-06	-3.96105E-06	-4.07131E-06
ROTATIONS AT	9	10	11	12	13	14	15	16
KU	-7.84429E-06	-9.30160E-06	-9.30160E-06	-2.28355E-07	-5.78486E-07	-1.31807E-06	-2.36838E-06	-3.79133E-06
NASTRAN	-8.57922E-06	-4.89876E-06	4.59842E-06	-7.04448E-07	-1.11545E-06	-1.60763E-06	-1.57932E-06	-2.14275E-06
ROTATIONS AT	17	18						
KU	-5.47206E-06	-6.68989E-06						
NASTRAN	-1.78472E-06	1.88530E-07						

LOAD AT POINT 11

ROTATIONS AT	1	2	3	4	5	6	7	8
KU	-1.51369E-05	-1.97493E-05	-1.97493E-05	-1.97493E-05	-1.97493E-05	-5.52647E-06	-8.24943E-06	-1.03142E-05
NASTRAN	-6.65778E-06	-8.52760E-06	-1.05208E-05	-1.19671E-05	-1.45564E-05	-2.70256E-06	-4.01447E-06	-5.36106E-06
ROTATIONS AT	9	10	11	12	13	14	15	16
KU	-1.23661E-05	-1.51369E-05	-1.97493E-05	-2.73646E-07	-7.18550E-07	-1.74231E-06	-3.31248E-06	-5.52647E-06
NASTRAN	-7.25118E-06	-1.25229E-05	-1.67695E-05	-3.19071E-07	-9.28942E-07	-1.45594E-06	-2.03832E-06	-3.18695E-06
ROTATIONS AT	17	18						
KU	-8.24943E-06	-1.03142E-05						
NASTRAN	-4.13252E-06	-4.12746E-06						

LOAD AT POINT 12

ROTATIONS AT	1	2	3	4	5	6	7	8
KU	1.02678E-07	1.02678E-07	1.02678E-07	1.02678E-07	1.02678E-07	1.02678E-07	1.02678E-07	1.02678E-07
NASTRAN	1.83127E-06	1.74004E-06	1.15158E-06	9.30135E-07	8.35181E-07	4.05576E-06	1.48253E-06	1.31059E-06
ROTATIONS AT	9	10	11	12	13	14	15	16
KU	1.02678E-07	1.02678E-07	1.02678E-07	1.02678E-07	1.02678E-07	1.02678E-07	1.02678E-07	1.02678E-07
NASTRAN	7.79896E-07	6.35167E-07	6.08959E-07	4.31854E-06	3.72538E-06	6.59099E-07	6.76800E-07	2.96662E-07
ROTATIONS AT	17	18						
KU	1.02678E-07	1.02678E-07						
NASTRAN	2.72631E-07	2.56020E-07						

Table 31 (Continued)

KU= AND NASTRAN= ROTATIONAL INFLUENCE COEFFICIENTS FOR BUILT-UP WING 7
(ALL ROTATIONS ARE BASED ON A 1LB. LOAD)

LOAD AT POINT 13

ROTATIONS AT	1	2	3	4	5	6	7	8
KU	2.05203E-07	2.05203E-07	2.05203E-07	2.05203E-07	2.05203E-07	2.05203E-07	2.05203E-07	2.05203E-07
NASTRAN	1.10742E-06	2.13750E-06	1.65924E-06	1.35128E-06	1.30295E-06	1.20425E-06	1.72448E-06	1.57651E-06
ROTATIONS AT	9	10	11	12	13	14	15	16
KU	2.05203E-07	2.05203E-07	2.05203E-07	4.22621E-08	2.05203E-07	2.05203E-07	2.05203E-07	2.05203E-07
NASTRAN	1.24446E-06	9.72608E-07	9.97158E-07	-8.03560E-06	3.18554E-07	4.49371E-06	6.96680E-07	6.56087E-07
ROTATIONS AT	17	18						
KU	2.05203E-07	2.05203E-07						
NASTRAN	4.38117E-07	4.77463E-07						

LOAD AT POINT 14

ROTATIONS AT	1	2	3	4	5	6	7	8
KU	2.67311E-07	2.67311E-07	2.67311E-07	2.67311E-07	2.67311E-07	2.67311E-07	2.67311E-07	2.67311E-07
NASTRAN	5.49197E-07	1.55884E-06	1.35789E-06	1.45178E-06	1.33352E-06	-8.92578E-07	8.45625E-07	1.18329E-06
ROTATIONS AT	9	10	11	12	13	14	15	16
KU	2.67311E-07	2.67311E-07	2.67311E-07	-1.81541E-08	1.83627E-08	2.67311E-07	2.67311E-07	2.67311E-07
NASTRAN	1.12819E-06	1.24805E-06	1.13085E-06	5.60387E-07	-5.10077E-06	1.17968E-06	5.11898E-06	5.26676E-07
ROTATIONS AT	17	18						
KU	2.67311E-07	2.67311E-07						
NASTRAN	7.21807E-07	6.39201E-07						

LOAD AT POINT 15

ROTATIONS AT	1	2	3	4	5	6	7	8
KU	-9.31499E-08	-9.31499E-08	-9.31499E-08	-9.31499E-08	-9.31499E-08	-9.31499E-08	-9.31499E-08	-9.31499E-08
NASTRAN	-1.45529E-06	8.25332E-08	1.04026E-06	8.56659E-07	1.21467E-06	-1.10277E-06	-1.06731E-06	8.01045E-08
ROTATIONS AT	9	10	11	12	13	14	15	16
KU	-9.31499E-08	-9.31499E-08	-9.31499E-08	-6.34449E-08	-1.21701E-07	-1.56930E-07	-9.31499E-08	-9.31499E-08
NASTRAN	9.91858E-07	7.80410E-07	1.32117E-06	-1.00777E-06	1.85778E-07	-5.41900E-06	4.13892E-07	4.98759E-06
ROTATIONS AT	17	18						
KU	-9.31499E-08	-9.31499E-08						
NASTRAN	1.82979E-07	1.06938E-06						

Table 31 (Continued)

KU= AND NASTRAN= ROTATIONAL INFLUENCE COEFFICIENTS FOR BUILT-UP WING 7
(ALL ROTATIONS ARE BASED ON A 1LB. LOAD)

LOAD AT POINT 16

ROTATIONS AT	1	2	3	4	5	6	7	8
KU	-1.60964E-06	-1.60964E-06	-1.60964E-06	-1.60964E-06	-1.60964E-06	-1.60964E-06	-1.60964E-06	-1.60964E-06
NASTRAN	-1.39115E-06	-1.50521E-06	-6.64293E-07	1.59938E-07	4.55980E-09	-1.29057E-06	-1.12736E-06	-1.41187E-06
ROTATIONS AT	9	10	11	12	13	14	15	16
KU	-1.60964E-06	-1.60964E-06	-1.60964E-06	-1.08736E-07	-2.61765E-07	-5.81170E-07	-1.03725E-06	-1.60964E-06
NASTRAN	-4.26106E-07	5.57225E-07	2.38515E-07	-2.96380E-07	-6.20272E-07	-5.49184E-07	-3.18827E-06	-1.91994E-07
ROTATIONS AT	17	18						
KU	-1.60964E-06	-1.60964E-06						
NASTRAN	3.00092E-06	4.28904E-07						

LOAD AT POINT 17

ROTATIONS AT	1	2	3	4	5	6	7	8
KU	-4.95256E-06	-4.95256E-06	-4.95256E-06	-4.95256E-06	-4.95256E-06	-3.34478E-06	-4.95256E-06	-4.95256E-06
NASTRAN	-2.07978E-06	-2.10873E-06	-2.57297E-06	-1.90685E-06	-1.12407E-06	-9.37590E-07	-1.51917E-06	-1.53108E-06
ROTATIONS AT	9	10	11	12	13	14	15	16
KU	-4.95256E-06	-4.95256E-06	-4.95256E-06	-1.54026E-07	-4.01829E-07	-1.00541E-06	-1.98135E-06	-3.34478E-06
NASTRAN	-1.95753E-06	-1.83892E-06	-1.18774E-06	-2.00538E-07	-3.36956E-07	-7.44173E-07	-3.85135E-07	-5.33955E-06
ROTATIONS AT	17	18						
KU	-4.95256E-06	-4.95256E-06						
NASTRAN	-1.88789E-06	8.08129E-06						

LOAD AT POINT 18

ROTATIONS AT	1	2	3	4	5	6	7	8
KU	-9.73878E-06	-9.73878E-06	-9.73878E-06	-9.73878E-06	-9.73878E-06	-5.07991E-06	-7.72993E-06	-9.73878E-06
NASTRAN	-2.09071E-06	-2.79876E-06	-3.60783E-06	-4.71597E-06	-4.27891E-06	-7.64581E-07	-1.31435E-06	-2.03287E-06
ROTATIONS AT	9	10	11	12	13	14	15	16
KU	-9.73878E-06	-9.73878E-06	-9.73878E-06	-1.99317E-07	-5.41893E-07	-1.42965E-06	-2.92545E-06	-5.07991E-06
NASTRAN	-2.90824E-06	-3.85132E-06	-5.56283E-06	-1.00517E-08	-2.41449E-07	-4.55589E-07	-8.84053E-07	-1.41693E-06
ROTATIONS AT	17	18						
KU	-7.72993E-06	-9.73878E-06						
NASTRAN	-6.33795E-06	-8.54199E-06						

R.M.S. OF DIFFERENCES = 1.92745E-07

MAXIMUM ERROR = 6.50731E-06

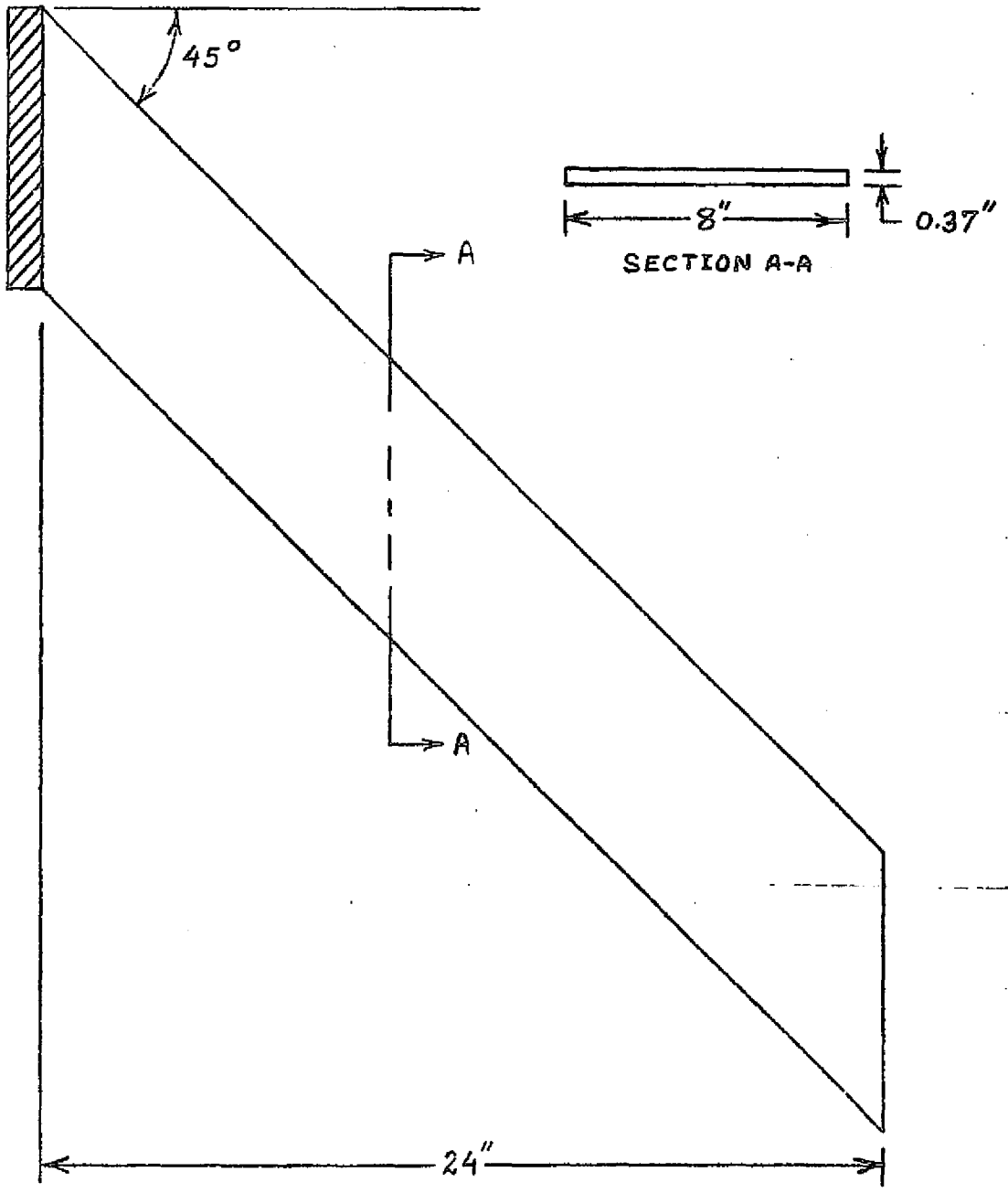


Figure 1 Solid Wing 1 - Geometry and Details

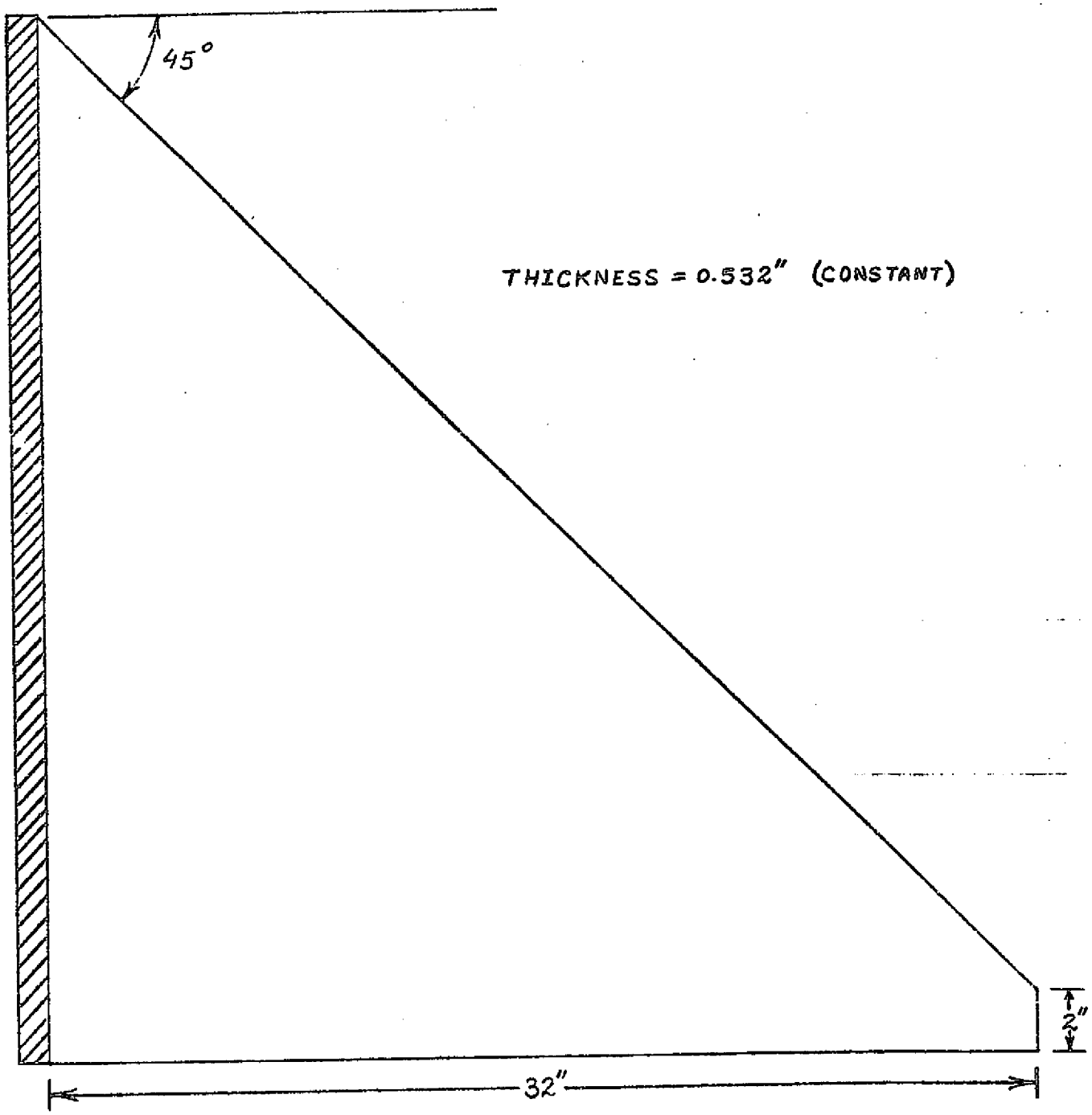


Figure 2 Solid Wing 2 - Geometry and Details

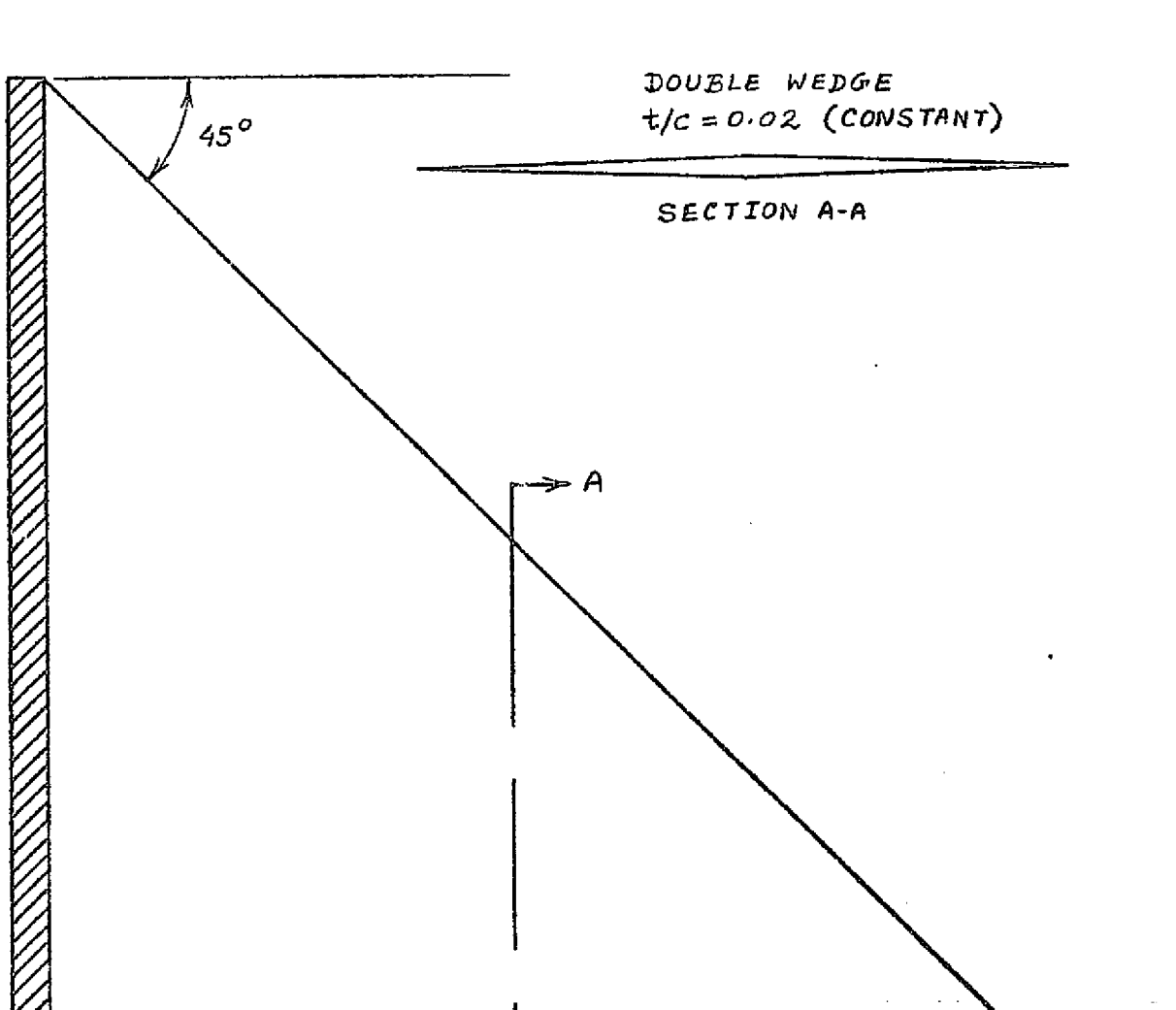
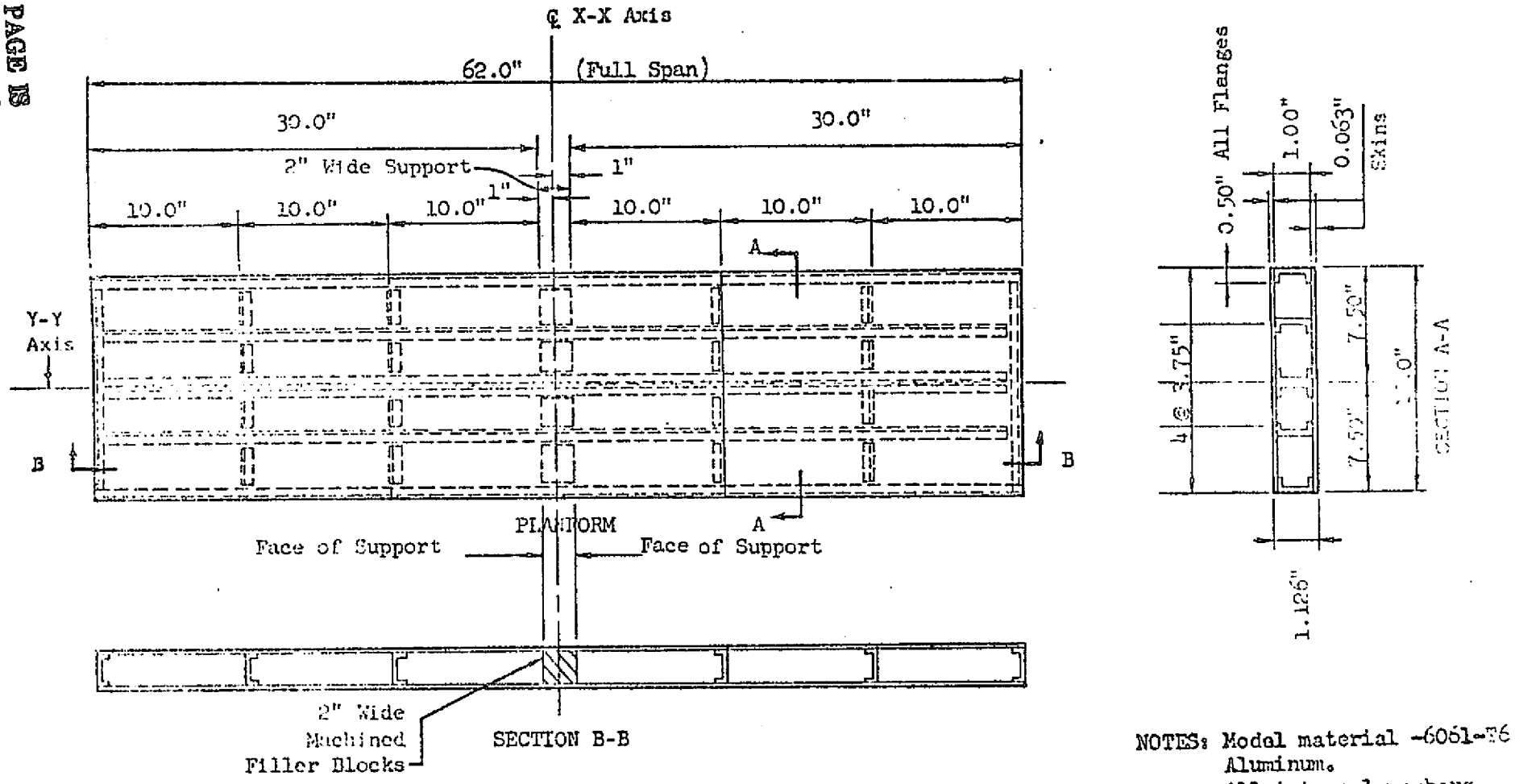
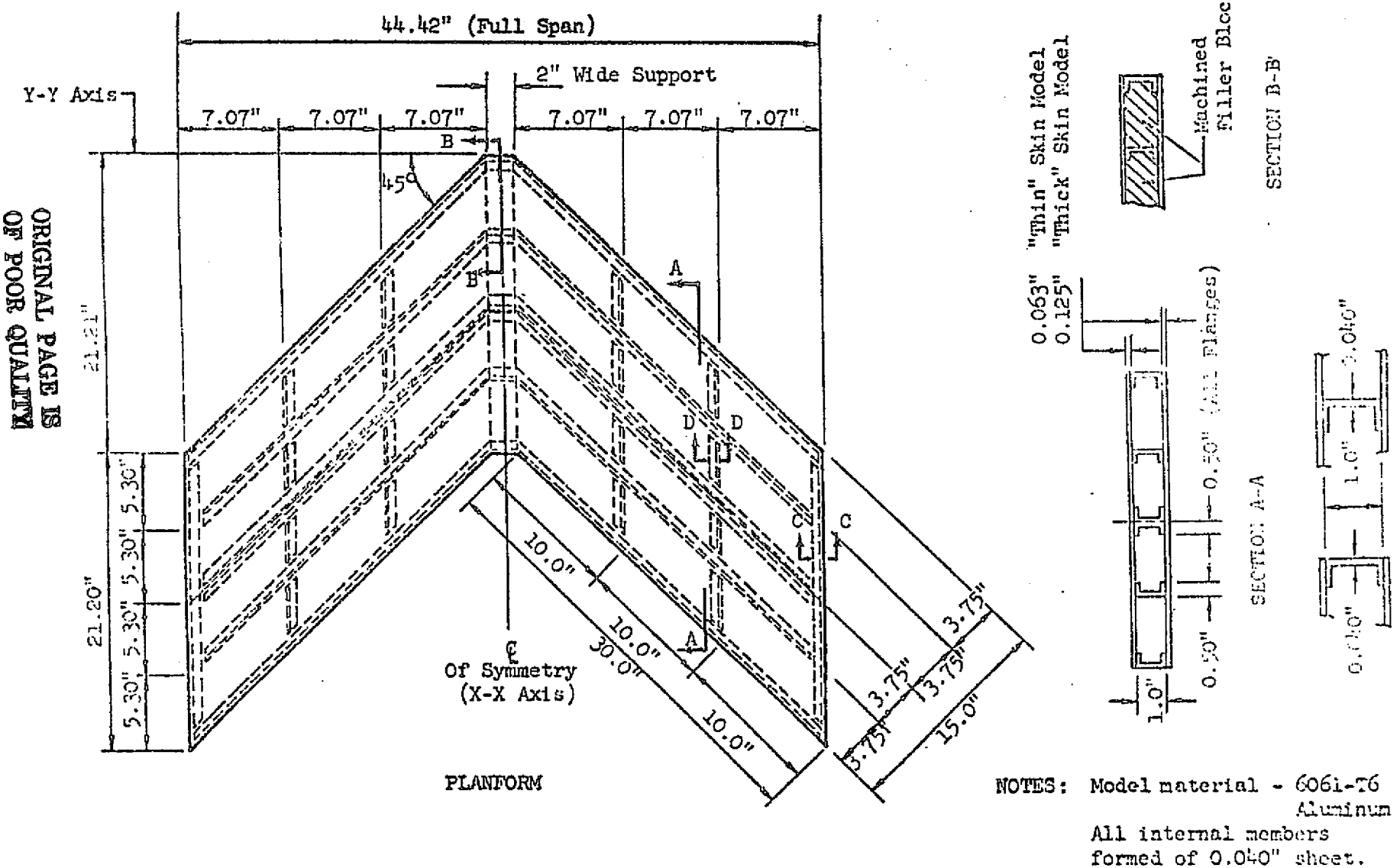


Figure 3 Solid Wing 3 - Geometry and Details



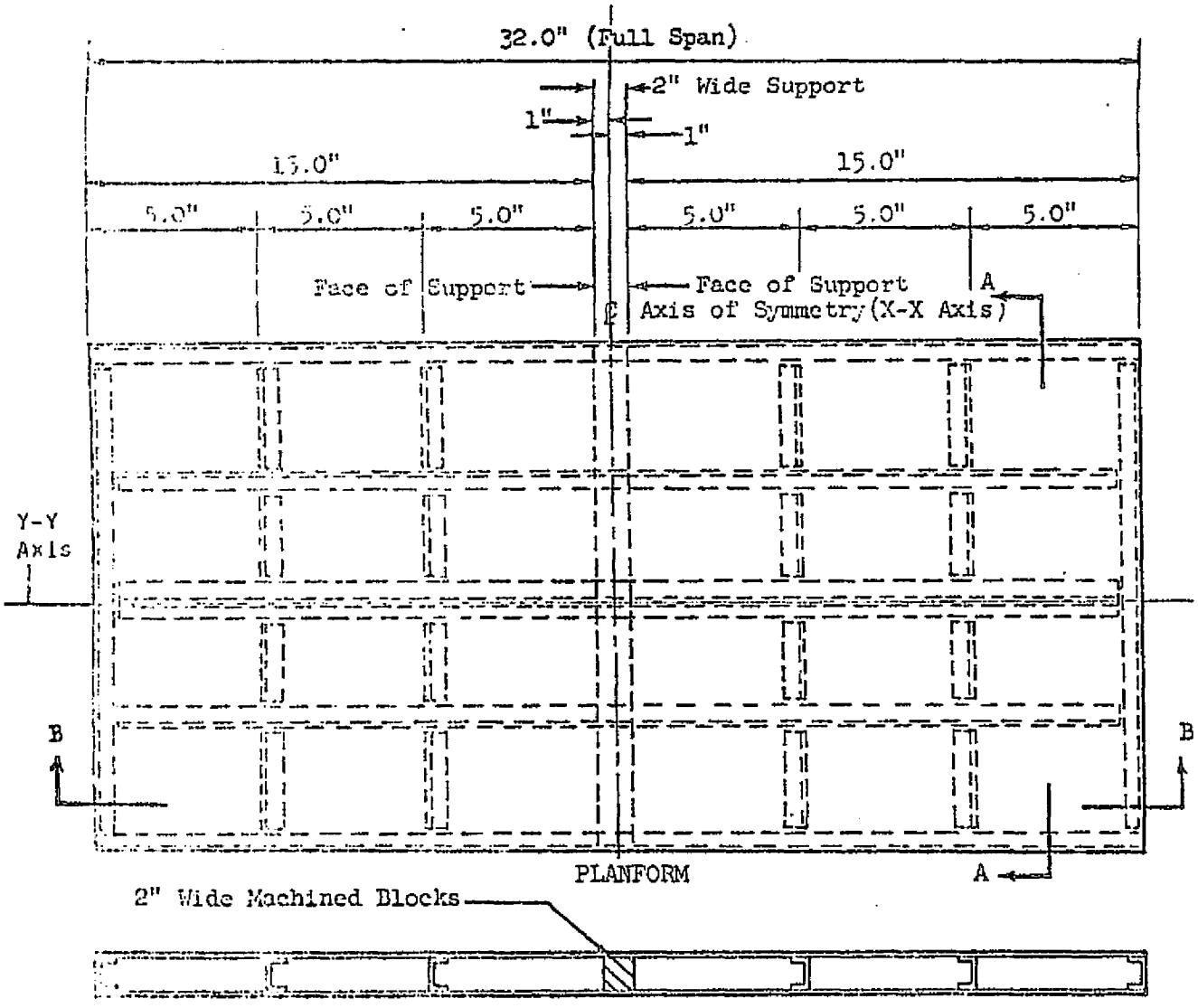
NOTES: Model material -6061-T6 Aluminum.
All internal members formed of 0.040" sheet.

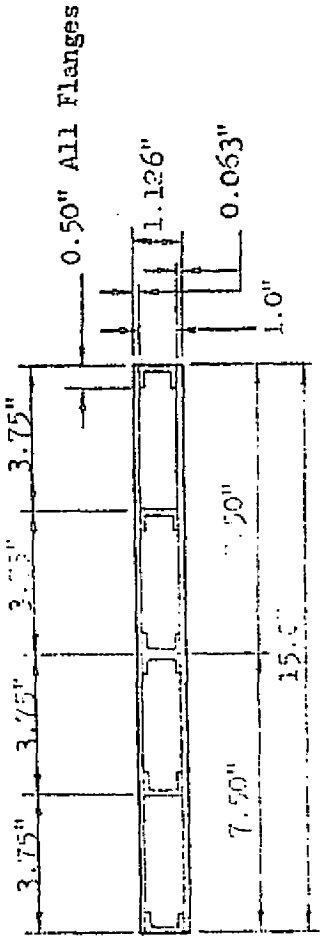
Figure 4 Built-up Wing 1 - Geometry and Details



NOTES: Model material - 6061-T6 Aluminum
All internal members formed of 0.040" sheet.

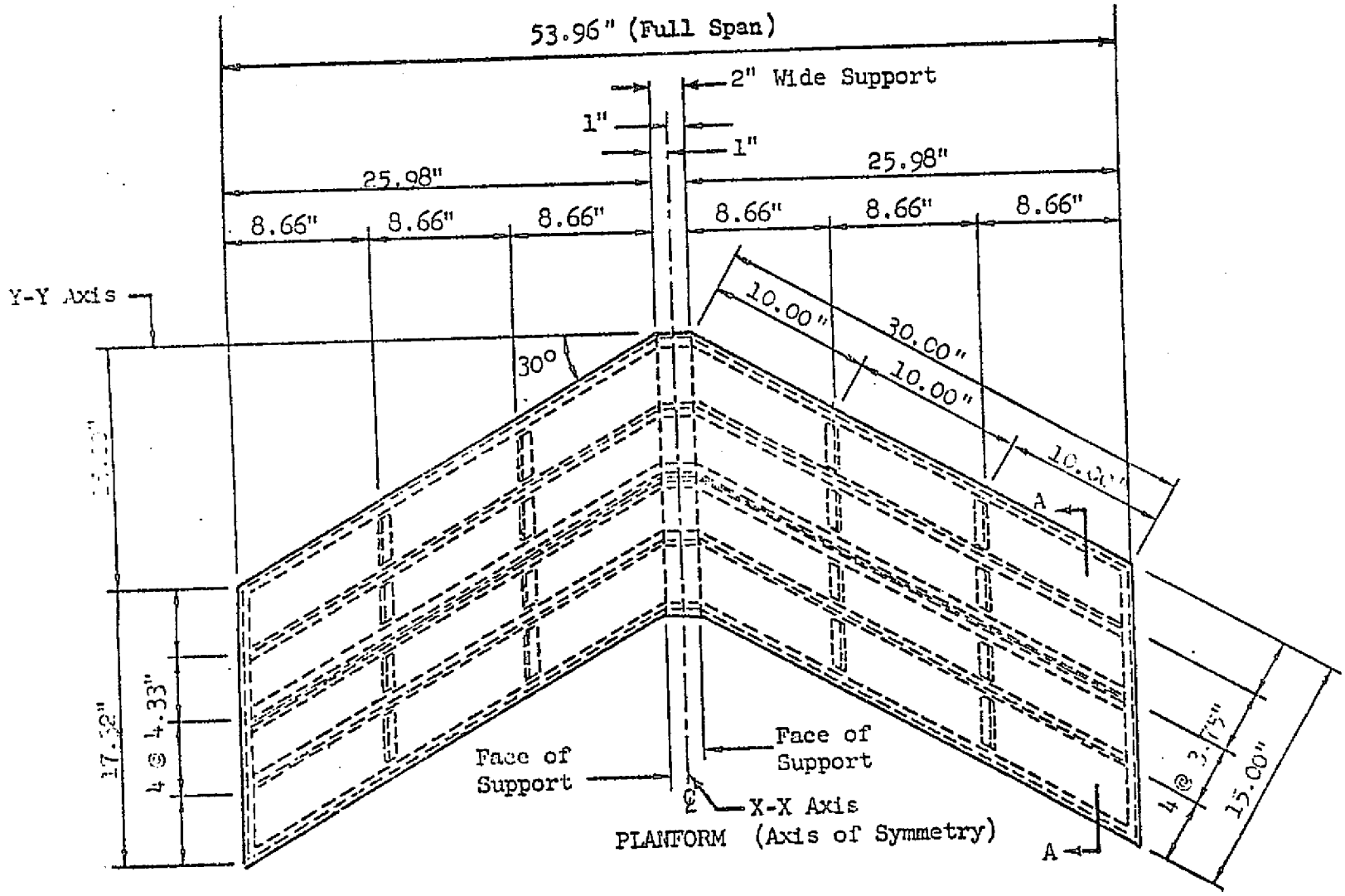
Figure 5 Built-up Wings 2 and 3 - Geometry and Details

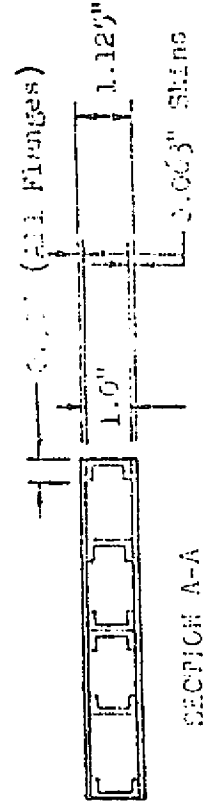




NOTES: Model material - 6061-T6 Aluminum
All internal members formed of 0.040" sheet.

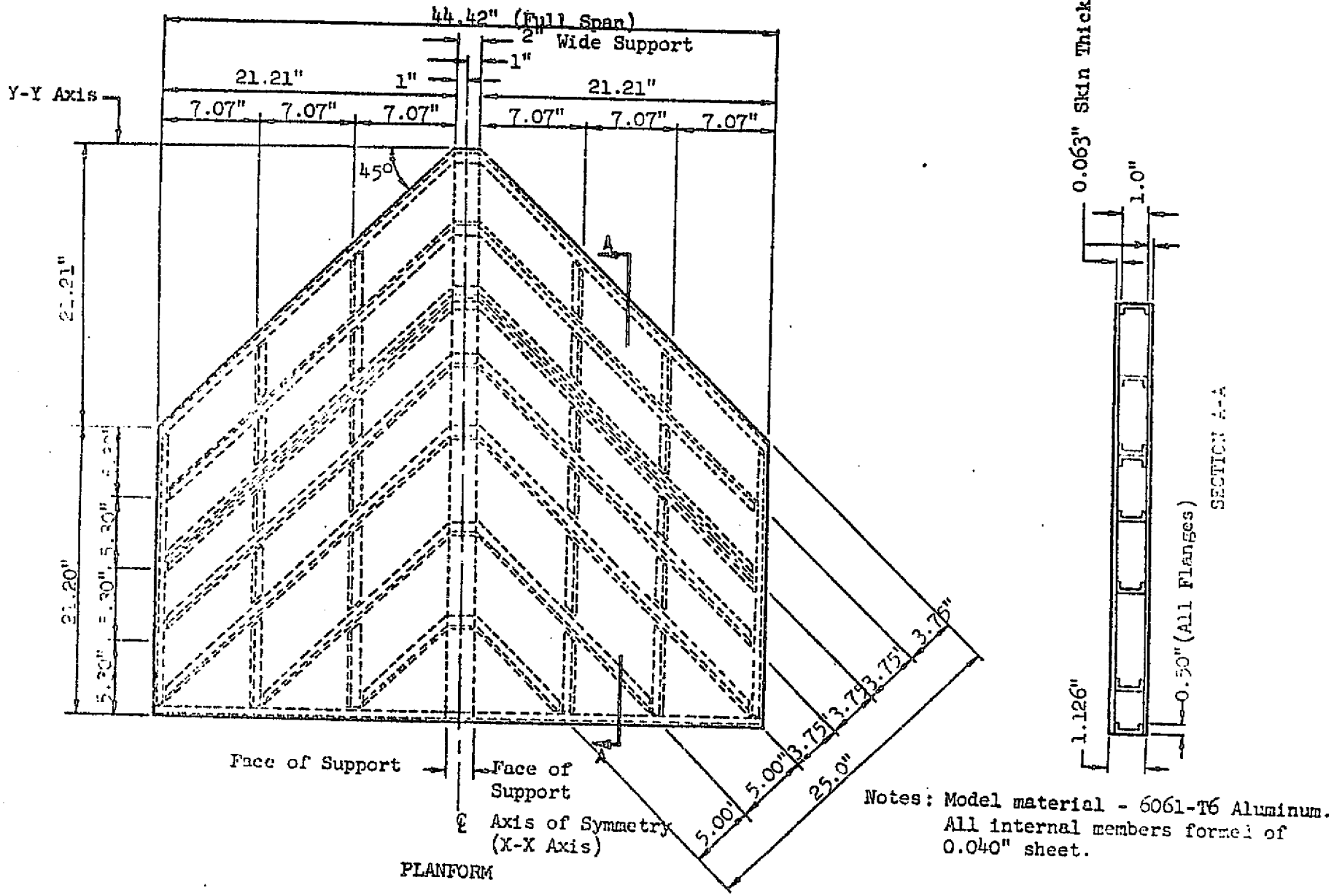
Figure 6 Built-up Wing 4 - Geometry and Details





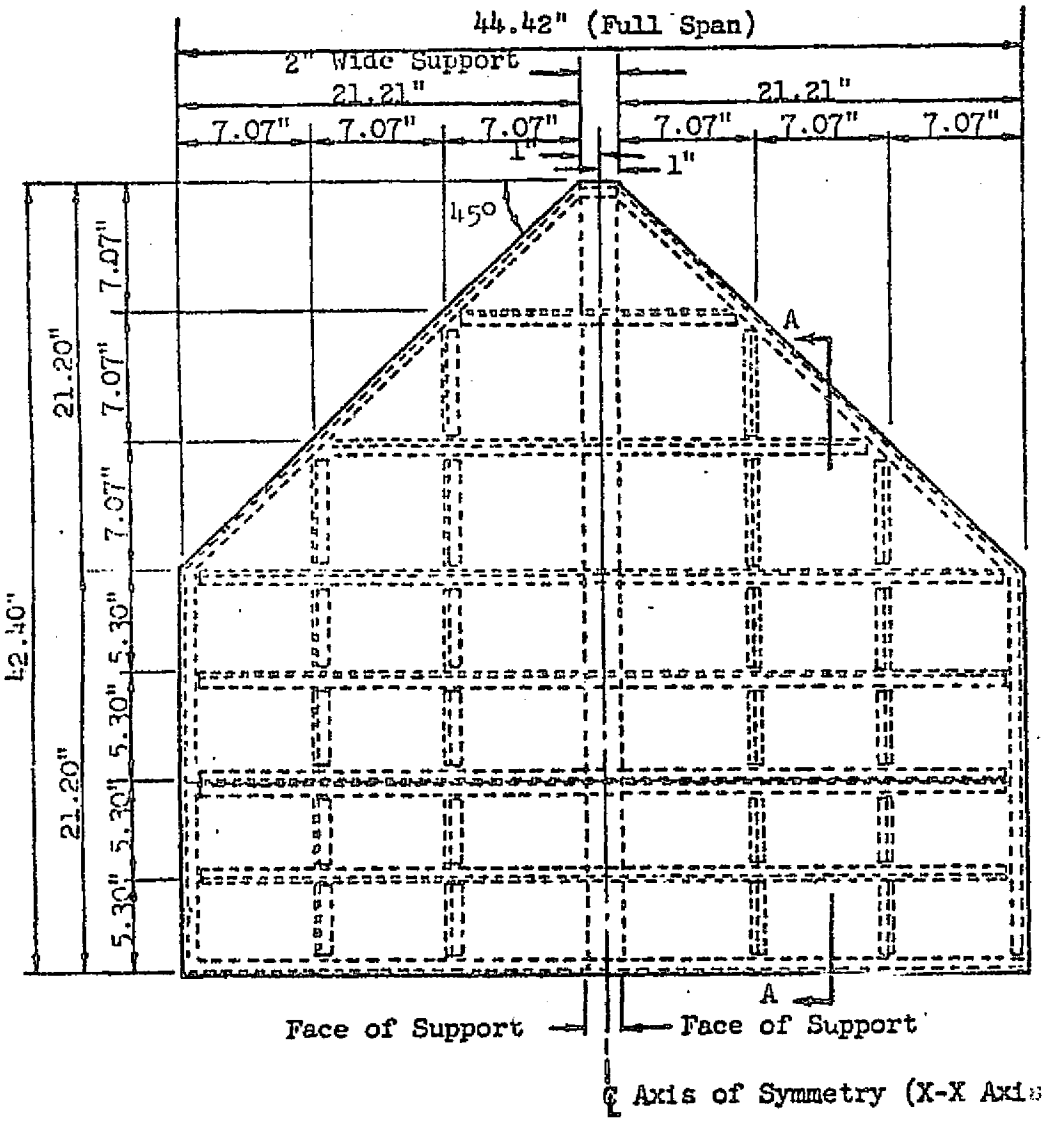
NOTES: Model material -6061-T6 Aluminum.
All internal members formed of 0.040" sheet.

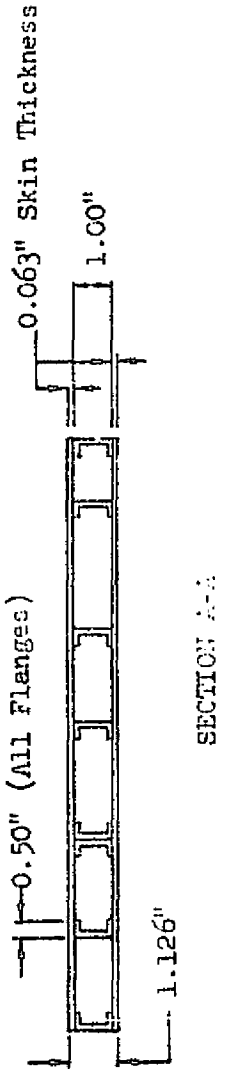
Figure 7 Built-up Wing 5 - Geometry and Details



Notes: Model material - 6061-T6 Aluminum.
All internal members formed of 0.040" sheet.

Figure 8 Built-up Wing 6 - Geometry and Details





NOTES:

Model material - 6061-T6 Aluminum
All internal members formed of 0.040" sheet

Figure 9 Built-up Wing 7 - Geometry and Details

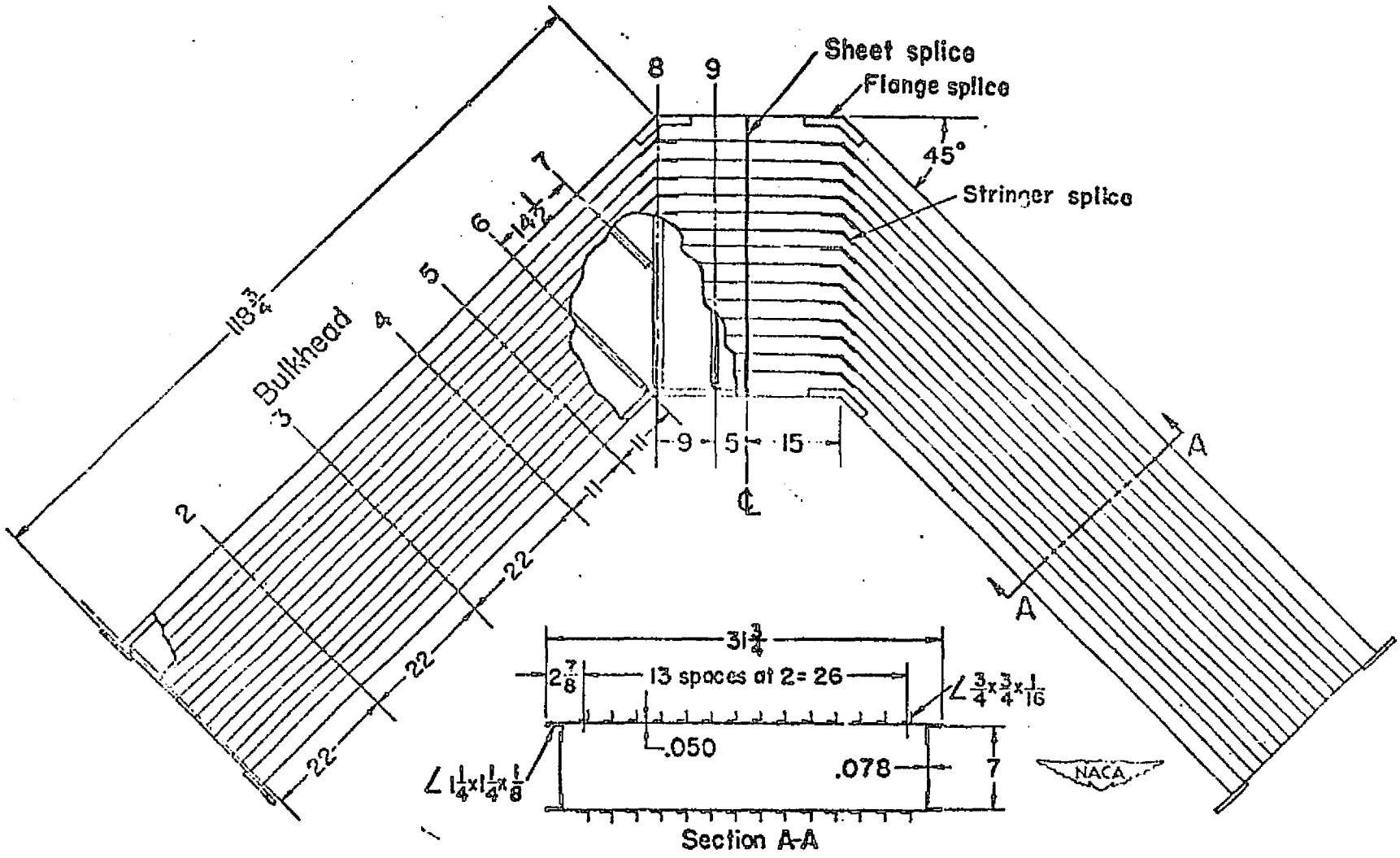


Figure 10 Built-up Wing 8 - Geometry and Details

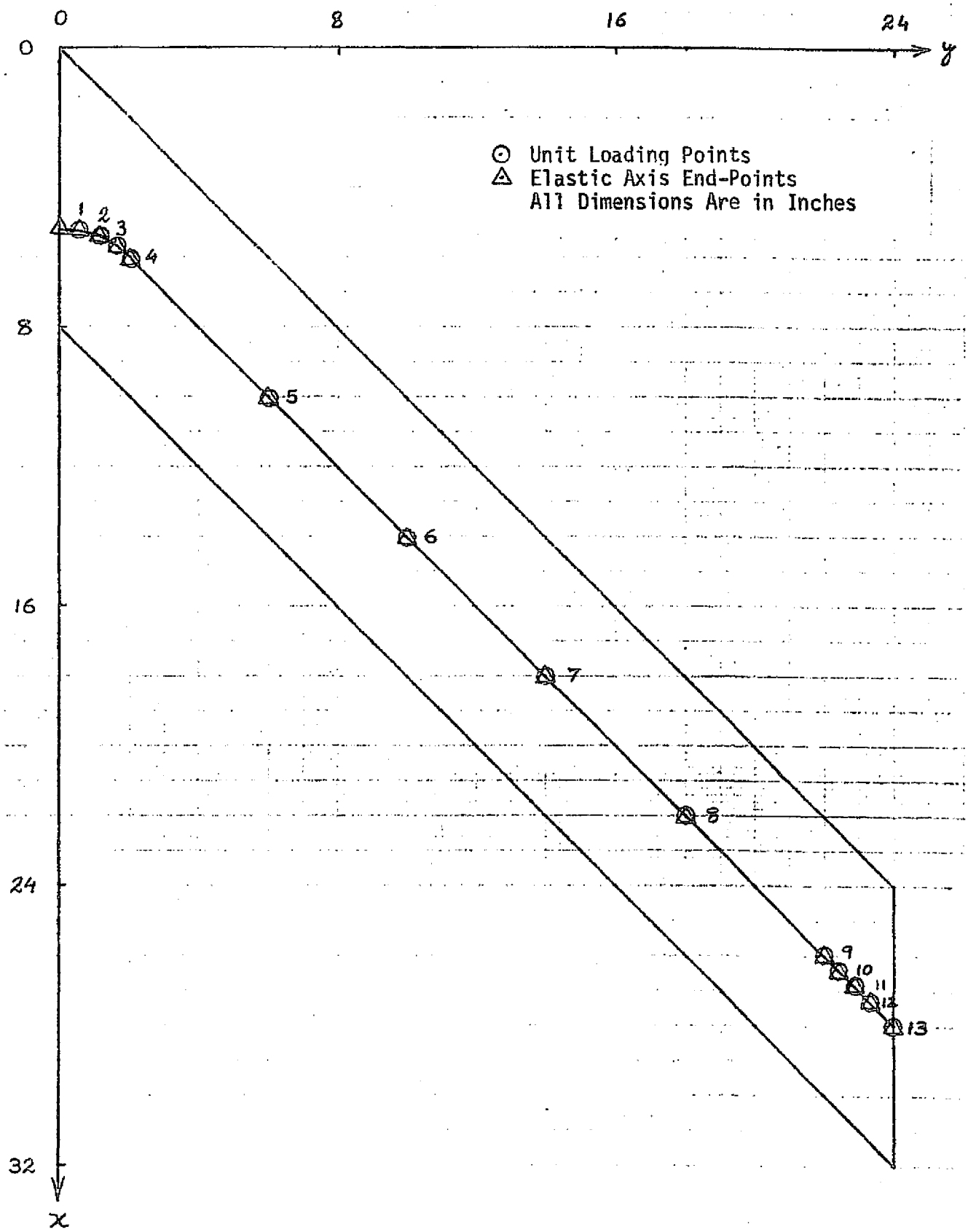


Figure 11 Elastic Axis and Loading Points for Solid Wing 1

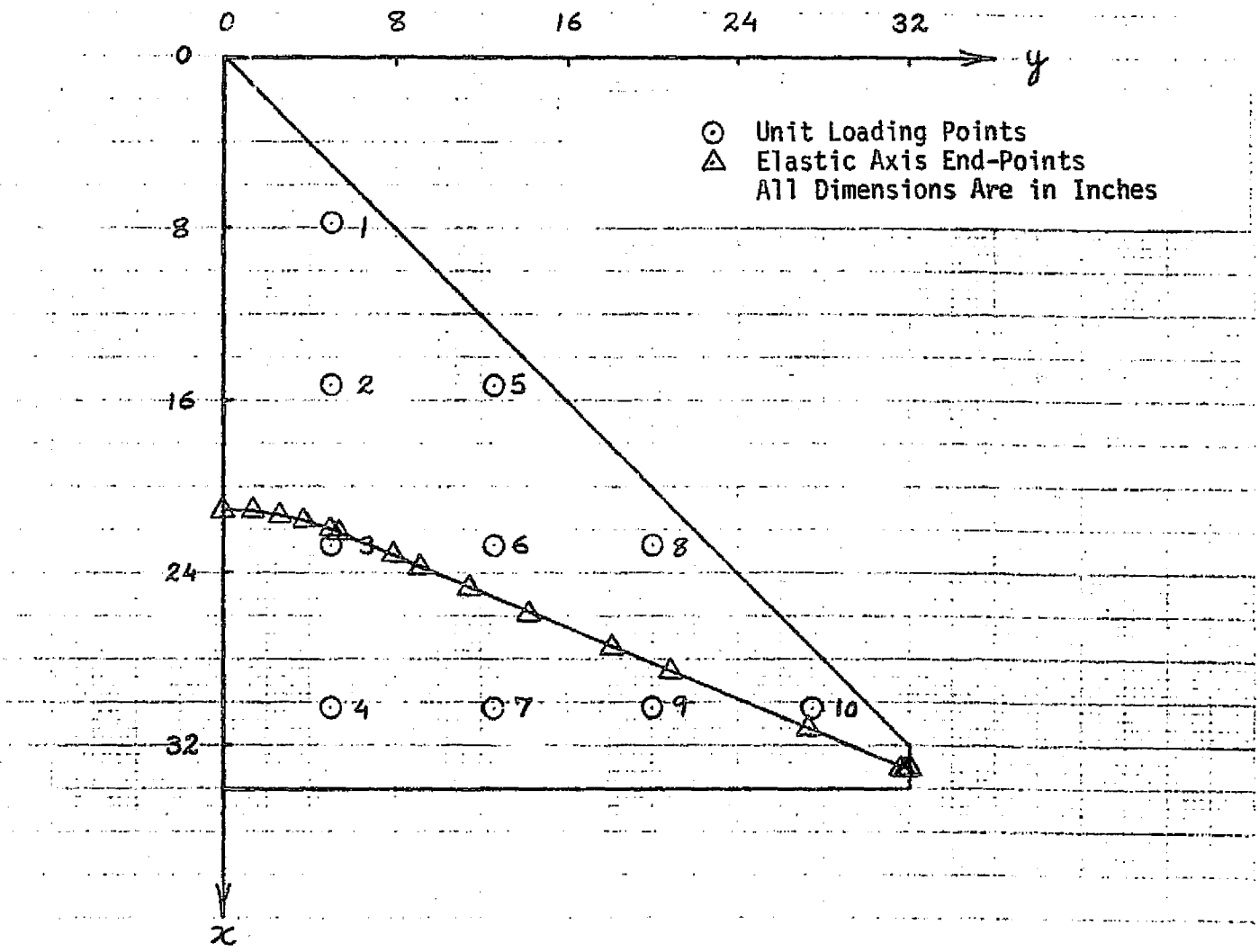


Figure 12 Elastic Axis and Loading Points for Solid Wing 2

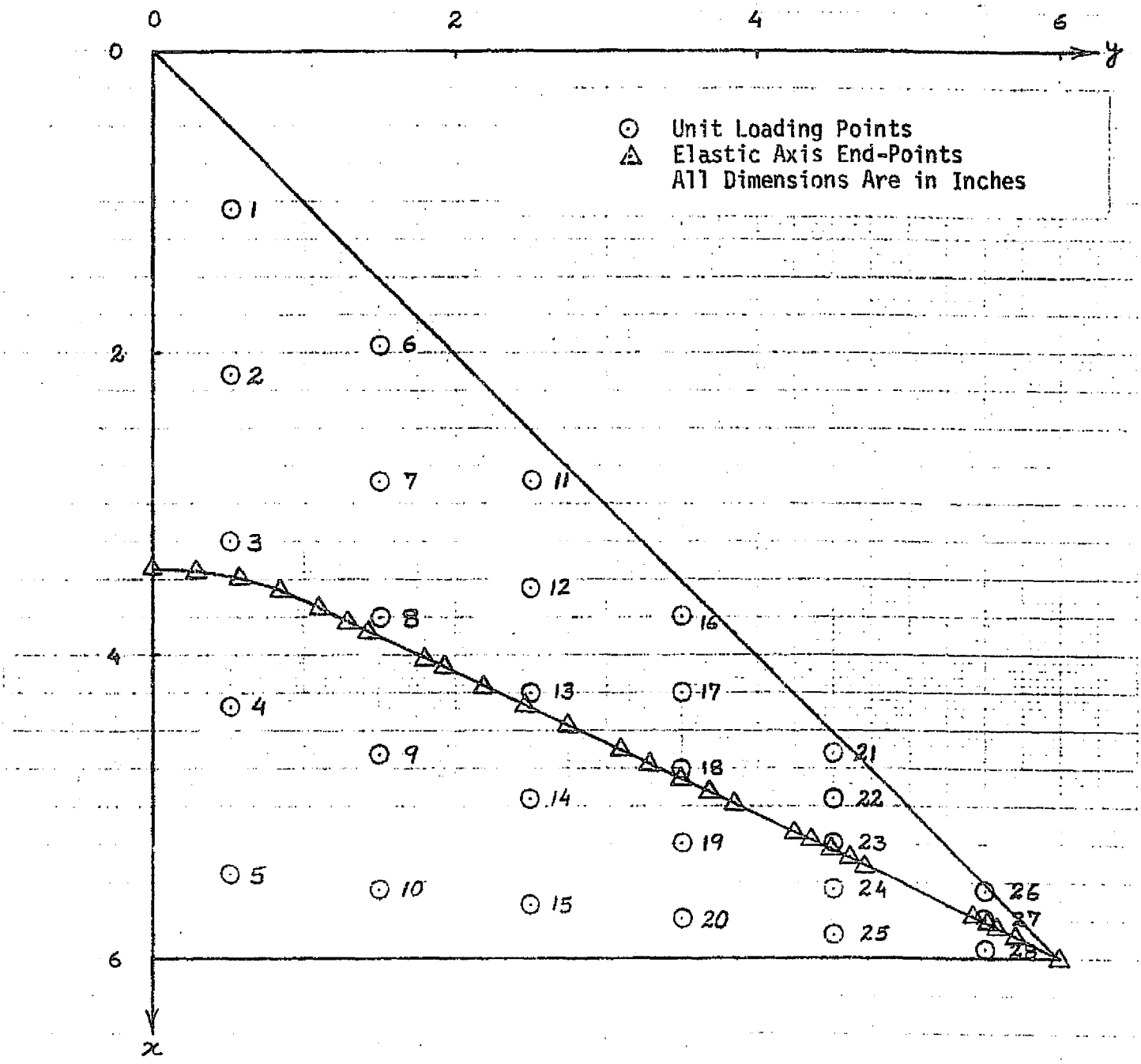


Figure 13 Elastic Axis and Loading Points for Solid Wing 3

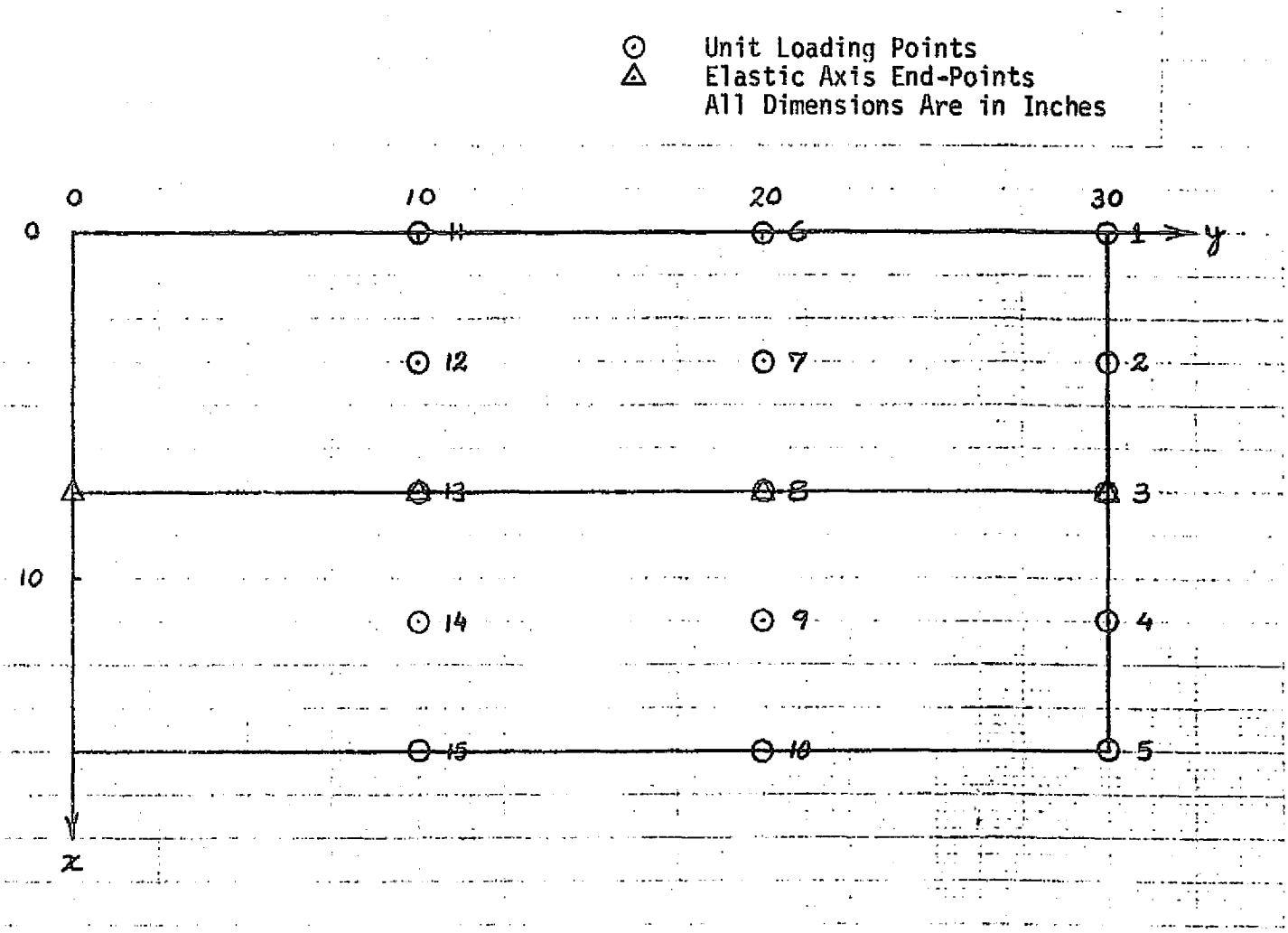


Figure 14 Elastic Axis and Loading Points for Built-up Wing 1

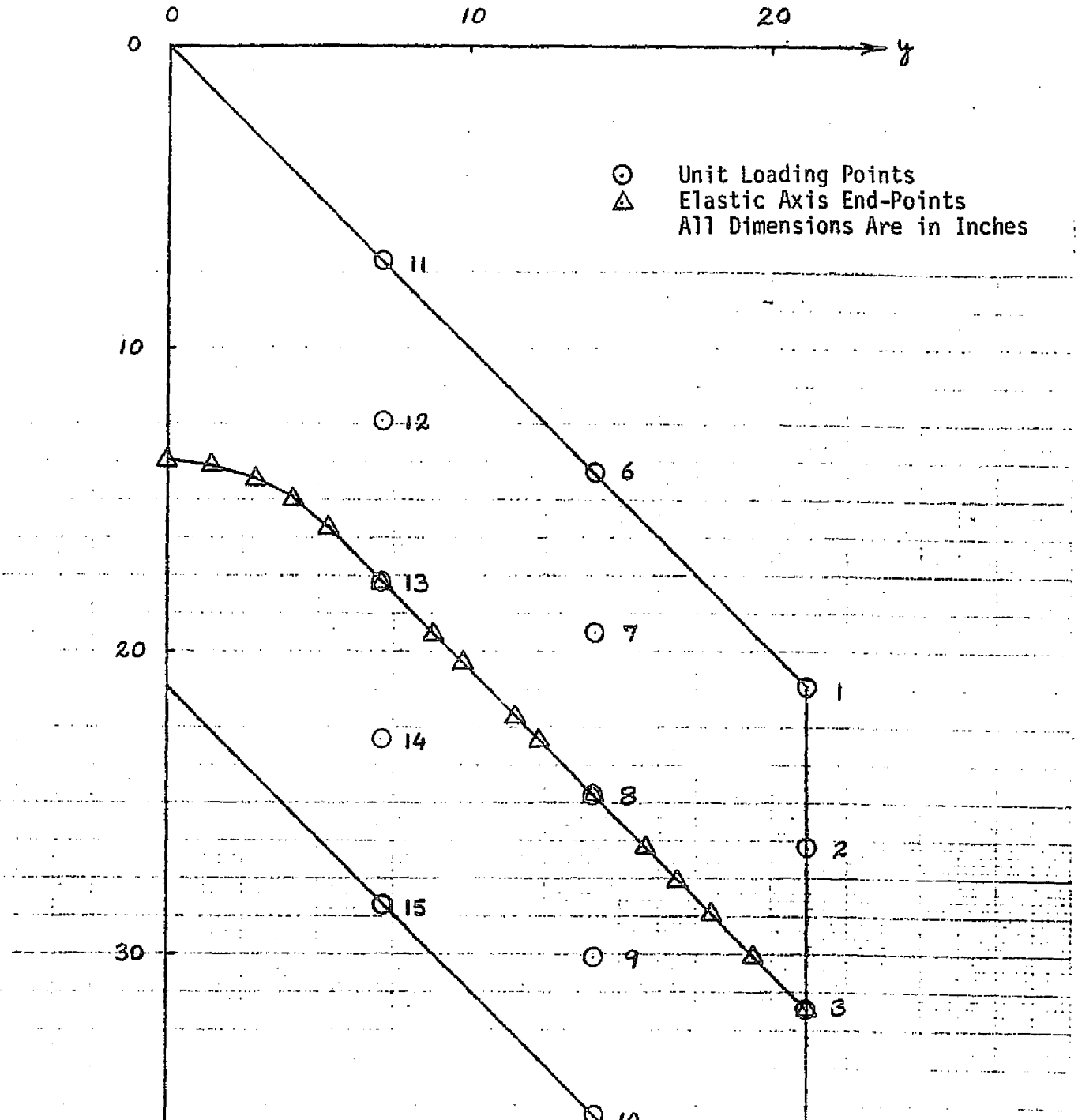


Figure 15 Elastic Axis and Loading Points for Built-up Wings 2 and 3

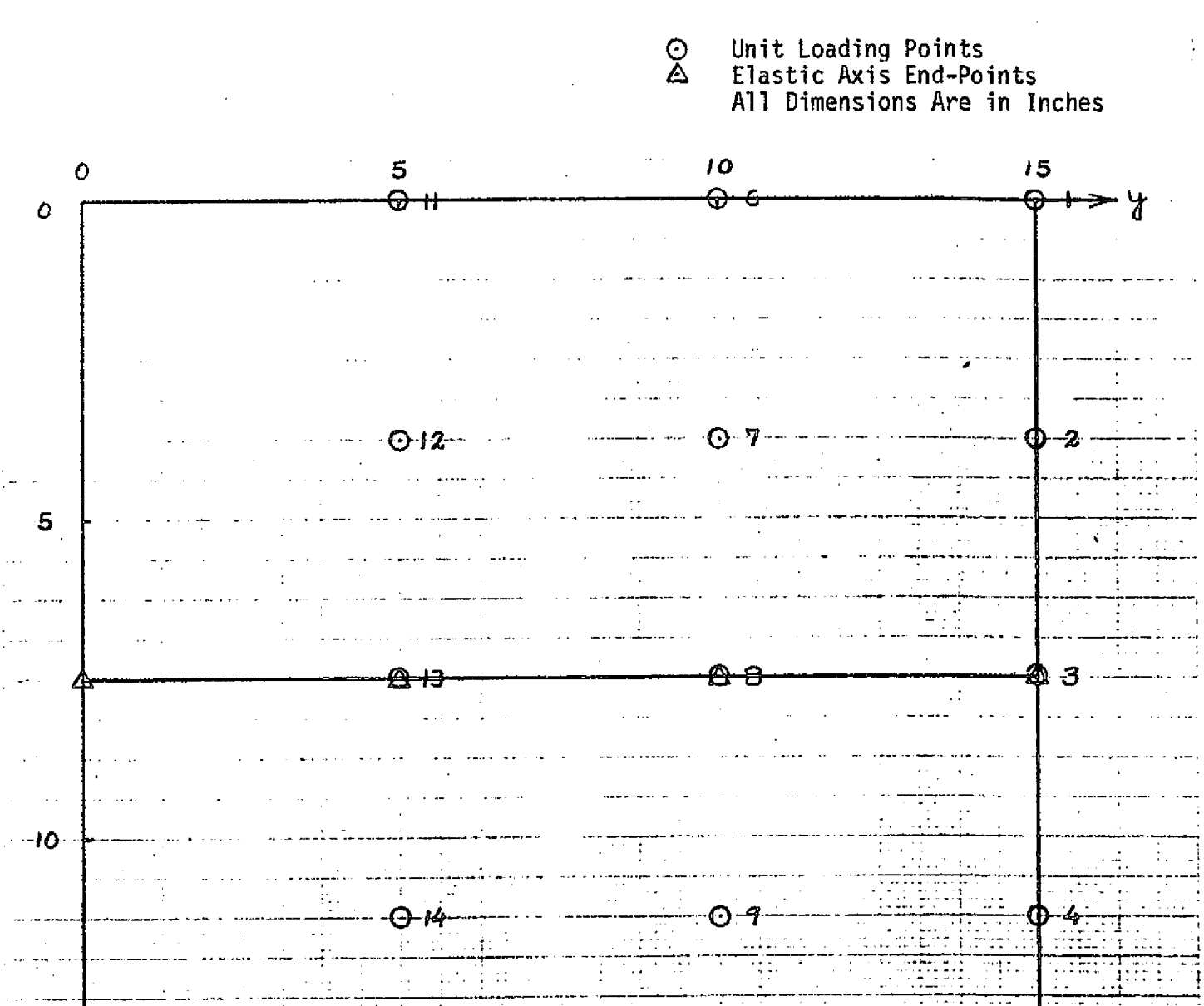


Figure 16 Elastic Axis and Loading Points for Built-up Wing 4

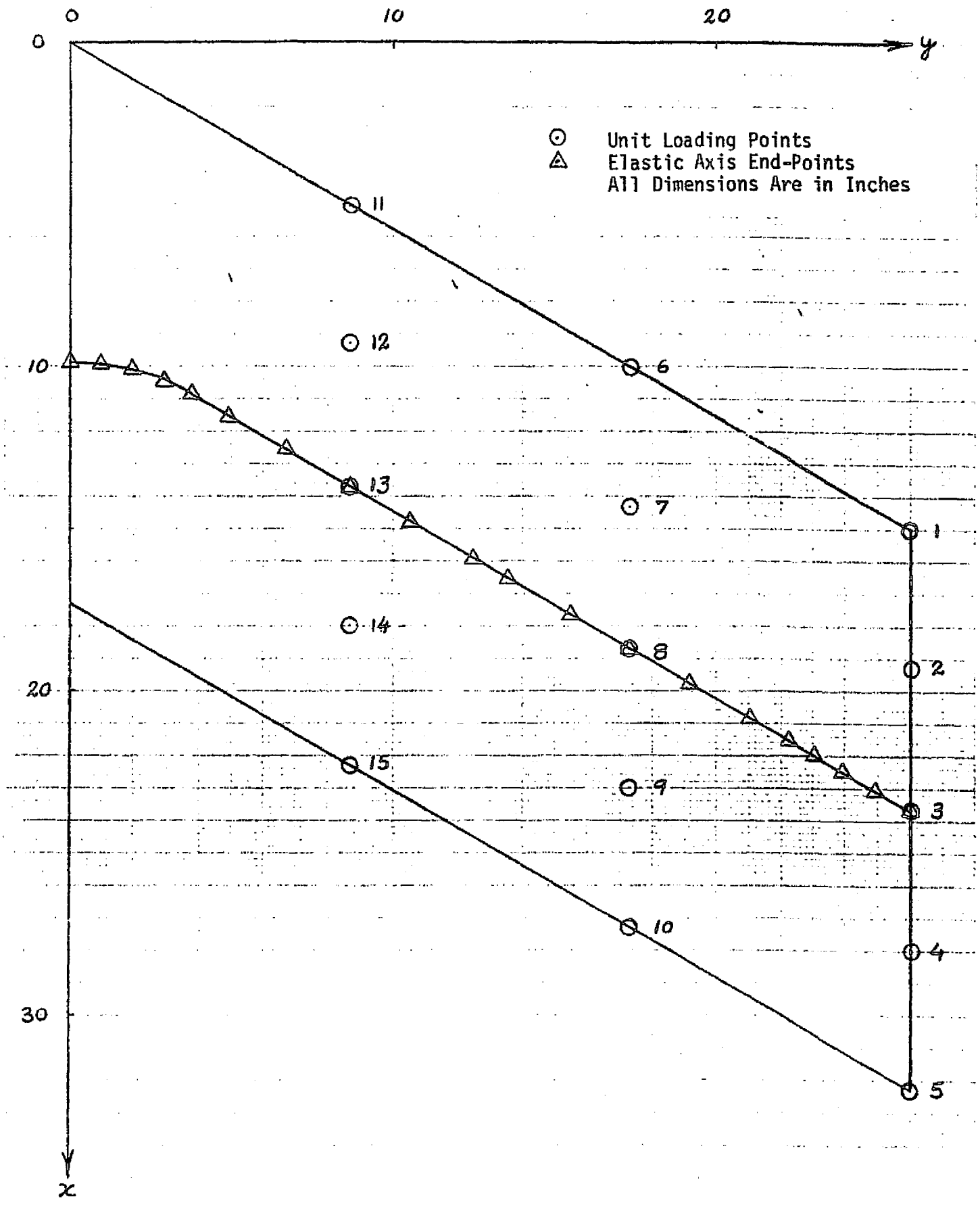


Figure 17 Elastic Axis and Loading Points for Built-up Wing 5

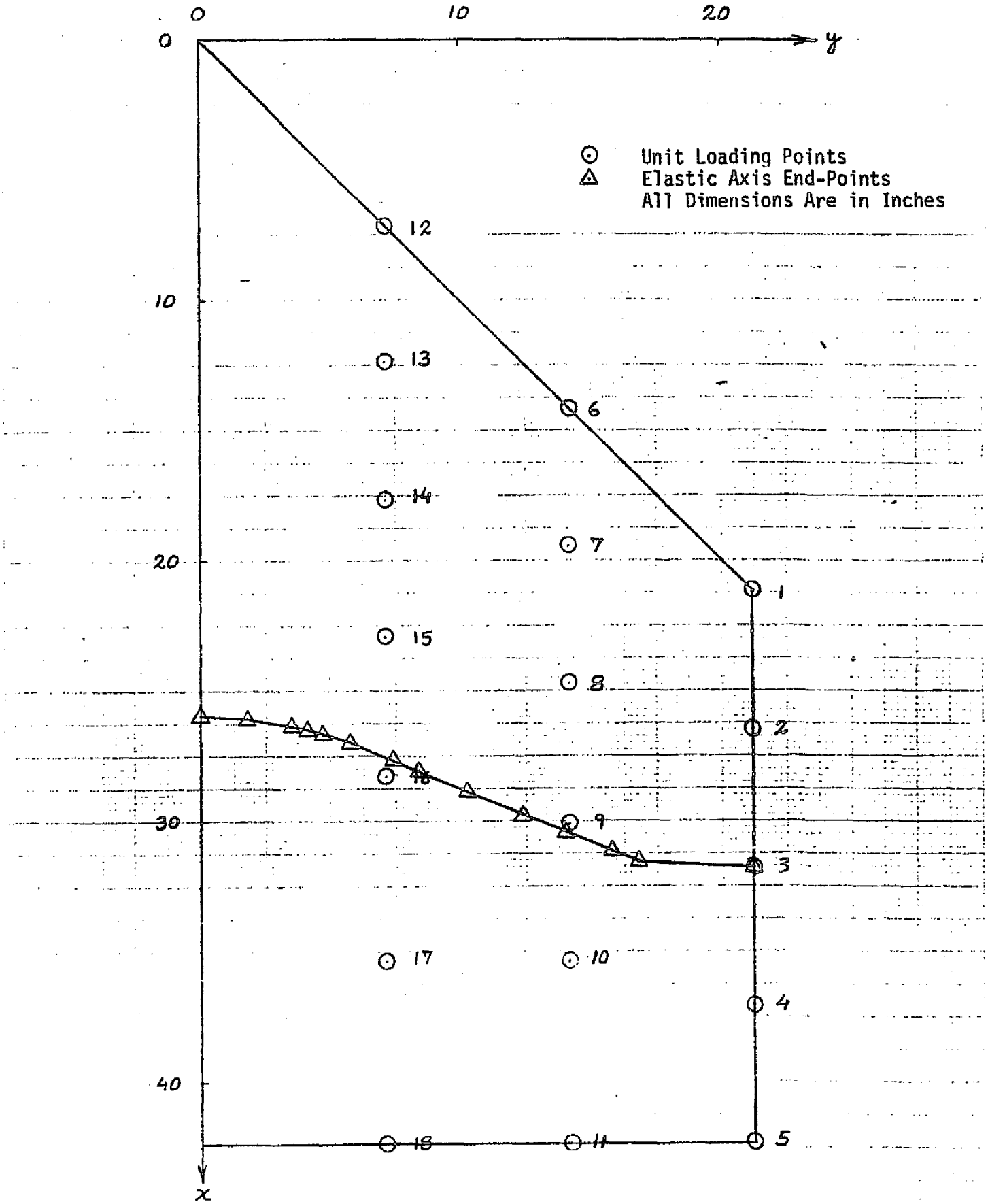


Figure 18 Elastic Axis and Loading Points for Built-up Wing 6

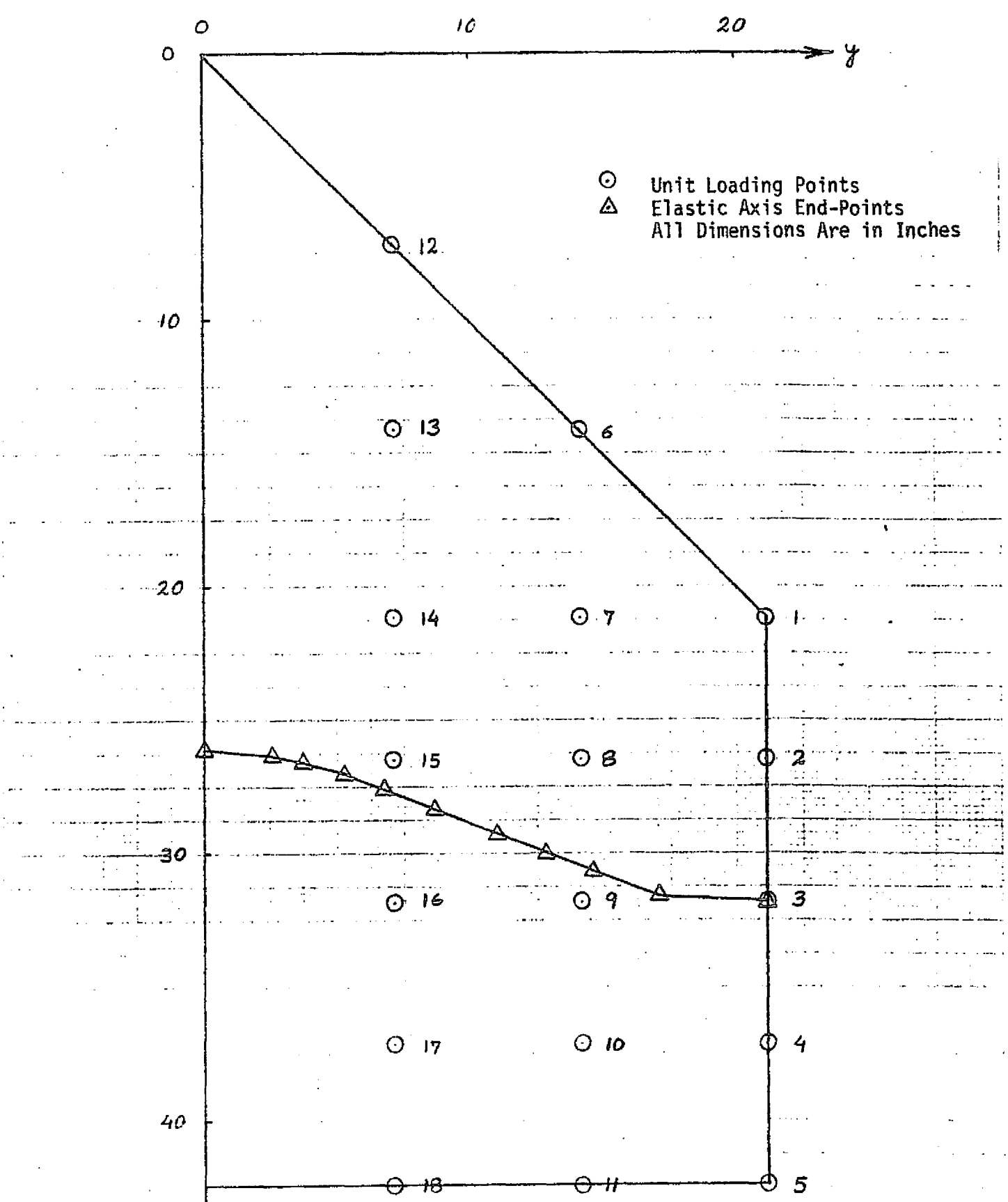


Figure 19 Elastic Axis and Loading Points for Built-up Wing 7

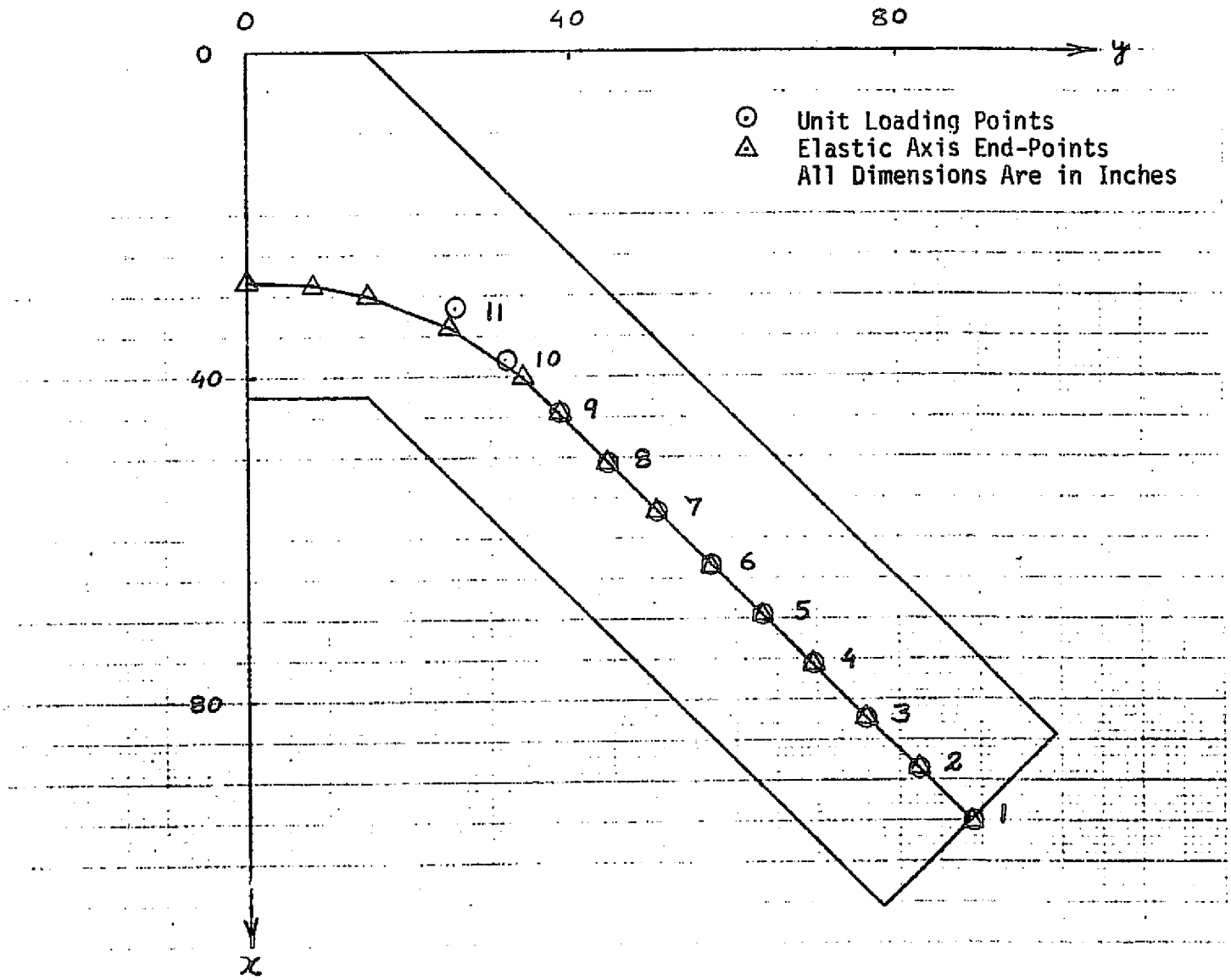


Figure 20 Elastic Axis and Loading Points for Built-up Wing 8

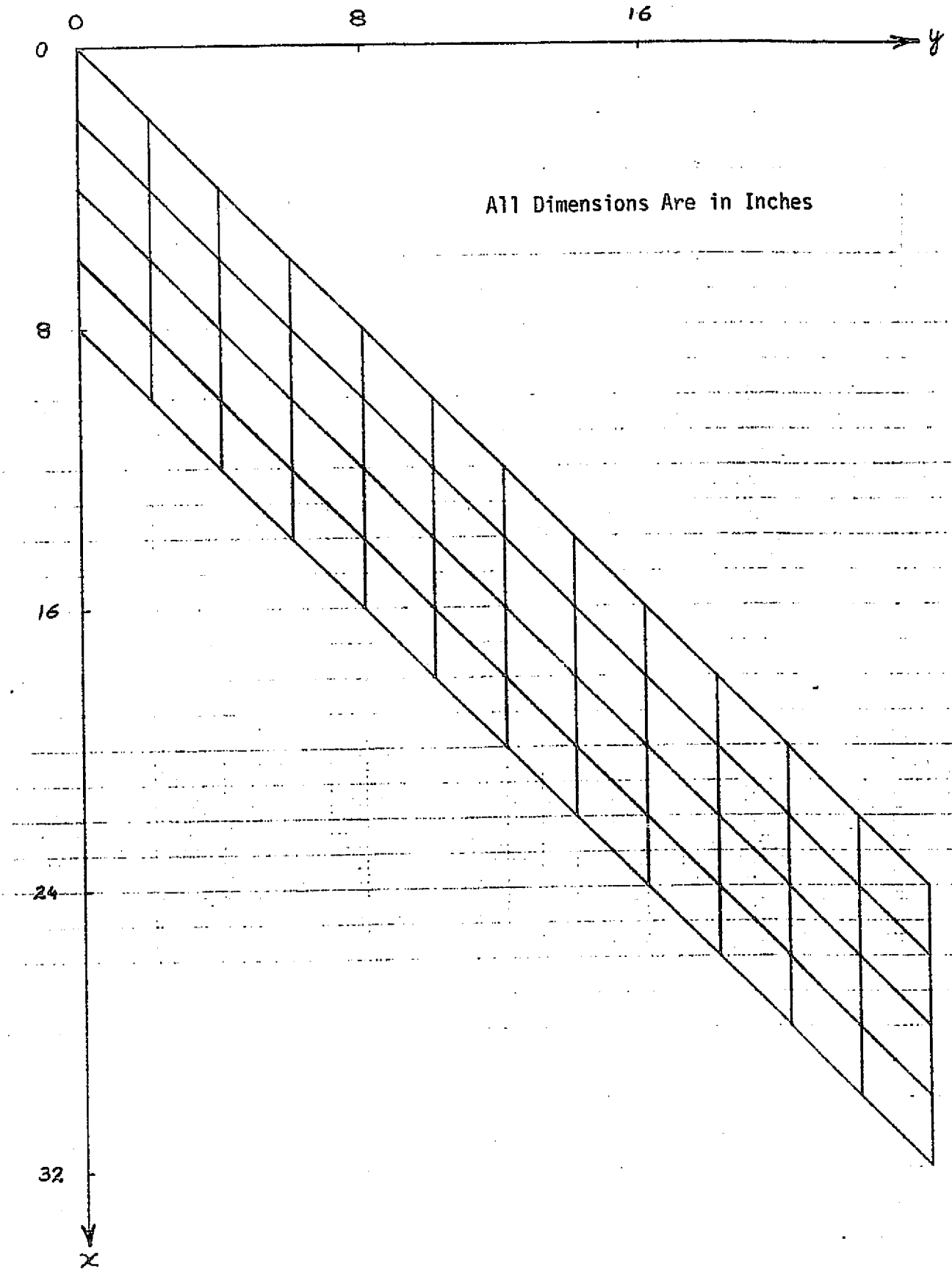


Figure 21 Plate Elements Boundaries Used in NASTRAN Modeling of Solid Wing 1

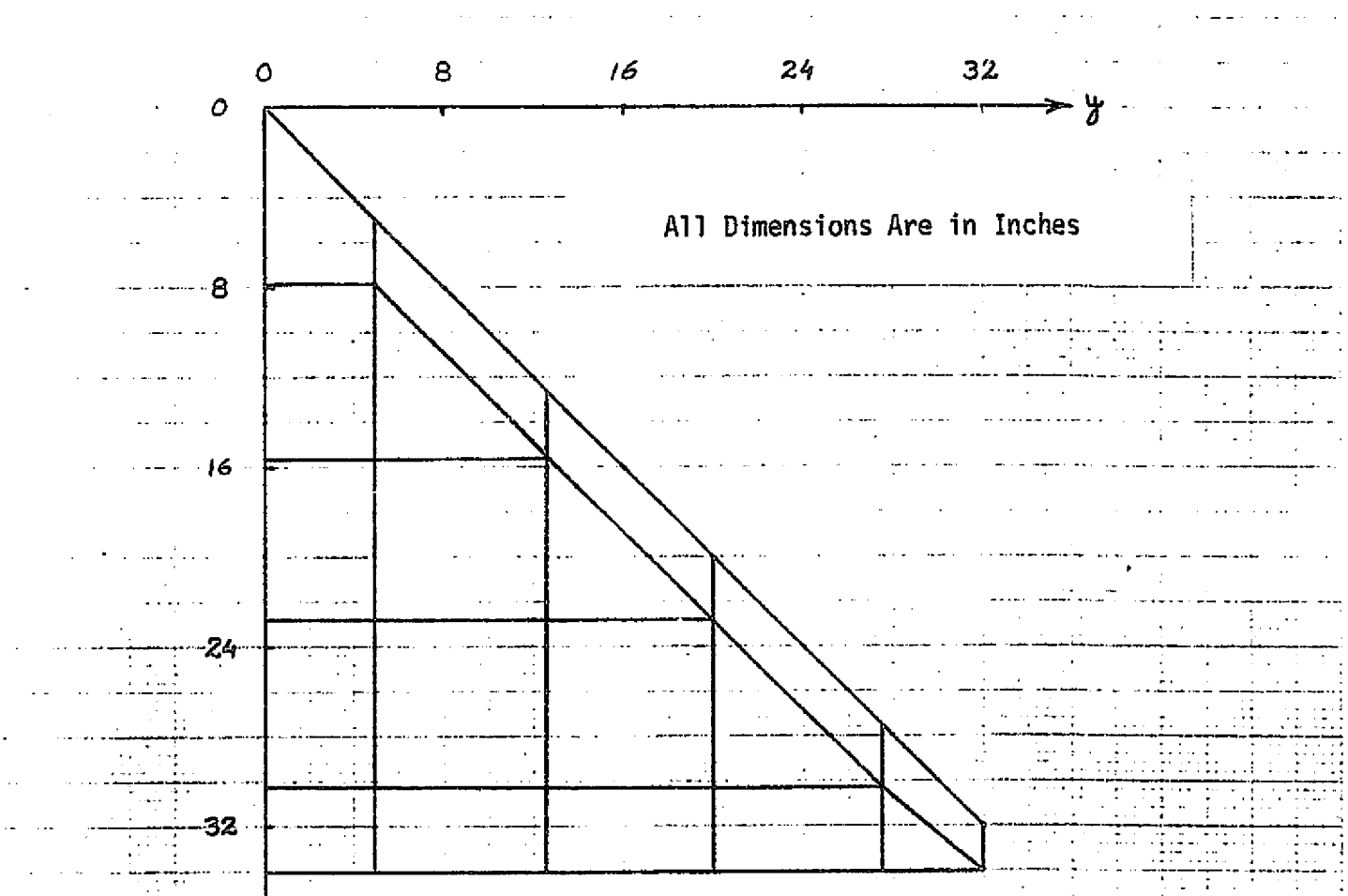


Figure 22 Plate Elements Boundaries Used in NASTRAN Modeling of Solid Wing 2

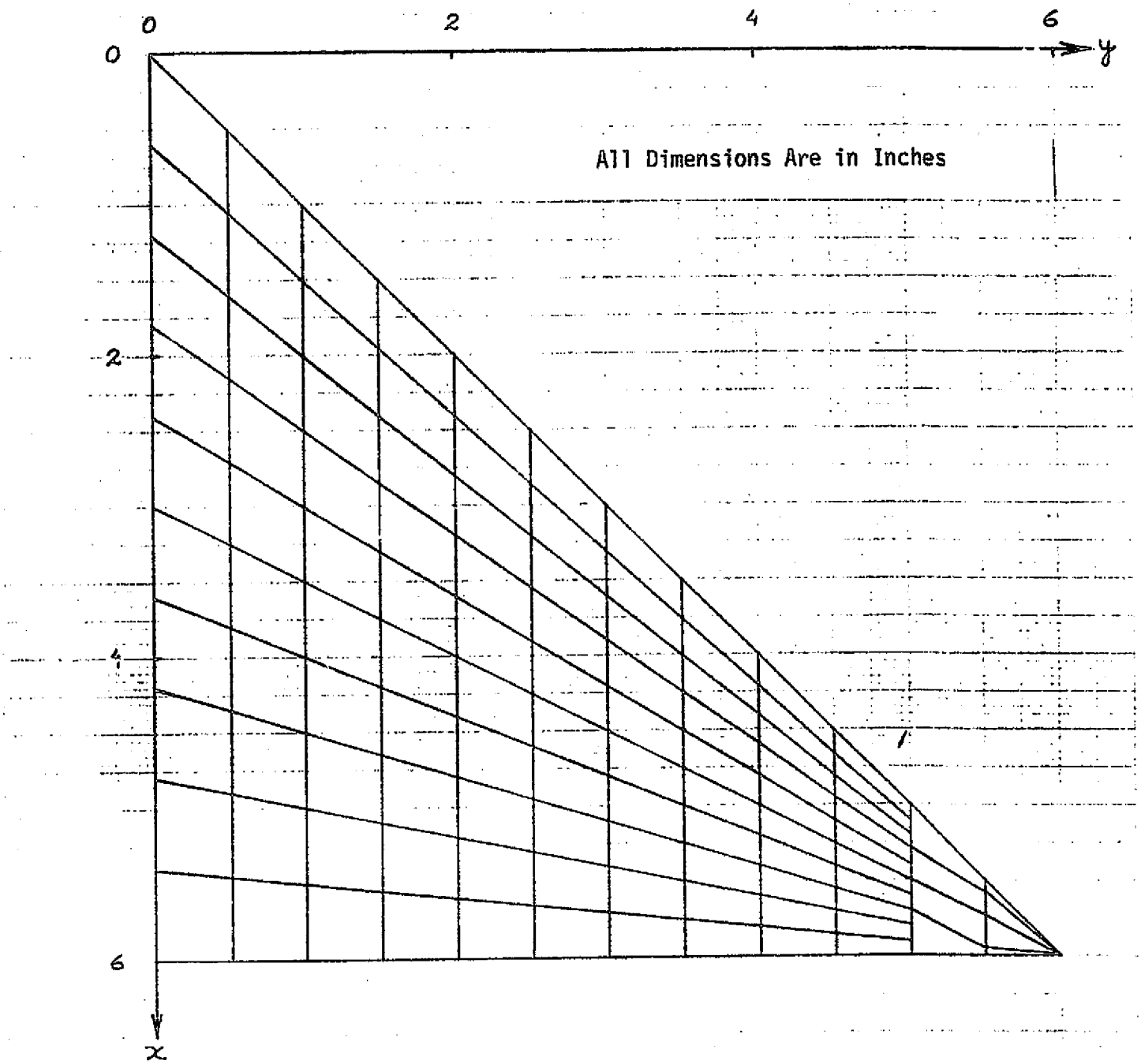


Figure 23 Plate Elements Boundaries Used in NASTRAN Modeling of Solid Wing 3

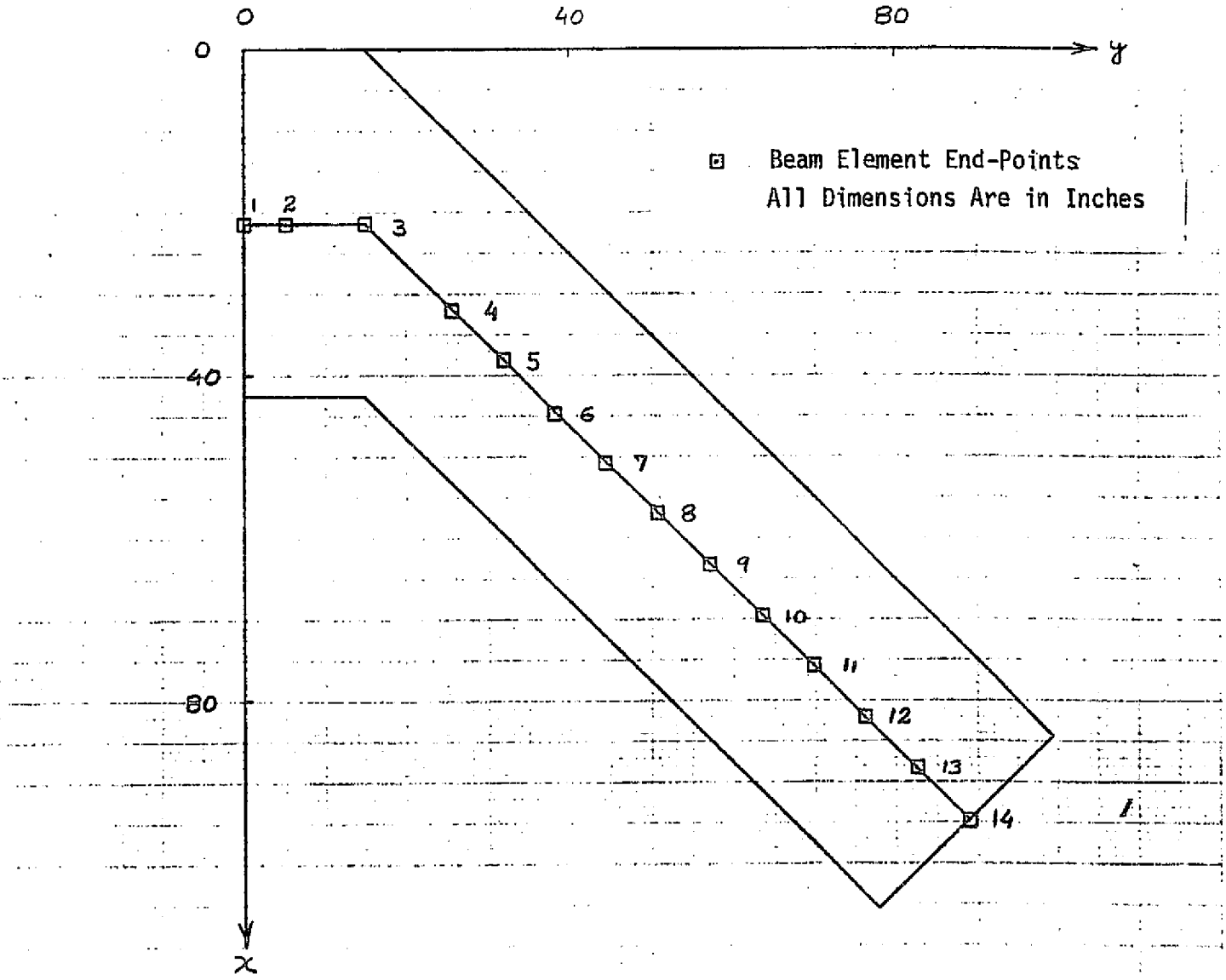


Figure 24 Beam Elements Used in NASTRAN Modeling of Built-up Wing 8

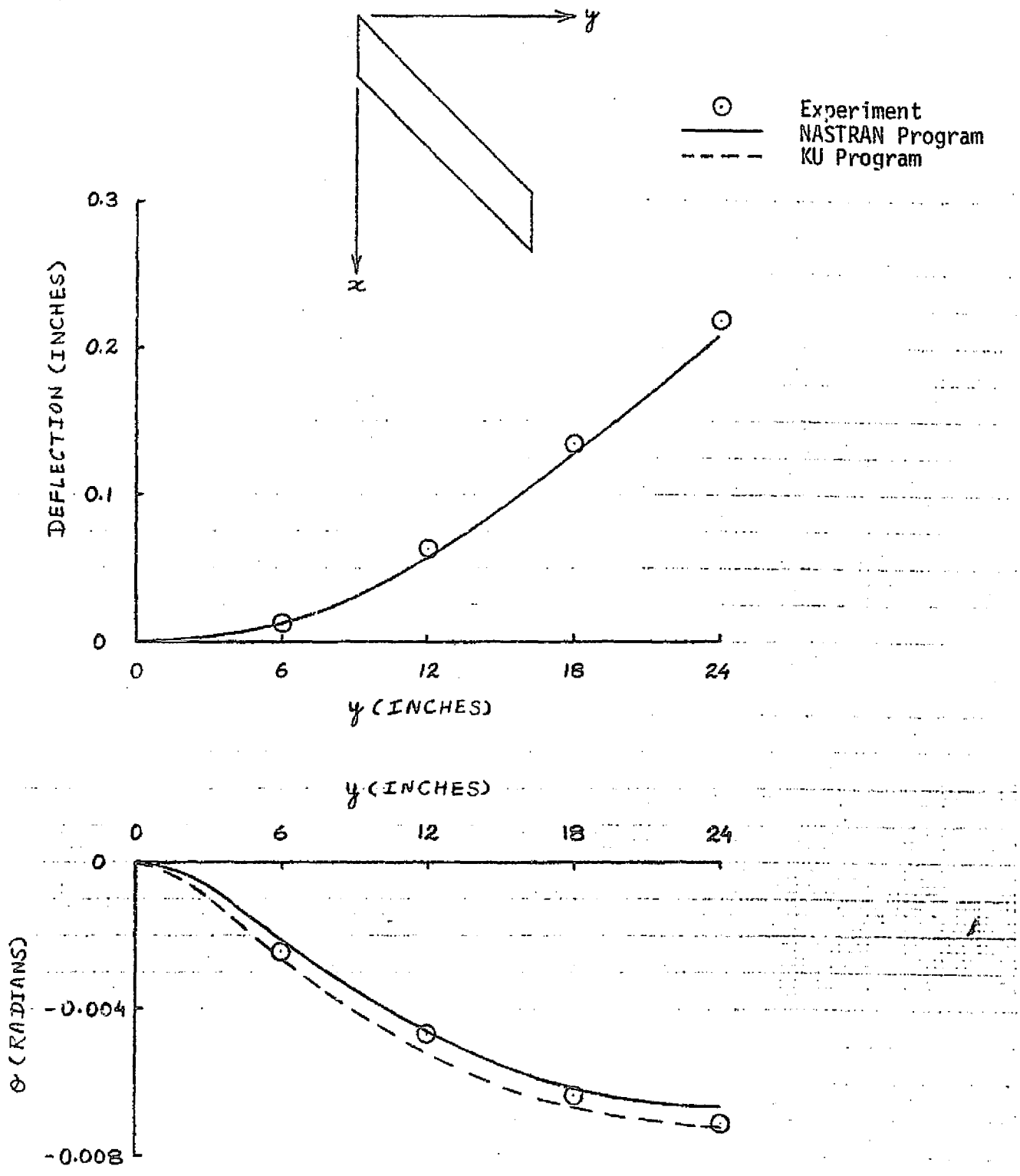


Figure 25 Vertical Deflections and Streamwise Rotations Along Mid-points of Local Chords of Solid Wing 1 for 5 Pound Wing-tip Load

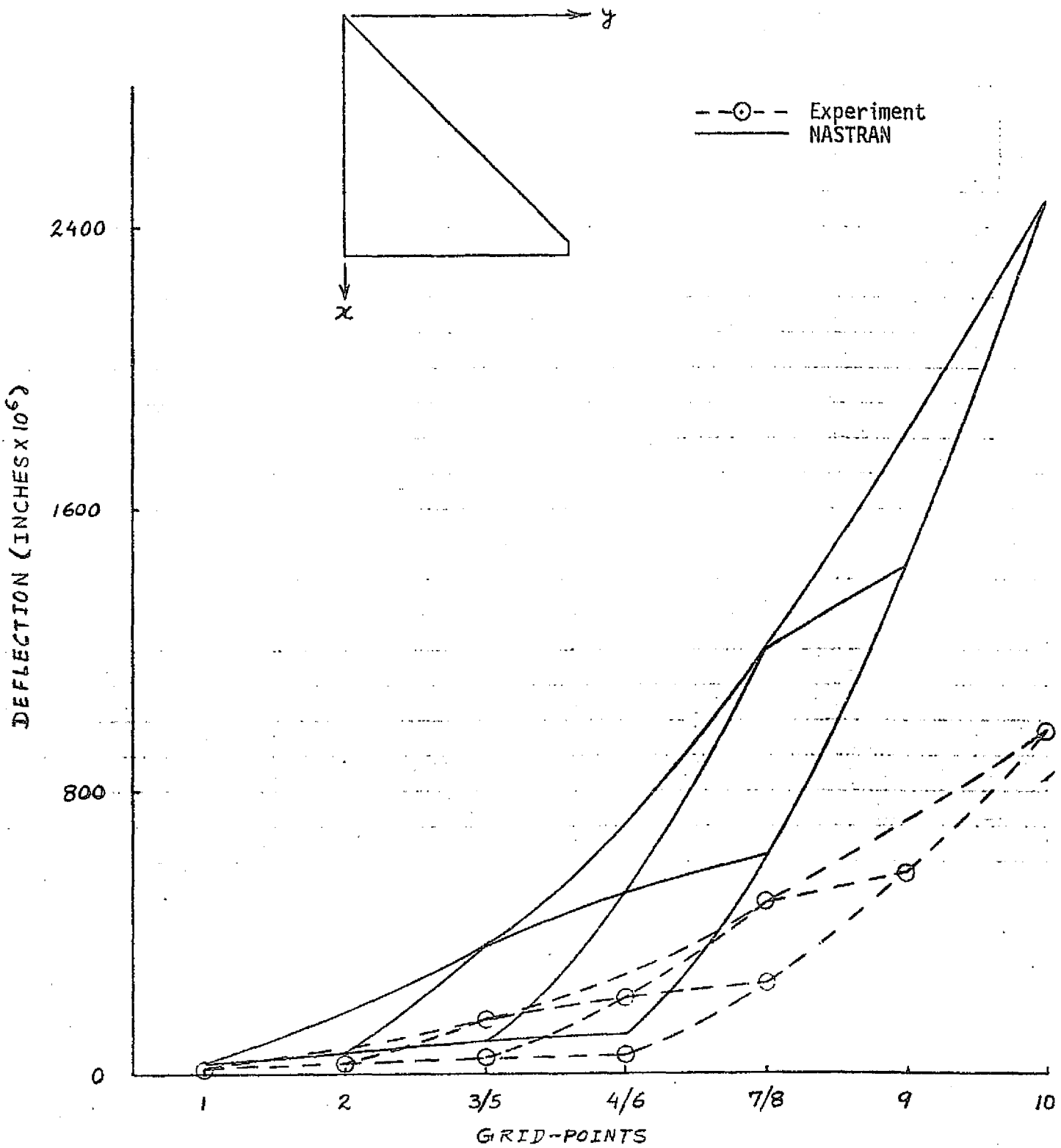


Figure 26 Experimental and NASTRAN Deflections at Grid-points of Solid Wing 2 Due to Unit Load at Point 10

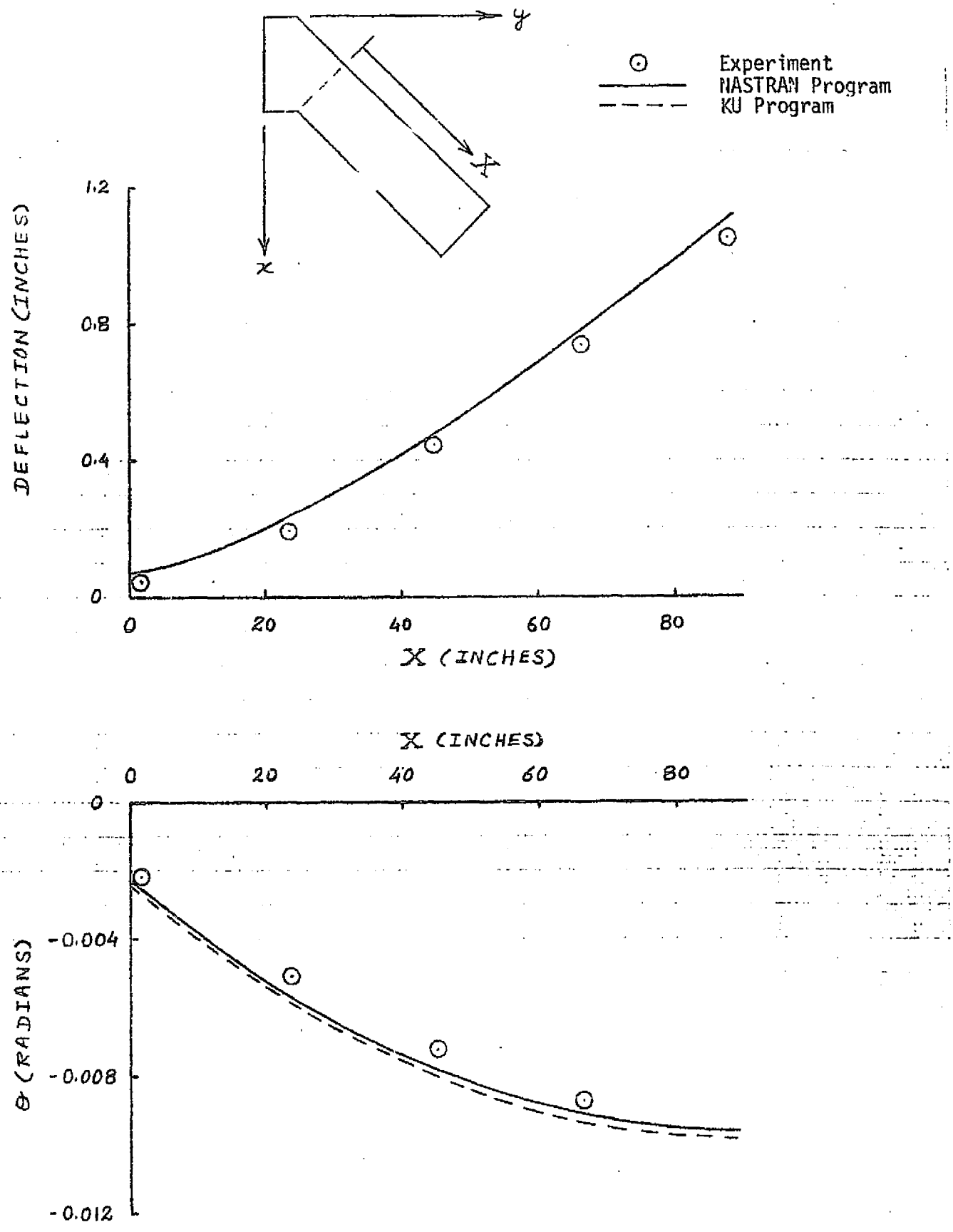


Figure 27 Vertical Deflections and Streamwise Rotations of Built-up Wing 8 for 2,500 Pound Wing-tip Load