


QC
Avro
C-105
P/M/11

QCX
Avro
CF105
P-Models-11

 ANALYZED P/MODELS/11
N.A.E. SUPERSONIC MODEL
C-105 AIRCRAFT
N.A.E. ~~SECRET~~ UNCLASSIFIED



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DATE

Report no.: QC AVRO CF105 P-Models-11

has been downgraded to: _____

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by (Name): J.M.D. Hencie

(Dept.): DND Coordinate, Access to Information

Date: Aug 4, 1992

Rene Auger
Signature

A. V. ROE CANADA LIMITED
MALTON, ONTARIO

ANALYZED

INITIAL PROJECTS OFFICE
AIRCRAFT ENGINEERING DIVISION

N.A.E. 'SUPERSONIC' MODEL
C-105 AIRCRAFT
REFLECTION PLANE
SCALE .02

Prepared by L. J. Crowe.....
Approved by J. A. Chamberlin..
Date ...November 6th, 1953....



45132

12420751

Date: 6/11/53
Issue: 1

P/Models/11

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'C-105 AIRCRAFT'

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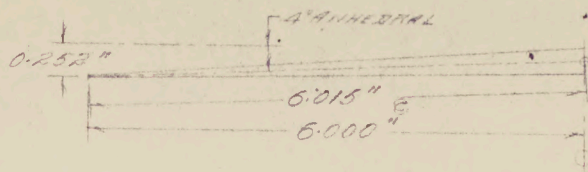
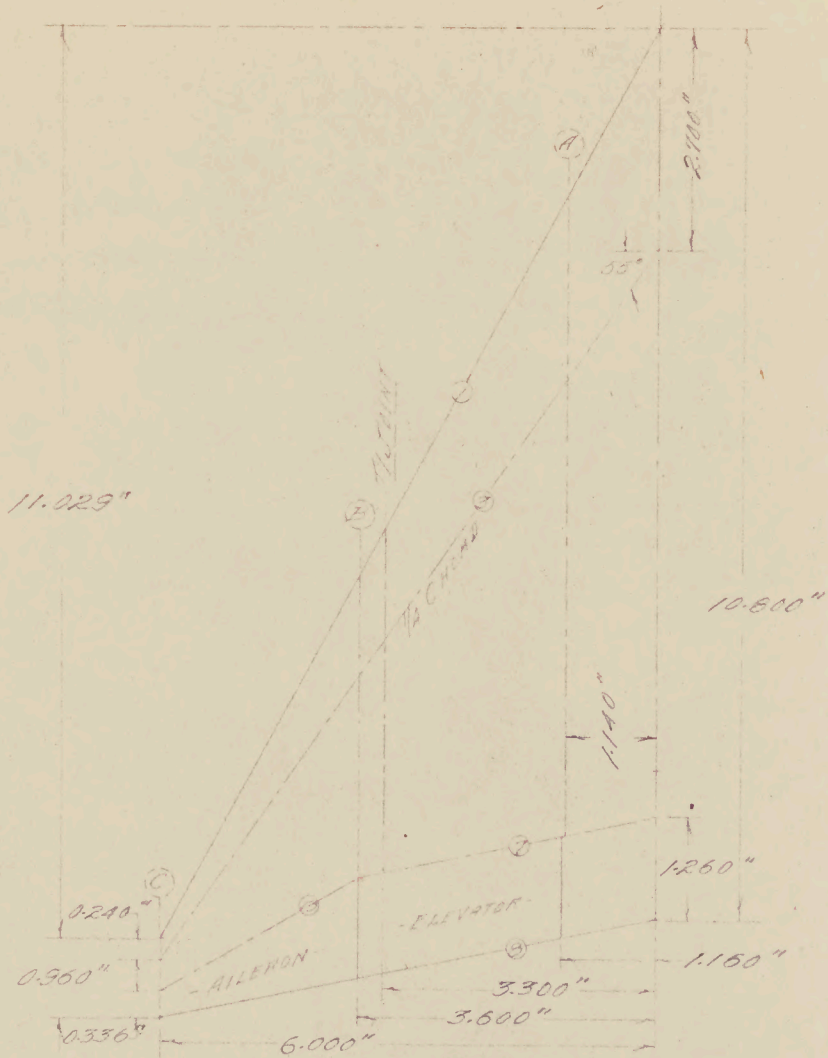
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WING DATA
C-105 AIRCRAFT

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PLAN VIEW

PROJECTED CHORD
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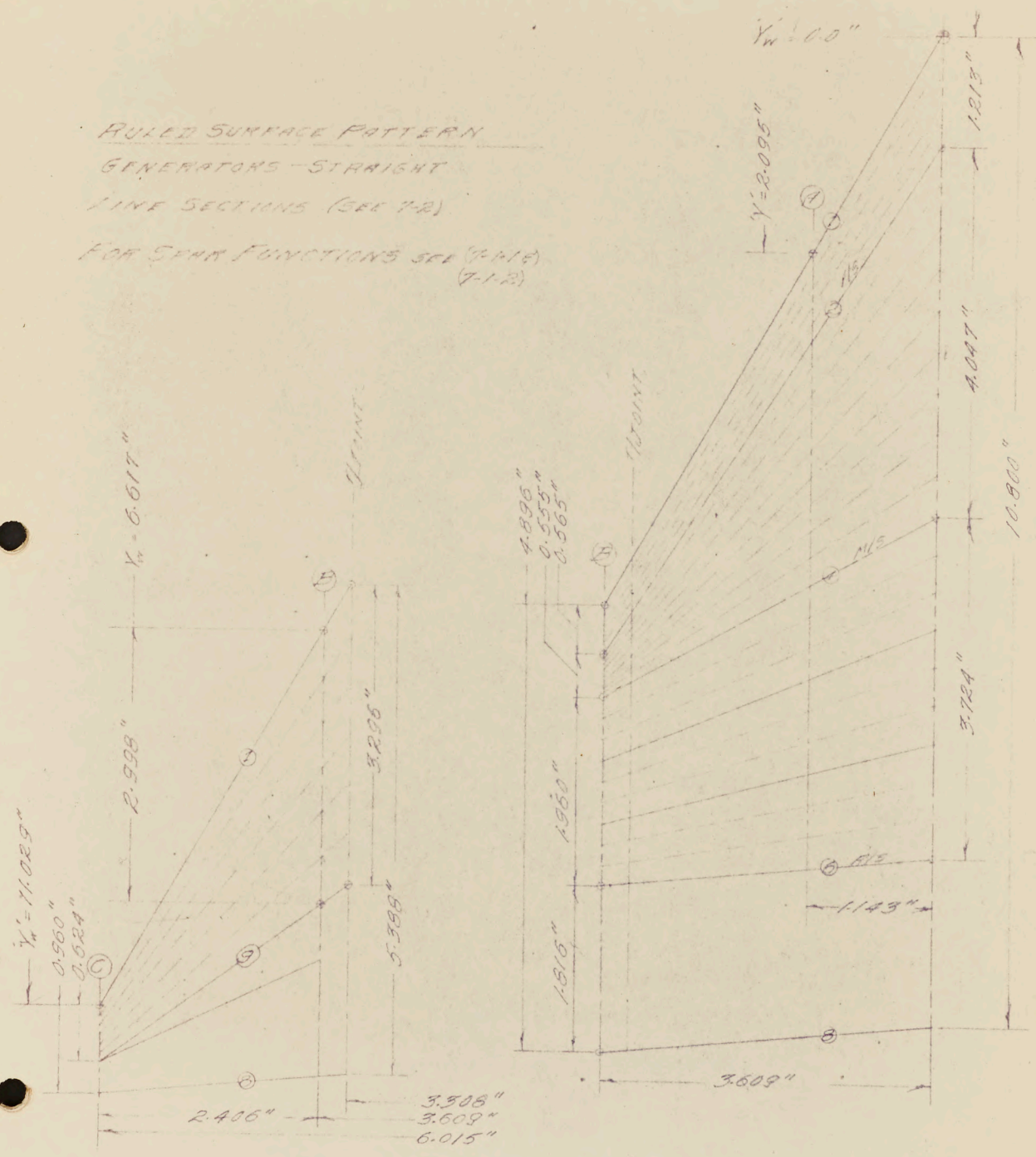
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WING DATA
 C-105 AIRCRAFT

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RULED SURFACE PATTERN
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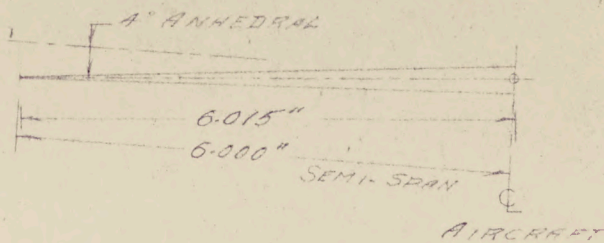
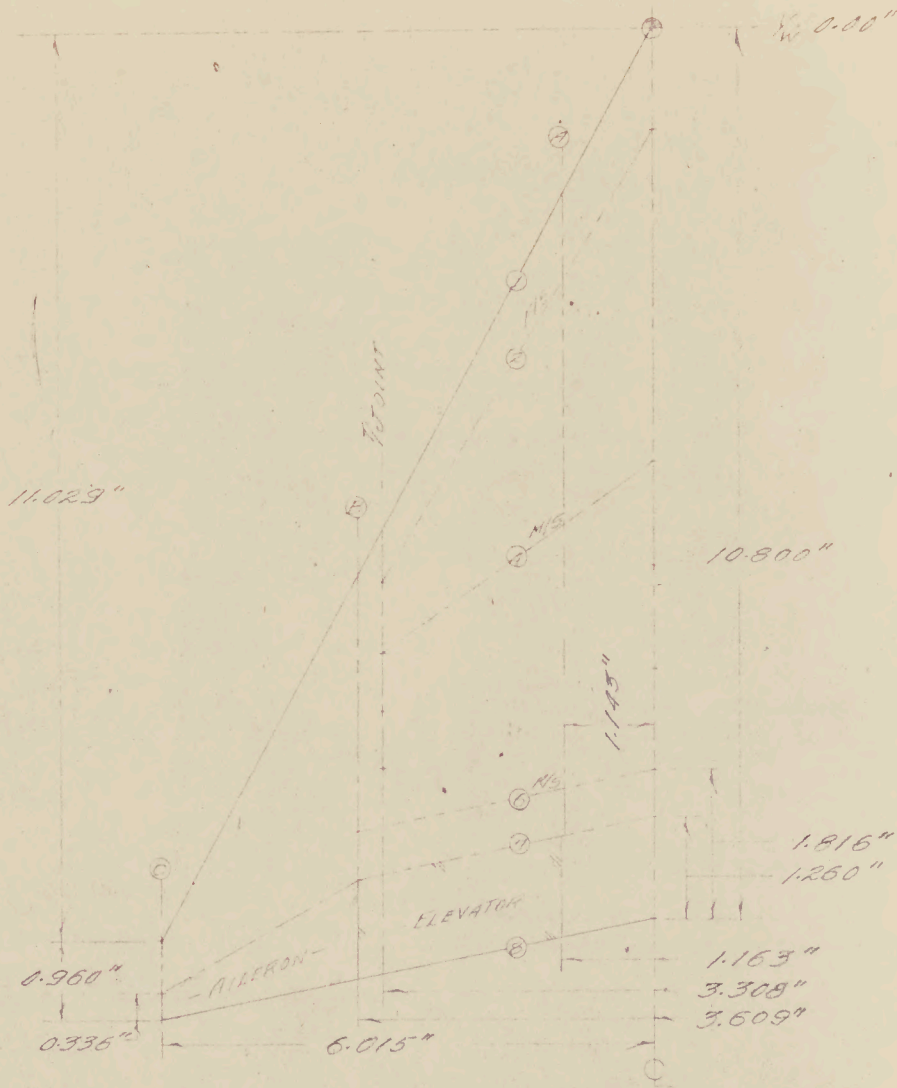
WING DATA
C105 AIRCRAFT

F/Models/11

7

CHORD PLANE
UNLESS NOTED

SPAR GLASS
SEE 711



DATE: 7-12-53

WING DATA

F/MODULES/11

7-66

ISSUE 1

C-105 AIRCRAFT

CAMBER DESCRIPTION



ALL SPACES NORMAL TO CHORD



Date: 6/11/53
Issue: 1

P/Models/11

7-1-013

WING DATA

C-105 AIRCRAFT

DIRECTRIX 'A'

| CODE | Y _R | Z _R UPR. | Z _R LWR. |
|------|----------------|---------------------|---------------------|
| | 0.00 | 0.00 | 0.00 |
| | 0.011 | 0.014 | 0.016 |
| | 0.033 | 0.023 | 0.027 |
| | 0.066 | 0.031 | 0.038 |
| | 0.109 | 0.047 | 0.066 |
| | 0.227 | 0.055 | 0.085 |
| | 0.532 | 0.062 | 0.108 |
| | 0.731 | 0.066 | 0.126 |
| F/S | 1.008 | 0.068 | 0.146 |
| | 1.144 | 0.069 | 0.155 |
| | 1.434 | 0.070 | 0.169 |
| | 1.725 | 0.070 | 0.181 |
| | 2.016 | 0.070 | 0.190 |
| | 2.307 | 0.069 | 0.196 |
| | 2.597 | 0.068 | 0.200 |
| | 2.888 | 0.067 | 0.201 |
| | 3.179 | 0.066 | 0.200 |
| | 3.469 | 0.065 | 0.198 |
| | 3.760 | 0.063 | 0.194 |
| | 3.949 | 0.061 | 0.191 |
| | 4.238 | 0.059 | 0.185 |
| | 4.578 | 0.055 | 0.176 |
| | 4.884 | 0.052 | 0.166 |
| | 5.258 | 0.048 | 0.153 |
| | 5.532 | 0.045 | 0.142 |
| | 5.768 | 0.043 | 0.133 |
| | 6.108 | 0.039 | 0.119 |
| | 6.448 | 0.035 | 0.106 |
| | 6.788 | 0.032 | 0.093 |
| R/S | 7.115 | 0.028 | 0.080 |
| (1) | 7.670 | 0.022 | 0.058 |
| (2) | 7.670 | - | 0.018 |
| (3) | 8.9304 | 0.009 | 0.009 |

- (1) Elevator Spar
- (2) Mean line location
- (3) Trailing edge depth taken normal to mean line
R/S to 3 flat plane area

Date: 6/11/53
Issue: 1

P/Models/11

7-1-014

WING DATA

C-105 AIRCRAFT

DIRECTRIX 'B'

| CODE | Y _R | Z _R UPR. | Z _R LWR. |
|------|----------------|---------------------|---------------------|
| | 0.00 | 0.00 | 0.00 |
| | 0.006 | 0.008 | 0.008 |
| | 0.037 | 0.017 | 0.021 |
| | 0.112 | 0.025 | 0.036 |
| | 0.186 | 0.029 | 0.046 |
| | 0.298 | 0.033 | 0.059 |
| | 0.410 | 0.035 | 0.069 |
| F/S | 0.565 | 0.037 | 0.080 |
| | 0.591 | 0.037 | 0.081 |
| | 0.646 | 0.038 | 0.085 |
| | 0.701 | 0.038 | 0.088 |
| | 0.755 | 0.038 | 0.091 |
| | 0.810 | 0.038 | 0.093 |
| | 0.865 | 0.038 | 0.096 |
| | 0.920 | 0.038 | 0.098 |
| | 0.975 | 0.038 | 0.100 |
| | 1.030 | 0.038 | 0.101 |
| | 1.084 | 0.038 | 0.103 |
| | 1.120 | 0.038 | 0.104 |
| | 1.299 | 0.038 | 0.108 |
| | 1.510 | 0.038 | 0.110 |
| | 1.720 | 0.037 | 0.110 |
| | 1.931 | 0.037 | 0.109 |
| | 2.100 | 0.036 | 0.107 |
| | 2.246 | 0.035 | 0.105 |
| | 2.451 | 0.034 | 0.100 |
| | 2.667 | 0.032 | 0.095 |
| | 2.878 | 0.030 | 0.088 |
| R/S | 3.080 | 0.028 | 0.080 |
| (1) | 3.636 | 0.022 | 0.058 |
| (2) | 3.636 | - | 0.018 |
| (3) | 4.896 | 0.009 | 0.009 |

- (1) Elevator spar
- (2) Mean line location
- (3) Trailing edge depth taken normal to mean line
R/S to a flat plane area

Date: 6/11/53
Issue: 1

F/Models/11

7-1-015

WING DATA
C-105 AIRCRAFT

DIRECTRIX 'C'

| CODE | Y _R | Z _R UPR. | Z _R LWR. |
|------|----------------|---------------------|---------------------|
| | 0.00 | 0.00 | 0.00 |
| | 0.003 | 0.003 | 0.003 |
| | 0.015 | 0.005 | 0.006 |
| | 0.033 | 0.006 | 0.009 |
| | 0.063 | 0.007 | 0.012 |
| | 0.101 | 0.008 | 0.016 |
| F/S | 0.117 | 0.008 | 0.017 |
| | 0.137 | 0.008 | 0.018 |
| | 0.173 | 0.008 | 0.020 |
| | 0.207 | 0.009 | 0.021 |
| | 0.240 | 0.009 | 0.022 |
| | 0.272 | 0.009 | 0.022 |
| | 0.277 | 0.009 | 0.023 |
| | 0.303 | 0.009 | 0.023 |
| | 0.333 | 0.009 | 0.023 |
| | 0.363 | 0.009 | 0.023 |
| | 0.391 | 0.009 | 0.023 |
| | 0.418 | 0.008 | 0.022 |
| | 0.445 | 0.008 | 0.022 |
| | 0.471 | 0.008 | 0.022 |
| | 0.477 | 0.008 | 0.021 |
| | 0.496 | 0.008 | 0.021 |
| | 0.521 | 0.008 | 0.020 |
| | 0.544 | 0.008 | 0.020 |
| | 0.568 | 0.008 | 0.019 |
| | 0.590 | 0.008 | 0.018 |
| | 0.612 | 0.008 | 0.017 |
| (14) | 0.624 | 0.007 | 0.017 |
| (2) | 0.624 | - | 0.005 |
| (3) | 0.960 | 0.004 | 0.004 |

- (14) Aileron spar \bar{x} point of tangency (O/W flat plane)
(2) Mean line location
(3) Trailing edge depth taken normal to mean line
(14) to (3) flat plane area

WING DATA

'C-105 AIRCRAFT'

DESCRIPTION

The profile of the 'wing' and 'vertical tail' do not follow the usual conical pattern having the leading and trailing edge a generator of a single cone. Wing percent lines will therefore, not be straight unless they coincide with the generatrix pattern of the local 'ruled surface'.

The wing will contain 2 separate compatible groups of 'ruled surfaces' terminating at the transport joint. These groups are generated from a pattern of 3 directrix curves located spanwise at wing chord stations 'A - B & C'. This does not imply that the directrix at station 'B' generates a common profile at the transport joint, since the outer wing profile is generated from second directrix at 'C' different in profile to the main panel directrix at 'A'. This results in a slight discontinuity at the transport joint.

The directrix at chord 'C' (tip) is a basic N.A.C.A. .0003-63.7 section having its maximum thickness value (m) at .365 percent of the local chord. At chord 'B' the 'm' value has been factored to .3400 percent of the local chord. At chord 'A' the 'm' value has been factored to .321220 percent of the local chord.

The main panel extends from the aircraft centre line to the transport joint and is made up of 4 separate ruled surfaces. The directrix at chord 'A' & 'B' follow a profile as shown on sheet 7-1-03 to 011. Ruled section -1-2- will have as outer generators the wing leading edge and the front spar. Ruled section -2-4- will have as outer generators the front spar and main spar. Ruled section -4-6- will have as outer generators the main spar and rear spar. Spars -5- being generators of ruled section -4-6-. Ruled section -6-8- will have as outer generators the rear spar and trailing edge and will be flat in profile with a plane angle of $1^{\circ} 25'$ (tan .0248 9975) about the mean line.

The outer panel extends from the transport joint centre line to the tip and is made up of 2 separate ruled surfaces. The directrix at chord 'B' & 'C' follow a profile as shown on sheet 7-1-03 to 011 inclusive. Ruled section -1-9- will have as outer generators the wing leading edge and the flat plane tangent line. The spar arrangement will then coincide with the generating pattern. Ruled surface -9-8- will have as outer generators the flat plane tangent line and the trailing edge, and being flat the generators are not sensitive to any pattern.

Since all three section airfoils are different, it follows that no two generators are parallel or intersecting - hence a warped surface.

The camber 'Mean Line' is not sensitive to position and follows a normal conical pattern from root to tip. Its 'm' value remains constant at .321220 percent and its flat plane tangency at .625 percent of the local chord.

Date: 7/1/54
 Issue: 2

P/Modles/11

7-1-1

WING DATA

'C-105 AIRCRAFT'

CHORD PLANE DATA

MAIN WING

| NO. | DESCRIPTION | TRIG. FUNCTION | | | COORDINATE DATA | | |
|-----|---------------------------------|---------------------------|-------|-------|------------------|---------|----------|
| | | | | | ROOT | T/JOINT | |
| 1 | Leading Edge 61° 23' 38.29" | Cotan | .5453 | 54289 | X _w | 0.00 | 3.308 |
| | | Sin | .3779 | 3258 | Y _w | 0.00 | 6.066 |
| | | Cos | .4787 | 8428 | Z _w | 0.00 | 0.00 |
| 2 | Front Spar 58° 50' 43.10" | Cotan | .6045 | 41278 | X _w | 0.00 | 3.308 |
| | | Sin | .8557 | 7362 | Y _w | 1.213 | 6.685 |
| | | Cos | .5173 | 5046 | Z _w | 0.00 | 0.00 |
| 4 | Main Spar 34° 28' 6.59" | Tan | .6864 | 71706 | X _w | 0.00 | 3.308 |
| | | Cos | .8244 | 3757 | Y _w | 5.260 | 7.531 |
| | | Sin | .5659 | 5300 | Z _w | 0.00 | 0.00 |
| 5-A | Centre Spar 'Fwd' | Tan | .5235 | 36245 | X _w | 0.00 | 3.308 |
| | | Cos | .8859 | 0522 | Y _w | 6.501 | 8.233 |
| | | Sin | .4638 | 6628 | Z _w | 0.00 | 0.00 |
| 5-B | Centre Spar 'Aft' | Tan | .3606 | 00783 | X _w | 0.00 | 3.308 |
| | | Cos | .9407 | 0715 | Y _w | 7.743 | 8.936 |
| | | Sin | .3388 | 0346 | Z _w | 0.00 | 0.00 |
| 6 | Rear Spar | Parallel to trailing edge | | | X _w | 0.00 | 3.609 B |
| | | | | | Y _w | 8.984 | 9.698 B |
| | | | | | Z _w | 0.00 | 0.00 |
| 7 | Elevator Hinge | " " | | | X _w | 0.00 | 3.609B |
| | | | | | A Y _w | 9.540 | 10.253 B |
| | | | | | Z _w | 0.00 | 0.00 |
| 8 | Trailing Edge 11° 10' 52.51" | Tan | .1976 | 65322 | X _w | 0.00 | 3.609 B |
| | | Cos | .9810 | 1865 | Y _w | 10.300 | 11.513 B |
| | | Sin | .1939 | 1336 | Z _w | 0.00 | 0.00 |

KEY Angles represent sweep

A This T/E Value (1.260") constant to X_w = 3.609" (elevator tip)

B These values taken at elevator tip (Directrix 'B')

X_w Spanwise value

Y_w Chordwise value

Z_w Vertical value

BUCHANAN
1258
MADE IN U.S.A.