

QC
Avro
C-105
P/M/14

QCX
Avro
CF105
PModels-14
①

FILE IN VAULT

COPY 2 ANALYZED P/MODELS/14
N.A.E. LOW SPEED MODEL
C-105 AIRCRAFT
N.A.E. UNCLASSIFIED ~~SECRET~~



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DATE

Report no.: QCX-AVRO-CF105- P- Models -14

has been downgraded to: _____

de-classified

by (Name): Michel W. Drapeau

(Dept.): A/DND Coordinator, Access to Information

Date: Dec. 7, 1992

R. Auger
Signature

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A. V. ROE CANADA LIMITED
MALTON, ONTARIO

ANALYZED

INITIAL PROJECTS OFFICE
AIRCRAFT ENGINEERING DIVISION

N.A.E. 'LOW SPEED' MODEL
FULL SPAN
SCALE .07

Classification cancelled / changed to: UNCLASSIFIED
By authority of: DRDA 7/DARFT 5-8/DAS Eng 6-4-5
Date: 5 Nov 1992
Signature: Baubrey
Unit / Rank / Appointment: DSIS 3, Secretary CRAD HQ DRP



Prepared by L. J. Crowe.....

Approved by J. A. Chamberlin

Date ..November 6th..1953...

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Date: 6/11/53
Issue: 1

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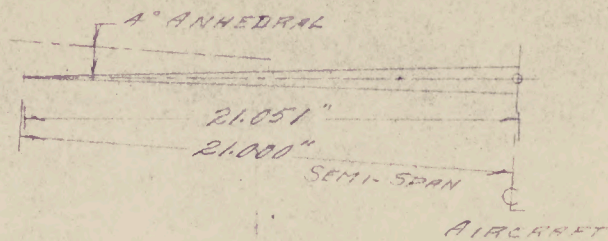
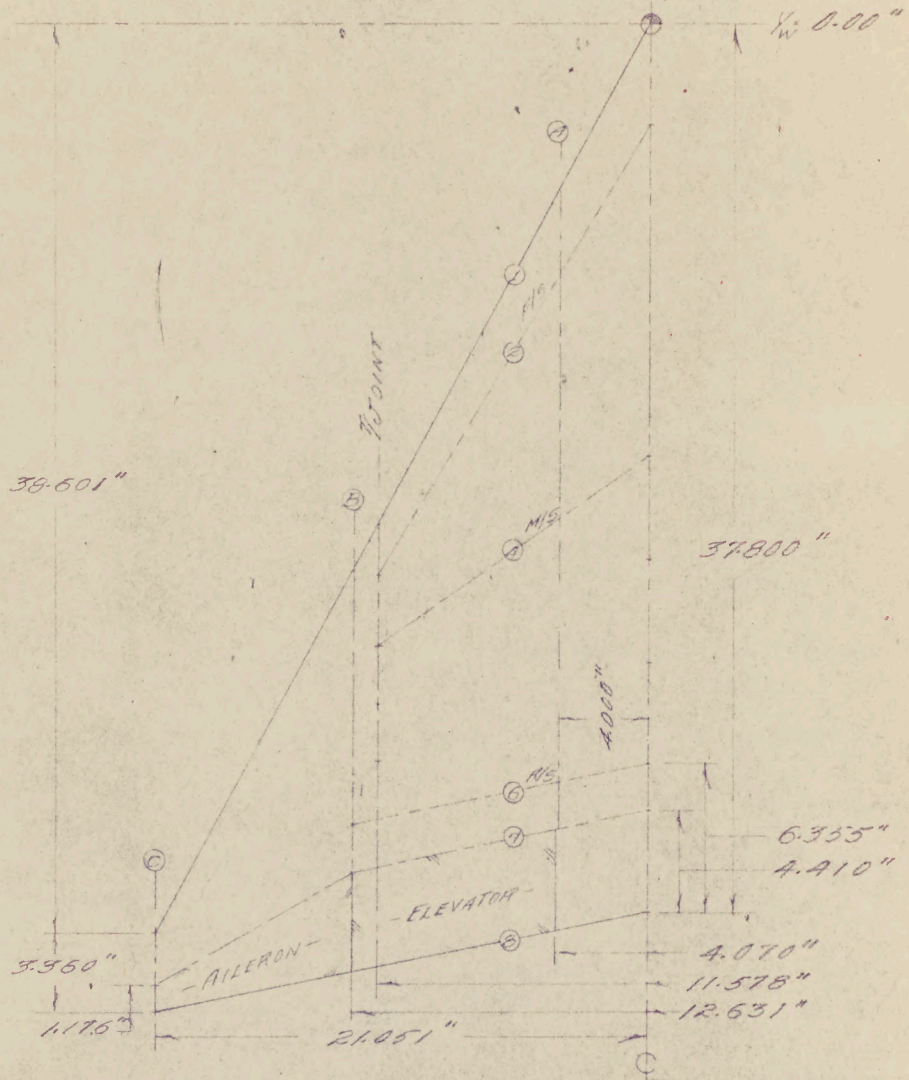
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WING DATA
C-105 AIRCRAFT

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CHORD PLANE
UNLESS NOTED

SPAR GEOMY
SEE 7-11



DATE: 7-12-53

PLANE DATA

P/MC/LL/3/14

7-66

WING 1

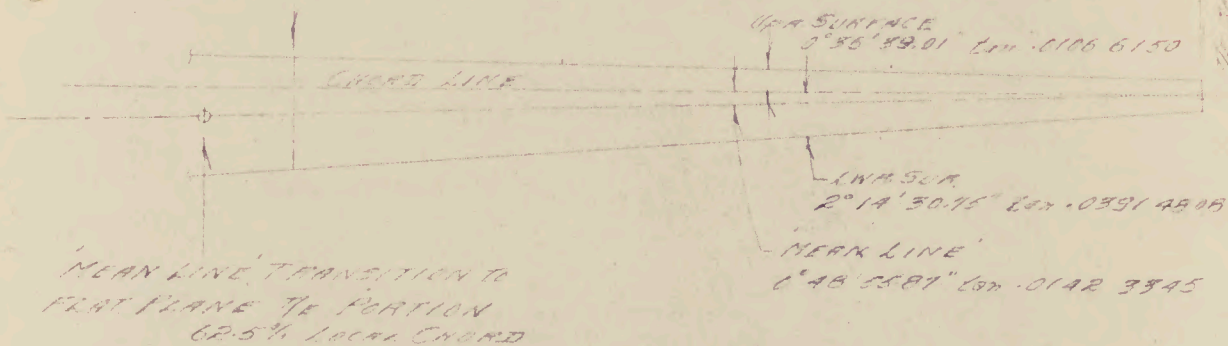
C-105 AIRCRAFT

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CAMBER DESCRIPTION



ALL SPANS NORMAL TO CHORD



WING DATA

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'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	11.578	
		Sin .8779 3258	Y _w	0.00	21.231	
		Cos .4787 3423	Z _w	0.00	0.00	
2	Front Spar 58° 50' 43.10"	Cotan .6045 41278	X _w	0.00	11.578	
		Sin .3557 7362	Y _w	4.246	23.398	
		Cos .5173 5046	Z _w	0.00	0.00	
4	Main Spar 34° 28' 6.59"	Tan .6864 71706	X _w	0.00	11.578	
		Cos .8244 3757	Y _w	18.410	26.358	
		Sin .5659 5300	Z _w	0.00	0.00	
5-A	Centre Spar 'Fwd'	Tan .5235 36245	X _w	0.00	11.578	
		Cos .8859 0522	Y _w	22.755	28.817	
		Sin .4638 6628	Z _w	0.00	0.00	
5-B	Centre Spar 'Aft'	Tan .3606 00783	X _w	0.00	11.578	
		Cos .9407 0715	Y _w	27.100	31.275	
		Sin .3388 0346	Z _w	0.00	0.00	
6	Rear Spar	Parallel to trailing edge	X _w	0.00	12.631 B	
			Y _w	31.445	33.942 B	
			Z _w	0.00	0.00	
7	Elevator Hinge	" "	X _w	0.00	12.631 B	
			A Y _w	33.390	35.887 B	
			Z _w	0.00	0.00	
8	Trailing Edge 11° 10' 52.51"	Tan .1976 65322	X _w	0.00	12.631 B	
		Cos .9810 1865	Y _w	37.800	40.297 B	
		Sin .1939 1336	Z _w	0.00	0.00	

KEY Angles represent sweep

A This T/E value (4.410") constant to X_w = 12.631" (elevator tip)

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

X_w Spanwise value

Y_w Chordwise value

Z_w Vertical value

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WING DATA

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DIRECTRIX 'A'

CODE	Y _R	Z _R UPR.	Z _R LWR.
	0.00	0.00	0.00
	0.040	0.049	0.056
	0.233	0.108	0.133
	0.698	0.165	0.231
	1.163	0.194	0.299
	1.861	0.218	0.378
	2.559	0.231	0.441
F/S	3.528	0.240	0.512
	4.003	0.242	0.541
	5.021	0.244	0.593
	6.038	0.245	0.635
	7.056	0.244	0.666
	8.073	0.242	0.687
	9.090	0.240	0.700
	10.108	0.236	0.703
	11.125	0.232	0.700
	12.143	0.226	0.693
	13.160	0.220	0.679
	13.822	0.214	0.668
	14.833	0.205	0.647
	16.023	0.193	0.615
	17.094	0.182	0.581
	18.403	0.169	0.534
	19.362	0.158	0.497
	20.188	0.149	0.465
	21.378	0.137	0.418
	22.568	0.124	0.372
	23.758	0.111	0.325
R/S	24.902	0.099	0.280
(1)	26.846	0.078	0.204
(2)	26.846	-	0.063
(3)	31.256	0.031	0.031

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

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WING DATA

C-105 AIRCRAFT

DIRECTRIX 'B'

CODE	Y _R	Z _R UPR.	Z _R LWR.
	0.00	0.00	0.00
	0.022	0.027	0.029
	0.130	0.058	0.072
	0.391	0.087	0.125
	0.652	0.102	0.162
	1.044	0.115	0.206
	1.435	0.124	0.240
F/S	1.978	0.130	0.279
	2.068	0.130	0.285
	2.260	0.131	0.296
	2.452	0.132	0.307
	2.644	0.133	0.317
	2.836	0.134	0.326
	3.028	0.134	0.334
	3.219	0.134	0.342
	3.411	0.134	0.349
	3.603	0.134	0.355
	3.795	0.134	0.360
	3.920	0.134	0.364
	4.546	0.134	0.377
	5.283	0.132	0.385
	6.020	0.130	0.385
	6.757	0.128	0.381
	7.351	0.126	0.374
	7.862	0.123	0.367
	8.578	0.120	0.351
	9.336	0.113	0.331
	10.073	0.106	0.307
R/S	10.781	0.099	0.280
(1)	12.726	0.078	0.204
(2)	12.726	-	0.063
(3)	17.136	0.031	0.031

- (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
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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
	0.011	0.009	0.010
	0.054	0.016	0.021
	0.117	0.021	0.032
	0.219	0.024	0.044
	0.352	0.027	0.055
F/S	0.410	0.028	0.059
	0.481	0.029	0.063
	0.605	0.030	0.069
	0.725	0.030	0.073
	0.841	0.030	0.077
	0.953	0.030	0.079
	0.971	0.030	0.079
	1.062	0.030	0.080
	1.167	0.030	0.080
	1.269	0.030	0.080
	1.368	0.030	0.079
	1.465	0.030	0.078
	1.558	0.029	0.077
	1.649	0.029	0.076
	1.669	0.029	0.075
	1.737	0.029	0.074
	1.822	0.028	0.071
	1.906	0.028	0.069
	1.987	0.027	0.066
	2.066	0.027	0.064
	2.142	0.026	0.061
(14)	2.184	0.026	0.059
(2)	2.184	-	0.017
(3)	3.360	0.013	0.013

- (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

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Issue: 3

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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: 9-1-53
ISSUE: 3

MODEL: 11A

9.01

VERTICAL TAIL C-105 AIRCRAFT

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