

QC
Avro
CF105
R-7-0400-44
Iss-10

QC X
Avro
CF105
R-7-0400-44
Iss-10

FILE IN VAULT

C-105 MK 1 With Report # 7-0400-44
J75 P3 Engines Iss. 10
WEIGHT & C.G. SUMMARY
R.C.A.F. ~~SECRET~~ UNCLASSIFIED
Oct. 1/57



National Research Council
Canada
C.I.S.T.I.
Aeronautical and
Mechanical
Engineering Library

Conseil national de recherches
Canada
I.C.I.S.T.I.
Bibliothèque
d'aéronautique
et de génie mécanique

TP
A

DATE
JAN 07 1993

Report no.: QCX - AVRO - CF105 - R-7-0400-44-155-10

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

Date: September 1st, 1957
Aircraft: C-105 MK 1 with
J75 P3 Engines

~~SECRET~~
UNCLASSIFIED
Report # 7-0400-44 Iss. 10.
NON CLASSIFIED

I N D E X

<u>Sheet # 1</u>	<u>Content</u>
1-1 to 1-4	Introductory notes and explanations of Weight Changes.
2-1 to 2-2	Weight & C.G. Summaries.
3-1	Horizontal C.G. Envelopes for Flight conditions with fuel proportioners used.
4-1 to 4-15	I.B.M. Detail Sheets of Weights & C.G.'s.

N. B. The C.G. Envelope for the 1st Aircraft with fuel sequencing has been omitted until a fully approved sequencing is established.

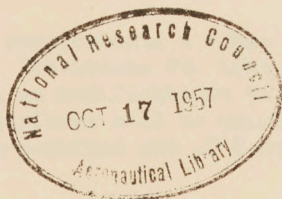
Classification cancelled / changed to: UNCLASSIFIED

By authority of: DRDA 7/DARET 5-8/DAS Eng 6-4-5

Date: 5 Nov 1992

Signature:

S. Aubrey
Unit / Rank / Appointment: DSIS J. Secretary CRAD HQ DEP



49777

Date: October 1st, 1957
Aircraft: C-105 MK 1 with
J75 P3 Engines
1st Aircraft.

SECRET
UNCLASSIFIED
Report # 7-0400-44 Iss. 10
Sheet # 1-1
NON CLASSIFIED

INTRODUCTION & WEIGHT CHANGES

The following is a Weight & C. G. Summary for the 1st C-105 Aircraft, with J75 P3 Engines, based on the latest information currently available. All weight and C.G. changes are relative to Issue 9 of September 1st, 1957.

- Note: 1) This Summary does not apply for the 2nd and subsequent MK 1 Aircraft see context below.
- 2) This Summary is for the 1st Aircraft complete to drawings and not necessarily in the condition for first flight, since there may be some shortages in non-essential equipment, some flight test installations will probably be incomplete etc. A statement for 1st Flight will be issued later.

GENERAL

- a) Pratt & Whitney J75 P3 Engines comprise the Power Plant for the 1st Aircraft. J75 P5 Engines, which are partially redesigned versions of the P3 Engines are to be installed on the 2nd and subsequent MK 1 Aircraft.
(J75 P3 Engines = 6,175 lb each; J75 P5 Engines = 5,950 lb each).

- b) An Instrument Package carrying Flight Instrumentation is installed, this also varies, the package for A/C's No. 1 to 3 differing from those for A/C's No. 4 and 5 (which are to be used for Astra 1 Trial Installations.)

A relatively detailed estimate of other Flight Test Installations throughout the Aircraft has been made. Twin shielded wire at 27 lb/1000 ft is used, there being approximately 250 monitored points. These installations amount to 1,323 lb (figure partially confirmed by actual weights of cable assys.).

- c) Emergency lowering for the Undercarriages and additional fire protection, to be installed in the 1st Aircraft, are allowed for in the summary. There is no provision to jettison any or all of the Instrument Package in an emergency.
- d) An Interim Radio & Radar System, with Minneapolis-Honeywell MH 64 Damping System is installed.
- e) It should be noted that due to material substitutions and concessions introduced by Planning & Production Departments there is a structural weight penalty of 203 lb to-date. This is all recorded in the structural weight breakdown. No account has been taken of variations on machinings etc. nor of shop repair schemes, since it is impossible to assess these, except where actual weights have been obtained.
- f) Pending Flight Test requirements a "Buzz Damping" System may be installed, on the first Aircraft. Provisions for this installation are already included in the structural group as modifications to the Control Boxes. For the first flight the control surfaces will be unmodified, however, if the need for Dampers is proven, a modified set of Control Surfaces will be made available.

Date: October 1st, 1957
Aircraft: C-105 MK 1 With
J75 P3 Engines
1st Aircraft.

UNCLASSIFIED
SECRET
Report # 7-0400-4h Iss. 10
Sheet # 1-2

INTRODUCTION & WEIGHT CHANGES

GENERAL

f) (Cont'd.)

The following weight penalties ensue:

Ailerons	+ 11.68 lb/A/C
Elevators	+ 11.07 lb/A/C
Rudder	+ 8.78 lb
Equipment & Installation	+ 123.97 lb
	<hr/>
	+ 155.50 lb

- g) A considerable number of Actual Weights have now been obtained. Structural weights are checking within 0.5% of estimates on sub-assemblies etc. However, equipment (excluding Engines and Gear Boxes) shows a consistent increase averaging about 11% over manufacturer's quotations or initial specification weights. Preceding the report titles on the I.B.M Tabulation Sheets, will be found a number varying from 0 to 100, this is the percentage of actual weight recorded within the report.

A summary of Actual Weights obtained so far is as follows:

Structure	71.32%
Undercarriage	67.21%
Power Plant	92.71%
Flying Controls	47.59%
Equipment	34.59%

i.e. 69.33% of the Basic Weight of the 1st Aircraft.

- h) The Aircraft is ballasted such that the C.G. on a flight envelope (using fuel proportioners) does not travel aft of 31.0% M.A.C. For first flight the Aft restriction is 30% M.A.C.- this may be achieved by maximum ballast. C.G. Envelopes showing fuel sequencing have currently been omitted until a fully approved sequencing is established.

1. STRUCTURE

a) Wing:

No Weight Change.

WEIGHT (lb)

b) Fin & Rudder

No Weight Change.

Date: September 1st, 1957
Aircraft: C-105 MK 1 with
J75 P3 Engines
1st Aircraft.

SECRET

Report # 7-0400-44 Iss. 10
Sheet # 1-3

UNCLASSIFIED
NON CLASSIFIED

INTRODUCTION & WEIGHT CHANGES

1. STRUCTURE (Cont'd)

	<u>WEIGHT (lb)</u>
c) <u>Fuselage Fwd. Sta. 255"</u>	
Cockpit Floor - Production Drawing re-issues, addition of systems bracketry etc.	+ 1.61
Canopy Arches - some actual weights of fittings etc.	- 0.74
Navigator's Canopy - Actual Weights obtained.	+ 9.80
<u>WEIGHT INCREASE FRONT FUSELAGE</u>	<u>+ 10.67</u>
d) <u>Centre Fuselage Sta. 255" - 485"</u>	
No Weight Change	
e) <u>Duct Bay Sta. 485" - 591.65"</u>	
No Weight Change	
f) <u>Engine Bay Sta. 591.65" - 742.5"</u>	
Lower Longerons - actual Weight obtained	- 0.63
<u>WEIGHT DECREASE ENGINE BAY</u>	<u>- 0.63</u>
g) <u>Rear Fuselage Sta. 742.5" Aft.</u>	
Centre Fairing & Stinger - actual weight obtained	+ 1.26
<u>WEIGHT INCREASE REAR FUSLAGE</u>	<u>+ 1.26</u>
<u>TOTAL STRUCTURAL INCREASE</u>	<u>+ 11.30</u>

2. LANDING GEAR

No Weight Change.

3. POWER PLANT & SERVICES

Fuel System - Actual Weight of pumps in the collector tanks (were manufacturer's quotes)	+ 8.00
Production drawings of filter installation	+ 2.50
Addition of collector tank vent extractor	+ 1.70
Miscellaneous other changes	+ 1.68
<u>TOTAL POWER PLANT & SERVICES INCREASE</u>	<u>+ 13.88</u>

4. FLYING CONTROLS GROUP

Mechanical Flying Controls - addition of emergency release mechanism aft attach. elevator feel and trim unit	+ 2.94
Alterations to rudder feel and trim	- 0.71
Stick force transmitter added.	+ 0.33

continued.

Date: September 1st, 1957
 Aircraft: C-105 MK 1 A/C with
 J75 P3 Engines
 1st Aircraft.

~~SECRET~~
 UNCLASSIFIED
 Report # 7-0400-44 Iss. 10
 Sheet # 1-4
 NON CLASSIFIED

INTRODUCTION & WEIGHT CHANGES

<u>4. FLYING CONTROLS GROUP (Continued.)</u>	<u>WEIGHT (lb)</u>
Hydraulic Flying Controls I/Wing - actual weights of complete elevator jack assys.	+ 16.66
Hydraulic Flying Controls O/Wing - Actual Weight of complete aileron jack assys.	- 6.30
<u>TOTAL FLYING CONTROLS GROUP INCREASE</u>	<u>+ 12.92</u>
<u>5. EQUIPMENT GROUP</u>	
Low Pressure Pneumatics - re-routing of piping, alterations to Fin pitot heads etc.	+ 1.24
Air Conditioning - fuel pressurization outlet added	+ 3.05
Actual weights of some equipment	+ 2.08
Utility Hydraulics F.F. - minor changes, some equipment weighed	- 0.03
Utility Hydraulics C.F. - some equipment weighed	+ 1.10
Utility Hydraulics D.B. - Addition of surge damping accumulator	+ 3.70
Actual weights of some parts	+ 1.55
Miscellaneous alterations	+ 3.24
Electrics Air Intakes - Actual Weight of De-icing Controller	+ 2.13
Brake Parachute - Manufacturer now quoting their actual weight, previously their estimate was recorded	+ 28.40
Flight Test Installations - Production Drawing estimates of Installations in Duct & Engine Bays completed	+ 1.22
<u>TOTAL EQUIPMENT GROUP INCREASE</u>	<u>+ 47.68</u>

SUMMARY

Weight Change - Aircraft Basic Weight

Structure	+ 11.30 lb
Power Plant	+ 13.88 lb
Flying Controls	+ 12.92 lb
Equipment	+ 47.68 lb
	<u>+ 85.78 lb</u>

Weight Change - Operational Weight Empty (A/C less Fuel)

UNBALLASTED CONDITION

<u>Issue 9</u>	<u>Issue 10</u>	
<u>47,673.51 lb</u>	<u>47,759.29 lb</u>	= + 85.78

N.B. If Aircraft Ballasted such that the C.G. in any flight envelope (excluding some suggested fuel sequencings) does not exceed 31% M.A.C. a further 959 lb of ballast are necessary.

Date: October 1st, 1957
 Aircraft: C-105 MK 1 with
 J75 P3 Engines

UNCLASSIFIED
 SECRET
 Report # 7-0400-111 Iss. 10
 Sheet # 2-1
 NONCLASSIFIED

WEIGHT & C.G. SUMMARY

<u>DESCRIPTION</u>	<u>WEIGHT</u> <u>lb</u>	<u>H. ARM</u> <u>ins.</u>	<u>V. ARM</u> <u>ins.</u>
STRUCTURE	18,531.50	561.88	137.56
Wings	9,959.46	642.86	142.25
Fin & Rudder	1,025.85	754.34	209.31
Fuselage: Fwd. Sta. 255"	2,630.03	181.62	128.25
Sta. 255"-485"	1,650.12	379.76	130.80
Sta. 485"-591.65"	998.59	534.01	104.59
Sta. 591.65-742.5	1,428.53	661.00	107.32
Sta. 742.5 Aft	786.34	800.61	129.05
"Marry-up"	52.58	468.91	103.89
UNDERCARRIAGE - Retracted	2,609.85	488.48	134.94
Main Undercarriages	1,959.62	539.48	141.00
Main U/C Doors & Fairings	291.88	536.80	138.48
Nose Undercarriage	333.81	170.81	99.70
Nose U/C Door & Fairing	24.54	162.24	88.23
POWER PLANT & SERVICES	14,365.59	652.98	120.35
Engines & Accessories J75 P3	12,562.29	664.92	119.78
Gear Box Installation on Fuselage	275.54	601.39	102.98
Gear Box & Starters on Engines	259.65	591.55	104.52
Engine Controls	32.43	375.76	118.62
Engine Nose Bullets	71.01	562.74	115.07
Fire Extinguishing System	65.46	700.45	134.21
Engine Mountings	206.21	635.04	127.71
Fuel System	893.00	536.67	136.12
FLYING CONTROL GROUP	1,857.18	686.26	139.66
Mechanical Flying Controls	949.04	687.85	148.43
Hydraulic Flying Controls	908.14	684.60	130.50
EQUIPMENT FIXED & REMOVABLE	9,412.21	403.04	112.92
Instruments	46.07	163.68	138.70
Probe	15.00	-38.14	108.00
Cockpit Pressure Sealing	5.00	186.00	130.00
Ejector Seats	284.42	202.80	136.25
Oxygen System	23.59	253.72	156.43
Air Conditioning System	812.41	335.87	134.32
Surface Finish	100.00	591.52	140.20
Hydraulics Main System	638.84	504.20	117.72
Cabin Insulation	14.31	187.48	132.00
Brake Parachute	90.78	786.65	143.16
Electrical System	1,113.23	418.50	112.83
Low Pressure Pneumatics	54.39	432.70	129.22
Intake De-icing Boots	51.84	197.02	118.00
Canopy Actuation	64.92	221.99	154.35
Cabin Consoles	17.45	174.76	124.34
MH 64 Damping System	139.13	449.26	135.57
Interim Radio & Radar	642.98	301.79	120.28
Radome Anti-icing	8.88	51.49	125.00
Instrument Pack Structure	686.80	385.81	94.68
Pack Instrumentation 1st A/C	3,036.00	395.45	95.00

continued.

Date: October 1st, 1957
 Aircraft: C-105 MK 1 with
 J75 P3 Engines

~~SECRET~~
 UNCLASSIFIED
 Report # 7-D100-34 Iss. 10
 Sheet 2-2
 NON CLASSIFIED

WEIGHT & C.G. SUMMARY

DESCRIPTION	WEIGHT lb	H. ARM ins.	V. ARM ins.	M.A.C. %
<u>Equipment (Fixed & Removable) (Continued)</u>				
Flight Test Installations	1,324.09	500.54	129.75	
Additional Fire Protection 1st A/C	154.17	425.05	102.89	
Emergency Landing Gear Lowering	12.91	458.83	128.60	
Emergency Ram Air Turbine	75.00	265.00	100.00	
AIRCRAFT BASIC WEIGHT	46,776.33	558.74	127.25	
USEFUL LOAD (less Fuel)	983.02	353.44	132.63	
Crew	430.00	194.00	136.50	
Alcohol - radome de-icing	22.00	93.00	138.00	
Engine Fire Extinguishing Fluid	25.00	730.00	129.00	
Residual Fuel	218.40	553.98	134.04	
Oxygen Charge	13.39	259.69	159.91	
Water for Air Conditioning	140.00	268.00	132.00	
Oil	134.23	608.92	115.68	
BALLAST	959.00	86.60	116.50	
Operational Weight Empty	48,718.35	545.30	127.13	30.19
	U/C Down	547.31	123.80	30.75
Maximum Internal Fuel (2,544 gal. @ 7.8 lb/gal.)	19,843.00	538.88	144.32	
	U/C Up	543.44	132.11	29.68
A.U.W. Maximum Internal Fuel	68,561.35	544.87	129.74	30.07
	U/C Down			

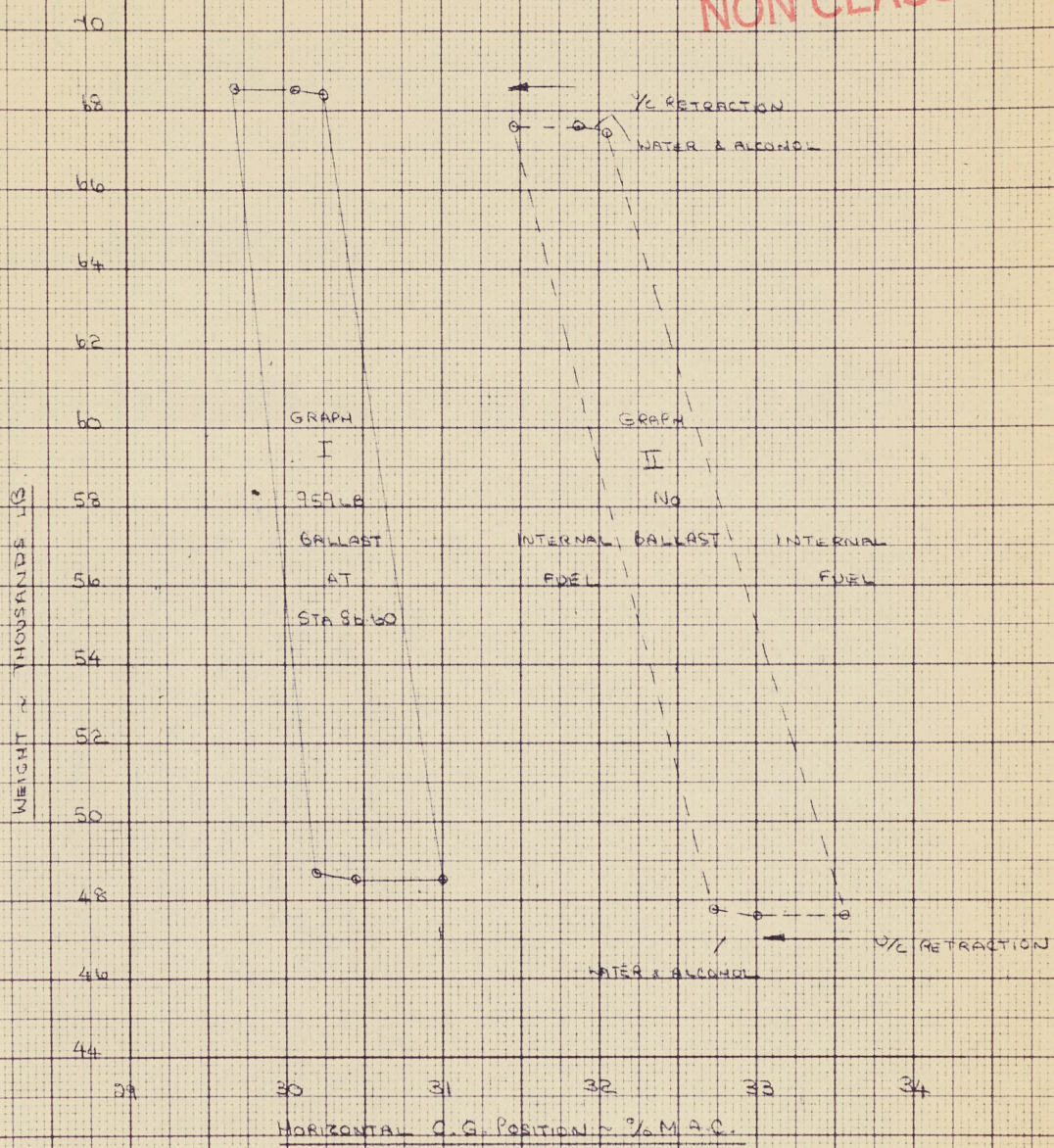
- N. B. 1) A/C Datum is considered to be 120" above an arbitrarily chosen ground line.
- 2) The above figures are for the Aircraft in the BALLASTED Condition such that the Aft C.G. on the horizontal C.G. Envelope does not exceed 31% M.A.C. i.e. 303 lb on Former Sta. 68.5 and 656 lb on the Shear Panel.

REPORT No. 7-9402-44-10

HORIZONTAL C.G. ENVELOPE
0.05 MKI 1/2 NORMAL FLIGHT CONDITION
FOR 1ST A/C (1ST FLIGHT DIFFERS)
FUEL SYSTEM PROPORTIONERS USED

BY: Karlsson Goffin
 DATE: Oct 15 1951
 SHEET: 3

UNCLASSIFIED
 NON CLASSIFIED



69-12
 10 X 10 TO THE 1/4 INCH
 MADE IN CANADA

AVRO AIRCRAFT LTD.

MALTON, ONT.

C-100 MK 1

PROJECT

WEIGHT AND C. OF G BY

FUNCTIONAL COMPONENTS

DESCRIPTION	REFERENCE NO.	COMP. NO.	WEIGHT	H.
TOTAL WING GROUP	1000000			
OUTER WING	1010000			
100 OUTER WING SKINS	1010001	64	929	1070
100 POSTS AND INTERCOSTALS	1010002	64	24	3673
100 OUTER WING SPARS	1010003	64	392	5870
100 OUTER WING RIBS	1010004	64	134	5669
98 AILERON CONTROL BOX	1010006	64	375	3077
100 RIB 12	1010007	64	76	2664
100 O W AILERON JACK FITTING	1010009	64	10	4672
AILERON JOINTS AND FAIRING	1010010		329	378
BUZZ DAMP STRUC PROV O W	1010011	64	80	075
			198	355
AILERON	1020000			
100 AILERON STRUCTURE	1020001	74	336	0079
			336	00
97 ELEVATOR	1030000	82	449	0075
97 ELEVATOR MARRY UP	1030000		159	773
			464	97
INNER WING	1040000			
96 MAIN U C STRUCTURE	1040001	62	330	7157
100 FRONT SPAR I W	1040002	62	111	1048
100 MAIN SPAR I W	1040003	62	151	0656
100 FWD CENTRE SPAR I W	1040004	62	53	6460
100 AFT CENTRE SPAR I W	1040005	62	36	6665
100 REAR SPAR I W	1040006	62	76	6770
94 I W STRUCTURE F S TO M S	1040007	62	1059	1849
100 STRUCTURE MS TO R S	1040008	62	149	7960
100 STRUCTURE AFT OF REAR SPAR	1040009	62	322	1271
40 ELEVATOR CONTROL BOX	1040010	62	428	3872
25 TRANSP JOINT MARRY UP	1040011		70	6563
100 INNER WING JOINTS	1040012	62	634	7166
100 SKINS M S TO R S	1040013	62	2190	3862
100 STRUT PICK UP FITTINGS	1040014	62	53	9156
100 RIBS 1 TO 9 INNER WING	1040016	62	512	0461
DORSAL FAIRINGS I W	1040017	62	95	48
100 RIB 10	1040018	62	108	0063
77 FUSELAGE HINGE JOINT	1040019	62	126	2861
65 TRANSPORT JOINT O W TO I W	1040020	62	129	4263
49 FUSELAGE HINGE JOINT	1040021		37	4052
BUZZ DAMP STRUC PROV I W	1040022	62	55	274
DORSAL FAIRINGS	1040023		56	2957
			664	486

WIGHT AND C. OF G BY FUNCTIONAL GROUP COMPONENT

REPORT NO. 7-0400-44 Iss. 10

Date: Oct. 1/57

SHEET 4-1

	REFERENCE NO.	COMP. NO.	WEIGHT	H. ARM	V. ARM	H. MOMENT	V. MOMENT
	1000000						
	1010000						
	1010001	64	9291070646	13597		65637199	12632973
	1010002	64	243673207	13410		1783323	326668
	1010003	64	3925870118	13636		27526984	5353221
	1010004	64	1345669506	13650		9352727	1836744
	1010006	64	3753077409	13508		29051598	5069552
	1010007	64	762664873	13832		4947215	1054828
ING	1010009	64	104672791	13670		761394	142988
IRING	1010010		329378726	13224		2592447	435466
OW	1010011	64	80075828	13680		606624	109440
			198355			142259451	26961880
	1020000						
	1020001	74	3360079213	13556		26615568	4554816
			33600			26615568	4554816
	1030000	82	4490075523	14260		33909827	6402740
	1030000		159773810	14260		1178746	227732
			46497			35088573	6630472
	1040000						
	1040001	62	3307157757	13983		19100817	4624318
	1040002	62	1111048428	14260		5380351	1584286
	1040003	62	1510656570	14280		8545464	2157137
	1040004	62	536460098	14415		3223657	773221
	1040005	62	366665492	14450		2400937	529737
	1040006	62	766770374	14420		5395575	1105581
M S	1040007	62	10591849929	14405		52883798	15257488
	1040008	62	1497960964	14572		9131798	2182740
SPAR	1040009	62	3221271829	15020		23137557	4838242
	1040010	62	4283872470	14328		31044699	6137829
	1040011		706563621	13876		4494824	980339
	1040012	62	6347166222	15046		42031766	9549847
	1040013	62	21903862446	14464	1	36780469	31681656
S	1040014	62	539156766	14330		3060255	772530
G	1040016	62	5120461287	14499		31381395	7424068
	1040017	62	9548280	16150		45866	15343
	1040018	62	1080063683	13835		6877764	1494180
	1040019	62	1262861681	13811		7789077	1744053
O I W	1040020	62	1294263071	13710		8162649	1774348
	1040021		374052796	14309		1974570	535157
I W	1040022	62	55274150	14200		409308	78384
	1040023		562957249	16026		3222546	902104
			664486			406475142	96142588

UNCLASSIFIED
NON CLASSIFIED

EIGHT AND C. OF G BY FUNCTIONAL GROUP COMPONENT

REPORT NO. 7-0400-44 Iss. 10

SHEET 4-3

	REFERENCE NO.	COMP. NO.	WEIGHT	H. ARM	V. ARM	H. MOMENT	V. MOMENT
FIN	201000083		851707	149572	21170	63840877	18030489
	201000183		18580300	22342		148555	41333
	2010002		483068538	15355		3310385	741647
			90185			67299817	18813469
	202000084		124008	13252	1438	10084300	2658312
			12400			10084300	2658312
UNCLASSIFIED NON CLASSIFIE							

PROJECT _____

	DESCRIPTION	REFERENCE NO.	COMP. NO.	WEIGHT	H
	TOTAL FUSELAGE GROUP	3000000			
	FUSELAGE BASIC STRUCTURE	3010000			
	RADOME	3010001	51	17728	3
100	RADAR NOSE ACCESS DOORS	3010002	51	8008	9
	RADAR NOSE STRUCTURE	3010003	51	12454	9
	SKIN F F	3010004	52	10949	18
88	SKIN C F	3010005	54	21182	37
	SKIN D B	3010006	56	5880	53
3	SKINS E B	3010007	58	17573	66
4	FORMERS F F	3010011	52	10531	18
100	FORMERS C F	3010012	54	27824	37
	FORMER D B	3010013	56	7457	52
	LIGHT FORMERS E B	3010014	58	13501	66
64	HEAVY FORMERS E B	3010015	58	21582	66
	LOWER LONGERONS F F	3010016	52	6846	18
	LONGITUDINAL MEMBERS E B	3010017	58	11067	60
75	LOWER LONGERON E B	3010018	58	6842	65
	TOP LONGERONS E B	3010019	58	6386	60
	LOWER SHEAR PANEL	3010020	52	2988	23
	TOP WING LONGERONS D B	3010021	56	4985	53
	LONGERONS C F	3010022	52	5325	52
	LONGERONS C F	3010023	54	13813	41
43	LONGERONS F D B	3010024	54	12584	48
43	LONGERONS A D B	3010025	56	8655	52
	ELECTRONICS BAY STRUCTURE	3010026	54	3570	27
59	LONGITUDINAL BEAMS D B	3010027	56	6570	52
	RADAR ACCESS DOOR C F	3010028	54	2108	27
72	MAIN FRAME AT STN 53B 77	3010029	56	5980	52
	DIVE BRAKE ACCOM STRUCTURE	3010030	56	3634	50
30	TOP LONGERONS F F	3010031	52	18649	19
100	DUCT C F	3010032	54	3328	63
97	DUCT D B	3010033	56	3163	54
22	CANOPY ARCHES	3010034	52	8461	32
4	ACCESS PANEL STIFFNERS	3010036	56	3865	52
66	NOSE U C SUPPORT STRUCTURE	3010037	52	3343	21
3	CREW BULKHEADS	3010038	52	12272	20
51	EQUIPMENT BAY STRUCTURE	3010039	54	6150	28
86	WINDSCREEN	3010041	52	13003	12
33	SERVICE ACCESS DOORS	3010042	58	6704	66
	TORSION BOX E B	3010043	58	6042	61
	DORSAL FAIRING AIR OUTLET	3010044	54	2061	29
66	INTERMEDIATE FORMERS	3010045	58	5154	69
	ENGINE ACCESS DOORS	3010046	58	14659	62
	SEALING MISSILE BAY	3010047	54	697	32
100	MISCELLANEOUS ITEM C F	3010048	54	392	37
98	ARMAMENT BAY ROOF	3010049	54	13216	38
	BULKHEAD AT STA 120	3010050	52	3060	12
	BULKHEAD AT STA 255	3010051	52	10429	25
100	BULKHEAD AT STA 485	3010052	54	11245	48
13	ENGINE TUNNEL	3010054	58	47572	66

EIGHT AND C. OF G BY FUNCTIONAL GROUP COMPONENT

REPORT NO. 7-0400-44 Iss. 10

SHEET 4-4

	REFERENCE NO.	COMP. NO.	WEIGHT	H. ARM	V. ARM	H. MOMENT	V. MOMENT
	3000000						
URE	3010000						
	3010000151		17728	3796	11037	672955	1956639
RS	3010000251		8008	9509	11450	761481	916916
	3010000351		12454	9468	11451	1179145	1426108
	3010000452		10949	18978	12164	2077901	1331836
	3010000554		21182	37673	14300	7979895	3029026
	3010000656		5880	53407	11155	3140332	655914
	3010000758		17573	66944	11005	11764069	1933909
	3010001152		10531	18330	12018	1930332	1265616
	3010001254		27824	37482	13306	10428992	3702261
	3010001356		74575	3710	11315	4005155	843760
	3010001458		13501	166827	11119	9022313	1501176
	3010001558		21582	66224	10987	14292464	2371214
	3010001652		6846	18430	9044	1261718	619152
E B	3010001758		11067	70853	9611	783634	106298
	3010001858		6842	65810	9781	4502720	669216
	3010001958		6386	6605	13911	424940	88752
	3010002052		2988	23420	8900	699790	265932
B	3010002156		4985	53899	13550	268417	67479
	3010002252			5325295	15250	13406	8083
	3010002354		1381	341112	12289	5678801	1697480
	3010002454		1258	48717	10700	612860	134606
	3010002556		8655	52931	9759	4581178	844641
TURE	3010002654		3570	27359	9197	976716	328333
B	3010002756		6570	52007	9125	3416860	599513
	3010002854		2108	27448	8976	578604	189214
77	3010002956		5980	53877	10383	3221845	620903
CTURE	3010003056		3634	50399	9299	1831500	337926
	3010003152		18649	19306	14750	3600376	2750728
	3010003254		3328	637256	12919	12401032	4300218
	3010003356		3163	54471	11811	1723081	3736174
	3010003452		8461	122844	16055	1932831	1358414
S	3010003656		3865	53918	10294	2083931	397863
CTURE	3010003752		3343	21049	9186	703668	307088
	3010003852		1227	20589	12284	2526682	1507492
RE	3010003954		6150	28360	13752	1744140	845748
	3010004152		1300	313814	15008	1796234	1951490
	3010004258		6704	66397	9189	4451255	616031
	3010004358		6042	61926	9058	3741569	547284
TLET	3010004454		2061	129195	16400	601709	338004
	3010004558		5154	69289	10257	3571155	528646
	3010004658		1465	962851	8873	9213328	1300693
	3010004754		697	32148	10900	224072	75973
F	3010004854		392	37000	12500	145040	49000
	3010004954		1321	638438	11427	5079956	1510192
	3010005052		3060	12000	12280	367200	375768
	3010005152		1042	25500	12027	2659395	1254296
	3010005254		1124	548500	10530	5453825	1184099
	3010005458		4757	266529	11581	31649176	5509313

UNCLASSIFIED
NON CLASSIFIED

AVRO AIRCRAFT LTD.
MALTON, ONT.

WEIGHT AND C. OF G BY FUNCTIONAL
COMPONE

PROJECT _____

DESCRIPTION	REFERENCE NO.	COMP. NO.	WEIGHT	H
INTEGRAL FUS FUEL TANK	301005554		20359	39
COCKPIT FLOOR	301005652		5904	17
CENTRE BEAM 697 28 717 36	301005958		5577	
DORSAL OVER FUEL TANK	301006154		5097	41
SHIELD EXHAUST DEFLECTOR	301006254		1985	33
SHEAR PANEL BELOW NAV ARCH	301006352		2074	25
34 PACK MTG STRUCTURE	301006454		2047	29
88 ENG ACCESS DOORS R F	301006559		8457	77
99 TUNNEL FIXED R F	301006659		10403	77
100 SKIN AND STIFFENERS R F	301006759		5122	77
100 FAIRING UNDER RUDDER R F	301006859		2616	78
100 FORMERS FIXED R F	301006959		9001	77
100 LONGERONS C BEAM FIXED R F	301007059		2799	77
WACELLES REMOVABLE R F	301007159		2847	82
100 CNTR STRUC STING REMOV R F	301007259		11760	83
MISCELLANEOUS ITEMS E B	301007358		923	66
MTG BRKTS SIDE PANEL D B	301007556		213	52
FORMERS LOWER PANEL D B	301007656		7606	54
LOWER PANEL D B	301007756		5054	55
JOINT F F TO C F	3010078		855	25
JOINT AIR INTAKES TO F F	3010079		952	22
JOINT C F TO D B	3010080		500	48
JOINT D B TO E B	3010081		2508	58
FUS JOINT AT STA 742 50	3010082		4437	4
MISC STRUCTURE F F	301008552		552	18
			6273	64
96 DIVE BRAKES	302000072		11150	50
96 DIVE BRAKES C A	3020001		4064	8
			1155	6
AIR INTAKES	3030000			
18 AIR INTAKES	303010055		7624	821
			7624	8
PILOTS AND NAVIG CANOPIES	3040000			
76 PILOTS CANOPY	304010053		2415	417
			2415	4
100 NAVIGATORS CANOPY	304020053		1529	723
			1529	7

EIGHT AND C. OF G BY FUNCTIONAL GROUP COMPONENT

REPORT NO. 7-0400-44 Iss. 10

SHEET 4-5

UNCLASSIFIED
NON CLASSIFIED

	REFERENCE NO.	COMP. NO.	WEIGHT	H. ARM	V. ARM	H. MOMENT	V. MOMENT
	301005554		20359	39339	14536	8008027	2959384
	301005652		5904	17689	11575	1044359	683388
17 36	301005958		557	71367	11524	397514	64189
	301006154		5097	41352	14205	2107711	724029
TOR	301006254		1965	33441	16400	657116	322260
ARCH	301006352		2074	25702	15350	533059	318359
	301006454		2047	29288	10331	599525	211476
	301006559		8457	77280	9910	6535570	838089
	301006659		10403	77168	13059	8027787	1358528
F	301006759		5122	77160	13790	3952135	706324
R F	301006859		2616	78134	15379	2043985	402315
	301006959		9001	77929	13652	7014388	1228817
D R F	301007059		2799	77170	12570	2159988	351834
F	301007159		2847	682144	12867	23391325	3664007
V R F	301007259		11760	83585	13586	9829596	1597714
B	301007358		923	66394	10285	612817	94931
D B	301007556		213	52402	13330	111616	28393
B	301007656		7606	54565	9005	4150214	684920
	301007756		5054	55457	8790	2802797	444247
	3010078		855	25500	12000	218025	102600
F F	3010079		952	22000	12000	209440	114240
	3010080		500	48500	9800	242500	49000
	3010081		2508	58478	9150	1466628	229482
50	3010082		443	74250	11500	328928	50945
	301008552		552	18750	11500	103500	63480
			627364			293834969	75249368
	302000072		11150	50846	9062	5669329	1010413
	3020001		4064	8794	9374	198104	38058
			11556			5867433	1048471
	3030000						
	303010055		76248	21080	11863	16073078	9045300
			76248			16073078	9045300
PIES	3040000						
	304010053		24154	17681	15913	4270669	3843626
			24154			4270669	3843626
	304020053		15297	23279	16222	3560989	2481479
			15297			3560989	2481479

EIGHT AND C. OF G BY FUNCTIONAL GROUP COMPONENT

REPORT NO. 7-0400-44 Iss. 10

SHEET 4-6

	REFERENCE NO.	COMP. NO.	WEIGHT	H. ARM	V. ARM	H. MOMENT	V. MOMENT
SECTION	4000000						
GROUP	4010000						
	401010092		195962	53948	14100	105717580	27630642
			195962			105717580	27630642
INGS	401020062		29188	53680	13848	15668118	4041954
			29188			15668118	4041954
GROUP	4020000						
	402010091		33381	17080	9970	5701475	3328086
			33381			5701475	3328086
RING	402020052		2454	16224	8823	398137	216516
			2454			398137	216516

UNCLASSIFIED
NON CLASSIFIED

AVRO AIRCRAFT LTD.
MALTON, ONT.

WEIGHT AND C. OF G BY FUNCTIONAL
COMPONENT

PROJECT _____

DESCRIPTION	REFERENCE NO.	COMP. NO.	WEIGHT	H
ENGINE GROUP	5000000			
99 ENGINE J 75	5010000		1252707	60
			1252707	
J 75 ENGINE SERV ACCESS	5010100		3522	63
			3522	
68 ACC GEAR BOXES ON FUS D B	5020001	56	4524	57
68 ACC GEAR BOXES ON FUS E B	5020002	58	23030	60
			27554	
ENGINE CONTROLS	5030000			
36 ENGINE CONTROLS F F	5030001	52	1458	16
36 ENGINE CONTROLS C F	5030002	54	264	36
36 ENGINE CONTROLS D B	5030003	56	508	49
36 ENGINE CONTROLS E B	5030004	58	1013	63
			3243	
91 GEARBOX AND STARTER ON ENG	5040000		25965	59
			25965	
6 ENGINE ANTI ICING	5050000		7101	56
			7101	
FIRE EXT SYSTEM	5060000			
55 FIRE EXT SYSTEM D B	5060002	56	146	55
55 FIRE EXT SYSTEM E B	5060003	58	6400	70
			6546	
ENGINE MTGS AND BRACKETS	5070000			
64 ENG MOUNTING AND BRKTS	5070001		14653	62
ENGINE MTGS ACCESSORIES	5070002		5202	66
ENGINE MTGS ACCESSORIES CA	5070003		766	64
			20621	
FUEL SYSTEM	5080000			

EIGHT AND C. OF G BY FUNCTIONAL GROUP COMPONENT

REPORT NO. 7-0400-44 Is. 1

SHEET 4-7

	REFERENCE NO.	COMP. NO.	WEIGHT	H. ARM	V. ARM	H. MOMENT	V. MOMENT
	5000000						
	5010000		1252707	66502	11983	833075209	150111880
			1252707			833075209	150111880
SS	5010100		3522	63097	10341	2222276	364210
			3522			2222276	364210
S D B	5020001	56	4524	57875	9607	2618265	434621
S E B	5020002	58	23030	60584	10434	13952495	2402950
			27554			16570760	2837571
	5030000						
	5030001	52	1458	16129	12476	235161	181900
	5030002	54	264	30813	11798	81346	31147
	5030003	56	508	49991	13459	253954	68372
	5030004	58	1013	63962	10194	648138	103265
			3243			1218599	384684
ON ENG	5040000		25965	59165	10452	15359596	2713862
			25965			15359596	2713862
	5050000		7101	56274	11507	3996017	817112
			7101			3996017	817112
	5060000						
	5060002	56	14655	3181	3749	80764	20074
	5060003	58	64007	0381	13414	4504384	858496
			6546			4585148	878570
KEYS	5070000						
TS	5070001		14653	62504	12935	9158711	1895366
ES	5070002		5202	66213	12248	3444400	637141
ES CA	5070003		7666	4236	13192	492048	101051
			20621			13095159	2633558
	5080000						

UNCLASSIFIED
NON CLASSIFIED

EIGHT AND C. OF G BY FUNCTIONAL GROUP COMPONENT

REPORT NO. 7-0400-44 Iss. 10

SHEET 4-8

REFERENCE NO.	COMP. NO.	WEIGHT	H. ARM	V. ARM	H. MOMENT	V. MOMENT
5080001	54	13474	40781	14045	5494832	1892423
5080002	56	16857	53575	11233	9031138	1893547
5080003	58	3592	66531	12549	2389794	450760
5080004	62	53997	55804	14420	30132486	7786367
5080005		626	65901	9594	412540	60058
5080006		754	61525	9658	463899	72821
		89300			47924689	12155976

UNCLASSIFIED
NON CLASSIFIED

EIGHT AND C. OF G BY FUNCTIONAL GROUP COMPONENT

REPORT NO 7-0400-44 Iss. 10

SHEET 4-9

	REFERENCE NO.	COMP. NO.	WEIGHT	H. ARM	V. ARM	H. MOMENT	V. MOMENT
	6000000						
	6010000						
F	6010001	52	8759	15807	11543	1384535	1011051
F	6010002	54	885	33920	11526	300192	102005
B	6010003	56	350	48699	11880	170447	41580
I N	6010005	83	12626	78803	22173	9949667	2799563
W	6010006	62	41202	71739	14350	29557903	5912487
W	6010007	64	30436	77075	13561	23458547	4127426
A	6010008		646	70982	14338	458544	92623
			94904			65279835	14086735
	6020000						
S D B	6020001	56	239	157395	9691	1372314	231712
S E B	6020002	58	43629	65387	11067	28527694	4828421
S R F	6020003	59	48	75875	10824	36420	5196
T I W	6020004	62	2729	470358	14721	19203513	4017950
T O W	6020005	64	11930	74056	13580	8834881	1620094
	6020006	83	5522	75996	20784	4196499	1147692
			90814			62171321	11851065

UNCLASSIFIED
NON CLASSIFIED

PROJECT _____

DESCRIPTION	REFERENCE NO.	COMP. NO.	WEIGHT	H
FIXED EQUIPMENT GROUP	7000000			
INSTRUMENTS	7010000			
INSTRUMENTS F F	701000152		4407	10
NAVIG TABLE AND STOWAGE	701000452		200	22
			4607	
COCKPIT PRESSURE SEALING	702000052		500	18
			500	
OXYGEN SYSTEM	7030000			
OXYGEN SYSTEM	703000152		2359	25
			2359	
AIR CONDITIONING SYSTEM	7040000			
54 AIR CONDITIONING F F	704000152		3549	17
54 AIR CONDITIONING C F	704000254		4721	22
54 AIR CONDITIONING D B	704000356		1148	51
54 AIR CONDITIONING C A	7040005		2736	39
54 AIR CONDITIONING ENG	7040006		1889	64
54 AIR CONDITIONING I W	704000762		8051	
			81241	
HYDRAULICS MAIN SYSTEM	7050000			
32 UTILITY HYDRAULICS F F	705000152		841	20
31 UTILITY HYDRAULICS C F	705000254		427	43
20 UTILITY HYDRAULICS D B	705000356		273	55
21 UTILITY HYDRAULICS E B	705000458		724	60
23 UTILITY HYDRAULICS I W	705000562		1331	55
32 UTILITY HYDR NOSE U C	705000691		325	19
23 UTILITY HYDR MAIN U C	705000792		298	54
28 EMERGENCY LOWERING M U C	705000862		85	58
35 EMERGENCY LOWERING N U C	705000952		438	21
			65175	
RAM AIR TURB EMERG POWER	706000054		7500	26
			7500	
CABIN INSULATION	707000052		1431	18
			1431	

EIGHT AND C. OF G BY FUNCTIONAL GROUP COMPONENT

REPORT NO. 7-0400-44 Iss. 10

SHEET 4-10

	REFERENCE NO.	COMP. NO.	WEIGHT	H. ARM	V. ARM	H. MOMENT	V. MOMENT
	7000000						
	7010000						
GE	701000152		4407	16112	13909	710056	618970
	701000452		200	22000	13000	44000	25000
			4607			754056	638970
ING	702000052		500	18600	13000	93000	65000
			500			93000	65000
	7030000						
	703000152		2359	25372	15643	598525	369018
			2359			598525	369018
EM	7040000						
	704000152		3549	17813	11118	632183	394578
	704000254		47212	29489	13515	13922347	6380702
	704000356		1148	51640	12503	592827	143534
	7040005		27363	39792	13613	10888285	3724925
	7040006		1889	64017	13525	1209281	255487
	704000762		80	51500	15950	41200	12760
			81241			27286123	10911986
M	7050000						
F	705000152		8418	20043	10871	1687220	915121
F	705000254		4272	43480	10431	1857466	445612
B	705000356		27338	55692	11077	15225079	3028230
B	705000458		7240	60647	10852	4390843	785685
W	705000562		13311	55360	14235	7368970	1894821
	705000691		325	19033	9521	61857	30943
	705000792		2980	54325	14100	1618885	420180
U C	705000862		853	58436	14188	498459	121024
U C	705000952		438	21435	10275	93885	45005
			65175			32802664	7686621
WER	706000054		7500	26500	10000	1987500	750000
			7500			1987500	750000
	707000052		1431	18748	13200	268284	188892
			1431			268284	188892

UNCLASSIFIED
NON CLASSIFIED

PROJECT _____

DESCRIPTION		REFERENCE NO.	COMP. NO.	WEIGHT	H.
	BRAKE PARACHUTE	70800000			
	BRAKE PARACHUTE F F	708000152		455	16
	BRAKE PARACHUTE R F	708000559		849	82
	BRAKE PARACHUTE I W	708000662		124	61
				9078	
	ELECTRICAL SYSTEM	7090000			
	ELECTRICAL WIRING	7091400			
33	ELECTRICAL WIRING R N	709140151		129	9
33	ELECTRICAL WIRING F F	709140252		296	19
33	ELECTRICAL WIRING C G	709140354		130	44
33	ELECTRICAL WIRING A I	709140455		127	42
33	ELECTRICAL WIRING D B	709140556		65	15
33	ELECTRICAL WIRING E B	709140658		6	4
33	ELECTRICAL WIRING I W	709140862		89	0
33	ELECTRICAL WIRING FIN	709140983		35	2
33	ELECTRICAL WIRING NUC	709141091		33	0
33	ELECTRICAL WIRING ENG	7091411		20	2
33	ELECTRICAL WIRING C A	7091412		137	4
				3759	1
59	ELECTRICS F F	709150052		152	4
				152	4
26	ELECTRICS C F	709160054		73	5
				73	5
85	ELECTRICS E B	709170058		67	0
85	ELECTRICS ENG	7091701		116	3
85	ELECTRICS C A	7091702		71	8
				130	2
	ELECTRICS FIN	709180083		8	3
				8	3
	ELECTRICS I W	709190062		23	3
	ELECTRICS C A	7091901		11	2
	ELECTRICS M U C	709190292		7	4
				25	2
19	ELECTRICS A I	709200055		53	0
				53	0

EIGHT AND C. OF G BY FUNCTIONAL GROUP COMPONENT

REPORT NO. 7-0400-44 Iss. 10

SHEET 4-11

REFERENCE NO.	COMP. NO.	WEIGHT	H. ARM	V. ARM	H. MOMENT	V. MOMENT
7080000						
7080001	52	455	169	131	2869	76954
7080005	59	849	982	213	14391	6987283
7080006	62	124	620	221	4500	76907
		9078				7141144
7090000						1299625
7091400						
7091401	51	129	928	512	000	11978
7091402	52	296	619	977	11200	592518
7091403	54	130	441	878	11000	546089
7091404	55	127	421	984	12000	280076
7091405	56	65	155	337	59200	3477381
7091406	58	64	595	500	9200	38080
7091408	62	890	954	111	13900	4820749
7091409	83	352	797	543	00000	280734
7091410	91	330	186	600	9800	61380
7091411		200	258	583	10000	1172832
7091412		137	463	347	311234	4601199
		375	91			15883016
7091500	52	152	481	546	411095	2357951
		152	48			2357951
7091600	54	73	594	549	110717	3347683
		73	59			3347683
7091700	58	670	679	441	11597	455225
7091701		116	325	620	711472	6537998
7091702		718	613	501	20000	440493
		130	20			7433716
7091800	83	83	895	502	8840	74327
		83				74327
7091900	62	23	366	205	314500	1449558
7091901		112	629	461	3561	70500
7091902	92	74	516	001	3700	38184
		25	22			1558242
7092000	55	530	322	076	13833	1170690
		530	3			1170690

UNCLASSIFIED
NON CLASSIFIED

PROJECT _____

DESCRIPTION		REFERENCE NO.	COMP. NO.	WEIGHT	H.
93	ELECTRICS D B	709210056		2713251	
				27132	
	WINDSCREEN DEMISTING	709220052		292919	
				2929	
	ELECTRICS R F	709230059		13680	
				136	
	L P PNEUMATICS	7100000			
26	L P PNEUMATICS F F	710000152		206019	
18	L P PNEUMATICS C F	710000254		67133	
	L P PNEUMATICS D B	710000356		41855	
	L P PNEUMATICS E B	710000458		152665	
	L P PNEUMATICS F I N	710000583		64075	
	L P PNEUMATICS R N	710000651		1247	
				5439	
	INTAKE DEICING	712000055		518419	
				5184	
	RADOME ANTI ICING	713000051		8885	
				888	
5	RADIO RADAR INT SYST R N	715000151		197910	
5	RADIO RADAR INT SYST F F	715000252		990819	
5	RADIO RADAR INT SYST C F	715000354		3314127	
5	RADIO RADAR INT SYST I W	715000562		439755	
5	RADIO RADAR INT SYST O W	715000664		8073	
5	RADIO RADAR INT SYST F I N	715000783		320176	
5	RADIO RADAR INT SYST C A	7150008		1157927	
5	RADIO RADAR INT SYST D B	715000959		1374	
				64298	
29	CANOPY ACTUATION	716000052		649222	
				6492	
	CABIN CONSOLES	717000052		174517	
				1745	

EIGHT AND C. OF G BY FUNCTIONAL GROUP COMPONENT

REPORT NO. 7-0100-44 Iss.10

SHEET 4-12

	REFERENCE NO.	COMP. NO.	WEIGHT	H. ARM	V. ARM	H. MOMENT	V. MOMENT
	7092100	56	27132	51861	10254	14070927	2782115
			27132			14070927	2782115
	7092200	52	2929	19898	9980	582812	292314
			2929			582812	292314
	7092300	59	136	80200	11360	109072	15450
			136			109072	15450
	7100000						
	7100000	152	2060	19474	12434	401164	256140
	7100000	254	671	33431	11033	224322	74031
	7100000	356	418	55545	11592	232178	48455
	7100000	458	152	665650	9737	1001819	148587
	7100000	583	640	75818	25515	485235	163296
	7100000	651	124	7431	9955	9214	12344
			5439			2353932	702853
	7120000	55	5184	19702	11800	1021352	611712
			5184			1021352	611712
	7130000	51	888	5149	12500	45723	111000
			888			45723	111000
R N	7150000	151	1979	10256	8873	202966	175597
F F	7150000	252	990	819017	12450	1884204	1233546
C F	7150000	354	331	4127635	10460	9158515	3466549
I W	7150000	562	439	755270	15808	2430222	695078
O W	7150000	664	80	73904	13764	59123	11011
F I N	7150000	783	320	176212	25627	2439546	820320
C A	7150000	8	115	7927810	11484	3220120	1329732
D B	7150000	959	13	74550	15800	9692	2054
			64298			19404388	7733887
	7160000	52	649	222199	15435	1441159	1002040
			6492			1441159	1002040
	7170000	52	1745	17476	12434	304956	216973
			1745			304956	216973

UNCLASSIFIED
NON CLASSIFIED

EIGHT AND C. OF G BY FUNCTIONAL GROUP COMPONENT

REPORT NO. 7-0400-44 Iss. 10

SHEET 4-13

	REFERENCE NO.	COMP. NO.	WEIGHT	H. ARM	V. ARM	H. MOMENT	V. MOMENT
	7190000152		363	18744	12200	68041	44286
	7190000253		642	20218	15900	12940	10176
S	7190000354		1400	37197	12455	520758	174370
	7190000455		408	22798	12020	93016	49042
	7190000556		377	53828	11200	202932	42224
	7190000658		443	66701	11200	295485	49616
	7190000759		648	80362	13175	520746	85374
	7190000862		315	160144	14400	1895137	453744
EDGE	7190000964		1067	70650	13590	753836	145005
N	7190001065		319	63948	13526	203994	43148
OR	7190001174		353	79190	13556	279541	47853
	7190001282		566	75523	14260	427460	80712
	7190001383		639	74663	20837	477097	133148
	7190001484		202	81279	21431	164184	43291
			10000			5915167	1401989
IONS	72000000		132409	50054	12975	66276001	17180068
			132409			66276001	17180068

UNCLASSIFIED
NON CLASSIFIED

AVRO AIRCRAFT LTD.
MALTON, ONT.

WEIGHT AND C. OF G BY FUNCTIONAL
COMPONE

PROJECT _____

DESCRIPTION	REFERENCE NO.	COMP. NO.	WEIGHT	H
REMOVABLE EQUIPMENT GROUP	8000000			
EJECTOR SEATS	8010100	52	28442	20
			28442	
RADAR REMOV GROUP	8020000			
DAMPING SYSTEM	8030000			
DAMPING SYSTEM F F	8030101	52	635	16
DAMPING SYSTEM C F	8030102	54	2180	31
DAMPING SYSTEM E B	8030103	58	369	63
DAMPING SYSTEM I W	8030104	62	5800	52
DAMPING SYSTEM O W	8030105	64	95	74
DAMPING SYSTEM R N	8030106	51	520	8
DAMPING SYSTEM C A	8030107		4314	48
			1391	3
98 INSTRUMENT PACK	8050800	54	6868	038
			6868	0
INSTRUMENTATION	8050900	54	30360	039
			30360	0
FIRE PREVENT FIRST A C CF	8051000	54	1402	940
FIRE PREVENT FIRST A C DB	8051001	56	806	54
FIRE PREVENT FIRST A C EB	8051002	58	582	62
			154	17

EIGHT AND C. OF G BY FUNCTIONAL GROUP COMPONENT

REPORT NO. 7-0400-14 Iss. 10

SHEET 4-14

GROUP	REFERENCE NO.	COMP. NO.	WEIGHT	H. ARM	V. ARM	H. MOMENT	V. MOMENT
	8000000						
	8010100	52	28442	20280	13625	5768038	3875223
			28442			5768038	3875223
	8020000						
	8030000						
	8030101	52	6351	16959	11961	107690	75952
	8030102	54	2180	31915	11403	695747	248585
	8030103	58	3696	32421	13432	233363	49564
	8030104	62	5800	52121	16000	3023018	928000
	8030105	64	9574	8551	14000	71112	13300
	8030106	51	520	8000	10200	41600	53040
	8030107		4314	48168	12000	2077968	517680
			13913			6250498	1886121
	8050800	54	68680	38581	9468	26497431	6502622
			68680			26497431	6502622
	8050900	54	303600	39545	9500	120058620	28842000
			303600			120058620	28842000
C CF	8051000	54	14029	40956	9982	5745717	1400375
C DB	8051001	56	8065	4940	12883	442816	103837
C EB	8051002	58	5826	2634	14095	364530	82033
			15417			6553063	1586245

UNCLASSIFIED
NON CLASSIFIED

EIGHT AND C. OF G BY FUNCTIONAL GROUP COMPONENT

REPORT NO. 7-0400-44 Iss. 10

SHEET 4-15

	REFERENCE NO.	COMP. NO.	WEIGHT	H. ARM	V. ARM	H. MOMENT	V. MOMENT
	9000000						
	9010000	52	43000	19400	13650	8342000	5869500
			43000			8342000	5869500
	9020000						
	9020001		8816	661246	12186	5399447	1074318
G	9020002		1773	62676	11640	1111245	206377
B	9020003	56	1925	58084	9555	1118117	183934
B	9020004	58	909	59928	9704	544746	88209
			13423			8173555	1552838
	9040000						
	9040001	52	72	20493	13200	14755	9504
	9040002	54	1267	26280	16150	332968	204621
			1339			347723	214125
ICING	9050000	51	2200	9300	13800	204600	303600
			2200			204600	303600
	9060000		2500	73000	12900	1825000	322500
			2500			1825000	322500
	9070000						
	9070001	54	4680	39424	12300	1845043	575640
	9070002	62	17160	59755	13705	10253958	2351778
			21840			12099001	2927418
ONING	9100000	54	12500	26800	13200	3350000	1650000
IRCOND	9100001	54	1500	26700	12700	400500	190500
			14000			3750500	1840500

UNCLASSIFIED
NON CLASSIFIED

BUCHANAN
1858
MADE IN U.S.A.