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1400-05

C-105 with J75 Report #7-0400-05
Production Engines ISSUE 20

WEIGHT SUMMARY AND C.G. POSITION

N.A.E. Copy Nov. 1/55. A

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TO
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DATE

JAN 07 1993

Report no.: QCX - AVRO - CF105- R-7-0400-05-155-20

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

Classification cancelled / changed to: UNCLASSIFIED

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

Date: 5 Nov 1992

Signature: B. Aubrey

Unit / Rank / Appointment: DSIS 3, Secretary CRAD HQ DRP

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Date: 1st, November, 1955
Aircraft: C-105 With J75 Engines
as Interim Power Plant



Report # 7-0400-05
Sheet # 001-1 Issue 20
Prepared By: K.Griffin
Checked By: E. Burnett

INTRODUCTION

This summary is a revised Weight and C.G. estimate of the C-105 Aircraft, based on the latest design information in being on October 31st, 1955. All Weight and C.G. changes are relative to Issue 19.

GENERAL:

- (a) As in Issue 19 Pratt & Whitney J75 Engines comprise the interim Power Plant (6,175 lb. each.)
- (b) The weight of Radio & Radar carried in this issue is 2,908 lb. The system is described as "Integrated Electronic System for C-105 Aircraft with certain deviations". The breakdown into items is given in Weight Summary Issue 14.
- (c) As in issues subsequent to 15, the extended leading edge is recorded here.

1. STRUCTURE

WEIGHT (lb).

(a) Wings:

I/W Front Spar to Main Spar structure - redesign of skins,	
Fus. Side ribs, etc.	0
O/W Aileron Control Box - refinement of estimate	- 19
O/W Spars - general changes and strengthening Front Spar	
and Centre Spar	+ 30
Weight Change Increase	+ 11
	<u>Ref. 002-1</u>

(b) Fin and Rudder:

No Weight Change	0
------------------	---

(c) Fuselage To Sta. 255"

Miscellaneous Production Drawing Changes to Formers	
and Intake Ramp Items.	- 6
Weight Change Decrease	- 6
	<u>Ref. 002-1</u>

(d) Fuselage 255" to 485"

The aft attachment fitting for Pack pick-up is considered part of Bulkhead 485 assy. and is included with it, hence transfer from here

Weight Change Decrease	- 4
	- 4
	<u>Ref. 002-1</u>

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Date: 1st, November, 1955
Aircraft C-105 With J75 Engines
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Report # 7-0400-05
Sheet # 001-2 Issue 20
Prepared By: K. Griffin
Checked By: E. Burnett

INTRODUCTION

1. <u>STRUCTURE</u> (Continued)	WEIGHT (lb)
(a) <u>Fuselage to Sta. 485" Aft.</u>	
Bulkhead 485" - Production Drawing changes see also above	+ 12
Dive Brake Accommodations - redesign Sealing	- 3
Engine Bay - Redesign of Major Structure	+ 13
Rear Fuselage - more detailed estimate, many gauge reductions & redesign by Stress	- 64
Weight Change Decrease	- 42
<u>Ref. 002-1 & 2</u>	
<u>TOTAL STRUCTURE WEIGHT DECREASE</u>	- 41
2. <u>LANDING GEAR</u>	
(a) Main Undercarriage: Anti Skid Device now included with relevant Electrics and Hydraulics	- 22
(b) Main Undercarriage Hydraulics - re-estimate of system addition of Anti-Skid valves.	+ 16
<u>Ref. 002-3</u>	
<u>TOTAL LANDING GEAR DECREASE</u>	- 6
3. <u>POWER PLANT & SERVICES</u>	
No Weight Change	
4. <u>FLYING CONTROLS GROUP</u>	
Mechanical Controls - re-estimate of Control Column and Rudder Pedal assys.	+ 11
<u>Ref. 002-3</u>	
<u>TOTAL FLYING CONTROLS INCREASE</u>	+ 11
5. <u>EQUIPMENT</u>	
Intake De-icing - revision of estimate to latest information	+ 51
Electrical System - completely re-estimated	- 12
<u>Ref. 002-3</u>	
<u>TOTAL EQUIPMENT INCREASE</u>	+ 39
6. <u>OPERATIONAL LOAD</u>	
No Weight Change	

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INTRODUCTION

SUMMARY

Weight Change - Aircraft Weight Empty

Structure	-	41 lb.
Landing Gear	-	6 lb.
Flying Controls	+	11 lb.
Equipment	+	39 lb.
	+	3 lb.

Weight Change - Operational Load Less Fuel

Nil

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

Issue 19

43,660

Issue 20

43,663

= + 3 lb.

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Sheet # 002-1 Issue 20
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Checked By: E. Burnett

WEIGHT CHANGES TO 7-0400-05 ISSUE 19

WEIGHT CHANGES

Wing:

- 0.40	I/W F/Spar to M/Spar Struct. - Tank # 3 Estimate to Production Drawings.	- 3.10
	Fus. Side Rib Aft. - Redesign	- 20.60
	U/C Bay Skins - one now Mg., doublers deleted etc.	- 16.70
	Auxiliary Spar - re-estimate	+ 40.00
		- 0.40
- 19.53	O/W Aileron Control Box - Estimate of Ribs to Production Drgs.	
+ 30.48	O/W Spars - Estimated to Production Drawings	
	F/Spar strengthened mainly at U/C Joint	+ 12.36
	M/Spar fwd - Minor Changes	+ 3.02
	C/Spar fwd - Minor Changes	+ 1.58
	C/Spar aft - General strengthening	+ 13.52
		+ 30.48
+ 10.55		

Front Fuselage (Fwd. Sta. 255")

+ 1.51	Formers F.F. - Alteration to Production Drawings at Sta. 176.0, 182.26 and 194.94	
- 7.32	Intake Ramp - Production Drawing estimate Sta. 207.9 Minor Chgs.	+ 2.28
	Prod. Drawing estimate Sta. 228 - Alt. to Top Tie Fittings	+ 1.05
	Ribs L/E lip - reduction in gauges - refined est.	- 15.34
	Prod. Drawing estimate Sta. 246.25 - general alt.	+ 4.69
		- 7.32
- 5.81		

Centre Fuselage (Sta. 255" - 485")

- 4.46	Armament Provisions - The aft attachment fitting is considered part of Bulkhead Sta. 485" and is included with it in the duct bay component.	
- 4.46		

Aft. Fuselage (Sta. 485" Aft.)

+ 11.71	Bulkhead 485" - Seal and Skin Strip added	+ 2.95
	Arm Pick-up part of Bulkhead	+ 4.46
	Misc. Production Drawings Changes	+ 4.30
		+ 11.71

(Cont'd.)

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Sheet 3 002-2 Issue 20
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WEIGHT CHANGES TO 7-0400-05 Issue 19

WEIGHT CHANGES

Aft Fuselage (485th Aft.) (Cont'd)

-	2.59	Dive Brake Accommodation - Sealing now Al. was 1/4" Foam Sandwich	
-	61.41	Light Formers E.B. - Redesign Former 712 & 717 now intermediate weight also intercostals removed see new longitudinal members.	
+	12.61	Intermediate Formers E.B. - Formers 712 & 717 added also complete re-estimate.	
-	10.10	Engine Access Doors E.B. - Re-estimate to redesign, Service Doors now in separate report.	
+	43.16	Service Access Doors E.B. - Complete redesign - were included with Engine Access Doors - new report.	
-	9.09	Outer Skin E.B. - Side Skins now .051, .064 & .04 were all .051 Al. also alterations to Access and Service Door Cut-outs.	
+	4.19	Longitudinal Members E.B. - New Report, redesign were Intercostals in Light Former E.B. report.	
+	4.11	Centre Beam E.B. - redesign of E.B. - New Item	
+	30.00	Torsion Box - redesign of E.B. - New Item	
-	655.00	Rear Fuselage Complete - this report is deleted and replaced by the following:	
+	74.90	Engine Access Doors - Fixed R.F. - Weight unchanged from previous estimate - new report.	
+	28.97	Longerons & Torque Box Fixed R.F. - Weight unchanged from previous estimate - new report.	
+	89.30	Formers Fixed R.F. - New Report - Stabilizers added	+ 3.53
		General Web & Angle gauge reduc.	- 24.04
			- 20.51
+	48.74	Outer Skin Fixed R.F. - New Report - I/B Stabilizers now with formers	- 8.64
		Skin .04 Mg. was .04 Al.	- 22.15
			- 30.79
+	110.91	Tunnel Fixed R.F. - New Report - General refinement of estimate (still titanium) results in + 5.57	
+	159.85	Nacelles Removable R.F. - New Report - All Inconel X ¹ Structure Formers were .015 Steel now .012, .015 and .018	+ 6.04
		Inner Skin was .015 Steel now .012	- 9.34
		Outer Skin was .015 Steel now .01 with doublers	- 10.64
		Insulation - correct dimensions obtained	- 1.17
		Longerons - capping strips added	+ 1.43
		Miscellaneous changes latches etc.	- 7.56
			- 18.90
+	77.70	Centre Struct. & Stinger Removable R.F. - Wt. unchanged from previous estimate - New Report.	
-	42.04		

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WEIGHT CHANGES TO 7-0400-05 Issue 19

WEIGHT CHANGES

Undercarriage:

- 22.00	Main Undercarriage - Anti-skid device now included with relevant hydraulic and electrical reports.	
+ 15.72	Main Undercarriage - Addition of Anti-skid valve	+ 5.00
	Hydraulics re-estimate of piping, fittings etc.	+ 10.72
		+ 15.72
- 6.28		

Flying Controls Group

+ 11.46	Flying Controls Mechanical - re-estimate Control Column	+ 3.63
	re-estimate Rudder Pedal Assy.	+ 7.83
		+ 11.46
+ 11.46		

Equipment - Fixed & Removable

+ 51.12	Intake De-icing - complete re-estimate - boots	+ 21.67
	equipment	+ 12.90
	wiring	+ 16.55
		+ 51.12
- 264.91	General Electrics - This report is deleted and the Electrics have been re-estimated and sub-divided as shown below:	
+ 6.11	Air-Conditioning Electrics - New Report	
+ 38.42	Undercarriage System - Electrics - New Report (includes Anti-Skid)	
+ 12.50	External & Service Lights - New Report	
+ 41.34	Fuel Value Control - Electrics - New Report	
+ 36.00	Engine Services Electrics - New Report	
+ 5.60	Canopy Electrics - New Report	
+ 14.11	Cockpit Lighting - New Report	
+ 28.72	Flight Services Electrics - New Report	
+ 10.64	Fuel Capacitance Electrics - New Report	
+ 31.76	Fire Detection Electrics - New Report	
+ 15.30	Starting & Ignition Electrics - New Report	
+ 12.94	Electrical Harness - This report was previously titled Junction Boxes and covers connectors, panels etc.	
+ 39.65		

+ 3.07 TOTAL WEIGHT CHANGE

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Date: 10 Nov 1955
 Aircraft: C-105 with J75 Engines
 as Interim Power Plant

Report # 7-0400-05
 Sheet # 003-1 Issue 20
 Prepared By: J. Murphy
 Checked By: E. Burnett

WEIGHT AND C.G. SUMMARY

REF. No.	DESCRIPTION	WEIGHT lb.	H. ARM ins.	V. ARM ins.
	STRUCTURE	16,830.32	563.50	138.77
1000000	Wing	9,542.66	641.96	142.40
2000000	Fin and Rudder	912.02	756.74	211.22
3000000	Fuselage Structure Fwd. 255"	2,200.09	182.36	129.84
	255" to 485"	1,523.28	369.85	131.87
	Aft. 485"	2,652.27	642.15	112.15
4000000	UNDERCARRIAGE - Up Position	2,847.35	484.51	133.69
4010100	Main Undercarriage	1,825.60	540.15	141.00
4010200	Main U/C Doors & Fairings	287.32	539.21	136.40
4010300	Main U/C Hydraulics	295.56	535.95	135.20
4020100	Nose Wheel Undercarriage	294.00	169.05	100.04
4020200	Nose U/C Doors & Fairings	25.92	163.71	89.22
4020300	Nose U/C Hydraulics	118.95	220.34	103.95
5000000	POWER PLANT & SERVICES	13,888.58	654.07	118.73
5010000	Engines J75	12,647.00	662.35	117.82
5020000	Gear Box and Drive	150.00	606.00	94.66
5030000	Engine Controls	25.10	356.68	119.39
5040000	Pneumatic Starting System	70.00	610.00	94.75
5050000	Engine De-Icing	65.75	564.53	114.37
5060000	Fire Extinguishing System	64.27	700.07	123.00
5070000	Engine Mountings & Brackets	221.11	645.29	132.67
5080000	Fuel System	645.35	526.86	139.92
6000000	FLYING CONTROLS GROUP	1,723.76	646.81	139.24
6010000	Mechanical Flying Controls	784.89	671.88	145.39
6030000	Flying Controls Electronics	108.00	222.33	131.43
6000000	Flying Controls Hydraulics	830.87	678.31	134.44
	EQUIPMENT FIXED & REMOVABLE	6,535.08	303.72	114.76
7010000	Instruments	57.30	146.41	137.84
7010003	Probe	15.00	-18.00	108.00
7030000	Oxygen System	46.12	220.36	138.15
7040000	Air Conditioning System	624.95	326.22	134.63
7050000	Hydraulic Main System	215.66	591.04	117.41
7080000	Brake Parachute	68.03	794.01	126.23
7090000	Electrical System	767.74	408.86	117.65
7100000	Low Pressure Pneumatics	16.60	217.17	133.41
7110000	Oil & Hydraulic Fluid Cooling	119.80	567.91	104.22
7120000	Intake De-Icing	101.72	210.14	142.36
7000000	Radio & Radar Fixed, Power Supplies	921.10	220.05	111.00
7160000	Canopy Actuation	47.00	223.43	156.83
7170000	Cabin Consoles	20.85	177.01	125.38
7180000	Radar Door Actuation	10.00	268.00	95.00
7190000	Radome - Anti-Icing	16.80	66.35	124.40
7200000	Cabin Insulation	11.91	179.24	130.00
7210000	Cockpit Pressure Sealing	20.00	186.01	130.00

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Sheet # 003-2 Issue 20
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Checked By: E. Burnett

WEIGHT AND C.G. SUMMARY

REF. No.	DESCRIPTION	WEIGHT lb.	H. ARM ins.	V. ARM ins.	C.G. POSITION % S.M.C.
	Equipment (Fixed & Remov.)(Cont'd)				
8010100	Ejector Seats	204.00	200.10	136.25	
8010200	Emergency Provisions	16.95	166.01	130.65	
8020000	Radar Removable	1,259.70	143.20	114.53	
8000000	Radio Removable & I.F.F.	276.20	284.51	123.98	
8050100	Missile Pack Structure	676.17	385.26	95.61	
8050200	Missile Pack Mechanisms	410.48	373.88	102.86	
8050300	Missile Pack Hydraulics	293.00	366.29	101.00	
8050400	Missile Pack Electronics	318.00	389.15	101.22	
	AIRCRAFT WEIGHT EMPTY	41,825.09	551.03	128.04	
9000000	USEFUL LOAD	17,135.67	521.88	140.24	
9010000	Crew	430.00	194.00	136.50	
9020000	Oil	85.08	611.71	135.00	
9050000	Alcohol For Radome De-Icing	22.00	93.00	138.00	
9060000	Engine Fire Extinguisher Fluid	25.00	730.00	129.00	
9070000	Residual Fuel	219.80	536.70	135.07	
9090000	Fuel for Combat Mission	15,298.00	539.25	143.50	
9030000	Missiles (Armament)	1,042.40	399.12	95.60	
9040000	Oxygen Charge	13.39	259.69	159.91	
	U/C Up		542.56	131.59	29.44
	Normal Combat Mission	58,960.76			
	U/C Down		544.12	129.46	29.87
	Half Combat Mission Fuel	7,649.00	540.95	139.60	
	981 @ 7.8 lb/gal.				
	U/C Up		543.31	129.23	29.64
	Combat Weight (Half Combat Mission Fuel)	51,311.76			
	U/C Down		545.09	126.78	30.13
	U/C Up		543.72	127.41	29.76
	Operational Weight Empty	43,662.76			
	U/C Down		545.82	124.54	30.34
	U/C Up		547.26	128.19	30.73
	Operational Weight Empty (Less Missiles)	42,620.36			
	U/C Down		549.41	125.25	31.33
	Maximum Internal Fuel	19,843.00	538.88	144.33	
	2,544 gal. @ 7.8 lb/gal.				
	Water (Air-Conditioning System)	125.00	268.00	95.00	
	U/C Up		541.67	132.62	29.19
	A.U.W. Max. Internal Fuel	63,630.76			
	U/C Down		543.11	130.65	29.59
	Max External Fuel 500 gal.				
	@ 7.8 lb/gal. and Drop Tank	4,210.00	528.88	62.00	
	U/C Up		540.88	128.24	28.97
	A.U.W. Max. Internal & External Fuel	67,840.76			
	U/C Down		542.23	126.39	29.35

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WEIGHT AND C. OF G BY FUNCTIONAL COMPONENT

PROJECT C-105

DESCRIPTION		REFERENCE NO.	COMP. NO.	WEIGHT	H. A.
TOTAL WING GROUP		1000000			
OUTER WING		1010000			
14	SKIN O W	1010001	64	798.00	689
14	STRINGERS AND POSTS O W	1010002	64	125.20	698
14	SPARS O W	1010003	64	397.84	702
14	RIBS O W	1010004	64	133.34	692
14	AILERON CONTROL BOX O W	1010006	64	477.00	777
3	WING JOINTS O W	1010007	64	116.50	644
				2047.88	
AILERON		1020000			
17	AILERON STRUCTURE	1020001	74	333.84	792
17	AILERON MARRY UP ITEMS	1020002		88.67	782
				342.70	
20 ELEVATOR STRUCTURE		1030000	82	435.67	755
				435.67	
INNER WING		1040000			
12	MAIN U C STRUCTURE	1040001	62	234.58	574
12	FRONT SPAR I W	1040002	62	180.00	450
12	MAIN SPAR I W	1040003	62	158.00	560
12	FWD CENTRE SPAR I W	1040004	62	56.26	604
12	AFT CENTRE SPAR I W	1040005	62	40.14	655
12	REAR SPAR I W	1040006	62	100.00	070
12	I W STRUCTURE F S TO M S	1040007	62	89.13	048
12	I W STRUCTURE M S TO R S	1040008	62	277.43	962
12	STRUCTURE AFT OF REAR SPAR	1040009	62	279.20	711
12	ELEVATOR CONTROL BOX I W	1040010	62	418.53	722
16	WING FAIRINGS	1040011		92.70	062
12	WING JOINTS I W	1040012	62	99.90	165
				6224.11	
12 LEADING EDGE I W		1050000	63	292.30	45
				292.30	
14 LEADING EDGE O W		1060000	65	200.00	065
				200.00	

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WEIGHT AND C. OF G BY FUNCTIONAL COMPONENT

PROJECT C-105

DESCRIPTION		REFERENCE NO.	COMP. NO.	WEIGHT	H.
TOTAL FUSELAGE GROUP		3000000			
FUSELAGE BASIC STRUCTURE		3010000			
3	RADOME	3010001	51	14268	4
3	RADAR NOSE ACCESS DOORS	3010002	51	6550	9
3	NOSE STRUCTURE FWD 120	3010003	51	9772	9
3	SKIN F F	3010004	52	6741	19
4	SKIN C F	3010005	54	13059	37
5	SKIN D B	3010006	56	8317	53
5	SKIN E B	3010007	58	1163	967
3	STRINGERS F F	3010008	52	1280	18
4	STRINGERS C F	3010009	54	5173	36
5	STRINGERS D B	3010010	56	5005	0
3	FORMERS F F	3010011	52	8995	18
4	FORMERS C F	3010012	54	2727	837
5	FORMERS D B	3010013	56	1238	153
5	LIGHT FORMERS E B	3010014	58	1066	366
5	HEAVY FORMERS E B	3010015	58	1699	966
3	LONGERONS F F	3010016	52	5311	118
5	LONGERONS D B	3010017	56	3265	8
5	LONGERONS E B	3010018	58	5696	65
5	TOP LONGERONS E B	3010019	58	3205	66
5	TOP WING LONGERONS D B	3010021	56	1890	53
3	LONGERONS 255 485 F F	3010022	52	5325	
3	LONGERONS 255 485 C F	3010023	54	1614	839
4	DUCT BAY LONGERONS C F	3010024	56	4654	8
5	DUCT BAY LONGERONS D B	3010025	56	9193	52
4	STR BELOW BOTTOM LONGERON	3010026	54	3961	27
5	LONGITUDINAL BEAMS D B	3010027	56	5008	51
4	RADAR ACCESS DOOR	3010028	54	1913	27
5	MAIN FRAME AT STN 53877	3010029	56	5178	53
5	DIVE BRAKE ACCOM STRUCTURE	3010030	56	2635	50
3	COCKPIT DECKING	3010031	52	1633	919
4	DUCT C F	3010032	54	3351	237
5	DUCT D B	3010033	56	2763	954
3	CANOPY ARCH F F	3010034	52	5806	21
3	CANOPY ARCH C F	3010035	52	1598	26
5	ACCESS PANEL STIFFNERS	3010036	56	1948	53
3	NOSE U C SUPPORT STRUCTURE	3010037	52	3680	21
3	CREW BULKHEADS	3010038	52	1053	120
4	EQUIP BAY STRUCTURE	3010039	54	3683	28
3	WINDSCREEN R N	3010040	51	1515	11
3	WINDSCREEN F F	3010041	52	1152	414
5	SERV ACCESS DOORS AND PNLS	3010042	58	4316	66
6	FAIRING UNDER RUDDER R F	3010043	59	1065	77
4	DORSAL FAIRING AIR OUTLET	3010044	54	2110	29
5	INTERMEDIATE FORMERS E B	3010045	58	3461	69
5	ENGINE ACCESS DOORS E B	3010046	58	7467	62
4	SEAL IN MISSILE BAY	3010047	54	6182	9
4	JOINT STRAPS AND MISC	3010048	54	1553	33
4	FLOOR C F	3010049	54	1149	837

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WEIGHT AND C. OF G BY FUNCTIONAL COMPONENT

 PROJECT C-105

	DESCRIPTION	REFERENCE NO.	COMP. NO.	WEIGHT	H.
3	BULKHEAD AT STN 120	301005052		2564	12
3	BULKHEAD AT STN 255	301005152		9864	25
4	BULKHEAD AT STN 485	301005254		10984	48
5	ENGINE TUNNEL E B	301005458		38118	66
4	INTEGRAL FUS FUEL TANK	301005554		21154	39
3	COCKPIT FLOOR	301005652		5265	17
3	SLING AND JACK FITTINGS FF	301005752		214	25
4	SLING AND JACK FITTINGS CF	301005854		957	25
5	AFTBURNER COOLING DUCT D B	301005956		961	57
5	AFTBURNER COOLING DUCT E B	301006058		1174	62
4	DORSAL OVER FUEL TANK	301006154		5574	41
4	DORSAL HOT AIR DEFLECTOR	301006254		1551	33
3	SHEAR PANEL BELOW NAV ARCH	301006352		1708	25
4	ARMAMENT PROVISIONS	301006454		2586	30
6	ENGINE ACCESS DOORS R F	301006559		7490	77
6	TUNNEL AND STIFFENRS R F	301006659		11091	77
6	SKIN AND INTERCOSTAL R F	301006759		4874	77
5	TORSION BOX E B	301006858		3000	61
6	FORMERS FIXED R F	301006959		8930	77
6	LONGERONS TORQUE BOX R F	301007059		2897	77
6	NACELLES REMOV R F	301007159		15985	82
6	CNTR STRUC STRING REMOV RF	301007259		7770	83
5	CENTRE BEAM 697 28 717 36	301007358		4117	1
5	LONGITUDINAL MEMBERS E B	301007458		4197	1
				5300	01
9	DIVE BRAKES	302000072		11132	50
				11132	
	AIR INTAKES	3030000			
3	FORWARD NACELLE	303010052		21622	3
				2162	
3	LIP AND RAMP	303020055		60672	21
				60672	
	PILOTS AND NAVIG CANOPIES	3040000			
3	PILOTS CANOPY	304010053		22071	17
				22071	
3	NAVIGATORS CANOPY	304020053		11526	23
				11526	

AVRO AIRCRAFT LTD.

MALTON, ONT.

WEIGHT AND C. OF G BY FUNCTIONAL
COMPONE

PROJECT C-105

DESCRIPTION		REFERENCE NO.	COMP. NO.	WEIGHT	H
FIXED EQUIPMENT GROUP		7000000			
INSTRUMENTS		7010000			
59	INSTRUMENTS R N	7010001	51	400	4
59	INSTRUMENTS F F	7010002	52	5130	19
106	NAVIG TABLE AND STOWAGE	7010004	52	200	22
				5730	
OXYGEN SYSTEM		7030000			
63	OXYGEN SYSTEM F F	7030001	52	2905	19
63	OXYGEN SYSTEM C F	7030002	54	1707	26
				4612	
AIR CONDITIONING SYSTEM		7040000			
65	AIR CONDITIONING R N	7040001	51	442	9
65	AIR CONDITIONING F F	7040002	52	9108	22
65	AIR CONDITIONING C F	7040003	54	43145	30
65	AIR CONDITIONING D B	7040004	56	4988	53
65	AIR CONDITIONING E B	7040005	58	3675	63
65	AIR CONDITIONING IN WING	7040006	62	1373	38
66	WINDSCREEN DEMISTING	7040007	52	1000	12
				62495	
HYDRAULICS MAIN SYSTEM		7050000			
57	HYDRAULICS MAIN SYSTEM D B	7050001	56	8266	57
57	HYDRAULICS MAIN SYSTEM E B	7050002	58	13300	60
				21566	
BRAKE PARACHUTE		7080000			
39	BRAKE PARACHUTE F F	7080001	52	1711	16
39	BRAKE PARACHUTE C F	7080002	54	9437	
39	BRAKE PARACHUTE D B	7080003	56	4452	
39	BRAKE PARACHUTE E B	7080004	58	5167	
39	BRAKE PARACHUTE R F	7080005	59	6443	81
				6803	
ELECTRICAL SYSTEM		7090000			
HARNESS ELECTRICS		7090100			

EIGHT AND C. OF G BY FUNCTIONAL GROUP COMPONENT

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SHEET 004-10

	REFERENCE NO.	COMP. NO.	WEIGHT	H. ARM	V. ARM	H. MOMENT	V. MOMENT
TRICS	7091000						
	7091001	52	2035	15406	12000	313510	244200
	7091002	54	439	39002	12000	171219	52680
	7091003	56	201	53478	12000	107491	24120
	7091004	58	197	64766	12000	127589	23640
			2872			719811	344640
CTRICS	7091100						
	7091101	52	484	14778	13000	71526	62920
	7091102	62	580	54577	13000	316547	75400
			1064			388073	138320
RICS	7091200						
	7091201	52	611	14322	12000	87507	73320
	7091202	54	1515	42215	12000	639557	181800
	7091203	56	1052	64004	12000	673322	126240
			3178			1400386	381360
N ELEC	7091300						
N F F	7091301	52	197	14476	12000	28518	23640
N C F	7091302	54	1135	28732	12000	326108	136200
N D B	7091303	56	198	49005	12000	97030	23760
			1530			451656	183600
	7100000						
	7100001	52	1522	21236	13306	323212	202517
	7100002	54	138	27018	13731	37285	18949
			1660			360497	221466
ING	7110000						
ING DB	7110001	56	9686	55654	10340	5390646	1001532
ING EB	7110002	58	2294	61591	10769	1412898	247041
			11980			6803544	1248573
	7120000	52	10172	21014	14236	2137544	1448086
			10172			2137544	1448086
D	7140000						
D R N	7140001	51	22500	9000	10444	2025000	2349900
D F F	7140002	52	17010	20042	11204	3409144	1905800
D C F	7140003	54	11470	29461	12000	3379177	1376400
D D B	7140004	56	5720	52932	12000	3027710	686400
D FIN	7140005	83	200	70481	16000	140962	32000

UNCLASSIFIED
NON CLASSIFIE

WEIGHT AND C. OF G BY FUNCTIONAL
COMPONE

DESCRIPTION		REFERENCE NO.	COMP. NO.	WEIGHT	H
OPERATIONAL LOAD		90000000			
99	CREW MEMBERS	90100000	52	43000	19
				43000	
	ENGINE OIL	90200000			
120	ENGINE OIL USABLE	90200001		54146	1
75	ENGINE OIL TRAPPED	90200002		30946	1
				8508	
129	MISSILES GAR 1A	90300000	54	104240	39
				104240	
	OXYGEN CHARGE	90400000			
128	OXYGEN CHARGE F F	90400001	52		7220
128	OXYGEN CHARGE C F	90400002	54	126726	
				1339	
125	ALCOHOL FOR RADOME DEICING	90500000	51	2200	9
				2200	
132	ENGINE FIRE EXT FLUID	90600000		2500	73
				2500	
	RESIDUAL FUEL	90700000			
74	RESIDUAL FUEL C F	90700001	54	47103	39
74	RESIDUAL FUEL I W	90700002	62	17270	57
				21980	

