

QC  
AVRO  
RepT.  
7-0400-05  
Iss. 23.

C-105 With J75 Report # 7-0400-05  
Production # 13  
WEIGHT MAY 16, POSITION 7  
**UNCLASSIFIED**  
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R.C.A.P. Feb. 1/56





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JAN 07 1993

Report no.: QCX-AVRO-CF105- R-7-0400-05-Iss-23

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: February 1st, 1956  
Aircraft: C-105 With J75 Engines  
as Interim Power Plant

Report # 7-0400-05  
Sheet # 001-1 Issue 23  
Prepared By: K. Griffin  
Checked By: E. Burnett

### INTRODUCTION

The following is a revised Weight & C.G. Summary for the C-105 Aircraft, based on the latest weight estimates available on January 31st, 1956. All Weight and C.G. changes are relative to Issue 22.

### GENERAL

- (a) As in Issue 22 Pratt & Whitney J75 Engines comprise the Interim Power Plant (6,175 lb each).
- (b) The Falcon Missile Pack of 8 Missiles, previously carried, has been replaced by a redesigned Pack containing 4 Sparrow Missiles.
- (c) The Hughes MX 1179 Radar System is currently retained but the Missile Control Equipment is removed and replaced by Douglas equipment.
- (d) As in Issues subsequent to 15, the extended leading edge is recorded here.

### 1. STRUCTURE

### WEIGHT (lb)

#### (a) Wings

O/W Leading Edge - Skin gauge reduction etc.

- 11

Weight Change Decrease

- 11

Ref. 002-1

#### (b) Fin & Rudder

No Weight Change.

#### (c) Fuselage to Sta. 255"

Radome - Elongated Nose (Apex Sta. - 26.0), but foam filled honeycomb Laminate used.

- 61

Radar Nose Structure and Access Doors - new lines

- 7

Intake Ramp - miscellaneous production drawing changes

- 2

Weight Change Decrease

- 70

Ref. 002-1

#### (d) Fuselage Sta. 255" to 485"

Armament Bay Floor - Production Drawing estimate misc. changes

+ 13

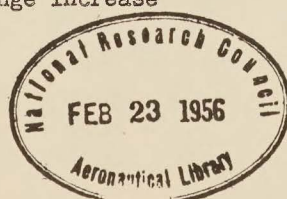
Dorsal Fairing over Tank - Titanium structure replaces fibreglass

- 7

Weight Change Increase

+ 6

Ref. 002-1



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Date: February 1st, 1956  
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Report # 7-0400-05  
Sheet # 001-2 Issue 23  
Prepared By: K. Griffin  
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### INTRODUCTION

1. <u>STRUCTURE (Continued)</u>	<u>WEIGHT (lb)</u>
(e) <u>Fuselage Sta. 485" Aft.</u>	
Dive Brake Accommodations - redesign of Sealing and correction of door allowance	+ 9
Miscellaneous changes to centre beam, Top Longeron Access Panels & Heavy Formers E.B.	+ 4
Engine Tunnel E.B. - Addition of Compressor Air Bleed & Air Conditioning Outlets	+ 14
Weight Change Increase	+ 27
<u>TOTAL STRUCTURE WEIGHT DECREASE</u>	<u>- 48</u>
2. <u>LANDING GEAR</u>	
No Weight Change	
3. <u>POWER PLANT &amp; SERVICES</u>	
Engines - C.G. moved 0.8" Aft.	-
Engine Mounts - Front I/B Beam Steel was Al. also minor changes to forward O/B Mounting.	+ 13
Fuel System - Completely re-estimated to current schemes	+ 26
	+ 39
<u>TOTAL POWER PLANT &amp; SERVICES INCREASE</u>	<u>+ 39</u>
4. <u>FLYING CONTROLS GROUP</u>	
Dive Brake Hydraulics - completely re-estimated- equipment Weight allowance was too high	- 12
<u>TOTAL FLYING CONTROLS DECREASE</u>	<u>- 12</u>
5. <u>EQUIPMENT</u>	
Sparrow Missile Pack with associated hydraulics, mechanisms and Electronics (in remov. pack) replaces Falcon Package - 4 submerged Sparrows are currently considered	+ 682
Electronic Missile Control - Douglas' Equipment for 4 Sparrows replaces Hughes' for 8 Falcons	+ 125
Alternator System - 30 KVA System replaces 20 KVA	+ 38
Electrical Harness - Estimate completely revised	+ 44
Radar Power Supply - Revised Weights for Hughes equipment	+ 18
ARN 6 Radio Compass - Revised weight data	+ 21

continued.

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Date: February 1st, 1956  
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Report # 7-0400-05  
Sheet # 001-3 Issue 23  
Prepared By: K. Griffin  
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### INTRODUCTION

#### 5. EQUIPMENT (Continued)

WEIGHT (lb)

Radio & Radar Fixed Equipment - complete re-estimate of antennas, mountings, cable, connectors etc.	+ 17
Fin Pitot System - 2 Pitot masts added to Fin	+ 12
Cockpit Sealing - Previous allowance was too high	- 15
Ejector Seats - R.C.A.F. Weights available for Survival Kits	- 18
Air-Conditioning - completely re-estimated - some actual Weights and Manufacturers' Weights available, and lighter Laminate insulation	+ 8
Weight Change Increase	+ 604

Ref. 002-4

#### TOTAL EQUIPMENT INCREASE

+ 604

#### 6. OPERATIONAL LOAD

Falcon Missiles (8) replaced by Sparrow Missiles (4)	+ 686
--	-------

Ref. 002-4

#### TOTAL OPERATIONAL LOAD INCREASE

+ 686

### SUMMARY

#### Weight Change - Aircraft Weight Empty

Structure	- 48 lb.
Power Plant & Services	+ 39 lb.
Flying Controls	- 12 lb.
Equipment	+ 604 lb.
	+ 583 lb.

#### Weight Change - Operational Load Less Fuel

Missiles	+ 686 lb.
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#### Weight Change - Operational Weight Empty (A/C Less Fuel)

Issue 22

Issue 23

43,922

45,191

= 1,269 lb.

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Sheet # 002-1 Issue 23  
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WEIGHT CHANGES TO 7-0400-05 ISSUE 22

WEIGHT CHANGES

Wing:

- 11.05	O/W Leading Edge - Skins Rib 3-6 .091 were .102 Al.	- 3.37
	Skins Rib 6-14 .072 were .081 Al.	- 5.57
	Ribs 4, 5, & 6 .081 were .064 Al.	+ 0.91
	Doublers ribs 6-9 .02 were .32 Al.	- 3.02
		<u>- 11.05</u>

- 11.05

Front Fuselage (Fwd. Sta. 255")

- 61.02	Radome - New lines - Apex of Radome A/C Sta. 26.0 Aft limit A/C Sta. 68.5. Foam filled honeycomb Laminate now used - estimate based on information from McMillan Industries Ltd.	
- 4.23	Radar Nose Structure - Length of structure reduced by 3.5" due to new lines - fwd. former at Sta. 68.5 was at Sta. 65.0	
- 2.81	Radar Nose Access Doors - Structure 3.5" shorter see above	
- 2.25	Intake Ramp etc. - Production drawing estimate of Lips & Ramp Sta. 188.4 - 214.4 Intercostals A, B, C & D gauge reduced General refinement of estimate	- 1.23 - 1.02 <u>- 2.25</u>

- 70.31

Centre Fuselage (Sta. 255" - 485")

+ 13.27	Armament Bay Floor - Completely re-estimated to production drawings .051 Top Hat replaced by .081 channel Addition of .051 Strap at Sta. 485" Addition of piping mounting brackets Alterations to Aft Stiffeners etc.	+ 1.75 + 1.11 + 2.04 <u>+ 8.37</u> + 13.27
- 6.94	Dorsal Fairing over Tank - Structure redesigned in Titanium was fibreglass Addition of Insulation	- 12.82 + 5.88 <u>- 6.94</u>

+ 6.33

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Date: February 1st, 1956  
Aircraft - G-105 With J75 Engines  
as Interim Power Plant

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Sheet # 002-2 Issue 23  
Prepared By: K. Griffin  
Checked By: E. Burnett

WEIGHT CHANGES TO 7-0400-05 Issue 22

WEIGHT CHANGES

Aft Fuselage (Sta. 485" aft.)

+	8.75	Dive Brake Accommodations - redesign of D.B. Sealing	+	3.11
		Redesign Limiter and Refuel Access Door	+	0.27
		Addition of Door as above - only one door previously accounted for	+	5.37
			+	8.75
+	0.89	Centre Beam E.B. - redesigned and re-estimated		
-	0.51	Top Longeron E.B. - Completely re-estimated to current schemes		
+	3.50	Heavy Formers E.B. - Production drawing estimates of 'V' braces on heavy formers - some minor design changes incorporated.		
+	0.47	Access Panels E.B. - redesign of doors and surrounding structure		
		Access Door # 3	+	1.16
		Access Door # 4	+	2.26
		Structure at Door # 3	-	1.90
		Structure at Door # 4	-	1.05
			+	0.47
+	13.79	Engine Tunnel, E.B. - Addition of Compressor Air Bleed outlet	+	7.60
		Addition of Air-Conditioning Opening	+	5.75
		Redesign Gear Box drive Seal	+	0.44
			+	13.79
+	26.89			

Power Plant & Services

-		Engines - C.G. of the Engines J75 has moved 0.8" Aft.		
+	26.15	Fuel System - Completely re-estimated - pipes rerouted etc.		
		Pressurization system	+	9.14
		Fuel Flow System	+	2.35
		Capacitor Units added (no previous allowance)	+	14.66
			+	26.15
+	13.56	Engine Mounts - Production Drawing estimate, forward O/B mount - wall thickness increased	+	1.56
		Front I/B Beam Steel was Al.	+	12.00
			+	13.56
+	39.71			

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WEIGHT CHANGES TO 7-0400-05 ISSUE 22

WEIGHT CHANGES

Flying Controls Group

- 12.00	Dive Brake Hydraulics - Completely re-estimated, equipment	
	Weight allowances were too heavy.	
	Dive Brake Jacks	- 12.44
	Selector Valves	- 5.50
	Re-estimate of piping, joints etc.	+ 7.30
	Re-estimate of fluid in jacks and pipes	- 1.36
		<u>- 12.00</u>

- 12.00

Equipment - Fixed & Removable

- 676.17	Falcon Missile Pack Structure - Deleted and replaced by Sparrow Package.	
- 410.48	Falcon Missile Pack Mechanisms - Deleted - see above	
- 293.00	Falcon Missile Pack Hydraulics - Deleted - see above	
- 318.00	Falcon Missile Pack Electronics - Deleted - see above	
+1424.10	Sparrow Missile Pack Structure - New Item - this package replaces the Falcon Package. A Sparrow Package of 4 "submerged" Missiles is currently considered.	
+ 399.50	Sparrow Missile Pack Mechanisms - new item - see above	
+ 505.65	Sparrow Missile Pack Hydraulics - new item - Douglas equipment in package.	
- 125.00	Electronic Missile Control - Douglas' equipment for 4 Sparrows replaces Hughes' equipment for 8 Falcons.	
+ 38.10	Alternator System - 30 KVA system replaces 20 KVA Transformer - rectifier Alternators Cables - re-estimated Relays & Protection	+ 12.00 + 10.00 + 12.28 <u>+ 3.82</u>
		+ 38.10
+ 43.85	Electrical Harness - a revision of estimate made clipping - previous allowance too small Connectors - more details Panels and sub-assy. wiring	+ 8.75 + 3.45 <u>+ 31.65</u>
		+ 43.85
- 18.00	Radar Power Supply - Revised Weights from Hughes for Voltage regulator	
- 21.30	ARN 6 Radio Compass - new weight data received	
-	OMNI-DME - C.G. changes made	
-	Data-Link - C.G. changes made	
- 2.00	Radio Removable - Deletion of ARC 34 Antenna see Radio & Radar fixed report.	
- 10.00	Radar Removable - Deletion of ARA 25 Antenna - as above Increase in ARA 25 Units	- 17.50 + 7.50 <u>- 10.00</u>

continued.

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WEIGHT CHANGES TO 7-0400-05 Issue 22

WEIGHT CHANGES

Equipment - Fixed & Removable

-	5.00	I.F.F. - Deletion of Antenna in Fin - as above	
+	34.31	Radio & Radar Fixed - this has been checked and many items calculated whereas allowances were previously made.	
		Addition of ARA 25 Antenna & Mounting	+ 27.31
		Addition of VHF Antenna & Mounting	+ 20.00
		Addition of Antenna in Fin & Mounting	+ 7.00
		Revision of Connector Weights in cockpit	- 10.00
		Estimate of some junction boxes and revision of cable and structure allowances	- 10.00
			+ 34.31
+	12.30	Fin Pitot System - 2 pitot masts with associated piping and wiring added to Fin	
+	8.00	Probe - Inclusion of plumbing etc. see Instruments	
-	8.00	Instruments - deletion of plumbing etc. see above	
-		Radome De-Icing - relocation of spinner etc., resulting from new lines of Radar Nose.	
-	0.20	Canopy Actuation - Production Drawing estimate, Idler levers	- 2.12
		Production drawing estimate, Shock Absorbers	+ 0.16
		Allowance for sequence valves	+ 0.76
		Manufacturer's Weight Electronic Jacks	- 1.00
		Allowance for pneumatic jacks	+ 2.00
			- 0.20
-	15.00	Cockpit Sealing - Revised estimate previous allowance too high - this does not include canopy seal	
-	18.00	Ejector Seats - R.C.A.F. estimated Weight of pack 28 lb each 37 lb each previously allowed.	
+	8.26	Air-Conditioning - System completely re-estimated	
		Manufacturer's weight of boiler	+ 26.50
		Actual Weight of Turbine	+ 2.50
		Actual Weight of Press. relief Valves	+ 1.00
		New type laminate insulation	+ 44.00
		Cabin pressure controller added	+ 2.00
		Radar Shut Off Valve added	+ 3.10
		Re-estimate of clamping weights	+ 23.40
		Ducting etc. - re-estimated	- 5.34
			+ 8.26
+	603.92		
		<u>Operational Load</u>	
-	1,042.40	Falcon Missiles - deleted - package of 8 Falcon Missiles replaced by one of 4 Sparrow Missiles	
+	1,728.00	Sparrow Missiles - new item - see above	
+	685.60		
+	1,269.09	<u>TOTAL WEIGHT CHANGE</u>	

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Date: February 1st, 1956  
Aircraft: C-105 With J75 Engines  
as Interim Power Plant

Report # 7-0400-05  
Sheet # 003-1 Issue 23  
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	16,972.99	565.45	138.54
1000000	Wing	9,636.28	641.84	142.30
2000000	Fin & Rudder	912.02	756.74	211.22
3000000	Fuselage Structure Fwd. 255"	2,149.77	185.72	130.18
	255" to 485"	1,540.00	369.60	131.44
	Aft 485"	2,734.92	641.29	111.65
4000000	UNDERCARRIAGE - Up Position	2,868.35	483.63	133.67
4010100	Main Undercarriage	1,839.60	540.47	141.00
4010200	Main U/C Doors and Fairings	287.32	539.21	136.40
4010300	Main U/C Hydraulics	295.56	535.95	135.20
4020100	Nose Wheel Undercarriage	314.47	168.91	99.82
4020200	Nose U/C Doors & Fairings	25.92	163.71	89.22
4020300	Nose U/C Hydraulics	105.48	211.35	105.92
5000000	POWER PLANT & SERVICES	13,971.18	654.58	118.63
5010000	Engines J75	12,703.00	663.23	117.86
5020000	Gear Box & 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	69.35	565.60	115.95
5060000	Fire Extinguishing System	64.27	700.07	123.00
5070000	Engine Mountings & Brackets	217.96	641.14	125.25
5080000	Fuel System	671.50	526.79	138.78
6000000	FLYING CONTROLS GROUP	1,711.76	647.68	139.59
6010000	Mechanical Flying Controls	784.89	671.88	145.39
6030000	Flying Controls Electronics	108.00	222.33	131.43
6000000	Flying Controls Hydraulics	818.87	680.58	135.10
	EQUIPMENT - FIXED & REMOVABLE	7,144.46	316.03	111.74
7010000	Instruments	53.30	153.98	140.27
7010003	Probe	23.00	- 9.74	108.00
7020000	Cockpit Pressure Sealing	5.00	186.00	130.00
7030000	Oxygen System	46.12	220.36	138.15
7040000	Air Conditioning System	633.21	326.11	133.87
7050000	Hydraulics Main System	215.66	591.04	117.41
7060000	Fin Pitot System	12.30	596.69	198.16
7070000	Cabin Insulation	11.91	179.24	130.00
7080000	Brake Parachute	69.69	784.88	131.17
7090000	Electrical System	849.69	408.86	116.65
7100000	Low Pressure Pneumatics	16.00	217.17	133.41
7110000	Oil & Hydraulic Fluid Cooling	119.80	567.91	104.22
7120000	Intake De-Icing	101.72	210.14	118.95
7000000	Radio & Radar Fixed, Power Supplies	937.41	220.85	110.58
7130000	Radome Anti-icing	16.80	62.42	124.84
7160000	Canopy Actuation	46.80	223.54	154.60
7170000	Cabin Consoles	20.65	177.37	125.23
7180000	Radar Door Actuation	10.00	268.00	95.00

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Aircraft: C-105 With J75 Engines

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Sheet # 003-2 Issue 23

Prepared By: J. Murphy

Checked By: E. Burnett

### WEIGHT AND C.G. SUMMARY

REF. No.	DESCRIPTION	WEIGHT lb.	H. ARM ins.	V. ARM ins.	C.G. POSITION % M.A.C.
	Equipment (Fixed & Remov.)(Cont'd)				
8010100	Ejector Seats	186.00	201.10	136.25	
8010200	Emergency Provisions	16.95	166.01	130.65	
8020000	Radar Removable	1,124.70	140.94	113.19	
8000000	Radio Removable & I.F.F.	247.90	291.13	112.19	
8050100	Sparrow Pack Structure	1,424.10	375.42	96.81	
8050200	Sparrow Pack Mechanisms	399.50	353.32	100.22	
8050300	Sparrow Pack Hydraulics	505.65	409.15	98.84	
8050400	Sparrow Pack Electronics	50.00	436.15	103.20	
	AIRCRAFT WEIGHT EMPTY	42,668.74	550.67	127.25	
9000000	USEFUL LOAD	18,357.87	516.70	137.48	
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	218.40	553.98	134.04	
9090000	Fuel For Combat Mission	15,836.00	539.20	142.28	
9030000	Missiles (Armament)	1,728.00	385.76	94.27	
9040000	Oxygen Charge	13.39	259.69	159.91	
	U/C Up Normal Combat Mission	61,026.61	540.45	130.33	28.85
	U/C Down		541.99	128.22	29.28
	Half Combat Mission Fuel 1,015 @ 7.8 lb. gal.	7,918.00	540.80	139.55	
	U/C Up Combat Weight (Half Combat Mission Fuel	53,108.61	540.88	128.14	28.97
	U/C Down		542.66	125.74	29.46
	U/C Up Operational Weight Empty	45,190.61	540.89	126.14	28.98
	U/C Down		542.97	123.32	29.55
	U/C Up Operational Weight Empty (Less Missiles)	43,462.61	547.06	127.41	30.68
	U/C Down		549.22	124.47	31.27
	Maximum Internal Fuel 2,544 gal. @ 7.8 lb/gal. Water (Air-Conditioning System)	19,843.00 125.00	538.88 268.00	144.32 95.00	
	U/C Up A.U.W. Max. Internal Fuel	65,158.61	539.75	131.62	28.66
	U/C Down		541.19	129.66	29.06
	Max. External Fuel 500 gal. @ 7.8 lb/gal. and Drop Tank	4,210.00	528.88	62.00	
	U/C Up A.U.W. Max. Internal and External Fuel	69,368.61	539.09 540.44	127.39 125.55	28.48 28.85

127.53	28.48
125.55	28.85

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MALTON, ONT.

WEIGHT AND C. OF G BY FUNCTIONAL  
COMPO

PROJECT C-105

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DESCRIPTION		REFERENCE NO.	COMP. NO.	WEIGHT
FIXED EQUIPMENT GROUP		7000000		
INSTRUMENTS		7010000		
59	INSTRUMENTS F F	7010000152		51301
	PROBE SERVICES	7010000351		800
106	NAVIC TABLE AND STOWAGE	7010000452		2002
				6130
3	COCKPIT PRESSURE SEALING	7020000052		5001
				500
OXYGEN SYSTEM		7030000		
63	OXYGEN SYSTEM F F	7030000152		29051
63	OXYGEN SYSTEM C F	7030000254		17072
				4612
AIR CONDITIONING SYSTEM		7040000		
65	AIR CONDITIONING F F	7040000152		92862
65	AIR CONDITIONING C F	7040000254		440661
65	AIR CONDITIONING D B	7040000356		51405
65	AIR CONDITIONING E B	7040000458		38296
66	WINDSCREEN DEMISTING	7040000752		10001
				63321
HYDRAULICS MAIN SYSTEM		7050000		
57	HYDRAULICS MAIN SYSTEM D B	7050000156		82665
57	HYDRAULICS MAIN SYSTEM E B	7050000258		133006
				21566
FIN PITOT SYSTEM		7060000		
	FIN PITOT SYSTEM F F	7060000152		1361
	FIN PITOT SYSTEM C F	7060000254		2491
	FIN PITOT SYSTEM D B	7060000356		1165
	FIN PITOT SYSTEM E B	7060000458		165
	FIN PITOT SYSTEM FIN	7060000583		7131
				1230
69	CABIN INSULATION	7070000052		11911
				1191















AVRO AIRCRAFT LTD.

MALTON, ONT.

WEIGHT AND C. OF G BY FUNCTIONAL  
COMPONE

PROJECT C-105

DESCRIPTION

REFERENCE NO.

COMP.  
NO.

WEIGHT

H

58	L P PNEUMATICS F F	71000001	52	152221	
58	L P PNEUMATICS C F	71000002	54	13827	
				1660	
	OIL AND HYD FLD COOLING	71100000			
57	OIL AND HYD FLD COOLING DB	71100001	56	968655	
57	OIL AND HYD FLD COOLING EB	71100002	58	229461	
				11980	
52	INTAKE DEICING	71200000	52	1017221	
				10172	
65	RADOME ANTIICING	71300000	51	1680	6
				1680	
	RADIO AND RADAR FIXED	71400000			
61	RADIO AND RADAR R N	71400001	51	25231	9
61	RADIO AND RADAR F F	71400002	52	1668821	
61	RADIO AND RADAR C F	71400003	54	1326331	
61	RADIO AND RADAR D B	71400004	56	197058	
61	RADIO AND RADAR FIN	71400005	83	317976	
61	RADIO AND RADAR I W	71400006	62	51070	
				60841	
	RADAR POWER SUPPLIES	71500000			
61	RADAR POWER SUPPLIES R N	71500001	51	7700	9
61	RADAR POWER SUPPLIES F F	71500002	52	1950022	
61	RADAR POWER SUPPLIES C F	71500003	54	570027	
				32900	
60	CANOPY ACTUATION	71600000	52	468022	
				4680	
3	CABIN CONSOLES	71700000	52	206517	
				2065	
60	RADAR DOOR ACTUATION	71800000	54	100026	
				1000	









WEIGHT AND C. OF G BY FUNCTIONAL COMPONENTS

[illegible]



MALTON, ONT.

UNCLASSIFIED  
NON CLASSIFIED

WEIGHT AND C. OF G BY FUNCTIONAL  
COMPONE

DESCRIPTION		REFERENCE NO.	COMP. NO.	WEIGHT
OPERATIONAL LOAD		9000000		
99	CREW MEMBERS	9010000	52	43000
				43000
	ENGINE OIL	9020000		
120	ENGINE OIL USABLE	9020001		54146
75	ENGINE OIL TRAPPED	9020002		30946
				8508
129	SPARROW MISSILES	9030000	54	172800
				172800
	OXYGEN CHARGE	9040000		
128	OXYGEN CHARGE F F	9040001	52	7220
128	OXYGEN CHARGE C F	9040002	54	12672
				1339
125	ALCOHOL FOR RADOME DEICING	9050000	51	2200
				2200
132	ENGINE FIRE EXT FLUID	9060000		25007
				2500
	RESIDUAL FUEL	9070000		
74	RESIDUAL FUEL C F	9070001	54	46803
74	RESIDUAL FUEL I W	9070002	62	171605
				21840



