QC
Avro
C-105
Ref.
Iss.

QCX
Avro
CF105
R-7-0400-34
Iss-16

FILE IN VAULT

ARROW 2
Prod. A/C

Report # 7-0400-34
Issue 16

WEIGHT & C.G. SUMMARY

UNCLASSIFIED / NO [illegible]
UNCLASSIFIED

NAB
NEA

Feb. 1/58

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

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

TO
A

DATE

JAN 07 1993

Report no.: QCX-AVRO-CF105- R-7-0400-34- ISS.16

has been ☐ downgraded to :

☒ de-classified

by (Name): Michel W. Drapeau

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

Date: Dec. 7, 1992

R. Burger
Signature

AVRO AIRCRAFT LIMITED
INTER-DEPARTMENTAL MEMORANDUM

UNCLASSIFIED
NON CLASSIFIÉ

Ref. 5865/11/J
Date February 1st, 1958
To See Distribution
From Mr. E. F. Burnett
Subject ARROW 2 PRODUCTION A/C WEIGHT & C.G. SUMMARY - Report # 7-0400-34 Iss. 16

Attached is a copy of the Weight and C.G. Summary Report # 7-0400-34 Issue 16, dated February 1st, 1958 for your retention.

This report is revised monthly and is issued complete on the 1st of each month.

Classification ~~cancelled~~ confirmed as / ~~changed~~ to: UNCLASSSIFIED
By authority of: DRDA 7/DARFT 5-8/DAS Eng 6-4-5
Date: 5 Nov 1992
Signature: B Aubrey
Unit / Rank / Appointment: DS/S 3, Secretary CRAD HQ DRP

E. F. Burnett
E. F. Burnett
Weights Supervisor

amc.

Messrs.
J.C. Floyd
R.N. Lindley
J.A. Chamberlin
R. Marshall
C.V. Lindow
F.P. Mitchell
A. Buley
J. Ames
B.C. Alford
D. Wade
R. Vale
E. Kosko
H. Shoji
D. Hayward
D. Scard
J. Booth
F. Brame
W. Czerwinski
J. Lucas
S. Kwiatkowski
A. Cornish
J. Hodge
C. Marshall
J. Zurakowski
A.D. Crust (5) for RCAF
N. Ring
D. Inglis
D. Moore
K. Wreghitt
R. Cairns
G. Eves

National Research Council
FEB 17 1958
Technical Library

52356

UNCLASSIFIED / NON CLASSIFIÉ

INDEX

Sheet #	Content
1-1 to 1-4	Introductory notes and explanation of Weight Changes.
2-1 to 2-2	Weight & C.G. Summaries
3	Horizontal C.G. plot showing basic fixed points on flight envelope. The variation of C.G. with fuel used has been omitted until such time as a fully approved fuel sequencing is established.
4-1 to 4-15	I.B.M. Detail Sheets of Weights and C.G.'s.

UNCLASSIFIED / NON CLASSIFIÉ

Date: February 1st, 1958
Aircraft: ARROW 2
Production A/C

INTRODUCTION & WEIGHT CHANGES

The following is a Weight & C.G. Summary of the Arrow 2 Production Aircraft, based on the latest weight estimates available.

All Weight & C.G. changes are relative to issue 15 of January 1st, 1958.

The early Arrow 2 Aircraft # 25206 etc. will not be as this summary designates, but will be flight test aircraft with Instrumentation, Astra Minus Radar, Missile Pack Trial Installation and various equipment Trial Installations. Weight statements for these aircraft will be issued at a later date.

GENERAL:

a) Orenda PS 13 Engines comprise the Power Plant (4,500 lb each, brochure weight, excluding Nose Bullet and Input Frame).

b) A package containing 4 "semi-submerged" Sparrow II Missiles (432 lb each) forms the current Armament.

c) The R.C.A. Astra I Radar System is installed. The basis for the weight and C.G. breakdown is from the latest information received from R.C.A., dated October 4th, 1957. No Sparrow III Auxiliaries are carried in the production aircraft.

Where later weights have been received from Minneapolis-Honeywell these have been incorporated. Allowances have also been added for the missile firing system, junction boxes and some AVRO installed antennae.

Initially it was understood that the R.C.A. weight was for the complete system installed, now, however, it appears that only intercompartment cables were allowed for by R.C.A. not junction boxes etc.

The Infra-red Tracker System seeker head is allowed for in its Fin Pod location. (Total weight of installed system = 3,249.5 lb, including missile actuation and firing system).

In addition to the above the Minneapolis-Honeywell M.H. 64 Damping System is installed.

Arrow 2 Aircraft # 25206 to # 25208 and # 25211 will have the "Astra Minus" System (Navigational and Communication equipment only).

d) A conderable number of Arrow 1 parts, assemblies and equipment have now been weighed. Where these weights apply to the Arrow 2 Aircraft, they have been recorded in the Arrow 2 records.

On the I.B.M. Sheets in this report, immediately preceeding the item title, will be found a number varying from 0 to 100. This is the percentage actual weight recorded in that report.

1. STRUCTURE — WEIGHT (lb)

a) Wings:

No Weight Change.

UNCLASSIFIED / NON CLASSIFIÉ

UNCLASSIFIED / NON CLASSIFIÉ

INTRODUCTION & WEIGHT CHANGES

1. STRUCTURE (Continued) — WEIGHT (lb)

b) Fin & Rudder:

Fin I. R. Pod - Initial allowance made for seeker mounting pod	+	10.75
Weight Increase Fin	+	10.75

c) Front Fuselage fwd. Sta. 255"

Radome - new design approx. 12" shorter and walls .348" thick, were .38" thick.	-	18.71
Radar Nose Structure - addition of thrust angles on frame Sta. 82.25" to 84.25" for ballast installation	+	0.42
Top Longerons - incorporation of E.C.N's and production drawing estimate of transverse beam Sta. 246.24"	+	0.98
Aft. Upper Shear Panel - Arrow 2 production drawing estimates	-	0.73
Air Intakes - Actual weight of tip support casting and incorporation of design for production split	+	3.84
Front Fuselage Decrease	-	14.20

d) Centre Fuselage Sta. 255" to 485"

Bulkhead Sta. 485" - Actual weight obtained of Vickers release mechanism for drop tank	+	1.10
Fuselage Fuel Tank - miscellaneous production drawing changes, alterations to dished panel assys. etc.	+	2.34
Centre Fuselage Increase	+	3.44

e) Duct Bay Sta. 485"-591.65"

Dive Brake Accommodations - addition of stiffeners etc to Refuel and Limiter Access Door	+	0.51
Dive Brakes - modifications to inner skin	+	0.34
modifications to main lever design	+	0.66
O/Skin and doublers - aluminum were magnesium	+	5.40
Duct Bay Increase	+	6.91

f) Engine Bay Sta. 591.65" to 742.5"

No Weight Change

g) Rear Fuselage Sta. 742.5 Aft.

O/Skins fixed R.F. - production drawing estimates made	+	3.23
Formers Fixed R.F. - production drawing estimates of "U" bolt assys. etc.	-	2.35
Tailcones - production drawings of some components now estimated, buttstraps at Sta. 814" were omitted in error when scheme drawing estimates were made	+	14.22
Rear Fuselage Increase	+	15.10

UNCLASSIFIED / NON CLASSIFIÉ

UNCLASSIFIED / NON CLASSIFIÉ

Date: February 1st, 1958
Aircraft: Arrow 2
Production A/C

INTRODUCTION & WEIGHT CHANGES

	WEIGHT (lb)
1. STRUCTURE (Continued)	
h) Fuselage "Marry-Up"	
No Weight Change.	
TOTAL STRUCTURAL INCREASE	+ 22.00
2. LANDING GEAR	
Main Undercarriage - information from Messrs. Dowty is to the effect that the hoped for 25 lb/leg savings on the shortening mechanism has not been realized.	+ 33.32
LANDING GEAR INCREASE	+ 33.32

3. POWER PLANT & SERVICES

No Weight Change.

4. FLYING CONTROLS GROUP

No Weight Change.

In A/C # 25201 boosters have been added at the elevator and aileron quadrants to overcome excessive friction within the system. These together with associated valves, filters and piping account for a weight increase of approx. 77 lb. Some similar system of boosters will have to be built into the Arrow 2 Flying Control Hydraulic System but no information pertaining to details of the installation is yet available. The probable weight increase will be of the same order as that on A/C # 25201.

5. EQUIPMENT GROUP

Probe - amendment of estimate to include manufacturer's quote of sensor weight	+	0.25
Radio & Radar Removable - R.C.A. previously omitted some antennae from their list; ARA 25 Antenna	+	18.00
ARN 6 Loop Antenna	+	8.50
Minneapolis-Honeywell have supplied weights for parts sub-contracted to them: Stable platform and rack	+	19.50
Platform repeater and rack	+	11.00
Miscellaneous other equipment changes	+	11.60

continued.

UNCLASSIFIED / NON CLASSIFIÉ

UNCLASSIFIED / NON CLASSIFIÉ

INTRODUCTION & WEIGHT CHANGES

5. EQUIPMENT GROUP (Continued)		WEIGHT (lb)
Radio & Radar Fixed - Addition of missile firing system cables from pack to cockpit		+ 19.60
Junction boxes were not allowed for in R.C.A.'s previous installed weight of Astra I, these are:	R 1	+ 36.20
	R 2	+ 18.50
	R 3	+ 2.70
further probable junction box		+ 5.00
Sparrow Pack Electronics Fixed - production drawings of Trial Installation pack boxes, installations and cables have been evaluated and where applicable similar allowances made for a production pack system.		+ 63.61
EQUIPMENT GROUP INCREASE		+ 214.46

SUMMARY

Weight Change - Aircraft Basic Weight

Structure	+ 22.00 lb
Landing Gear	+ 33.32 lb
Equipment	+ 214.46 lb
	+ 269.78 lb

Weight Change Operational Weight Empty

Issue 15	Issue 16	
45,610.22 lb	45,880.00 lb	+ 269.78 lb

UNCLASSIFIED / NON CLASSIFIÉ

Date: February 1st, 1958
Aircraft ARROW 2
Production A/C

S E C R E T
Report # 7-0400-34 Iss. 16
Sheet # 12-1

UNCLASSIFIED / NON CLASSIFIÉ

WEIGHT & C.G. SUMMARY

DESCRIPTION	WEIGHT lb	H. ARM ins.	V. ARM ins.
STRUCTURE	19,066.88	567.04	137.43
Wings	10,012.03	642.54	142.22
Fin & Rudder	1,034.75	754.31	209.80
Fuselage - fwd. Sta. 255"	2,559.40	184.19	128.60
Sta. 255"-485"	1,695.27	375.45	130.63
Sta. 485"-591.65"	1,125.95	538.12	105.32
Sta. 591.65"-742.5"	1,550.20	661.04	110.51
Sta. 742.5" Aft.	1,036.95	805.24	128.71
"Marry-Up"	52.33	467.60	103.84
LANDING GEAR - RETRACTED	2,575.63	487.91	134.86
Main Landing Gear	1,934.94	539.49	141.00
Main Gear Doors & Fairings	282.34	537.60	138.37
Nose Landing Gear	333.81	170.80	99.70
Nose Gear Door & Fairing	24.54	162.24	88.23
POWER PLANT & SERVICES	10,800.67	671.41	121.32
Engines & Accessories PS 13	9,186.78	687.95	121.16
Gear Box & Drives on Fuselage	281.84	601.70	102.49
Engine Controls	32.43	375.76	118.61
Gear Box Starter & Drives on Engine	315.45	615.98	105.24
Engine Nose Bullet (Orenda Supplied)	70.00	587.17	116.00
Fire Extinguishing System	65.46	700.45	134.21
Engine Mountings	132.38	666.82	136.52
Fuel System	716.33	530.91	134.48
FLYING CONTROLS GROUP	1,792.80	683.95	140.43
Mechanical Flying Controls	944.53	684.69	148.25
Hydraulic Flying Controls	848.27	683.13	131.72
EQUIPMENT FIXED & REMOVABLE	8,855.26	332.16	113.98
Instruments	46.07	163.68	138.70
Probe	15.25	-23.71	108.00
Cockpit Pressure Sealing	5.00	186.00	130.00
Oxygen System	26.07	240.54	156.70
Ejector Seats	339.06	204.43	134.10
Air Conditioning System	856.00	333.49	134.98
Hydraulics Main System	640.81	504.22	117.77
Cockpit Insulation	14.31	187.48	132.00
Drag Chute	91.07	786.68	143.19
Electrical System	1,276.26	434.44	112.66
Low Pressure Pneumatics	56.94	421.96	128.47
Surface Finish	100.00	591.52	140.20
Intake De-icing Boots	88.00	195.82	118.00
Canopy Actuation	64.92	221.99	154.35
Cabin Consoles	17.38	174.63	124.32
Radar Door Actuation	10.00	268.00	95.00
MH 64 Damping System	180.15	471.27	135.69
Radio & Radar Removable	2,079.90	207.28	108.22
Radio & Radar Fixed	767.00	231.73	116.90
Sparrow Pack Structure	890.19	381.67	97.60
Sparrow Pack Mechanisms	551.12	374.40	99.12
Sparrow Pack Hydraulics	331.94	373.52	99.00
Sparrow Pack Electronics Removable	185.50	331.91	100.00
Sparrow Pack Electric & Electronics fixed	217.11	335.24	110.00
Sparrow Pack Air Conditioning	5.21	305.50	102.50

UNCLASSIFIED / NON CLASSIFIÉ

Date: February 1st, 1958
Aircraft: ARROW 2
Production A/C

S E C R E T
Report # 7-0400-34 Iss. 16
Sheet # 2-2

UNCLASSIFIED / NON CLASSIFIÉ

WEIGHT & C.G. SUMMARY

DESCRIPTION		WEIGHT lb	H. ARM ins.	V. ARM ins.	M.A.C. %
AIRCRAFT BASIC WEIGHT	U/C Up	43,091.24	545.07	128.54	
	U/C Down		547.31	124.83	
USEFUL LOAD (less fuel)		2,788.76	377.69	104.73	
Crew		390.00	194.00	136.50	
Oil		138.97	636.92	110.57	
Engine Fire Extinguisher Fluid		25.00	730.00	129.00	
Residual Fuel		218.40	553.98	134.04	
Missiles		1,728.00	389.29	88.30	
Oxygen Charge		13.39	259.68	159.91	
Water for Air Conditioning		275.00	268.00	131.75	
Operational Weight Empty	U/C Up	45,880.00	534.90	127.09	27.32
	U/C Down		537.01	123.61	27.91
Operational Weight Empty Less Missiles	U/C Up	44,152.00	540.60	128.61	28.90
	U/C Down		542.80	124.99	29.50
Normal Combat Mission Fuel * (2,237 gal. @ 7.8 lb/gal.)		17,450.00	-	-	-
Normal Combat Weight *		63,330.00	-	-	-
Half Combat Mission Fuel * (1,118.5 gal. @ 7.8 lb/gal.)		8,725.00	-	-	-
Combat Weight (half Mission Fuel)*		54,605.00	-	-	-
Maximum Internal Fuel (2,492 gal. @ 7.8 lb/gal.)		19,438.00	541.85	144.16	
A.U.W. Maximum Internal Fuel	U/C Up	65,318.00	536.97	131.98	27.89
	U/C Down		538.45	129.53	28.30
Maximum External Fuel (500 gals. @ 7.8 lb/gal + drop tank)		4,248.00	521.84	60.67	
A.U.W. Maximum Internal and External Fuel	U/C Up	69,566.00	536.05	127.63	27.64
	U/C Down		537.44	125.33	28.02

N.B. 1) Aircraft Datum = 120" above an abritrarily chosen ground line.

2) * Fuel weights in accordance with latest data issued by Aerodynamics November 19th, 1957. Centres of Gravity have temporarily been omitted until a fuel sequencing system is finally established.

3) With the increase of 270 lb in Operational Weight Empty the Normal Combat Mission fuel has increased by a further 80 lb.

UNCLASSIFIED / NON CLASSIFIÉ

AVRO AIRCRAFT LTD.
MALTON, ONT.

WEIGHT AND C. OF G BY FUNCTIONAL COMPONE

PROJECT_____

DESCRIPTION	REFERENCE NO.	COMP. NO.	WEIGHT	H.
LEADING EDGE O W	1060000	65	30870	63
			30870	

AVRO AIRCRAFT LTD.
MALTON, ONT.

WEIGHT AND C. OF G BY FUNCTIONAL COMPONE

PROJECT_____

DESCRIPTION	REFERENCE NO.	COMP. NO.	WEIGHT	H.
12 FIN	20100083		8517074	
12 FIN TO WING MARRY UP	20100002		483068	
FIN POD FOR I R TRACKER	20100083		107576	
			91075	
95 RUDDER	20200084		1240081	
			12400	

AVRO AIRCRAFT LTD.
MALTON, ONT.

WEIGHT AND C. OF G BY FUNCTIONAL COMPONE

PROJECT_____

DESCRIPTION	REFERENCE NO.	COMP. NO.	WEIGHT	H.
UNDERCARRIAGE UP POSITION	4000000			
MAIN UNDERCARRIAGE GROUP	4010000			
MAIN UNDERCARRIAGE	4010100	92	19349	453
			19349	4
89 MAIN U C DOORS FAIRINGS	4010200	62	2823	453
			2823	4
NOSE UNDERCARRIAGE GROUP	4020000			
100 NOSE UNDERCARRIAGE	4020100	91	3338	117
			3338	1
NOSE U C DOOR AND FAIRING	4020200	52	245	416
			245	4

AVRO AIRCRAFT LTD.
MALTON, ONT.

WEIGHT AND C. OF G BY FUNCTIONAL COMPONE

PROJECT_____

DESCRIPTION	REFERENCE NO.	COMP. NO.	WEIGHT	H
ENGINE GROUP	5000000			
PS 13 ENGINES	5010000		917228	68
			917228	
PS 13 ENGINES SERV ACCESS	5010100		1450	61
			1450	
ACC GEAR BOX ON FUS D B	502000156		45245	7
ACC GEAR BOX ON FUS E B	502000258		23660	60
			28184	
ENGINE CONTROLS	5030000			
ENGINE CONTROLS F F	503000152		14581	6
ENGINE CONTROLS C F	503000254		2643	0
ENGINE CONTROLS D B	503000356		5084	9
ENGINE CONTROLS E B	503000458		10136	1
			3243	
STARTER AND ENG GEAR BOX	5040000		31545	61
			31545	
ENGINE ANTI ICING	5050000		7000	58
			7000	
FIRE EXT SYSTEM	5060000			
55 ENG FIRE EXT SYSTEM ENG	506000158		6400	70
55 ENG FIRE EXT SYSTEM D B	506000256		146	55
			6546	
ENGINE MTGS AND BRACKETS	5070000			
ENGINE MOUNTS	5070001		8421	67
ENGINE MTG ACCESSORIES	5070002		4817	6.
			13238	
FUEL SYSTEM	5080000			

AVRO AIRCRAFT LTD.
MALTON, ONT.

WEIGHT AND C. OF G BY FUNCTIONAL COMPONE

PROJECT_____

DESCRIPTION	REFERENCE NO.	COMP. NO.	WEIGHT	H.
19 FUEL SYSTEM C F	508000154		107134	40
20 FUEL SYSTEM D B	508000256		149555	54
FUEL SYSTEM E B	508000358		68564	
28 FUEL SYSTEM I W	508000462		439005	55
FUEL SYSTEM ENG	5080005		62665	
FUEL SYSTEM C A	5080006		75461	
			71633	

AVRO AIRCRAFT LTD.
MALTON, ONT.

WEIGHT AND C. OF G BY FUNCTIONAL C COMPONE

PROJECT_____

	DESCRIPTION	REFERENCE NO.	COMP. NO.	WEIGHT	H.
	FLYING CONTROLS GROUP	6000000			
	MECHANICAL CONTROLS	6010000			
68	MECHANICAL CONTROLS F F	601000152		952316	
	MECHANICAL CONTROLS C F	601000254		95438	
70	MECHANICAL CONTROLS FIN	601000583		1242378	
70	MECHANICAL CONTROLS I W	601000662		4067071	
46	MECHANICAL CONTROLS O W	601000764		3023777	
	MECHANICAL CONTROLS C A	6010008		64670	
				94453	
	FLYING CONTROLS HYDRAULICS	6020000			
	FLYING CONT HYDRAULICS D B	602000156		233257	
37	FLYING CONT HYDRAULICS E B	602000258		3907664	
	FLYING CONT HYDRAULICS R F	602000359		4875	
80	FLYING CONT HYDRAULICS I W	602000462		2626470	
74	FLYING CONT HYDRAULICS O W	602000564		1170174	
60	FLYING CONT HYDRAULICS FIN	602000683		540676	
				84827	

AVRO AIRCRAFT LTD.
MALTON, ONT.

WEIGHT AND C. OF G BY FUNCTIONAL COMPONE

PROJECT_____

	DESCRIPTION	REFERENCE NO.	COMP. NO.	WEIGHT	H.
	FIXED EQUIPMENT GROUP	7000000			
	INSTRUMENTS	7010000			
	INSTRUMENTS	70100001	52	440716	
	NAVIG TABLE AND STOWAGE	70100045	2	20022	
				4607	
	COCKPIT SEALING	702000005	2	50018	
				500	
	OXYGEN SYSTEM	7030000			
	OXYGEN SYSTEM	70300015	2	260724	
				2607	
	AIR CONDITIONING SYSTEM	7040000			
	AIRCONDITIONING SYST F F	70400015	2	1232122	
	AIRCONDITIONING SYST C F	70400025	4	5752329	
	AIRCONDITIONING SYST D B	70400035	6	207451	
	AIRCONDITIONING SYST C A	7040005		1236656	
	AIRCONDITIONING SYST ENG	7040006		125567	
	AIRCONDITIONING SYST I W	704000762		6151	
				85600	
	HYDRAULICS MAIN SYSTEM	7050000			
14	UTILITY HYDRAULICS F F	70500015	2	841520	
31	UTILITY HYDRAULICS C F	70500025	4	427243	
20	UTILITY HYDRAULICS D B	70500035	6	2733855	
21	UTILITY HYDRAULICS E B	70500045	8	724060	
24	UTILITY HYDRAULICS I W	705000562		1351155	
14	UTILITY HYDR NOSE U C	705000691		32519	
24	UTILITY HYDR MAIN U C	705000792		298054	
				64081	
	CABIN INSULATION	707000052		143118	
				1431	
	BRAKE PARACHUTE	7080000			
	BRAKE PARACHUTE F F	70800015	2	45516	
	BRAKE PARACHUTE R F	708000559		852882	

AVRO AIRCRAFT LTD.
MALTON, ONT.

WEIGHT AND C. OF G BY FUNCTIONAL COMPONE

PROJECT_____

DESCRIPTION	REFERENCE NO.	COMP. NO.	WEIGHT	H.
RADIO AND RADAR FIXED R N	714000151		20900	8
RADIO AND RADAR FIXED F F	714000252		12700	18
RADIO AND RADAR FIXED C F	714000354		19000	26
RADIO AND RADAR FIXED D B	714000456		18005	51
RADIO AND RADAR FIXED FIN	714000583		47007	9
RADIO AND RADAR FIXED C A	7140006		17600	21
			76700	
29 CANOPY ACTUATION	716000052		6492	22
			6492	
CABIN CONSOLES	717000052		1738	17
			1738	
RADAR DOOR ACTUATION	718000054		1000	26
			1000	
SURFACE FINISH F F	719000152		3631	8
SURFACE FINISH CANOPY	719000253		642	0
SURFACE FINISH C F	719000354		14003	7
SURFACE FINISH 2NTAKES	719000455		4082	2
SURFACE FINISH D B	719000556		3775	3
SURFACE FINISH E B	719000658		4436	6
SURFACE FINISH R F	719000759		6488	0
SURFACE FINISH I W	719000862		31516	0
SURFACE FINISH O W	719000964		10677	0
SURFACE FINISH O W L EDGE	719001065		3196	3
SURFACE FINISH AILERON	719001174		3537	9
SURFACE FINISH ELEVATOR	719001282		5667	5
SURFACE FINISH FIN	719001383		6397	4
SURFACE FINISH RUDDER	719001484		2028	1
			10000	

AVRO AIRCRAFT LTD.
MALTON, ONT.

WEIGHT AND C. OF G BY FUNCTIONAL COMPONI

PROJECT

DESCRIPTION	REFERENCE NO.	COMP. NO.	WEIGHT	H
SP PACK ELECTRONICS REMOV	805050094		18550	3
			18550	
MISSILE AIRCONDITIONING	807000094		521	3
			521	

AVRO AIRCRAFT LTD.
MALTON, ONT.

WEIGHT AND C. OF G BY FUNCTIONAL COMPONE

PROJECT

DESCRIPTION	REFERENCE NO.	COMP. NO.	WEIGHT	H.
OPERATIONAL LOAD	9000000			
CREW MEMBERS	901000052		3900019	
			39000	
ENGINE OIL	9020000			
ENGINE OIL DRAINABLE	9020001		92906 5	
ENGINE OIL TRAPPED ENG	9020002		17736 3	
ENGINE OIL TRAPPED D B	902000356		19255 8	
ENGINE OIL TRAPPED E B	902000458		9095 9	
			13897	
SPARROW MISSILES	903000094		1728003 8	
			172800	
OXYGEN CHARGE	9040000			
OXYGEN CHARGE F F	904000152		7220	
OXYGEN CHARGE C F	904000254		126726	
			1339	
ENGINE FIRE EXT FLUID	9060000		250073	
			2500	
RESIDUAL FUEL	9070000			
RESIDUAL FUEL C F	907000154		46803 9	
RESIDUAL FUEL I W	907000262		171605 9	
			21840	
WATER FOR AIR CONDITIONING	910000054		26000 26	
UNUSABLE WATER FOR AIRCOND	910000154		15002 6	
			27500	