

QCX
AVRO
CF105
R7-0400-34
Iss-27

FILE IN VAULT

Arrow 2
Prod. A/C

Report: 7-0400-34
Issue : 27

WEIGHT & C.G. SUMMARY

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UNCLASSIFIED 1 Jan/59



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A

DATE
JAN 07 1993

Report no.: QCX - AVRO - CF105 - R-7-0400-34-Ess.27

has been downgraded to : _____

de-classified

by (Name): Michel W. Drapeau

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

Date: Dec. 7, 1992

R. Auger
Signature

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AVRO AIRCRAFT LIMITED
INTER-DEPARTMENTAL MEMORANDUM

Ref: 9266/11/J
Date: 1 January, 1959
To: See Distribution
From: E.F. Burnett - Weight Supervisor
Subject: Arrow 2 Production A/C Weight & C.G. Summary Report: 7-0400-34 Issue 27

Attached is a copy of Weight and C.G. Summary Report: 7-0400-34 Issue 27, dated January 1st, 1958, for your retention.

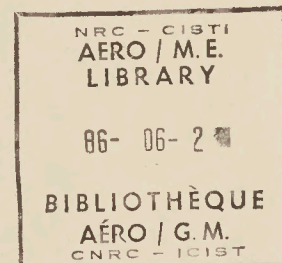
This report is revised monthly and is issued complete on the 1st of each month.


E.F. Burnett

ag

cc: Messrs. J.C. Floyd D. Wade C. Marshall
R.N. Lindley D. Scard W. Potocki
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F.P. Mitchell J. Lucas D. Inglis
T. Higgins S. Kwiatkowski D. Moore
A.R. Buley A. Cornish R. Cairns
B.C. Alford T. Roberts D. Danby

Classification cancelled / changed to: UNCLASSIFIED
By authority of: DRDA 7/DAREP 5-3/DAS Eng 6-4-5
Date: 5 Nov 1992
Signature: B. Aubrey
Unit / Rank / Appointment: DSIS 3, Secretary CRAD HQ DEP



100/48

C O N F I D E N T I A L

Aircraft: Arrow 2
Prod. A/C
Date : 1 January, 1949

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I N D E X

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<u>Sheet</u>	<u>Content</u>
1-1 to 1-4	Introductory notes and explanation of Weight changes.
2-1 to 2-2	Weight & C.G. Summary
3	Horizontal C.G. plot showing the fixed points on flight envelope. The possible variations of C.G. with fuel used has been omitted until such time as fully approved fuel sequencing is established.
4-1 to 4-15	I.B.M. Detail sheet of Weight and C.G.'s.

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Introduction and Weight Changes

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

All weight and C.G. changes are relative to issue 26 of this report of December 1st, 1958.

Early Arrow 2 Aircraft will not be as this summary designates but will be Flight Test Vehicles with Instrumentation. Reference should be made to the following reports:-

A/C 25206 Weight Report - 7-0400-82 Issue 5
A/C 25207 Weight Report - 7-0400-85 Issue 3

General:

- a) Orenda P,S. 13 Engines comprise the Power Plant, weight 4835 lb each excluding Nose Bullet, Inlet Frame and Avro installed accessories.
- b) A package containing one GENIE missile (828 lb), four FALCON missiles (148.1 lb) each, a fixed fuel tank 154 gals) and a removable fuel tank 174 gals) forms the current armament pack. Capability exists for the fitment of a second GENIE missile in lieu of the removable fuel tank.
- c) The Hughes MA 1 Electronic System is installed with an estimated weight of the system comprising both removable and fixed equipment of 2648 lb.

In addition to the above, the Minneapolis-Honeywell MH 64 Damping System is installed.

- d) Where actual weights of Arrow 1 parts that apply to Arrow 2 Aircraft have been obtained, these weights have been recorded in the Arrow 2 records a considerable number of Arrow 2 components and parts have been weighed.

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

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C O N F I D E N T I A L

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<u>1. Structure</u>	<u>Weight lb</u>
a) <u>Wings</u> No weight change.	
b) <u>Fin & Rudder</u> No weight change.	
c) <u>Fuselage Fwd. Sta. 255 ins</u>	
Navigators Canopy Assign X74-158 addition of window blinds	+ 8.35
Cockpit Formers re-estimated	+ 0.04
Air Intakes re-estimated	- 0.90
	<u>Front Fuselage Increase</u> + 7.49
d) <u>Centre Fuselage Sta 255 - 485 ins</u> No weight change	
e) <u>Duct Bay Sta. 485 - 591.65</u>	
Skins Duct Bay. Shroud beam now part of Duct Bay was previously included with Engine Shroud	+ 1.39
	<u>Total Duct Bay Increase</u> + 1.39
f) <u>Engine Bay Sta. 591 - 742.5 ins</u>	
Engine Shroud - shroud beam deleted now in Duct Bay - incorporated of minor changes	+ 0.26
Engine Access Doors - re-estimated	+ 0.03
Heavy Formers - increase in "V" struts	+ 0.26
	<u>Total Engine Bay Increase</u> + 0.55
g) <u>Rear Fuselage Sta. 742.5 - aft</u>	
Remov. Engine Doors - actual weights obtained	+ 2.47
	<u>Total Rear Fuselage Increase</u> + 2.47
h) <u>Fuselage Joints</u> No weight changes.	+ 11.90
	<u>Total Structural Increase</u> + 11.90
<u>2. Landing Gear</u>	
Nose U/C Door - re-estimated	+ 0.05
Main U/C Doors & Fairings Assign X74-4297 - Locking of Pivot Door incorporated	+ 5.21
	<u>Total Landing Gear Increase</u> + 5.26
<u>3. Power Plant & Service</u> No weight change.	
<u>4. Flying Controls</u> No weight change.	

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C O N F I D E N T I A L
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5. Equipment Fixed & Removable

Weight lb

Damping System - addition of Command Signal Converter (X74.117)	+ 10.00
Electrical System - re-estimated	- 3.01
Brake Parachute - actual weight of Arrow 1 chute obtained	+ 3.70
Air Conditioning	+ 56.07
Weighed weight in excess of heat exchanger spec. weight.	+ 15.86
Increase due to act. weight of shut off valves	+ 0.50
Weighed weight in excess of weight allowance for flexible metal joints (C.S-J-106,7,8,9,10)	+ 27.88
Increase due to under estimate of ducts	+ 3.59
Increase due to Assign. X74.4070 (cockpit & Radar Temp Control)	+ 8.99
Increase due to Misc. changes	+ 1.85
Deletion of Oil Heat exchanger replaced by duct	- 8.04
Deletion of Nitrogen line to IR seeker	- 2.34
Deletion of Air Conditioning in Fin	- 12.22
Additional installations for Hughes MA 1 Electronics System	+ 20.00
Radio and Radar Removable. This has been re-estimated and is based on Hughes Report X470000-100 issue C for Electronic System for Arrow 1A/C 25202 plus the following functions.	+ 211.70
a) ARN 6 Compass	
b) J4 Compass	
c) Air to Air I.F.F.	
d) ALCO Interphone	
e) Additional AFCS components	
f) Inverter for missile firing	
g) Cockpit Presentation - two instruments replacing Artificial Horizon and R.M.I.	
This results in a system total comprising equipment and Hughes supplied racks of 2068.7 lb.	
Radio & Radar Fixed Re-estimate of cabling	+ 30.00
Armament Pack Structure addition of pressurized bulkhead	+ 9.50
Armament Pack Mechanisms - evaluation of Bohanan ejector rack	+ 15.00
Armament Pack Hydraulics - initial schematic estimated	+ 40.61
Armament Pack Fuel System - initial schematic estimated	- 5.67
Removable Tank Genie Bay - Fuel system added	+ 5.67
<u>Total Equipment Increase</u>	<u>+ 373.57</u>

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6. Trapped Fuel

No weight change.

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<u>7. Useful Load</u>	<u>Weight lb</u>
Missiles - latest estimates incorporated	+ 84.40
Genie now 828 lb was 812 lb	+ 16.00 lb
(4 off) Falcon GAR3A now 148.1 lb ea was 131.0 lb ea.	+ 68.40 lb
<u>Total Useful Load Increase</u>	<u>+ 84.40</u>

Maximum Internal Fuel

- a) Tanks 1-8 2491 gal @ 7.8 lb/gal - 19433.00 lb is unchanged
- b) Armament Pack 154 gal @ 7.8 lb/gal - 1201.20 ϕ
- c) Armament Pack Remov. Tank 174 gal @ 7.8 lb/gal - 1358.00 lb is unchanged.

ϕ The capacity of the Armament Pack integral tank has been reduced by 26 gal. (199.68 lb) to provide space for hydraulic valves and fuel disconnects mounted in the Pack.

Summary

Weight Change - Aircraft Basic Weight

Structure	+ 11.90
Landing Gear	+ 5.26
Equipment	+ <u>373.57</u>
<u>Total</u>	+ <u>390.73</u>

Useful Load Increase + 84.40

Weight Change - Operational Weight Empty

<u>Issue 26</u>	<u>Issue 27</u>	
46,061.21	46,536.34	<u>+ 475.13 lb</u>

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Weight & C.G. Summary

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Description	Weight lb	H. Arm ins	V. Arm ins
Structure	19,460.95	566.31	137.16
Wings	10,050.85	642.93	142.17
Fin & Rudder	1,030.94	754.65	208.99
Fuselage Fwd Sta. 255 ins	2,673.08	182.48	128.43
Sta. 255 - 485 ins	1,734.42	374.84	129.81
Sta. 485 - 591.65 ins	1,172.08	538.75	105.54
Sta. 591.65 - 742.5 ins	1,597.61	659.08	111.66
Sta. 742.5 ins. aft.	1,158.79	809.83	129.05
"Marry-Up"	43.18	467.77	109.69
Landing Gear - Retracted	2,703.24	489.49	135.07
Main Landing Gear	2,048.67	538.68	141.00
Main Gear Doors & Fairings	293.19	539.39	138.30
Nose Landing Gear	333.81	170.80	99.70
Nose Gear Door & Fairing	27.57	162.25	88.68
Power Plant & Services	11,450.87	675.26	121.79
Engines Bare PS 13	9,670.00	693.16	121.25
Engine Accessories (Inlet Frame etc)	388.00	620.58	120.47
Engine Controls	32.32	279.90	117.49
Gear Boxes & Drives on Fuselage	291.87	608.57	103.28
Gear Boxes & Starters on Engine	146.45	601.97	113.57
Fire Extinguisher System	73.58	686.35	131.21
Engine Mountings	75.39	671.91	141.52
Fuel System	773.26	529.49	135.09
Flying Controls Group	1,959.46	655.69	138.11
Mechanical Flying Controls	958.44	677.70	147.62
Hydraulic Flying Controls	1,001.02	634.62	129.01
Equipment Fixed and Removable	8,512.23	331.82	113.61
Instruments	34.61	167.52	138.92
Probe	14.86	-34.07	108.00
Cockpit Pressure Sealing	5.00	186.00	130.00
Cabin Consoles	17.68	175.29	124.49
Oxygen System	21.16	259.40	156.88
Ejector Seats	342.94	204.50	134.11
Cockpit Equipment	6.00	187.50	145.00
Air Conditioning System	943.04	344.82	135.23
Cockpit Insulation	14.31	187.48	132.00
Hydraulics Utilities System	650.75	498.84	117.86
Mech. Door Stops Main U/C Doors	3.02	516.00	120.00
Anti Skid Controls System	37.68	479.24	113.38
Drag Chute	96.26	786.06	143.24
Electrical System	1,225.59	427.45	112.54
Low Pressure Pneumatics	50.08	394.66	126.02
Surface Finish	100.00	572.83	140.20
Intake De-icing Boots	88.00	195.82	118.00
Canopy Actuation	63.52	209.61	154.34
Radar Door Actuation	10.00	268.00	95.00
Radio & Radar Removable	2,068.70	178.45	104.58
Radio & Radar Fixed	579.09	254.00	122.48
MH 64 Damping System	196.42	466.19	134.46

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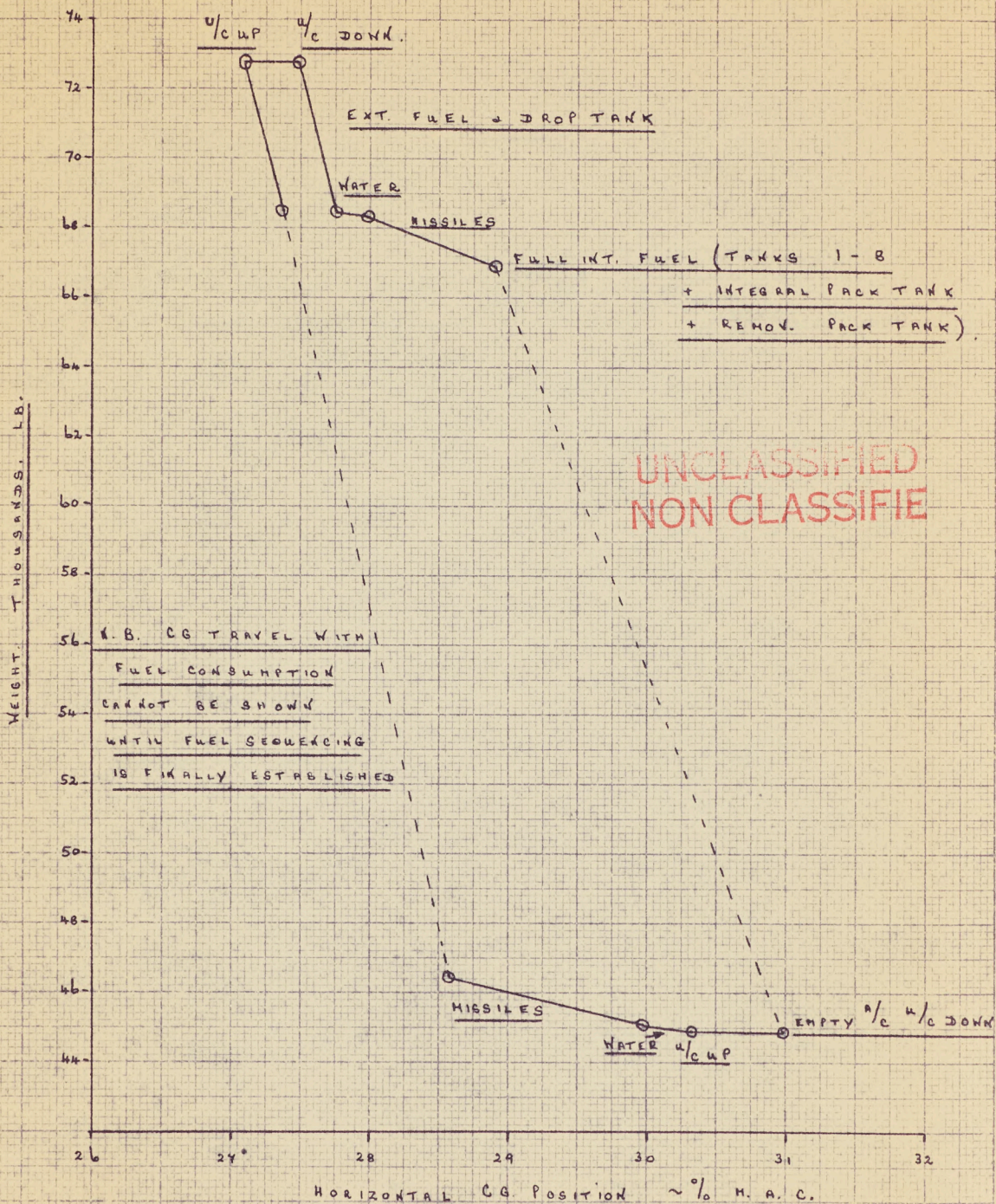
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Description	Weight lb	H. Arm ins	V. Arm ins	M.A.C. %
Armament Pack Structure	760.25	389.33	98.73	
Armament Pack Hydraulics	220.61	418.34	100.32	
Armament Pack Mechanisms	605.00	379.92	94.33	
Armament Pack Air Conditioning	5.21	305.50	102.50	
Armament Pack Pneumatics	24.45	286.92	103.50	
Armament Pack Electrics	108.00	367.00	101.00	
Armament Pack Fuel System	14.33	467.00	90.00	
Removable Tank for Genie Bay	205.67	367.96	99.72	
Trapped Fuel	213.80	548.26	141.79	
U/C Up		548.65	128.60	
Aircraft Basic Weight	44,300.55			
U/C Down		550.98	124.75	
Useful Load (less usable fuel)	2,235.79	357.23	109.29	
Crew	390.00	194.00	136.50	
Engine Fire Ext. Fluid	25.00	730.00	129.00	
Oil	162.00	638.31	110.89	
Oxygen Charge	13.39	259.69	159.91	
Water for Air Conditioning	225.00	267.91	131.56	
Missiles	1,420.40	378.49	97.29	
U/C Up		539.45	127.67	28.58
Operational Weight Empty	46,536.34			
U/C Down		541.67	124.01	29.19
Half Max. Int. Fuel	10,996.10	--	--	--
Combat Weight ($\frac{1}{2}$ Max. Int. Fuel)	57,532.44	--	--	--
Max. Int. Fuel	21,992.20	525.32	138.67	
a) Tanks 1-8: 2491 gal @ 7.8 lb/gal	19,433.00	541.85	144.16	
b) Arm. Pack 154 gal @ 7.8 lb/gal	1,201.20	446.00	97.00	
c) Arm. Pack Remova. Tank (174 gal @ 7.8 lb/gal)	1,358.00	359.00	97.00	
U/C Up		534.92	131.20	27.33
Gross Weight (Max. Int. Fuel)	68,528.54			
U/C Down		536.42	128.71	27.74
Max. Ext. Fuel (500 gal @ 7.8 lb/gal + drop tank)	4,242.36	520.32	60.79	
U/C Up		534.07	127.10	27.10
Max. Gross Weight (Int. + Ext. Fuel)	72,770.90			
U/C Down		535.48	124.75	27.48

N.B. 1. Aircraft Datum = 120 ins. above an arbitrarily chosen ground line.

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HORIZONTAL C.G. PLOT OF FIXED POINTS
OF ARROW 2 FLIGHT ENVELOPE.



359-12
MADE IN U.S.A.

10 X 10 TO THE 1/2 INCH
KEUFFEL & ESSER CO.

K&E

AVRO AIRCRAFT LTD.
MALTON, ONT.

**WEIGHT AND C. OF G BY FUNCTIONAL
COMPONE**

PROJECT Arrow 2 Prod. A/C

DESCRIPTION	REFERENCE NO.	COMP. NO.	WEIGHT	H.
TOTAL WING GROUP 2 PROD	1000000			
OUTER WING	1010000			
100 OUTER WING SKINS	1010001	64	9291070	
100 POSTS AND INTERCOSTALS	1010002	64	243673	
100 OUTER WING SPARS	1010003	64	3925870	
100 OUTER WING RIBS	1010004	64	1345669	
18 AILERON CONTROL BOX	1010006	64	3792077	
100 RIB 12	1010007	64	762664	
100 O W AILERON JACK FITTING	1010009	64	104672	
AILERON JOINTS AND FAIRING	1010010		329378	
			197945	
100 AILERON	1020000	74	3360079	
			33600	
20 ELEVATOR	1030000	82	4463875	
20 ELEVATOR MARRY UP	1030001		159773	
			46235	
INNER WING	1040000			
81 MAIN U C STRUCTURE	1040001	62	3321757	
95 INNER WING SPARS	1040002	62	4191757	
61 I W STRUCTURE F S TO M S	1040007	62	10853949	
17 I W STRUCTURE M S TO R S	1040008	62	1500160	
30 CENTRE TRAILING EDGE	1040009	62	3189872	
40 ELEVATOR CONTROL BOX I W	1040010	62	4339872	
25 TRANSP JOINT MARRY UP	1040011		706563	
61 CENTRE LINE JOINTS	1040012	62	5828166	
91 INNER WING SKINS	1040013	62	22804862	
63 STRUT PICK UP FITTINGS	1040014	62	1231661	
62 RIBS 1 TO 9	1040016	62	4851661	
DORSAL FAIRING I *	1040017	62	11348	
100 RIB 10	1040018	62	1070663	
49 FUSELAGE HINGE JOINT I *	1040019	62	1262861	
25 TRANSP JOINT	1040020	62	1294263	
49 FUSELAGE HINGE JOINT	1040021		393553	
DORSAL FAIRING C A	1040023		591356	
SHUT OFF VALVE OPERAT MECH	1040024	62	51354	
62 LEADING EDGE I W	1040025	62	2148946	
			696435	
LEADING EDGE O W	1050000	65	3087063	
			30870	

EIGHT AND C. OF G BY FUNCTIONAL GROUP COMPONENT

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SHEET 5 to 15

	REFERENCE NO.	COMP. NO.	WEIGHT	H. ARM	V. ARM	H. MOMENT	V. MOMENT
PROD	1000000						
						UNCLASSIFIED NON CLASSIFIE	
	1010000						
S	1010001	64	92910	70646	13597	65637199	12632973
	1010002	64	2436	73207	13410	1783323	326668
	1010003	64	39258	70608	13579	27719289	5330844
	1010004	64	13456	69506	13650	9352727	1836744
	1010006	64	37920	77409	13508	29353493	5122234
	1010007	64	7626	64873	13832	4947215	1054828
ING	1010009	64	1046	72791	13670	761394	142988
IRING	1010010		3293	78726	13224	2592447	435466
			197945			142147087	26882745
	1020000	74	33600	79213	13556	26615568	4554816
			33600			26615568	4554816
	1030000	82	44638	75618	14260	33754363	6365379
	1030001		15977	73810	14260	1178746	227732
			46235			34933109	6593111
	1040000						
	1040001	62	33217	57748	13984	19182153	4645065
	1040002	62	41917	57902	14321	24270781	6002934
M S	1040007	62	108539	49846	14399	54102350	15628531
R S	1040008	62	15001	60868	14563	9130809	2184596
	1040009	62	31898	72041	14887	22979638	4748655
I W	1040010	62	43398	72472	14327	31451399	6217631
	1040011		7065	63621	13876	4494824	980339
	1040012	62	58281	66233	15028	38601255	8758469
	1040013	62	228048	62689	14462	142961011	32980302
S	1040014	62	12316	61654	14580	7593307	1795673
	1040016	62	48516	61133	14513	29659286	7041127
	1040017	62	1134	48270	16150	54545	18250
	1040018	62	10706	63683	13835	8817902	1481175
I W	1040019	62	12628	61688	13790	7789961	1741401
	1040020	62	12942	63071	13710	8162649	1774348
	1040021		3935	53234	14364	2094758	565223
	1040023		5913	56740	15963	3355036	943892
MECH	1040024	62	5135	54965	14180	281970	72743
	1040025	62	21489	46830	14423	10063299	3099358
			696435			423046933	100679712
	1050000	65	30870	63013	13561	19452113	4186281
			30870			19452113	4186281

WGT AND C. OF G BY FUNCTIONAL GROUP COMPONENT

REPORT NO. _____

SHEET _____

REFERENCE NO.				COMP. NO.	WEIGHT	H. ARM	V. ARM	H. MOMENT		V. MOMENT	
2000000											
2010000				83	8551775003	21150		64140316		18086846	
2010001					494368510	15356		3386449		759047	
					90460			67526765		18845893	
2020000				84	1263481316	21374		10273463		2700391	
					12634			10273463		2700391	
								UNCLASSIFIED NON CLASSIFIE			

AVRO AIRCRAFT LTD.
MALTON, ONT.

WEIGHT AND C. OF G BY FUNCTIONAL COMPONENTS

PROJECT _____

DESCRIPTION	REFERENCE NO.	COMP. NO.	WEIGHT	H.
TOTAL FUSELAGE GROUP	3000000			
RADAR NOSE STRUCTURE	3010000			
RADOME	3010001	51	107.43	2
RADAR NOSE STRUCTURE C A	3010002		270	12
RADAR NOSE STRUCTURE R N	3010003	51	273.75	8
			383.88	
FRONT FUSELAGE STRUCTURE	3020000			
SKIN F F	3020001	52	82.64	19
COCKPIT FORMERS	3020002	52	107.28	18
LOWER LONGERONS F F	3020003	52	68.37	18
31 TOP LONGERONS F F	3020004	52	189.47	19
66 NOSE U C SUPPORT STRUCT	3020005	52	33.43	21
CREW BULKHEADS	3020006	52	132.24	20
BULKHEAD STA 120	3020007	52	31.10	12
BULKHEAD STA 255	3020008	52	110.45	25
COCKPIT FLOOR	3020009	52	58.81	17
SHEAR PANEL BELOW NAV ARCH	3020010	52	20.57	25
3 MISC STRUCTURE F F	3020011	52	16.00	1
LOWER SHEAR PANEL	3020012	52	31.41	23
22 CANOPY ARCHES	3020013	52	85.53	22
58 WIND SCREEN	3020014	52	132.85	13
			1100.15	
CENTRE FUSELAGE STRUCTURE	3030000			
SKIN C F	3030001	54	221.12	36
FORMERS C F	3030002	54	287.49	37
5 BULKHEAD STA 485	3030003	54	128.15	48
66 LONGERONS C F	3030004	54	144.53	41
STR BELOW LOWER LONGERONS	3030005	54	48.92	27
RADAR ACCESS DOOR	3030006	54	30.57	27
FWD DORSAL FAIRING	3030008	54	29.69	28
DEFLECTOR SHIELD	3030009	54	20.45	33
DORSAL FAIRING OVER TANK	3030010	54	41.85	41
PACK MTG STRUCTURE	3030011	54	25.15	29
SEALING MISSILE BAY	3030012	54	5.59	29
MISC ITEMS C F	3030013	54	12.16	37
ARAMENT BAY ROOF	3030014	54	124.32	38
FUSELAGE FUEL TANK	3030015	54	226.44	39
DUCT C F	3030016	54	318.67	35
EQUIPMENT BAY STRUCTURE	3030017	54	69.32	28
			1734.42	
DUCT BAY STRUCTURE	3040000			

HEIGHT AND C. OF G BY FUNCTIONAL GROUP COMPONENT

REPORT NO. _____

SHEET _____

	REFERENCE NO.	COMP. NO.	WEIGHT	H. ARM	V. ARM	H. MOMENT	V. MOMENT
	3000000						
	3010000						
	3010001	51	10743	2903	10976	311869	1179152
C A	3010002		270	12000	11200	32400	30240
R N	3010003	51	27375	8460	11363	2315925	3110621
			38388			2660194	4320013
	3020000						
	3020001	52	8264	19296	12301	1594621	1016555
	3020002	52	10728	18257	12024	1958611	1289935
	3020003	52	6837	18460	9045	1262110	618407
	3020004	52	18947	19430	14763	3681402	2797146
CT	3020005	52	3343	21049	9186	703668	307088
	3020006	52	13224	20528	12377	2714623	1636734
	3020007	52	3110	12000	11477	373200	356935
	3020008	52	11045	25500	11907	2816475	1315128
	3020009	52	5881	17695	11569	1040643	680373
ARCH	3020010	52	2057	25706	15352	528772	315791
	3020011	52	1600	18821	12072	301136	193152
	3020012	52	3141	23423	8900	735716	279549
	3020013	52	8553	22594	16023	1932465	1370447
	3020014	52	13285	13828	15000	1837050	1992750
			110015			21480492	14169990
	3030000						
	3030001	54	22112	36736	14420	8123064	3188550
	3030002	54	28749	37520	13317	10786625	3828504
	3030003	54	12815	48500	10337	6215275	1324687
	3030004	54	14453	41038	12144	5931222	1755172
RONS	3030005	54	4892	27363	9604	1338598	469828
	3030006	54	3057	27949	9019	854401	275711
	3030008	54	2969	28927	16400	858843	486916
	3030009	54	2045	33739	16400	689963	335380
ANK	3030010	54	4185	41268	14208	1727066	594605
	3030011	54	2515	29458	10282	740869	258592
	3030012	54	559	29616	11074	165553	61904
	3030013	54	1216	37000	12500	449920	152000
	3030014	54	12432	38370	11428	4770158	1420729
	3030015	54	22644	39454	14535	8933964	3291305
	3030016	54	31867	35898	12969	11439616	4132831
RE	3030017	54	6932	28681	13514	1988167	936790
			173442			65013304	22513504
	3040000						

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AVRO AIRCRAFT LTD.
MALTON, ONT.

WEIGHT AND C. OF G BY FUNCTIONAL
COMPONENT

PROJECT _____

	DESCRIPTION	REFERENCE NO.	COMP. NO.	WEIGHT	H.
	SKIN D B	3040001	56	636653	
5	FORMERS D B	3040002	56	73355	
	TOP LONGERONS	3040003	56	4985	
	MTG BRKTS SIDE PANEL	3040004	56	19051	
	LOWER LONGERONS	3040005	56	1030152	
72	MAIN FRAME STA 538 77	3040006	56	598053	
	ACCESS PANELS	3040007	56	387452	
	LOWER PANEL ASSY	3040008	56	21754	
	DROP TANK MTG STRUCTURE	3040009	56	84158	
20	LOWER SIDE PANELS FWD	3040010	56	1075650	
	LOWER CENTRE PANEL FWD	3040011	56	279151	
16	LOWER CENTRE PANEL AFT	3040012	56	699056	
	LOWER CENTRE PANEL AFT	3040013	56	260956	
60	FLOATING DUCT	3040014	56	4562755	
	HEAT EXCHANGER MTG	3040015	56	70557	
				105080	
	ENGINE BAY	3050000			
100	TOP LONGERONS	3050001	58	67466	
84	BOTTOM LONGERONS	3050002	58	846465	
	ENGINE ACCESS DOORS	3050003	58	1349463	
	ENGINE TUNNEL	3050004	58	6313565	
71	ENG RAILS ATTACH TO FORM	3050005	58	290665	
	PANELS AT ENG ACCESS DOORS	3050006	58	1127264	
	BOTTOM CTR PANEL FWD	3050007	58	472761	
	BOTTOM CTR PANEL CENTRE	3050008	58	416867	
	BOTTOM CTR PANEL AFT	3050009	58	771972	
5	SIDE PANEL FWD	3050010	58	859761	
5	SIDE PANEL CENTRE	3050011	58	748167	
32	SIDE PANEL AFT	3050012	58	746372	
41	HEAVY FORMERS	3050013	58	1966166	
				159761	
	REAR FUSELAGE	3060000			
	OUTER SKINS FIXED	3060001	59	56587	
	FORMERS FIXED R F	3060002	59	1050977	
	LONGERONS FIXED R F	3060003	59	251977	
	TUNNEL FIXED R F	3060004	59	1099477	
85	ENGINE ACCESS DOORS R F	3060005	59	927077	
29	FAIRING UNDER RUDDER FIXED	3060006	59	290178	
	REMOVABLE TAILCONES	3060007	59	6309382	
	CENTRE STRUC AND STING REM	3060008	59	1093583	
				115879	
96	DIVE BRAKES	3070001	72	1170650	
96	DIVE BRAKES C A	3070002		42248	
				12128	

WIGHT AND C. OF G BY

FUNCTIONAL GROUP
COMPONENT

REPORT NO. _____

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SHEET _____

	REFERENCE NO.	COMP. NO.	WEIGHT	H. ARM	V. ARM	H. MOMENT	V. MOMENT
	30400001	56	63.66	535.60	112.43	34096.30	7157.29
	30400002	56	73.35	535.30	114.38	39264.26	8389.77
	30400003	56	4.98	538.99	135.50	2684.17	674.79
	30400004	56	1.90	518.66	130.66	985.45	248.25
	30400005	56	103.01	522.36	99.14	53808.30	10212.41
	30400006	56	59.80	538.77	103.83	32218.45	6209.03
	30400007	56	38.74	528.18	99.76	20461.69	3864.70
	30400008	56	21.75	545.57	89.01	1183.89	193.15
RE	30400009	56	8.41	585.54	88.47	4924.39	744.03
	3040010	56	107.56	508.54	92.69	54698.56	9969.74
D	3040011	56	27.91	513.22	88.86	14323.97	2480.08
T	3040012	56	69.90	567.90	88.60	39696.21	6193.14
T	3040013	56	26.09	566.00	87.94	14766.94	2294.35
	3040014	56	456.27	553.70	117.12	252636.70	53438.34
	3040015	56	7.05	579.50	90.80	4085.48	640.14
			1050.80			56983.476	11270.921
	3050000						
	30500001	58	6.74	667.78	139.21	4500.84	938.28
	30500002	58	84.64	659.09	114.46	55785.38	9687.89
	30500003	58	134.94	638.78	90.50	86196.97	12212.07
	30500004	58	631.35	655.52	121.58	413862.55	76759.53
ORM	30500005	58	29.06	687.63	113.64	19982.53	3302.38
DOORS	30500006	58	112.72	649.96	92.53	73263.49	10429.98
	30500007	58	47.27	617.54	89.19	29191.12	4216.01
RE	30500008	58	41.68	670.85	92.47	27961.03	3854.15
	30500009	58	77.19	721.16	95.54	55666.34	7374.73
	3050010	58	85.97	616.09	116.93	52965.26	10052.47
	3050011	58	74.81	670.63	119.22	50169.83	8918.85
	3050012	58	74.63	721.46	121.88	53842.56	9095.90
	3050013	58	196.61	660.51	109.68	129862.87	21564.18
			1597.61			105325.077	17840.642
	3060000						
	30600001	59	56.58	772.70	137.08	43719.37	7755.99
	30600002	59	105.09	779.90	137.34	81959.69	14433.06
	30600003	59	25.19	771.59	128.10	19436.35	3226.84
	30600004	59	109.94	775.52	132.14	85260.67	14527.47
F	30600005	59	92.70	775.00	98.56	71842.50	9136.51
FIXED	30600006	59	29.01	782.76	155.86	22707.87	4521.50
	30600007	59	630.93	827.81	127.82	522290.16	80645.47
G REM	30600008	59	109.35	833.25	139.10	91115.89	15210.59
			1158.79			93833.250	14945.743
	30700001	72	117.06	508.85	90.48	59565.98	10591.59
	30700002		4.22	487.97	93.60	2059.23	394.99
			121.28			6162.521	1098.658

WEIGHT AND C. OF G BY FUNCTIONAL GROUP COMPONENT

REPORT NO. _____

SHEET _____

REFERENCE NO.	COMP. No.	WEIGHT	H. ARM	V. ARM	H. MOMENT	V. MOMENT
308000155		76949	21129	11828	16258554	9101528
		76949			16258554	9101528
3090000						
F F 3090001		66322000	12000		145860	79560
3090002		103625706	12250		266314	126910
3090003		42847940	11590		205183	49605
3090004		146758957	9157		864899	134333
3090005		72474250	11500		537570	83260
		4318			2019826	473668
3100000						
310000153		24484	17693	15915	4331954	3896629
310000253		17472	23158	16266	4046166	2841996
		41956			8378120	6738625

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NON CLASSIFIED

WEIGHT AND C. OF G BY FUNCTIONAL GROUP COMPONENT

REPORT NO. _____

SHEET _____

	REFERENCE NO.	COMP. NO.	WEIGHT	H. ARM	V. ARM	H. MOMENT	V. MOMENT
ION	4000000						
UP	4010000						
	401010092		204867	53868	14100	110357756	28886247
			204867			110357756	28886247
S	4010200		29319	53939	13830	15814375	4054818
			29319			15814375	4054818
UP	4020000						
	402010091		33381	17080	9970	5701475	3328086
			33381			5701475	3328086
ING	402020052		2757	16225	8868	447323	244491
			2757			447323	244491

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AVRO AIRCRAFT LTD.
MALTON, ONT.

WEIGHT AND C. OF G BY FUNCTIONAL
COMPON

PROJECT _____

DESCRIPTION	REFERENCE NO.	COMP. NO.	WEIGHT	H
ENGINE GROUP	5000000			
PS 13 ENGINES	5010000		10055006	
PS 13 ENGINES C A	5010002		3006	
			1005800	
ACC GEAR BOX ON FUS D B	5020001	56	36765	
ACC GEAR BOX ON FUS E B	5020002	58	235336	
ACC GEAR BOX ON FUS C A	5020003		8006	
ACC GEAR BOX ON FUS I W	5020004	62	11786	
			29187	
ENGINE CONTROLS	5030000			
ENGINE CONTROLS F F	5030001	52	15761	
ENGINE CONTROLS C F	5030002	54	1092	
ENGINE CONTROLS E B	5030004	58	8896	
ENGINE CONTROLS I W	5030005	62	6585	
			3232	
STARTER AND GEARBOX	5040000			
STARTER AND GEARBOX ENG	5040001		146456	
			14645	
FIRE EXT SYSTEM	5060000			
ENG FIRE EXT SYSTEM E B	5060001	58	59857	
ENG FIRE EXT SYSTEM D B	5060002	56	12315	
ENG FIRE EXT SYSTEM ENG	5060003		1426	
			7358	
ENGINE MTGS AND BRACKETS	5070000			
ENGINE MOUNTS	5070001		75396	
			7539	
FUEL SYSTEM	5080000			
30 FUEL SYSTEM C F	5080001	54	116154	
30 FUEL SYSTEM D B	5080002	56	164005	
30 FUEL SYSTEM E B	5080003	58	18366	
30 FUEL SYSTEM I W	5080004	62	472805	
30 FUEL SYSTEM C A	5080005		1956	
			77326	

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SHEET _____

	REFERENCE NO.	COMP. NO.	WEIGHT	H. ARM	V. ARM	H. MOMENT	V. MOMENT
	5000000						
						UNCLASSIFIED NON CLASSIFIED	
	5010000		1005500	69037	12123	694167035	121896765
	5010002		300	65853	10306	197559	30918
			1005800			694364594	121927683
B	5020001	56	3676	57768	9442	2123552	347088
B	5020002	58	23533	61295	10307	14424552	2425546
A	5020003		800	61550	9700	492400	77600
W	5020004	62	1178	61270	13950	721761	164331
			29187			17762265	3014565
	5030000						
	5030001	52	1576	16723	12368	263554	194920
	5030002	54	1092	6444	11800	28824	12862
	5030004	58	889	66633	9904	592367	88047
	5030005	62	658	52142	12751	343094	83902
			3232			1227839	379731
NG	5040000						
	5040001		14645	60197	11357	8815851	1663233
			14645			8815851	1663233
B	5060000						
B	5060001	58	5985	71074	13583	4253779	812943
B	5060002	56	1231	56856	11237	699897	138327
NG	5060003		142	67960	9970	96503	14157
			7358			5050179	965427
ETS	5070000						
	5070001		7539	67191	14152	5065529	1066919
			7539			5065529	1066919
	5080000						
	5080001	54	11615	40226	14021	4672250	1628539
	5080002	56	16400	53668	11056	8801552	1813184
	5080003	58	1836	61392	11024	1127157	202401
	5080004	62	47280	55432	14346	26208250	6782789
	5080005		195	68630	9920	133829	19344
			77326			40943038	10446257

AVRO AIRCRAFT LTD.
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WEIGHT AND C. OF G BY FUNCTIONAL COMPONENT

PROJECT _____

DESCRIPTION		REFERENCE NO.	COMP. NO.	WEIGHT
FLYING CONTROLS GROUP		6000000		
MECHANICAL CONTROLS		6010000		
60	MECHANICAL CONTROLS F F	6010001	52	106941
	MECHANICAL CONTROLS C F	6010002	54	12901
70	MECHANICAL CONTROLS FIN	6010005	83	124437
71	MECHANICAL CONTROLS I W	6010006	62	402347
80	MECHANICAL CONTROLS O W	6010007	64	305207
	MECHANICAL CONTROLS C A	6010008		6637
				95844
FLYING CONTROLS HYDRAULICS		6020000		
6	FLYING CONTROLS HYDR D B	6020001	56	32995
6	FLYING CONTROLS HYDR E B	6020002	58	390976
6	FLYING CONTROLS HYDR R F	6020003	59	347
73	FLYING CONT HYDRAULICS I W	6020004	62	279887
66	FLYING CONT HYDRAULICS O W	6020005	64	131707
72	FLYING CONT HYDRAULICS FIN	6020006	83	58207
6	FLYING CONTROLS HYDR F F	6020008	52	77131
6	FLYING CONTROLS HYDR C F	6020009	54	29817
				100102

RIGHT AND C. OF G BY FUNCTIONAL GROUP COMPONENT

REPORT NO. _____

SHEET _____

	REFERENCE NO.	COMP. NO.	WEIGHT	H. ARM	V. ARM	H. MOMENT	V. MOMENT
	6000000						
						UNCLASSIFIED NON CLASSIFIED	
	6010000						
F	6010001	52	10694	16454	11411	1759591	1220292
F	6010002	54	1290	39654	11727	511537	151278
I	6010005	83	12443	78819	22157	9807448	2756996
W	6010006	62	40234	71800	14382	28888012	5786454
W	6010007	64	30520	77053	13561	23516576	4138817
A	6010008		663	70984	14338	470624	95061
			95844			64953788	14148898
ULICS	6020000						
D B	6020001	56	3299	55757	10910	1839423	359921
E B	6020002	58	39097	64760	10982	25319217	4293633
R F	6020003	59	34	75440	10814	25650	3677
S I W	6020004	62	27988	70369	14716	19694876	4118714
S O W	6020005	64	13170	74034	13586	9750278	1789276
S FIN	6020006	83	5820	75988	20762	4422502	1208348
F F	6020008	52	7713	17716	10582	1366435	816190
C F	6020009	54	2981	37175	10879	1108187	324303
			100102			63526568	12914062

AVRO AIRCRAFT LTD.
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WEIGHT AND C. OF G BY FUNCTIONAL COMPONENTS

PROJECT _____

DESCRIPTION	REFERENCE NO.	COMP. No.	WEIGHT	H.
FIXED EQUIPMENT GROUP	7000000			
INSTRUMENTS	7010000			
INSTRUMENTS	7010001	52	3261	10
NAVIG TABLE AND STOWAGE	7010004	52	200	22
			3461	
COCKPIT SEALING	7020000	52	500	18
			500	
OXYGEN SYSTEM	7030000			
OXYGEN SYSTEM	7030001	52	2116	25
			2116	
AIR CONDITIONING SYSTEM	7040000			
28 AIRCONDITIONING F F	7040001	52	11239	21
28 AIRCONDITIONING C F	7040002	54	54842	28
28 AIRCONDITIONING D B	7040003	56	706	51
28 AIRCONDITIONING C A	7040005		25943	49
28 AIRCONDITIONING ENG	7040006		1503	67
28 AIRCONDITIONING I W	7040007	62	7152	
			94304	
HYDRAULICS MAIN SYSTEM	7050000			
28 UTILITY HYDRAULICS F F	7050001	52	9602	20
3 UTILITY HYDRAULICS C F	7050002	54	5068	42
19 UTILITY HYDRAULICS D B	7050003	56	21795	54
67 UTILITY HYDRAULICS E B	7050004	58	11075	60
30 UTILITY HYDRAULICS I W	7050005	62	14441	55
28 UTILITY HYDR NOSE U C	7050006	91	114	18
30 UTILITY HYDR MAIN U C	7050007	92	2980	54
ANTI SKID SYSTEM C F	7050008	54	3134	47
ANTI SKID SYSTEM MUC	7050009	92	634	51
			68843	
MUC DOOR STOPS	7060000	56	302	51
			302	
CABIN INSULATION	7070000	52	1431	18
			1431	

EIGHT AND C. OF G BY FUNCTIONAL GROUP COMPONENT

REPORT NO. _____

SHEET _____

	REFERENCE NO.	COMP. NO.	WEIGHT	H. ARM	V. ARM	H. MOMENT	V. MOMENT
	7000000						
						UNCLASSIFIED NON CLASSIFIED	
	7010000						
GE	7010001	52	3261	16430	13947	535782	454812
	7010004	52	200	22000	13000	44000	26000
			3461			579782	480812
	7020000	52	500	18600	13000	93000	65000
			500			93000	65000
	7030000						
	7030001	52	2116	25940	15688	548890	331958
			2116			548890	331958
EM	7040000						
	7040001	52	11239	21908	11931	2462240	1340925
	7040002	54	54842	28852	13572	15823014	7443156
	7040003	56	706	51474	12263	363406	86577
	7040005		25943	49430	14108	12823625	3660038
	7040006		1503	67100	14000	1008513	210420
	7040007	62	715	2247	15728	37095	11167
			94304			32517893	12752283
M	7050000						
F	7050001	52	9602	20241	10816	1943541	1038552
F	7050002	54	5068	42772	10325	2167685	523271
R	7050003	56	21795	54920	10950	11969814	2386553
B	7050004	58	11075	60747	11152	6727730	1235084
W	7050005	62	14441	55240	14254	7977208	2058420
	7050006	91	114	18860	9320	21500	10625
	7050007	92	2980	54325	14100	1618885	420180
	7050008	54	3134	47200	10800	1479248	338472
	7050009	92	634	51500	14000	326510	88760
			68843			34232121	8099917
	7060000	56	302	51600	12000	155832	36240
			302			155832	36240
	7070000	52	1431	18748	13200	268284	188892
			1431			268284	188892

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**WEIGHT AND C. OF G BY FUNCTIONAL
COMPONENT**

PROJECT _____

DESCRIPTION		REFERENCE NO.	COMP. NO.	WEIGHT	H.
	BRAKE PARACHUTE	70800000			
83	BRAKE PARACHUTE F F	70800001	52	47915	
83	BRAKE PARACHUTE R F	70800005	59	90188	
83	BRAKE PARACHUTE I W	70800006	62	12961	
				9626	
	ELECTRICAL SYSTEM	70900000			
	ELECTRICAL WIRING R N	70900001	51	1299	
	ELECTRICAL WIRING F F	70900002	52	296619	
	ELECTRICAL WIRING C F	70900003	54	235439	
	ELECTRICAL WIRING A I	70900004	55	127421	
	ELECTRICAL WIRING D B	70900005	56	901552	
	ELECTRICAL WIRING E B	70900006	58	6459	
	ELECTRICAL WIRING I W	70900008	62	923653	
	ELECTRICAL WIRING FIN	70900009	83	35279	
	ELECTRICAL WIRING NUC	70900010	91	33018	
	ELECTRICAL WIRING ENG	70900011		200260	
	ELECTRICAL WIRING C A	70900012		1374633	
	ELECTRICS F F	70900013	52	1642915	
	ELECTRICS C F	70900014	54	863645	
	ELECTRICS E B	70900015	58	111761	
	ELECTRICS ENG	70900016		1755458	
	ELECTRICS C A	70900017		80261	
	ELECTRICS FIN	70900018	83	4489	
	ELECTRICS I W	70900019	62	227562	
	ELECTRICS CAW	70900020		12067	
	ELECTRICS MUC	70900021	92	7451	
	ELECTRICS A I	70900022	55	490622	
	ELECTRICS D B	70900023	56	2546851	
	ELECTRICS R F	70900024	59	17680	
	WINDSCREEN DEMISTING	70900025	52	349019	
				122559	
	L P PNEUMATICS	71000000			
	L P PNEUMATICS F F	71000001	52	199319	
	L P PNEUMATICS C F	71000002	54	79632	
	L P PNEUMATICS FIN	71000005	83	41474	
	L P PNEUMATICS R N	71000006	51	1997	
	L P PNEUMATICS ENG	71000008		140363	
	L P PNEUMATICS I W	71000009	62	20352	
				5008	
	INTAKE DE ICING	71200000	55	880019	
				8800	
	RADIO AND RADAR FIXED	71400000			

RIGHT AND C. OF G BY FUNCTIONAL GROUP COMPONENT

REPORT NO. _____

SHEET _____

REFERENCE NO.	COMP. No.	WEIGHT	H. ARM	V. ARM	H. MOMENT	V. MOMENT
70800000						
70800001	52	479	15664	12903	75031	61805
70800005	59	90188	2187	14401	7411624	1298682
70800006	62	12961	1969	14200	79940	18318
		9626			7566595	1378805
70900000						
70900001	51	129	9285	12000	11978	15480
70900002	52	2966	19977	11200	592518	332192
70900003	54	2354	39703	11000	934609	258940
70900004	55	1274	21984	12000	280076	152880
70900005	56	9015	52769	9921	4757125	894378
70900006	58	64	59500	9200	38080	5888
70900008	62	9236	53995	13900	4986978	1283804
70900009	83	352	79754	30000	280734	105600
70900010	91	330	18600	9800	61380	32340
70900011		2002	60683	10000	1214874	200200
70900012		13746	33473	11234	4601199	1544226
70900013	52	16429	15547	10538	2554217	1731288
70900014	54	8636	45193	10767	3902867	929838
70900015	58	1117	61545	10765	687458	120245
70900016		17554	58649	11604	10295245	2036966
70900017		802	61350	11591	492027	92960
70900018	83	448	9050	28840	39182	12690
70900019	62	2275	62053	14500	1411706	329875
70900020		120	67488	13661	80986	16393
70900021	92	74	51600	13700	38184	10138
70900022	55	4906	22092	13988	1083834	686251
70900023	56	25468	51847	10244	13204394	2608942
70900024	59	176	80759	11687	142136	20569
70900025	52	3490	19954	10638	696395	371266
		122559			52388182	13793349
71000000						
71000001	52	1993	19586	12209	390349	243325
71000002	54	796	32397	11610	257880	92416
71000005	83	414	74966	25234	310359	104469
71000006	51	199	7067	9261	14063	18429
71000008		1403	63897	9987	896475	140118
71000009	62	203	52880	15930	107346	32338
		5008			1976472	631095
71200000						
71200000	55	8800	19582	11800	1723216	1038400
		8800			1723216	1038400
71400000						

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WEIGHT AND C. OF G BY FUNCTIONAL COMPONENT

PROJECT _____

DESCRIPTION	REFERENCE NO.	COMP. NO.	WEIGHT	H
RADIO AND RADAR FIXED R N	71400001	51	500	
RADIO AND RADAR FIXED F F	71400002	52	21501	1
RADIO AND RADAR FIXED C F	71400003	54	8400	2
RADIO AND RADAR FIXED F I N	71400005	83	3200	7
RADIO AND RADAR FIXED C A	71400006		22500	2
RADIO AND RADAR FIXED I W	71400007	62	1808	5
			57909	
60 CANOPY ACTUATION	71600000	52	6352	2
			6352	
CABIN CONSOLES	71700000	52	1768	1
			1768	
RADAR DOOR ACTUATION	71800000	54	1000	2
			1000	
SURFACE FINISH R N	71900001	51	246	
SURFACE FINISH F F	71900002	52	363	1
SURFACE FINISH CANOPY	71900003	53	64	2
SURFACE FINISH C F	71900004	54	928	3
SURFACE FINISH INTAKES	71900005	55	408	2
SURFACE FINISH O B	71900006	56	349	5
SURFACE FINISH E B	71900007	58	443	6
SURFACE FINISH R F	71900008	59	402	7
SURFACE FINISH I W	71900009	62	315	1
SURFACE FINISH O W	71900010	64	106	7
SURFACE FINISH O W L EDGE	71900011	65	319	6
SURFACE FINISH DIVE BRAKES	71900012	72	285	6
SURFACE FINISH AILERON	71900013	74	353	7
SURFACE FINISH ELEVATOR	71900014	82	566	7
SURFACE FINISH FIN	71900015	83	639	7
SURFACE FINISH RUDDER	71900016	84	202	8
SURFACE FINISH ARM PACK	71900017	94	472	3
			10000	

EIGHT AND C. OF G BY FUNCTIONAL GROUP COMPONENT

REPORT NO. _____

SHEET _____

	REFERENCE NO.	COMP. NO.	WEIGHT	H. ARM	V. ARM	H. MOMENT	V. MOMENT
R N	7140001	51	500	8000	10000	40000	50000
F F	7140002	52	21501	18728	11277	4026707	2424668
C F	7140003	54	8400	26471	10015	2223564	841260
F IN	7140005	83	3200	76180	24600	2437760	787200
C A	7140006		22500	22200	12000	4995000	2700000
I W	7140007	62	1808	54513	16000	985595	289280
			57909			14708626	7092408
	7160000	52	6352	20961	15434	1331443	980368
			6352			1331443	980368
	7170000	52	1768	17529	12449	309913	220098
			1768			309913	220098
	7180000	54	1000	26800	9500	268000	95000
			1000			268000	95000
	7190001	51	246	8720	11264	21451	27709
	7190002	52	363	18744	12200	68041	44286
	7190003	53	642	20218	15900	12940	10176
S	7190004	54	928	36356	13907	337384	129057
	7190005	55	408	22798	12020	93016	49042
	7190006	56	349	54064	11373	188683	39692
	7190007	58	443	66701	11200	295485	49616
	7190008	59	402	77722	12770	312442	51335
	7190009	62	315	160144	14400	1895137	453744
EDGE	7190010	64	1067	70650	13590	753836	145005
RAKES	7190011	65	319	63948	13526	203994	43148
N	7190012	72	285	50884	9048	14248	2533
OR	7190013	74	353	79190	13556	279541	47853
	7190014	82	566	75523	14260	427460	80712
	7190015	83	639	74663	20837	477097	133148
CK	7190016	84	202	81279	21431	164184	43291
	7190017	94	472	38850	9600	183372	45312
			10000			5728311	1395659

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WEIGHT AND C. OF G BY FUNCTIONAL
COMPONENT

PROJECT _____

DESCRIPTION	REFERENCE NO.	COMP. NO.	WEIGHT	H.
REMOVABLE EQUIPMENT GROUP	8000000			
94 EJECTOR SEATS	8010100	52	34294	20
			34294	
RADIO AND RADAR REMOVABLE	8020100			
RADIO AND RADAR REM R N	8020101	51	97610	7
RADIO AND RADAR REM F F	8020102	52	43610	23
RADIO AND RADAR REM C F	8020103	54	61650	27
RADIO AND RADAR REM I W	8020108	62	40005	55
			206870	
DAMPING SYSTEM	8030000			
DAMPING SYSTEM F F	8030101	52	78417	
DAMPING SYSTEM C F	8030102	54	24733	31
DAMPING SYSTEM E B	8030103	58	36963	
DAMPING SYSTEM I W	8030104	62	60705	53
DAMPING SYSTEM O W	8030105	64	9574	
DAMPING SYSTEM R N	8030106	51	287	7
DAMPING SYSTEM C A	8030107		85644	7
DAMPING SYSTEM D B	8030108	56	10005	53
			19642	
MISSILE PACK	8050000			
MISSILE PACK STRUCTURE	8050100	94	76025	38
			76025	
MISSILE PACK MECHANISMS	8050200	94	60500	37
			60500	
MISSILE PACK HYDRAULICS	8050300	94	22061	41
			22061	
MISSILE PACK ELECTRICS	8050400	94	10800	36
			10800	

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GROUP	REFERENCE NO.	COMP. NO.	WEIGHT	H. ARM	V. ARM	H. MOMENT	V. MOMENT	
	8000000							
	8010100	52	34294	20450	13411	7013123	4599168	
			34294			7013123	4599168	
ABLE	8020100							
R N	8020101	51	97610	7835	10098	7647744	9856658	
F F	8020102	52	43610	23463	11131	10232214	4854229	
C F	8020103	54	61650	27296	10191	16827984	6282752	
I W	8020108	62	4000	55200	16000	2208000	640000	
			206870			36915942	21633639	
	8030000							
	8030101	52	784	17201	12047	134856	94448	
	8030102	54	2473	31766	10860	785573	268568	
	8030103	58	3696	3242	13432	233363	49564	
	8030104	62	6070	53781	15720	3264507	954204	
	8030105	64	957	4855	14000	71112	13300	
	8030106	51	287	7350	9340	21095	26806	
	8030107		8564	47972	12893	4108322	1104157	
	8030108	56	1000	53800	13000	538000	130000	
			19642			9156828	2641047	
	8050000							
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E	8050100	94	76025	38933	9873	29598813	7505948	
			76025			29598813	7505948	
MS	8050200	94	60500	37992	9433	22985160	5706965	
			60500			22985160	5706965	
CS	8050300	94	22061	41834	10032	9228999	2213160	
			22061			9228999	2213160	
S	8050400	94	10800	36700	10100	3963600	1090800	
			10800			3963600	1090800	

EIGHT AND C. OF G BY FUNCTIONAL GROUP COMPONENT

REPORT NO. _____

SHEET _____

	REFERENCE NO.	COMP. No.	WEIGHT	H. ARM	V. ARM	H. MOMENT	V. MOMENT
CS	805050094		2445	38692	10350	946019	253058
			2445			946019	253058
ITEM	805060094		1433	46700	9000	669211	128970
			1433			669211	128970
Y	806000094		20567	36796	9972	7567833	2050941
			20567			7567833	2050941
NG	807000094		521	30550	10250	159166	53403
			521			159166	53403
	808000052		600	18750	14500	112500	87000
			600			112500	87000

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WEIGHT AND C. OF G BY FUNCTIONAL GROUP COMPONENT

REPORT NO. _____

SHEET _____

REFERENCE NO.	COMP. No.	WEIGHT	H. ARM	V. ARM	H. MOMENT	V. MOMENT
9000000						
9010000	52	39000	19400	13650	7566000	5323500
		39000			7566000	5323500
9020000						
9020001		9290	64000	11940	5945600	1109226
9020002	58	4110	65640	9769	2697804	401506
9020003	56	753	58176	9677	438065	72868
9020004	58	2047	61512	10398	1259151	212847
		16200			10340620	1796447
9030000	94	142040	37849	9729	53760720	13819072
		142040			53760720	13819072
9050000						
9050001	52	7220	493	13200	14755	9504
9050002	54	1267	26280	16150	332968	204621
		1339			347723	214125
9060000						
		2500	73000	12900	1825000	322500
		2500			1825000	322500
9080000						
9080001	54	2430	41426	13106	1006652	318476
9080002	56	690	49400	13350	340860	92115
9080003	62	18260	56814	14353	10374236	2620858
		21380			11721748	3031449
9100000						
9100000	54	20000	26800	13200	5360000	2640000
9100001	54	2500	26700	12700	667500	317500
		22500			6027500	2957500

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