

QcX  
Avro  
CF105  
R-7-0400-44  
Iss-7

FILE IN VAULT

C-105 MK II      Rev. 7-0100-44  
**UNCLASSIFIED**  
**NONCLASSIFIED**  
WEIGHT SUMMARY      FIG. POSITION 38  
R.C.A.F.      July 1/57

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

has been

downgraded to: \_\_\_\_\_

de-classified

by (Name): Michel W. Drapeau

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

Date: Dec. 7, 1992

R. Anon  
Signature

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Report # 7-0400-44 Issue 7

Date: July 1st, 1957

C-105 MK 1 WITH J75 P3 ENGINES 1st AIRCRAFT

I N D E X

<u>Sheet #</u>	<u>Content</u>
1-1 to 1-4	Introductory notes and explanations of Weight Changes.
2-1 to 2-2	Weight and C.G. Summaries.
3-1	Horizontal C.G. Envelopes for Flight Conditions with fuel proportioners used.
3-2	Horizontal C.G. Envelope for Flight Conditions with fuel sequencing for C.G. control used.
4-1 to 4-15	I.B.M. detail sheets of weight and C.G.'s.

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*confirmed as*  
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: DSAS 3, Secretary CRAD HQ DRP



47895

Aircraft: C-105 MK 1 with  
J75 P3 Engines  
1st Aircraft

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INTRODUCTION & WEIGHT CHANGES

The following is a Weight and C.G. Summary for the 1st C-105 Aircraft, with J75 P3 Engines, based on the latest weight estimates currently available. All Weight and C.G. changes are relative to Issue 6 of June 1st, 1957.

Note: - This summary does not apply for the 2nd and subsequent MK 1 Aircraft - see context below.

GENERAL

- a) Pratt & Whitney J75 P3 Engines comprise the Power Plant for the 1st Aircraft. J75 P5 Engines, which are partially redesigned versions of the P3 Engines are to be installed on the 2nd and subsequent MK 1 Aircraft.  
(J75 P3 Engines = 6,175 lb. each: J75 P5 Engines = 5,950 lb. each.)
- b) An Instrument Package carrying Flight Test Instrumentation is installed, this also varies between packs 1 to 3 and those for 4th and 5th Aircraft. Information based on Flight Test Layout of June 18/57.  
A relatively detailed estimate of other Flight Test Installations throughout the Aircraft has been made. Twin shielded wire at 27 lb/1000 ft. is used, there being approximately 250 monitored points.. These installations amount to 1,323 lb (figure partially confirmed by actual weights of cable assys.)
- c) Emergency lowering for the Undercarriages and additional fire protection, to be installed on the 1st Aircraft, are allowed for in this summary. There is as yet, no provision to jettison any or all of the Instrument package in an emergency.
- d) An Interim Radio and Radar System is installed.
- e) It should be noted that due to material substitutions and concessions introduced by Planning or Production departments there is a weight penalty, to date, to the structure of 203 lb. This is all recorded in the structural weight breakdown. No account has been taken of variations on machinings etc. nor of shop repair schemes, since it is impossible to assess these, except where actual weights have been obtained.
- f) Pending Flight Test requirements a "Buzz Damping" system may be installed on the first Aircraft. Provisions for this installation are already included in the Structural Group as modifications to the Control Boxes. For the first flights the Control Surfaces will be unmodified, however, if the need for Dampers is proven a modified set of Control Surfaces will be made available. The following weight penalties ensue:-

Ailerons	+11.68 lb/A/C
Elevators	+11.07 lb/A/C
Rudder	+ 8.50 lb
Equipment & Inst.	+125.17 lb
	<hr/>
	+156.42 lb

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INTRODUCTION & WEIGHT CHANGES

- g) A considerable number of Actual Weights have now been obtained. Structural weights are showing very insignificant deviations from the calculated weights, but equipment shows a consistent increase averaging about 11% over manufacturers quotations or Specification Weights. Preceding the report titles on the I.B.M. tabulation sheets, will be found a number varying from 0 to 100, this is the percentage actual weight recorded within the report.

A summary of actual weights obtained so far is as follows: -

Structure	-	42.30%	Actual Weight	
Undercarriage	-	70.07%	"	"
Power Plant	-	4.80%	"	"
Flying Controls	-	23.28%	"	"
Equipment		-17.02%	"	"

i.e. 26.53% of the Basic Weight of the Aircraft.

- h) The Aircraft is ballasted such that the C.G. on a flight Envelope does not travel aft. of 31% M.A.C.

1. STRUCTURE

a) Wing:

	<u>WEIGHT (lb)</u>
I/W Fuselage Hinge Joint - Actual wts of most hinges	- 11.84
I/W Centre Trailing Edge - Actual wts of beams # 1 to 6, skins, panels, extrusions etc.	+ 0.74
I/W Strut. Pick-up Fittings - over 70% actual weights	- 0.31
Elevator Control Box - Actual Weights of ribs, spars, etc.	+ 1.21
<u>WEIGHT DECREASE WING</u>	<u>- 10.20</u>

b) Fin & Rudder

No WEIGHT CHANGE

c) Fuselage fwd. Sta 255 ins.

Pilot's Canopy - .04 AI Inner Skin replaces .051 Mg. Skin due to forming difficulties	+ 0.73
Top Longerons - Actual Weights of fitting etc.	+ 0.78
<u>FWD. FUSELAGE INCREASE</u>	<u>+ 1.51</u>

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INTRODUCTION & WEIGHT CHANGES

d) Centre Fuselage Sta. 255 - 485"

Formers - miscellaneous prod. dry changes +0.38  
Skin - repair scheme at Stringer # 11 aft end +1.34  
Bulkhead Sta. 485 - minor equip. bracketry added +1.16  
CENTRE FUSELAGE INCREASE +2.88

A Centre Fuselage less dorsal fairings and structure below the lower longerons was weighed. After allowing for shortages and equipment installed, the actual weight checked to within 0.2% of the estimate. Consequently all structural parts included in that section weighed are considered 100% Actual Weight.

e) Duct Bay Sta. 485 - 591.65

NO WEIGHT CHANGE

f) Engine Bay Sta. 591.65 - 742.5

NO WEIGHT CHANGE

g) Rear Fuselage Sta 742.5 aft

Rudder Fairing - Actual Weight of parabrake socket +0.06  
Actual Weight of Upper I/B Longeron +0.04  
REAR FUSELAGE INCREASE +0.10

TOTAL STRUCTURAL DECREASE -5.71

2. LANDING GEAR

Main U/C Doors - Actual Weights of 25% of parts -0.88  
TOTAL LANDING GEAR INCREASE -0.88

3. POWER PLANT & SERVICES

Fuel System - general production drawing changes,  
actual weights of some equipment etc. +10.00  
TOTAL POWER PLANT INCREASE +10.00

4. FLYING CONTROLS GROUP

NO WEIGHT CHANGE

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Aircraft: C-105 MK 1 With  
J75 P3 Engines  
1st Aircraft.

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INTRODUCTION & WEIGHT CHANGES

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5. EQUIPMENT GROUP

Instrument Pack Structure - proposed addition of access panels	+ 2.00
Pack Instrumentation - revised estimate by Flight Test	+689.00
allowance for pack ejection deleted	-100.00
Flight Test Installations - previously an allowance of 710 lb was carried. Sufficient data has since become available to make a reasonable weight estimate - in some cases cable assys. were weighed - all estimates based on incomplete data have the concurrence of Flight Test.	+612.37
<u>TOTAL EQUIPMENT INCREASE</u>	<u>+1203.37</u>

SUMMARY

Weight Change - Aircraft Weight Empty

Structure	- 5.71
Landing Gear	- 0.88
Power Plant	+ 10.00
Equipment	+1,203.37
	<u>1,206.78</u>

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

<u>Issue 6</u>	<u>Issue 7 *</u>	
45,201.25	47,408.03	<u>+ 1,206.78 lb</u>

N.B.\* A/C in UNBALLASTED Condition. If ballasted such that aft. C.G. does not exceed 31% MAC a further 1,004 lb. of ballast are necessary.

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Aircraft: C-105 MK 1 with  
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WEIGHT & C.G. SUMMARY

<u>Description</u>	<u>WEIGHT</u> <u>lb.</u>	<u>H. ARM</u> <u>ins.</u>	<u>V. ARM</u> <u>ins.</u>
STRUCTURE	18,495.53	561.90	137.59
Wings.	9,965.10	642.93	142.25
Fin & Rudder	1,025.85	754.34	209.31
Fuselage fwd. Sta. 255"	2,617.01	181.50	128.15
Sta. 255"-485"	1,650.12	379.76	130.80
Sta. 485"-591.65"	997.30	533.97	104.59
Sta. 591.65"-742.5"	1,418.18	660.80	107.30
Sta. 742.5 Aft.	769.39	800.60	129.11
" Marry Up "	52.58	468.91	103.89
UNDERCARRIAGE RETRACTED	2,608.89	488.46	134.94
Main Undercarriages	1,959.62	539.48	141.00
Main U/C Doors & Fairings	290.92	536.83	138.49
Nose Undercarriage	333.81	170.81	99.70
Nose U/C Door & Fairing	24.54	162.24	88.23
POWER PLANT & SERVICES	14,320.35	653.01	120.25
Engines & Accessories J75 P3	12,560.22	664.92	119.78
Gear Box Installation on Fuselage	275.54	601.39	102.98
Gear Boxes & Starters on Engine	259.65	591.55	104.52
Engine Controls	32.43	375.76	118.62
Engine Nose Bullets	71.01	562.74	115.07
Fire Extinguishing System	70.46	702.44	134.83
Engine Mountings	203.64	609.88	123.63
Fuel System	847.40	536.57	136.16
FLYING CONTROLS GROUP	1,827.07	686.88	140.02
Mechanical Flying Controls	946.48	687.84	148.61
Hydraulic Flying Controls	880.59	685.84	130.78
EQUIPMENT FIXED & REMOVABLE	9,173.17	402.30	110.21
Instruments	46.07	163.68	138.70
Probe	18.50	- 40.00	108.00
Cockpit Pressure Sealing	5.00	186.00	130.00
Oxygen System	23.59	253.72	156.43
Air Conditioning System	794.82	336.05	134.34
Surface Finish	100.00	591.52	140.20
Hydraulics Main System	609.09	500.86	117.57
Cabin Insulation	14.31	187.48	132.00
Brake Parachute	62.38	769.41	143.24
Electrical System	1,117.89	417.17	112.83
Low Pressure Pneumatics	53.15	427.62	124.55
Intake De-Icing Boots	51.84	197.02	118.00
Canopy Actuation	62.05	222.11	154.47
Cabin Consoles	17.45	174.76	124.34
Ejector Seats	284.42	202.80	136.25

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Aircraft: C-105 MK 1 with  
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WEIGHT & C.G. SUMMARY

Description	WEIGHT lb.	H. ARM ins.	V. ARM ins.	M.A.C. %
Interim Radio & Radar	690.98	322.67	123.64	
Radome Anti-Icing	8.88	51.49	125.00	
Instrument Pack Structure	686.80	385.81	94.68	
Pack Instrumentation 1st A/C	3,036.00	395.45	95.00	
Flight Test Installations	1,322.87	499.20	112.01	
Additional Fire Protection 1st A/C	154.17	425.05	102.89	
Emergency Landing Gear Lowering	12.91	458.83	128.60	
AIRCRAFT BASIC WEIGHT	46,425.01	559.26	126.78	
USEFUL LOAD (LESS FUEL)	983.02	353.44	132.63	
Crew	430.00	194.00	136.50	
Oil	134.23	608.92	115.68	
Alcohol - radome de-icing	22.00	93.00	138.00	
Engine Fire Ext. Fluid	25.00	730.00	129.00	
Residual Fuel	218.40	553.98	134.04	
Oxygen Charge	13.39	259.69	159.91	
Water for Air Conditioning	140.00	268.00	132.00	
BALLAST	1,004.00	86.97	116.5	
Operational Wt. Empty	48,412.03	545.28	126.69	30.19
U/C Up				
U/C Down		547.30	123.34	30.74
Maximum Internal Fuel (2,544 gals. @ 7.8 lb/gal.)	19,843.00	538.88	144.32	
A.U.W. maximum Int. Fuel	68,255.03	543.42	131.82	29.67
U/C Up				
U/C Down		544.85	129.44	30.07

- N.B. 1) A/C Datum is considered to be 120 ins. above an arbitrarily chosen ground line.
- 2) The above figures are for the Aircraft in the BALLASTED condition such that the aft. C.G. on the Horizontal C.G. Flight Envelope does not exceed 31% M.A.C. i.e. 303 lb on Former Sta. 68.5 and 701 lb on the Shear Panel.

SECRET

BY: Kathleen Jaffee

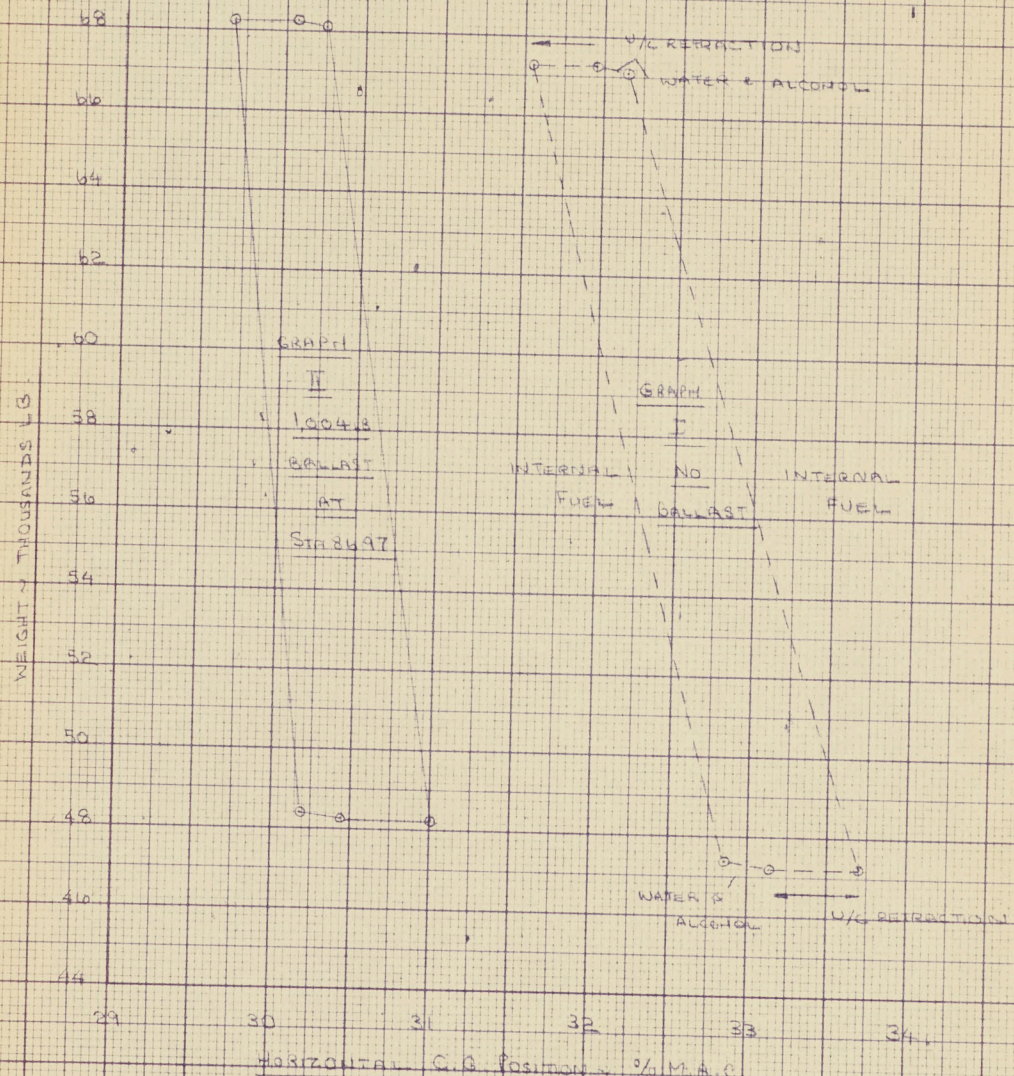
DATE: July 15, 1957

SHEET: 3-1

HORIZONTAL C.G. ENVELOPE

305 MK I A/C FLIGHT CONDITIONS  
WITH J75B3 ENGINES (2ND & SUBSEQUENT A/C STEPS)

- 1) INTERIM RADIO & RADAR
- 2) INSTRUMENT PACK & FLIGHT TEST INSTALLATIONS
- 3) FUEL SYSTEM PROPORTIONERS



G9-12  
10 X 10 TO THE 3/8 INCH  
MADE IN CANADA

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REPORT NO. 7-0600-44-7

BY: Kathleen Myjga

DATE: July 15, 57

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HORIZONTAL C.G. ENVELOPE

CROSS KEY 1ST A/C FLIGHT CONDITIONS

WITH

PROPOSED FUEL SYSTEM SEQUENCING

SEQUENCING ORDER: (by PLUM, IEL)

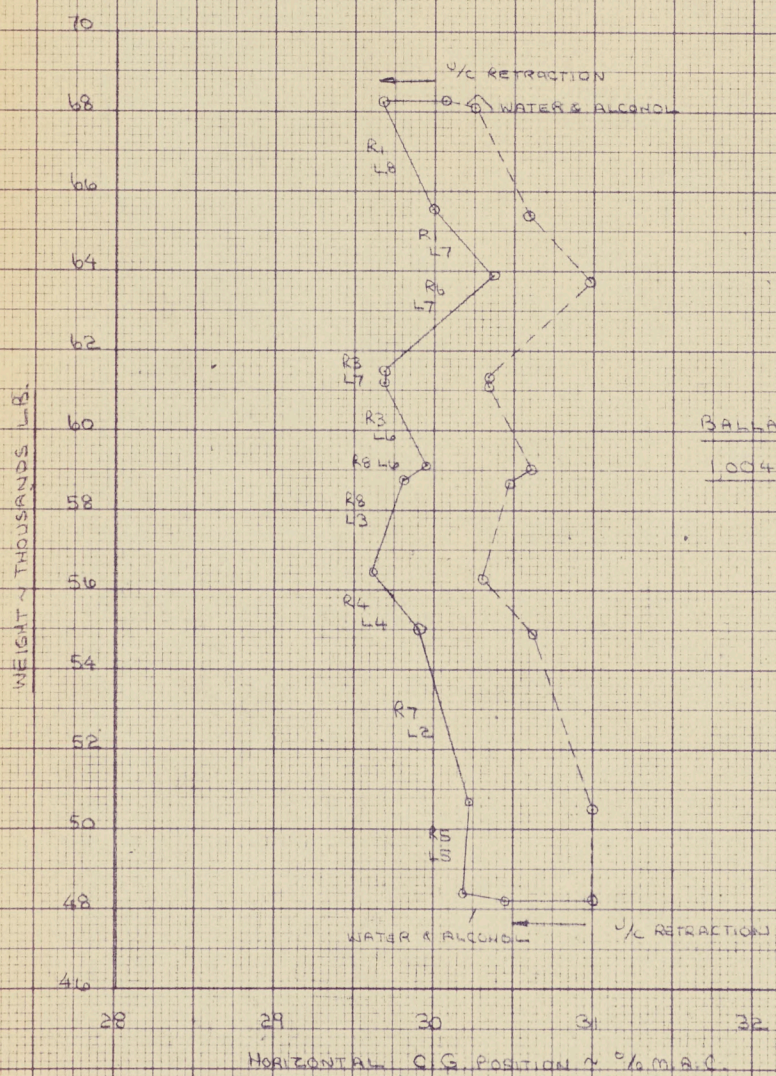
R.H.S. ~ 1, 6, 3, 2, 4, 7, 5 (NOTED R1, R6 etc)

L.H.S. ~ 8, 7, 4, 3, 4, 2, 5 (NOTED L8, L7 etc)

KEY:

----- 1/2 EXTENDED

————— 1/2 RETRACTED



BALLAST INSTALLED  
1004 LB AT Sta 86.97 IN/S

G9-12  
10 X 10 TO THE 1/8 INCH  
MADE IN CANADA

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AVRO AIRCRAFT LTD.

MALTON, ONT.

WEIGHT AND C. OF G BY FUNCTIONAL COMPONENT

PROJECT C-105 MK 1

DESCRIPTION		REFERENCE NO.	COMP. NO.	WEIGHT	H.
TOTAL WING GROUP		10000000			
OUTER WING		10100000			
100	OUTER WING SKINS	10100001	64	929	1070
100	POSTS AND INTERCOSTALS	10100002	64	24	3673
100	OUTER WING SPARS	10100003	64	392	5870
100	OUTER WING RIBS	10100004	64	134	5669
18	AILERON CONTROL BOX	10100006	64	379	2077
100	RIB 12	10100007	64	76	2664
100	O W AILERON JACK FITTING	10100009	64	10	4672
	AILERON JOINTS AND FAIRING	10100010		329	378
	BUZZ DAMP STRUC PROV O W	10100011	64	8	0075
				1987	45
AILERON		10200000			
100	AILERON STRUCTURE	10200001	74	336	0079
				336	00
97	ELEVATOR	10300000	82	449	0075
97	ELEVATOR MARRY UP	10300000		159	773
				464	97
INNER WING		10400000			
79	MAIN U C STRUCTURE	10400001	62	330	7157
51	FRONT SPAR I W	10400002	62	111	1048
51	MAIN SPAR I W	10400003	62	151	0656
51	FWD CENTRE SPAR I W	10400004	62	53	6460
51	AFT CENTRE SPAR I W	10400005	62	36	6665
51	REAR SPAR I W	10400006	62	76	6770
32	I W STRUCTURE F S TO M S	10400007	62	1059	1849
64	I W STRUCTURE M S TO R S	10400008	62	149	7960
74	STRUCTURE AFT OF REAR SPAR	10400009	62	323	8671
40	ELEVATOR CONTROL BOX	10400010	62	428	3872
25	TRANSP JOINT MARRY UP	10400011		70	6563
72	CENTRE LINE JOINTS	10400012	62	634	7166
46	INNER WING SKINS	10400013	62	2190	3862
72	STRUT PICK UP FITTINGS	10400014	62	539	156
31	RIBS 1 TO 9 INNER WING	10400016	62	512	0461
	DORSAL FAIRINGS I W	10400017	62		9548
100	RIB 10	10400018	62	108	0063
49	FUSELAGE HINGE JOINT I W	10400019	62	126	2861
25	TRANSP JOINT	10400020	62	129	4263
49	FUSELAGE HINGE JOINT	10400021		37	4052
	BUZZ DAMP STRUC PROV I W	10400022	62	5	5274
	DORSAL FAIRINGS	10400023		56	2957
				664	660

EIGHT AND C. OF G BY FUNCTIONAL GROUP COMPONENT

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	REFERENCE NO.	COMP. NO.	WEIGHT	H. ARM	V. ARM	H. MOMENT	V. MOMENT
	10000000						
	10100000						
	10100001	64	9291070646	13597		65637199	12632973
S	10100002	64	243673207	13410		1783323	326668
	10100003	64	3925870118	13636		27526924	5353221
	10100004	64	1345669506	13650		9352727	1836744
	10100006	64	3792077409	13508		29353493	5122234
	10100007	64	762664873	13832		4947215	1054828
TING	10100009	64	104672791	13670		761394	142988
AIRING	10100010		329378726	13224		2592447	435466
O W	10100011	64	80075828	13680		606624	109440
			198745			142561346	27014562
	10200000						
	10200001	74	3360079213	13556		26615568	4554816
			33600			26615568	4554816
	10300000	82	4490075523	14260		33909827	6402740
	10300000		159773810	14260		1178746	227732
			46497			35088573	6630472
	10400000						
	10400001	62	3307157757	13983		19100817	4624318
	10400002	62	1111048428	14260		5380351	1584286
	10400003	62	1510656570	14280		8545464	2157137
	10400004	62	536460098	14415		3223657	773221
	10400005	62	366665492	14450		2400937	529737
	10400006	62	766770374	14420		5395575	1105581
M S	10400007	62	10591849929	14405		52883798	15257488
R S	10400008	62	1497960964	14572		9131798	2182740
R SPAR	10400009	62	3238671826	15020		23261568	4864377
	10400010	62	4283872470	14328		31044699	6137829
	10400011		706563621	13876		4494824	980339
	10400012	62	6347166222	15046		42031766	9549847
	10400013	62	21903862446	14464		136780469	31681656
S	10400014	62	539156766	14330		3060255	772530
G	10400016	62	5120461287	14499		31381395	7424068
	10400017	62	9548280	16150		45866	15343
	10400018	62	1080063683	13835		6877764	1494180
I W	10400019	62	1262861651	13811		7789077	1744053
	10400020	62	1294263071	13710		8162649	1774348
	10400021		374052796	14309		1974570	535157
I W	10400022	62	55274150	14200		409308	78384
	10400023		562957249	16026		3222546	902104
			664660			406599153	96168723







EIGHT AND C. OF G BY FUNCTIONAL GROUP COMPONENT

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	REFERENCE NO.	COMP. NO.	WEIGHT	H. ARM	V. ARM	H. MOMENT	V. MOMENT
FIN	201000083		85170	74957	21170	63840877	18030489
	201000183		18580300	22342		148555	41333
	2010002		483068538	15355		3310385	741647
			90185			67299817	18813469
	202000084		12400	81325	21438	10084300	2658312
			12400			10084300	2658312

PROJECT \_\_\_\_\_

DESCRIPTION		REFERENCE NO.	COMP. NO.	WEIGHT
TOTAL FUSELAGE GROUP		3000000		
FUSELAGE BASIC STRUCTURE		3010000		
	RADOME	3010001	51	177.28
	RADAR NOSE ACCESS DOORS	3010002	51	80.02
	RADAR NOSE STRUCTURE	3010003	51	122.25
	SKIN F F	3010004	52	109.49
88	SKIN C F	3010005	54	211.82
	SKIN D B	3010006	56	58.80
3	SKINS E B	3010007	58	175.73
4	FORMERS F F	3010011	52	105.31
100	FORMERS C F	3010012	54	278.24
	FORMER D B	3010013	56	74.57
	LIGHT FORMERS E B	3010014	58	135.01
13	HEAVY FORMERS F B	3010015	58	212.81
	LOWER LONGERONS F F	3010016	52	68.46
	LONGITUDINAL MEMBERS E B	3010017	58	110.66
	LONGERON E B	3010018	58	69.05
	TOP LONGERONS E B	3010019	58	6.38
	LOWER SHEAR PANEL	3010020	52	29.88
	TOP WING LONGERONS D B	3010021	56	49.88
	LONGERONS C F	3010022	52	5.53
	LONGERONS C F	3010023	54	138.13
43	LONGERONS F D B	3010024	54	12.58
43	LONGERONS A D B	3010025	56	22.55
	ELECTRONICS BAY STRUCTURE	3010026	54	35.70
59	LONGITUDINAL BEAMS D B	3010027	56	65.70
	RADAR ACCESS DOOR C F	3010028	54	21.08
72	MAIN FRAME AT STN 538 77	3010029	56	59.80
	DIVE BRAKE ACCOM STRUCTURE	3010030	56	36.34
30	TOP LONGERONS F F	3010031	52	186.49
100	DUCT C F	3010032	54	332.86
	DUCT D B	3010033	56	315.04
	CANOPY ARCHES	3010034	52	85.35
4	ACCESS PANEL STIFFNERS	3010036	56	38.65
66	NOSE U C SUPPORT STRUCTURE	3010037	52	33.43
3	CREW BULKHEADS	3010038	52	122.72
51	EQUIPMENT BAY STRUCTURE	3010039	54	61.50
86	WINDSCREEN	3010041	52	130.03
	SERV ACCESS DOORS AND PNLS	3010042	58	67.04
	TORSION BOX E B	3010043	58	60.42
	DORSAL FAIRING AIR OUTLET	3010044	54	20.61
	INTERMEDIATE FORMERS	3010045	58	51.65
	ENGINE ACCESS DOORS	3010046	58	146.59
	SEALING MISSILE BAY	3010047	54	6.97
100	MISCELLANEOUS ITEM C F	3010048	54	3.92
98	ARMAMENT BAY ROOF	3010049	54	132.16
	BULKHEAD AT STA 120	3010050	52	30.60
	BULKHEAD AT STA 255	3010051	52	104.29
100	BULKHEAD AT STA 485	3010052	54	112.45
	ENGINE TUNNEL E B	3010054	58	467.64

HT AND C. OF G BY FUNCTIONAL GROUP COMPONENT

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	REFERENCE NO.	COMP. NO.	WEIGHT	H. ARM	V. ARM	H. MOMENT	V. MOMENT
	3000000						
	3010000						
E	3010001	51	17728	3796	11037	672955	1956639
S	3010002	51	8002	9509	11450	760910	916229
	3010003	51	12225	9467	11449	1157341	1399640
	3010004	52	10949	18978	12164	2077901	1331836
	3010005	54	21182	37673	14300	7979895	3029026
	3010006	56	5880	53407	11155	3140332	655914
	3010007	58	17573	66944	11005	11764069	1933909
	3010011	52	10531	18330	12018	1930332	1265616
	3010012	54	27824	37482	13306	10488992	3702261
	3010013	56	7457	53710	11315	4005155	843760
	3010014	58	13501	66827	11119	9022313	1501176
	3010015	58	21281	66254	10996	14099514	2340059
B	3010016	52	6846	18430	9044	1261718	619152
	3010017	58	1106	70853	9611	783634	106298
	3010018	58	6905	65809	9781	4544111	675378
	3010019	58	6386	6605	13911	424940	88752
	3010020	52	2988	23420	8900	699790	265932
	3010021	56	4985	3899	13550	268417	67479
	3010022	52	5325	295	15250	13406	8083
	3010023	54	1381	3411	12889	5678801	1697480
	3010024	54	1258	4871	10700	612860	134606
	3010025	56	2655	5293	19759	4581178	844641
URE	3010026	54	3570	27359	9197	976716	328333
	3010027	56	6570	52007	9125	3416860	599513
	3010028	54	2108	27448	8976	578604	189214
	3010029	56	5980	53877	10383	3221845	620903
TURE	3010030	56	3634	450399	9299	1831500	337926
	3010031	52	1864	919306	14750	3600376	2750728
	3010032	54	3328	637256	12919	12401032	4300218
	3010033	56	3150	454464	11815	17158339	3722198
	3010034	52	8535	22798	16050	1945809	1369868
TURE	3010036	56	3865	53918	10294	2083931	397863
	3010037	52	3343	21049	9186	703668	307088
	3010038	52	1227	220589	12284	2526682	1507492
	3010039	54	6150	288360	13752	1744140	845748
	3010041	52	1300	313814	15008	1796234	1951490
P NLS	3010042	58	6704	66375	9185	4449780	615762
	3010043	58	6042	61926	9058	3741569	547284
LET	3010044	54	2061	29195	16400	601709	338004
	3010045	58	5165	69303	10268	3579500	530342
	3010046	58	1465	96285	18873	9213328	1300693
	3010047	54	6973	32148	10900	224072	75973
	3010048	54	3923	37000	12500	145040	49000
	3010049	54	1321	638438	11427	5079966	1510192
	3010050	52	3060	12000	12280	367200	375768
	3010051	52	1042	2925500	12027	2659395	1254296
	3010052	54	1124	548500	10530	5453825	1184099
	3010054	58	4676	466462	11587	31080290	5418545

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WEIGHT AND C. OF G BY FUNCTIONAL COMPONENTS

PROJECT \_\_\_\_\_

	DESCRIPTION	REFERENCE NO.	COMP. NO.	WEIGHT	H.
	INTEGRAL FUS FUEL TANK	301005554		2035939	
	COCKPIT FLOOR	301005652		574317	
	CENTRE BEAM 697 28 717 36	301005958		55771	
	DORSAL OVER FUEL TANK	301006154		509741	
	SHIELD EXHAUST DEFLECTOR	301006254		196533	
	SHEAR PANEL BELOW NAV ARCH	301006352		207425	
34	PACK MTG STRUCTURE	301006454		204729	
	ENG ACCESS DOORS R F	301006559		828477	
	TUNNEL FIXED R F	301006659		978977	
	SKIN AND STIFFENERS R F	301006759		512277	
47	FAIRING UNDER RUDDER	301006859		261678	
	FORMERS FIXED R F	301006959		900177	
	LONGERONS C BEAM FIXED R F	301007059		279977	
	NACELLES REMOVABLE R F	301007159		2798982	
	CNTR STRUC STING REMOV R F	301007259		1133983	
	MISCELLANEOUS ITEMS E B	301007358		92366	
	MTG BRKTS SIDE PANEL D B	301007556		21352	
	FORMERS LOWER PANEL D B	301007656		760654	
	LOWER PANEL D B	301007756		505455	
	JOINT F F TO C F	3010078		85525	
	JOINT AIR INTAKES TO F F	3010079		95222	
	JOINT C F TO D B	3010080		50048	
	JOINT D B TO E B	3010081		250858	
	FUS JOINT AT STA 742 50	3010082		44374	
	MISC STRUCTURE F F	301008552		55218	
				624183	
96	DIVE BRAKES	302000072		1115050	
96	DIVE BRAKES C A	3020001		40648	
				11556	
	AIR INTAKES	3030000			
18	AIR INTAKES	303010055		7624821	
				76248	
	PILOTS AND NAVIG CANOPIES	3040000			
76	PILOTS CANOPY	304010053		2415417	
				24154	
48	NAVIGATORS CANOPY	304020053		1431723	
				14317	

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	REFERENCE NO.	COMP. NO.	WEIGHT	H. ARM	V. ARM	H. MOMENT	V. MOMENT
K	301005554		20359	39339	14536	8009027	2959384
	301005652		5743	17640	11575	1013065	664752
17 36	301005958		557	71367	11524	397514	64189
	301006154		5097	41352	14205	2107711	724029
TOR	301006254		1965	33441	16400	657116	322260
ARCH	301006352		2074	25702	15350	533059	318359
	301006454		2047	29288	10331	599525	211476
	301006559		8284	77280	9910	6401875	820944
	301006659		9789	77150	13100	7552214	1282359
F	301006759		5122	77160	13790	3952135	706324
	301006859		2616	78134	15379	2043985	402315
	301006959		9001	77929	13652	7014389	1228817
D R F	301007059		2799	77170	12570	2159988	351834
F	301007159		2798	82163	12868	22996602	3601625
V R F	301007259		1133	83573	13578	9476342	1539609
B	301007358		923	66394	10285	612817	94931
D B	301007556		213	52402	13330	111616	28393
B	301007656		760	54565	9005	4150214	684920
	301007756		5054	55457	8790	2802797	444247
	3010078		855	25500	12000	218025	102600
F F	3010079		952	22000	12000	209440	114240
	3010080		500	48500	9800	242500	49000
	3010081		2508	58478	9150	1466628	229482
50	3010082		443	74250	11500	328928	50945
	301008552		552	18750	11500	103500	63480
			624183			291650986	74872920
	302000072		11150	50846	9062	5669329	1010413
	3020001		406	48794	9374	198104	38058
			11556			5867433	1048471
	3030000						
	303010055		76248	21080	11863	16073078	9045300
			76248			16073078	9045300
PIES	3040000						
	304010053		24154	17681	15913	4270669	3843626
			24154			4270669	3843626
	304020053		14317	23279	16220	3332854	2322217
			14317			3332854	2322217



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SHEET 4-6

	REFERENCE NO.	COMP. NO.	WEIGHT	H. ARM	V. ARM	H. MOMENT	V. MOMENT
S I T I O N	4000000						
G R O U P	4010000						
	401010092		195962	53948	14100	105717580	27630642
			195962			105717580	27630642
I N G S	401020062		29092	53683	13849	15617458	4028951
			29092			15617458	4028951
G R O U P	4020000						
	402010091		33381	17080	9970	5701475	3328086
			33381			5701475	3328086
A I R I N G	402020052		2454	16224	8823	398137	216516
			2454			398137	216516

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COMPON

PROJECT \_\_\_\_\_

DESCRIPTION	REFERENCE NO.	COMP. NO.	WEIGHT
ENGINE GROUP	5000000		
ENGINE J 75	5010000		1252500
			1252500
J 75 ENGINE SERV ACCESS	5010100		35220
			35220
68 ACC GEAR BOXES ON FUS D B	502000156		45245
68 ACC GEAR BOXES ON FUS E B	502000258		230300
			27554
ENGINE CONTROLS	5030000		
36 ENGINE CONTROLS F F	503000152		14581
36 ENGINE CONTROLS C F	503000254		2641
36 ENGINE CONTROLS D B	503000356		5084
36 ENGINE CONTROLS E B	503000458		10136
			3243
91 GEARBOX AND STARTER ON ENG	5040000		25965
			25965
6 ENGINE ANTI ICING	5050000		71015
			71015
FIRE EXT SYSTEM	5060000		
FIRE EXT SYST ENG	5060001		69007
FIRE EXT SYST E B	506000256		1465
			7046
ENGINE MTGS AND BRACKETS	5070000		
4 ENGINE MTGS AND BRACKETS	5070001		14396
ENGINE MTGS ACCESSORIES	5070002		52020
ENGINE MTGS ACCESSORIES CA	5070003		7660
			20364
FUEL SYSTEM	5080000		

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	REFERENCE NO.	COMP. NO.	WEIGHT	H. ARM	V. ARM	H. MOMENT	V. MOMENT
	5000000						
	5010000		1252500	66502	11983	832937550	150087075
			1252500			832937550	150087075
SS	5010100		35226	30971	10341	2222276	364210
			3522			2222276	364210
D B	5020001	56	4524	57875	9607	2618265	434621
E B	5020002	58	23030	60584	10434	13952495	2402950
			27554			16570760	2837571
	5030000						
	5030001	52	1458	16129	12476	235161	181900
	5030002	54	2643	30813	11798	81346	31147
	5030003	56	5084	99911	13459	253954	68372
	5030004	58	1013	63982	10194	648138	103265
			3243			1218599	384684
N ENG	5040000		2596	55915	510452	15359596	2713862
			25965			15359596	2713862
	5050000		7101	56274	11507	3996017	817112
			7101			3996017	817112
	5060000						
	5060001		6900	70560	13477	4868640	929913
	5060002	56	1465	55318	13749	80764	20074
			7046			4949404	949987
ETS	5070000						
ETS	5070001		1439	65892	712360	8483131	1779346
ES	5070002		5202	66213	12248	3444400	637141
ES CA	5070003		7666	42361	13192	492048	101051
			20364			12419579	2517538
	5080000						



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REFERENCE NO.	COMP. NO.	WEIGHT	H. ARM	V. ARM	H. MOMENT	V. MOMENT
5080001	54	131.30	407.80	140.57	53544.14	18456.84
5080002	56	145.39	534.27	109.94	77677.52	15984.18
5080003	58	35.92	665.31	125.49	23897.94	4507.60
5080004	62	520.99	558.17	144.16	290800.99	75105.92
5080005		26.59	61.01	95.94	4125.40	600.58
5080006		75.46	152.5	96.58	4638.99	728.21
		847.40			454684.98	115383.33

PROJECT \_\_\_\_\_

DESCRIPTION		REFERENCE NO.	COMP. NO.	WEIGHT	H
FLYING CONTROLS GROUP		6000000			
MECHANICAL CONTROLS		6010000			
	MECHANICAL CONTROLS F F	6010001	52	87.59	1
	MECHANICAL CONTROLS C F	6010002	54	38.53	
	MECHANICAL CONTROLS D B	6010003	56	35.04	
	MECHANICAL CONTROLS FIN	6010005	83	126.88	7
11	MECHANICAL CONTROLS I W	6010006	62	408.84	7
	MECHANICAL CONTROLS O W	6010007	64	304.36	7
	MECHANICAL CONTROLS C A	6010008		6.46	7
				946.48	
FLYING CONTROLS HYDRAULICS		6020000			
14	FLYING CONT HYDRAULICS D B	6020001	56	26.51	5
14	FLYING CONT HYDRAULICS E B	6020002	58	416.50	6
14	FLYING CONT HYDRAULICS R F	6020003	59		487
60	HYDRAULICS FLYING CONT I W	6020004	62	256.28	7
58	HYDRAULICS FLYING CONT O W	6020005	64	125.60	7
59	RUDDER HYDRAULICS	6020006	83	55.22	7
				880.59	

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	REFERENCE NO.	COMP. NO.	WEIGHT	H. ARM	V. ARM	H. MOMENT	V. MOMENT
	6000000						
	6010000						
F	6010001	52	8759	15807	11543	1384535	1011051
F	6010002	54	885	33920	11526	300192	102005
B	6010003	56	350	48699	11880	170447	41580
I	6010005	83	12688	78781	122176	9995733	2813691
W	6010006	62	40884	71751	14375	29334679	5877075
W	6010007	64	30436	77075	13561	23458547	4127426
A	6010008		646	70982	14338	458544	92623
			94648			65102677	14065451
ULICS	6020000						
S	6020001	56	2651	57443	9616	1522814	254920
S	6020002	58	41650	65555	11120	27303658	4631480
S	6020003	59	48	75875	10824	36420	5196
T	6020004	62	25628	70363	14717	18032630	3771673
T	6020005	64	12560	74060	13579	9301936	1705522
	6020006	83	5522	75996	20784	4196499	1147692
			88059			60393957	11516483

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PROJECT \_\_\_\_\_

DESCRIPTION		REFERENCE NO.	COMP. NO.	WEIGHT	H
FIXED EQUIPMENT GROUP		7000000			
INSTRUMENTS		7010000			
INSTRUMENTS F F		7010001	52	44071	
NAVIG TABLE AND STOWAGE		7010004	52	2002	
				4007	
COCKPIT PRESSURE SEALING		7020000	52	5001	
				500	
OXYGEN SYSTEM		7030000			
OXYGEN SYSTEM		7030001	52	23592	
				2359	
AIR CONDITIONING SYSTEM		7040000			
45	AIRCONDITIONING SYSTEM F F	7040001	52	35491	
45	AIRCONDITIONING SYSTEM C F	7040002	54	459672	
45	AIRCONDITIONING SYSTEM D B	7040003	56	11485	
45	AIRCONDITIONING SYSTEM C A	7040005		271824	
45	AIRCONDITIONING SYSTEM ENG	7040006		15566	
45	AIRCONDITIONING SYSTEM I W	7040007	62	805	
				79482	
HYDRAULICS MAIN SYSTEM		7050000			
14	UTILITY HYDRAULICS F F	7050001	52	84152	
5	UTILITY HYDRAULICS C F	7050002	54	41624	
9	UTILITY HYDRAULICS D B	7050003	56	244765	
21	UTILITY HYDRAULICS E B	7050004	58	72406	
23	UTILITY HYDRAULICS I W	7050005	62	133115	
14	UTILITY HYDR NOSE U C	7050006	91	3251	
23	UTILITY HYDR MAIN U C	7050007	92	29805	
28	EMERGENCY LOWERING M U C	7050008	62	8535	
35	EMERGENCY LOWERING N U C	7050009	52	4382	
				62200	
CABIN INSULATION		7070000	52	14311	
				1431	
BRAKE PARACHUTE		7080000			

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	REFERENCE NO.	COMP. NO.	WEIGHT	H. ARM	V. ARM	H. MOMENT	V. MOMENT
P	7000000						
	7010000						
	7010000152		440716112	13909		710056	612970
AGE	7010000452		200220000	13000		44000	26000
			4607			754056	638970
LING	702000052		500186000	13000		93000	65000
			500			93000	65000
	7030000						
	7030000152		235925372	15643		598525	369018
			2359			598525	369018
TEM	7040000						
EM F F	7040000152		354917814	11118		632219	394578
EM C F	7040000254		4596729526	13519		13572216	6214279
EM D B	7040000356		114851640	12503		592827	143534
EM C A	70400005		2718240009	13599		10875246	3696480
EM ENG	70400006		155664017	13900		996105	216284
EM I W	7040000762		8051500	15950		41200	12760
			79482			26709813	10677915
EM	7050000						
F	7050000152		841520016	10853		1684346	913280
F	7050000254		416243384	10420		1805642	433680
B	7050000356		2447655469	10959		13576592	2682325
B	7050000458		724060647	10852		4390843	785685
W	7050000562		1331155360	14235		7368970	1894821
C	7050000691		32519033	9521		61857	30943
C	7050000792		298054325	14100		1618885	420180
U C	7050000862		85358436	14188		498459	121024
U C	7050000952		43821435	10275		93885	45005
			62200			31099479	7326943
	707000052		143118748	13200		268284	188892
			1431			268284	188892
	7080000						

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DESCRIPTION		REFERENCE NO.	COMP. NO.	WEIGHT	H
	BRAKE PARACHUTE F F	70800001	52	4551	
	BRAKE PARACHUTE R F	70800005	59	56598	
	BRAKE PARACHUTE I W	70800006	62	1246	
				6238	
	ELECTRICAL SYSTEM	70900000			
	ELECTRICAL WIRING	70914000			
33	ELECTRICAL WIRING R N	70914001	51	129	
33	ELECTRICAL WIRING F F	70914002	52	29661	
33	ELECTRICAL WIRING C 6	70914003	54	13044	
33	ELECTRICAL WIRING A I	70914004	55	12742	
33	ELECTRICAL WIRING D B	70914005	56	65155	
33	ELECTRICAL WIRING E B	70914006	58	645	
33	ELECTRICAL WIRING I W	70914008	62	89095	
33	ELECTRICAL WIRING FIN	70914009	83	3527	
33	ELECTRICAL WIRING NUC	70914109	91	3301	
33	ELECTRICAL WIRING ENG	70914111		20025	
33	ELECTRICAL WIRING C A	70914112		137463	
				37591	
59	ELECTRICS F F	70915000	52	152481	
				15248	
26	ELECTRICS C F	70916000	54	73594	
				7359	
85	ELECTRICS E B	70917000	58	6706	
85	ELECTRICS ENG	70917001		116325	
85	ELECTRICS C A	70917002		7186	
				13020	
	ELECTRICS FIN	70918000	83	838	
				83	
	ELECTRICS I W	70919000	62	23366	
	ELECTRICS C A	70919001		1126	
	ELECTRICS M U C	70919002	92	745	
				2522	
	ELECTRICS A I	70920000	55	50902	
				5090	
30	ELECTRICS D B	70921000	56	269895	
				26989	

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REFERENCE NO.	COMP. NO.	WEIGHT	H. ARM	V. ARM	H. MOMENT	V. MOMENT
708000152		45516913	128869		76954	58554
708000559		565982094	14437		4645699	816990
708000662		12462022	14500		76907	17980
		6238			4799560	893524
7090000						
7091400						
709140151		1299285	12000		11978	15480
709140252		296619977	11200		592518	332192
709140354		130441878	11000		546089	143440
709140455		127421984	12000		280076	152880
709140556		651553375	9200		3477381	599380
709140658		6459500	9200		38080	5888
709140862		890954111	13900		4820749	1238351
709140983		35279754	30000		280734	105600
709141091		33018600	9800		61380	32340
7091411		200258583	10000		1172832	200200
7091412		1374633473	11234		4601199	1544226
		37591			15883016	4369977
709150052		1524815464	11095		2357951	1691766
		15248			2357951	1691766
709160054		735945491	10717		3347683	788664
		7359			3347683	788664
709170058		67067944	11597		455225	77700
7091701		1163256207	11472		6537998	1334423
7091702		71861350	12000		440493	86160
		13020			7433716	1498283
709180083		838955028840			74327	23937
		83			74327	23937
709190062		233662053	14500		1449558	338720
7091901		11262946	13561		70500	15188
709190292		7451600	13700		38184	10138
		2522			1558242	364046
709200055		509022059	13832		1122803	704049
		5090			1122803	704049
709210056		2698951855	10253		13995146	2767182
		26989			13995146	2767182

PROJECT \_\_\_\_\_

DESCRIPTION	REFERENCE NO.	COMP. NO.	WEIGHT	H
WINDSCREEN DEMISTING	7092200	52	37512	
			3751	
ELECTRICS R F	7092300	59	1368	
			136	
L P PNEUMATICS	7100000			
12 L P PNEUMATICS F F	7100001	52	19221	
12 L P PNEUMATICS C F	7100002	54	7783	
12 L P PNEUMATICS D B	7100003	56	4185	
12 L P PNEUMATICS E B	7100004	58	15576	
12 L P PNEUMATICS FIN	7100005	83	5047	
12 L P PNEUMATICS R N	7100006	51	136	
			5315	
INTAKE DEICING	7120000	55	51841	
			5184	
RADOME ANTI ICING	7130000	51	888	
			888	
RADIO RADAR INT SYST R N	7150001	51	19791	
RADIO RADAR INT SYST F F	7150002	52	104581	
RADIO RADAR INT SYST C F	7150003	54	313912	
RADIO RADAR INT SYST I W	7150005	62	103975	
RADIO RADAR INT SYST O W	7150006	64	807	
RADIO RADAR INT SYST FIN	7150007	83	32017	
RADIO RADAR INT SYST C A	7150008		115792	
RADIO RADAR INT SYST D B	7150009	59	137	
			69098	
10 CANOPY ACTUATION	7160000	52	62052	
			6205	
CABIN CONSOLES	7170000	52	17451	
			1745	
SURFACE FINISH F F	7190001	52	3631	
SURFACE FINISH CANOPY	7190002	53	642	

EIGHT AND C. OF G BY FUNCTIONAL GROUP COMPONENT

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SHEET 4-12

UNCLASSIFIED  
NON-CLASSIFIED

	REFERENCE NO.	COMP. NO.	WEIGHT	H. ARM	V. ARM	H. MOMENT	V. MOMENT
	7092200	52	3751	20101	10400	753989	390104
			3751			753989	390104
	7092300	59	1368	0200	11360	109072	15450
			136			109072	15450
	7100000						
	7100001	52	1922	19739	12561	379384	241422
	7100002	54	778	32842	10747	255511	83612
	7100003	56	418	55545	11592	232178	48455
	7100004	58	1557	65644	9739	1022077	151636
	7100005	83	504	74257	24452	374255	123238
	7100006	51	136	6919	10000	9410	13600
			5315			2272815	661963
	7120000	55	5184	19702	11800	1021352	611712
			5184			1021352	611712
	7130000	51	888	5149	12500	45723	111000
			888			45723	111000
R N	7150001	51	1979	10256	8873	202966	175597
F F	7150002	52	10458	18943	12465	1981059	1303590
C F	7150003	54	31391	27658	10361	8682123	3252422
I W	7150005	62	10397	54826	15861	5700259	1649068
O W	7150006	64	807	3904	13764	59123	11011
F I N	7150007	83	320	1762	1225627	2439546	820320
C A	7150008		11579	2781	11484	3220120	1329732
D B	7150009	59	137	4550	15800	9692	2054
			69098			22294888	8543794
	7160000	52	6205	2221	115447	1378193	958486
			6205			1378193	958486
	7170000	52	1745	17476	12434	304956	216973
			1745			304956	216973
	7190001	52	363	18744	12200	68041	44286
	7190002	53	642	20218	15900	12940	10176



EIGHT AND C. OF G BY FUNCTIONAL GROUP COMPONENT

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SHEET 4-13

UNCLASSIFIED  
NON-CLASSIFIED

	REFERENCE NO.	COMP. NO.	WEIGHT	H. ARM	V. ARM	H. MOMENT	V. MOMENT
ES	719000	0354	1400	37197	12455	520756	174370
	719000	0455	408	22798	12020	93016	49042
	719000	0556	377	53828	11200	202932	42224
	719000	0658	443	66701	11200	295485	49616
	719000	0759	648	80362	13175	520746	85374
	719000	0862	315	160144	14400	1895137	453744
EDGE	719000	0964	106	770650	13590	753836	145005
	719000	1065	319	63948	13526	203994	43148
ON	719000	1174	353	79190	13556	279541	47853
	719000	1282	566	75523	14260	427460	80712
TOR	719000	1383	639	746632	20837	477097	133148
	719000	1484	202	81279	21431	164184	43291
			10000			5915167	1401989
TION	7200000		132287	49920	11201	66037670	14817467
			132287			66037670	14817467



WEIGHT AND C. OF G BY FUNCTIONAL GROUP COMPONENT

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SHEET 4-14

UNCLASSIFIED  
SECRET  
NON CLASSIFIED

GROUP	REFERENCE NO.	COMP. NO.	WEIGHT	H. ARM	V. ARM	H. MOMENT	V. MOMENT
	8000000						
	8010100	52	28442	20280	13625	5768038	3875223
			28442			5768038	3875223
	8020000						
	8050800	54	68680	38581	9468	26497431	6502622
			68680			26497431	6502622
	8050900	54	303600	39545	9500	120058620	28842000
			303600			120058620	28842000
C CF	8051000	54	14029	40956	9982	5745717	1400375
C DB	8051001	56	8065	4940	12883	442816	103837
C EB	8051002	58	5826	2634	14095	364530	82033
			15417			6553063	1586245

PROJECT \_\_\_\_\_

DESCRIPTION	REFERENCE NO.	COMP. NO.	WEIGHT	H
OPERATIONAL LOAD	9000000			
CREW MEMBERS	9010000	52	43000	1
			43000	
ENGINE OIL	9020000			
ENGINE OIL USABLE	9020001		88166	
ENGINE OIL TRAPPED ENG	9020002		17736	
ENGINE OIL TRAPPED D B	9020003	56	19255	
ENGINE OIL TRAPPED E B	9020004	58	9095	
			13423	
OXYGEN CHARGE	9040000			
OXYGEN CHARGE F F	9040001	52	722	
OXYGEN CHARGE C F	9040002	54	12672	
			1339	
ALCOHOL FOR RADOME DEICING	9050000	51	2200	
			2200	
ENGINE FIRE EXT FLUID	9060000		25007	
			2500	
RESIDUAL FUEL	9070000			
RESIDUAL FUEL C F	9070001	54	46803	
RESIDUAL FUEL I W	9070002	62	171605	
			21840	
WATER FOR AIR CONDITIONING	9100000	54	125002	
UNUSABLE WATER FOR AIRCOND	9100001	54	15002	
			14000	

WEIGHT AND C. OF G BY FUNCTIONAL GROUP COMPONENT

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SHEET 4-15

UNCLASSIFIED  
NON CLASSIFIED

	REFERENCE NO.	COMP. NO.	WEIGHT	H. ARM	V. ARM	H. MOMENT	V. MOMENT
	9000000						
	9010000	52	43000	19400	13650	8342000	5869500
			43000			8342000	5869500
	9020000						
	9020001		88166	1246	12186	5399447	1074318
G	9020002		17736	2676	11640	1111245	206377
B	9020003	56	19255	8034	9555	1118117	183934
B	9020004	58	9095	928	9704	544746	88209
			13423			8173555	1552838
	9040000						
	9040001	52	7220	493	13200	14755	9504
	9040002	54	12672	6280	16150	332968	204621
			1339			347723	214125
LCING	9050000	51	2200	9300	13800	204600	303600
			2200			204600	303600
	9060000		2500	73000	12900	1825000	322500
			2500			1825000	322500
	9070000						
	9070001	54	4680	39424	12300	1845043	575640
	9070002	62	17160	59755	13705	10253958	2351778
			21840			12099001	2927418
ONING RCND	9100000	54	12500	26800	13200	3350000	1650000
	9100001	54	15000	26700	12700	400500	190500
			14000			3750500	1840500

OLD TANG  
No. 3753  
1908