

QC
Avro
Rept
7-0400-34
Iss. 4.

QCX
Avro
CF105
R-7-0400-34
Iss-4

FILE IN VAULT

C-105 MK 2

Report 7-0400-34

Production A/C

ISSUE 4

WEIGHT SUMMARY & C.G. POSITION

N.A.E.

Feb. 1/57

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NONRECLASSIFIED



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DATE

JAN 07 1993

Report no.: QCX - AVRO - CF105 - R-7-0400-34-Iss. 4

has been ☐ downgraded to: _____

☒ de-classified

by (Name): Michel W. Drapeau

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

Date: Dec. 7, 1992

R. Auger
Signature

Classification cancelled / changed to: UNCLASSIFIED

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

Date: 5 Nov 1992

Signature: B. Aubrey

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

Date: February 1st, 1957
Aircraft: C-105 MK 2
Production A/C



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Report # 7-0400-34
Sheet # 1 Issue 4
Prepared By: K. Griffin
Checked By: E. Burnett

INTRODUCTION

The following is a Weight and C.G. Summary of the C-105 MK 2 Production Aircraft. Of necessity the figures quoted herein are only of a preliminary nature, particularly in the case of the Rear Fuselage, Engine Installation and some systems which are being extensively redesigned.

Information has been based on the J75 MK 1 Aircraft with relevant changes made, sometimes to preliminary scheme drawings augmented by verbally received facts. Where no information has been available allowances have been retained as in the MK 1 Aircraft.

GENERAL:

- (a) Orenda PS 13 Engines comprise the Power Plant (4,500 lb each).
 - (b) A package containing 4 "semi-submerged" Sparrow II Missiles (432 lb each) is currently carried.
 - (c) The R.C.A. Radar Astra I System is installed - Weight and C.G. location data being to the latest breakdown received from them, dated November 5th, 1956. However, the Sparrow III auxiliaries included in the above breakdown have been deleted and some AVRO installed Antennae added (Total Weight = 2,681.75 lb.)
- N.B. It should be noted that the 1st MK 2 Aircraft will not be as this summary designates, but will be a Flight Test version with Instrumentation replacing the Missile Package etc.

1. STRUCTURE

a) Wing:

C/L Joints I/W - Elevator jack fitting Al. not Steel as in MK 1

WEIGHT
lb.

- 31.90

Transport Joint I/W to O/W - this has been entirely re-estimated to MK 1 production drawings the hardware allowances were previously too high

- 7.66

There will be other changes to the Inner Wing, I/B Ribs, Centre Trailing Edge etc., associated with redesigned engine mounts etc., however, no details of these alterations are yet available and weight allowances will remain as in the MK 1 A/C.

WEIGHT DECREASE WING

- 39.56

b) Fin & Rudder

Fin - Addition of Dorsal Fairing angles

+ 3.96

AN 373 Nut plates replace K1100 (unavailable)

+ 4.59

Miscellaneous structure and hardware changes

+ 2.98

Rudder - Joint changes etc. as MK 1

+ 4.88

WEIGHT INCREASE FIN & RUDDER

+ 16.41

44265

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SECRET
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INTRODUCTION

1. STRUCTURE

N.B. In the MK 1 Structural Changes are made to the Wing, Fin & Control Surfaces to accommodate the possible necessity of installing a "Buzz Damping" System. These allowances will not be made on the MK 2 Aircraft until the requirements for Damping are confirmed, pending flight test of MK 1 A/C.

	<u>WEIGHT</u> <u>lb.</u>
c) <u>Fuselage Fwd. Sta. 255"</u>	
Radome - an estimated weight of the laminate structure has been received from Zenith Plastics	+ 20.21
Radar Nose Structure - This will be entirely redesigned; the MK 1 Structure estimated to production drawings is approx. 200 lb. 180 lb will be allowed for MK 2 which will have a shorter shear panel, Mg. skins etc. This allowance is heavier than that previously carried by	+ 3.11
Shear Panel Aft Nav.Bulkhead - minor changes to MK 1 production drawings.	+ 1.84
<u>WEIGHT INCREASE FRONT FUSELAGE</u>	<u>+ 25.16</u>
d) <u>Centre Fuselage Sta. 255" - 485"</u>	
Electronics Bay Structure - addition of Jury struts to side access doors	+ 0.50
Bulkhead Sta. 485" - Provisions for Drop Tank Mounting.	+ 12.22
<u>WEIGHT INCREASE CENTRE FUSELAGE</u>	<u>+ 12.72</u>
e) <u>Rear Fuselage Sta. 485" Aft.</u>	
Structure for Mtg. Drop Tank - fore and aft centre beam added for mtg. requirements	+ 8.53
Skins E.B. - Side skin 717.36" to 742.5" .064 was .04 Al. Alterations to access door cut-outs & Engine mtg. door	+ 5.52
Light Formers E.B. - repositioning of doors etc. results in Former Sta. 663.65 new light former also some expected increases aft Sta. 697.28"	- 6.14
Intermediate Formers E.B. - 2 only at Sta. 729.86 & 735.98 were 3 at Sta. 663.65, 712.34 & 717.36	+ 12.27
Centre Beam Sta. 697.28 - 717.36 - not required for MK 2 A/C	- 13.40
Inner Longerons E.B. - includes structure which replaces the torsion boxes	- 5.09
Torsion Boxes - cancelled for MK 2 A/C	+ 33.07
Engine Access Doors E.B. - MK 1 doors were re-estimated, MK 2 doors are entirely redesigned and are of a lighter type but 15% larger, also inner skin .025 titanium in lieu of .016 Al. on MK 1, flappers added on Door # 2 etc. Weight allowance increase over that previously recorded	- 57.66
	+ 13.91

continued

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INTRODUCTION

1. STRUCTURE

- e) Rear Fuselage Sta. 485" Aft. (Continued)

	WEIGHT lb.
Engine Rails - these are fixed in MK 2 A/C	+ 34.81
Engine Tunnel - All aluminum parts in MK 1 A/C are now titanium, shroud is longer (see also floating duct) there is no insulation blanket on upper shroud etc.	+ 96.73
Floating Duct D.B. - Complete redesign - no aft torque box structure etc.	- 60.04
Tunnel Fixed R.F. - gauge increase .025 was .020 titanium	+ 12.46
No rail guides or stops	- 8.46
Engine Access Doors R.F. - MK 1 production drawing estimates resulted in Inner skin .025 was .020 titanium	+ 4.04
Nacelles R.F. - 7 $\frac{1}{2}$ " longer, new lines, Weight increased in proportion to increased length etc.	+ 29.00

WEIGHT INCREASE AFT FUSELAGE

+ 109.66

TOTAL STRUCTURAL WEIGHT INCREASE

+ 124.39

2. LANDING GEAR

No Weight Change

3. POWER PLANT & SERVICES

Engines - Fire Can not necessary for PS 13 Engines	- 107.46
Adaptor ring - redesigned	+ 28.89
Can attachments & supports deleted	- 10.97
De-icing control box added	+ 6.00
Fairing & packing deleted	- 10.67
Heat exchanger duct re-designed	+ 0.18
Engine Service Accessories - Bendix fuel control unit added	+ 120.00
Alterations to oil filler etc. etc.	- 13.88
Engine Mounts - preliminary estimates entirely re-designed	- 34.24
Engine Mounting Accessories - preliminary estimates entirely re-designed	+ 1.58
Engine Controls - currently assume as for J75 - these increased by	+ 1.78
Engine Nose Bullet - Bullet longer, but struts no longer required	- 0.37
Starters & Gear Boxes on Engine - reposition boxes; Starter	+ 2.00
Starter shroud added	+ 6.00
Pneumatic starter connection was previously omitted	+ 1.64
Accessories Gear Boxes on Fuselage - repositioned - increased drive shaft	+ 1.70
Fire Extinguishing System - increase in Vendor's Weight of bottle	+ 5.00
Fuel System - the weight carried is as for the MK 1	
1st A/C - Actual weight of bulkhead couplings	+ 7.52
N.B. Although it is fully appreciated that the MK 2 A/C	
Fuel System will be entirely different from the MK 1	

continued.

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INTRODUCTION

3. POWER PLANT & SERVICES

Fuel System (Continued)

1st A/C Proportioner System, there are currently insufficient details available to evaluate the weight of the MK 2 A/C selection system which will replace the Proportioners.

WEIGHT
lb.

WEIGHT INCREASE POWER PLANT GROUP

+ 4.70

4. FLYING CONTROLS GROUP

Mechanical Flying Controls - these are now fully estimated to MK 1 production drawings of steel linkages etc.

+ 32.90

WEIGHT INCREASE FLYING CONTROLS GROUP

+ 32.90

5. EQUIPMENT GROUP

Radar Removable - latest R.C.A. estimate, no Sparrow III auxiliaries now carried, TACAN which is alternative to Doppler is recorded since this is the heavier (+ 4.5#) - 51.75
Radar Fixed - latest R.C.A. estimate (Nov. 15th, 1956) - 37.35
Sparrow Pack Electronics - Sparrow III Auxiliaries deleted - 79.00
Canopy Actuation - Addition of recuperators etc. + 7.64
Radome Anti-icing - Tank weight included with Nose Structure - 5.00
Wiring & detectors in Electrics - 2.55
Actual weights of valves etc. - 7.03
Intake De-icing - this report contains weight of boots only, all equipment, wiring etc. included with general electrical circuit weights - 34.00
Windscreen Demisting - Wiring now in general electrical circuit wts. - 5.17
Cabin Consoles - first detailed estimate of MK 1 A/C Navigator's Console Panels - 3.20
Instruments - estimated to MK 1 production drawings details some panels now included with electrics - 7.23
Electrics - increases based on MK 1 production drawings re-estimates and including all transfers from above items + 138.64
Addition of anti-skid devices + 13.50
Alterations to allowances for 40KVA Alternator - 8.50

WEIGHT DECREASE EQUIPMENT GROUP

- 81.00

6. OPERATIONAL LOAD

Engine Oil Trapped - G.G. Change only
Engine Oil Drainable - Engine tanks capacity 4 Imp. gals. - Accessories gear box oil etc. assumed as MK 1 A/C

+ 4.74

WEIGHT CHANGE - OPERATIONAL LOAD

+ 4.74

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Checked By: E. Burnett

INTRODUCTION

SUMMARY

WEIGHT CHANGE - AIRCRAFT WEIGHT EMPTY

Structure	+ 124.39 lb.
Power Plant	+ 4.70 lb.
Flying Controls	+ 32.90 lb.
Equipment	= 81.00 lb.
	+ 80.99 lb.

WEIGHT CHANGE - OPERATIONAL LOAD (Less Fuel)

Drainable Oil	+ 4.74 lb.
---------------	------------

WEIGHT CHANGE - OPERATIONAL WEIGHT EMPTY - (A/C Less Fuel)

<u>Issue 3</u>	<u>Issue 4</u>	
<u>44,110.86 lb.</u>	<u>44,196.59 lb</u>	= + 85.73 lb.

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WEIGHT AND 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	18,211.47	564.46	137.79
Wing	9,949.51	640.84	142.15
Fin & Rudder	1,016.37	754.25	209.38
Fuselage Struct. Fwd. Sta. 255"	2,415.63	186.17	129.37
Sta. 255" - 485"	1,685.09	379.33	129.63
Sta. 485" Aft.	3,144.87	651.24	111.70
UNDERCARRIAGE - Retracted	2,604.33	488.72	134.65
Main Undercarriage	1,951.62	539.57	141.00
Main U/C Doors & Fairings	294.36	539.29	136.01
Nose Undercarriage	333.81	170.80	99.70
Nose U/C Door & Fairing	24.54	162.24	88.23
POWER PLANT & SERVICES	10,846.23	674.83	121.41
Engines PS 13	9,357.12	689.68	120.87
Gear Box & Drives on Fuselage	238.76	604.01	103.94
Engine Controls	30.97	366.26	119.61
Gear Box & Starter on Engines	159.82	628.81	96.25
Engine Nose Bullet	70.00	587.17	116.00
Fire Extinguishing System	75.52	703.76	128.23
Engine Mountings	156.53	666.00	136.69
Fuel System	757.51	543.10	135.69
FLYING CONTROLS GROUP	1,710.72	687.58	140.35
Mechanical Flying Controls	937.30	687.59	148.22
Flying Control Hydraulics	773.42	687.56	130.81
EQUIPMENT - FIXED & REMOVABLE	7,991.85	326.86	110.87
Instruments	46.07	163.68	138.70
Probe	23.00	9.74	108.00
Cockpit Pressure Sealing	5.00	186.00	130.00
Oxygen System	43.44	227.72	142.18
Air Conditioning System	897.00	331.77	133.38
Hydraulic Main System	588.36	501.22	117.38
Cabin Insulation	11.91	179.24	130.00
Brake Parachute	69.69	784.88	131.17
Electrical System	1,237.49	428.79	112.67
Low Pressure Pneumatics	39.01	478.47	127.28
Oil & Hydraulic Fluid Cooling	22.00	579.50	92.00
Intake De-icing Boots	51.84	197.02	118.00
Radome Anti-icing	8.88	51.49	125.00
Canopy Actuation	62.05	222.11	154.47
Cabin Consoles	17.45	174.76	124.34
Radar Door Actuation	10.00	268.00	95.00
Ejector Seats	186.00	201.10	136.25
Radio & Radar Removable	1,950.05	180.79	103.26
Radio & Radar Fixed	634.00	236.60	109.71
Sparrow Pack Structure	850.00	390.84	96.00
Sparrow Pack Mechanisms	625.32	376.67	99.22
Sparrow Pack Hydraulics	350.19	368.83	99.00

continued.

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Prepared By: K. Griffin

WEIGHT AND C.G. SUMMARY

DESCRIPTION	WEIGHT lb.	H. ARM ins.	V. ARM ins.	C.G. POSITION % M.A.C.
<u>Equipment - Fixed & Removable - Cont'd.</u>				
Sparrow Pack Electronics	99.00	332.00	100.00	
Sparrow Pack Electrics	64.10	362.29	95.00	
Surface Finish	100.00	591.52	140.20	
AIRCRAFT WEIGHT EMPTY	41,364.60	547.82	128.20	
USEFUL LOAD	17,931.92	513.03	136.13	
Crew	430.00	194.00	136.50	
Oil	135.13	638.13	111.87	
Alcohol - Radome De-icing	22.00	93.00	138.00	
Engine Fire Extinguishing 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	259.69	159.91	
Water for Air Conditioning	260.00	268.00	132.00	
Fuel for Combat Mission	15,100.00	539.26	141.90	
Normal Combat Mission U/C Up	59,296.52	537.29	130.61	27.98
U/C Down		538.93	127.89	28.44
Half Combat Mission Fuel (968 gals. at 7.8 lb/gal.)	7,550.00	540.98	144.27	
U/C Up		537.26	129.31	27.97
Combat Weight (Half Combat Mission Fuel) U/C Down	51,746.52	539.14	126.20	28.49
U/C Up		536.62	126.75	27.80
Operational Weight Empty U/C Down	44,196.52	538.82	123.10	28.41
U/C Up		542.61	128.31	29.45
Operational Weight Empty (less Missiles) U/C Down	42,468.52	544.90	124.52	30.08
Max. Internal Fuel * (2,544 gals. @ 7.8 lb/gal.)	19,843.00	538.88	144.32	
U/C Up		537.32	132.19	27.99
A.U.W. Max. Internal Fuel U/C Down	64,039.52	538.84	129.68	28.41
Max. External Fuel (500 gal. at 7.8 lb/gal. + Drop Tank)	4,226.00	522.34	60.64	
U/C Up		536.39	127.76	27.74
A.U.W. Max. Internal and External Fuel U/C Down	68,265.52	537.82	125.40	28.13

N.B. 1) Aircraft Datum = 120" above nominal ground line.

* 2) Max. Internal Fuel will change slightly in the future when the redesign of the upper portion of tanks # 1 & 2 is finalized to accommodate the re-routed Air Conditioning lines.

BY: Kathleen Guffin

DATE: Feb 1st 1957

C105 MK2 PRODUCTION AIRCRAFT

HORIZONTAL C.G. ENVELOPE

FOR 3/4 FLIGHT CONDITIONS

(FUEL SYSTEM PROPORTIONERS ASSUMED

UNTIL DETAILS OF SEQUENCING AVAILABLE)

WEIGHT ~ THOUSANDS LB

70
68
66
64
62
60
58
56
54
52
50
48
46
44
42
40

27 28 29 30 31

HORIZONTAL C.G. POSITION ~ % MAC

CONDITION	COMBAT MISSION FUEL	NORMAL MISSION FUEL	MAX INTERNAL FUEL	EXT. FUEL & TANKS	MISSILES	DEICING FLUID	WATER	1/2 UP	1/2 DOWN
No									
1									*
2	*								*
3		*							*
4			*						*
5			*		*				*
6		*	*		*	*			*
7		*	*	*	*	*	*		*
8		*	*	*	*	*	*		*
9		*	*	*	*	*	*	*	
10		*	*	*	*	*	*	*	
11			*	*	*	*	*	*	
12				*	*	*	*	*	
13					*	*	*	*	
14								*	

MALTON, ONT.

PROJECT C-105 MK 2

WEIGHT AND C. OF G BY FUNCTIONAL
COMPONE

DESCRIPTION		REFERENCE NO.			COMP. NO.	WEIGHT			
TOTAL WING GROUP		1	0	0	0	0	0	0	
OUTER WING		1	0	1	0	0	0	0	
14	OUTER WING SKINS	1	0	1	0	0	0	1	64
14	POSTS AND INTERCOSTALS	1	0	1	0	0	0	2	64
14	OUTER WING SPAR	1	0	1	0	0	0	3	64
14	OUTER WING RIBS	1	0	1	0	0	0	4	64
14	AILERON CONTROL BOX	1	0	1	0	0	0	6	64
3	RIB 12	1	0	1	0	0	0	7	64
14	O W AILERON JACK FITTING	1	0	1	0	0	0	9	64
14	AILERON JOINTS AND FAIRING	1	0	1	0	0	1	0	
								1995	30
AILERON		1	0	2	0	0	0	0	
17	AILERON STRUCTURE	1	0	2	0	0	0	1	74
								348	66
								348	66
ELEVATOR		1	0	3	0	0	0	0	82
20	ELEVATOR MARRY UP	1	0	3	0	0	0	0	
								449	00
								15	97
								464	97
INNER WING		1	0	4	0	0	0	0	
12	MAIN U C STRUCTURE	1	0	4	0	0	0	1	62
12	FRONT SPAR I W	1	0	4	0	0	0	2	62
12	MAIN SPAR I W	1	0	4	0	0	0	3	62
12	FWD CENTRE SPAR I W	1	0	4	0	0	0	4	62
12	AFT CENTRE SPAR I W	1	0	4	0	0	0	5	62
12	REAR SPAR I W	1	0	4	0	0	0	6	62
12	I W STRUCTURE F S TO M S	1	0	4	0	0	0	7	62
12	I W STRUCTURE M S TO R S	1	0	4	0	0	0	8	62
12	STRUCTURE AFT OF REAR SPAR	1	0	4	0	0	0	9	62
12	ELEVATOR CONTROL BOX I W	1	0	4	0	0	1	0	62
16	TRANSPORT JOINT MARRY UP	1	0	4	0	0	1	1	
12	CENTRE LINE JOINTS	1	0	4	0	0	1	2	62
12	INNER WING SKINS	1	0	4	0	0	1	3	62
12	STRUT PICK UP FITTINGS I W	1	0	4	0	0	1	4	62
12	STRUT PICK UP FITTINGS	1	0	4	0	0	1	5	
12	RIBS 1 TO 9 INNER WING	1	0	4	0	0	1	6	62
12	DORSAL FAIRINGS	1	0	4	0	0	1	7	62
12	RIB 10	1	0	4	0	0	1	8	62
12	WING TO FUSELAGE JOINT	1	0	4	0	0	1	9	62
16	TRANSPORT JOINT	1	0	4	0	0	2	0	62
12	WING TO FUSELAGE JOINT	1	0	4	0	0	2	1	
								6610	50

WIGHT AND C. OF G BY FUNCTIONAL GROUP COMPONENT

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SHEET 1

	REFERENCE NO.	COMP. NO.	WEIGHT	H. ARM	V. ARM	H. MOMENT	V. MOMENT
	1000000						
	1010000						
	1010001	64	92889	70647	13598	65623292	12631046
S	1010002	64	2493	73238	13419	1825823	334536
	1010003	64	40293	70073	13636	28234514	5494353
	1010004	64	13456	69506	13650	9352727	1836744
	1010006	64	38594	77411	13540	29876001	5225628
	1010007	64	7466	64930	13783	4847674	1029039
ING	1010009	64	1046	72791	13670	761394	142988
IRING	1010010		3293	78726	13224	2592447	435466
			199530			143113872	27129800
	1020000						
	1020001	74	34866	79213	13556	27618405	4726435
			34866			27618405	4726435
	1030000	82	44900	75523	14260	33909827	6402740
	1030000		15977	73810	14260	1178746	227732
			46497			35088573	6630472
	1040000						
	1040001	62	32959	57807	13992	19052609	4611623
	1040002	62	10985	48356	14267	5311907	1567230
	1040003	62	15456	56570	14280	8743459	2207117
	1040004	62	5410	59950	14403	3243295	779202
	1040005	62	3637	65478	14329	2381435	521146
	1040006	62	8048	70407	14451	5666355	1163016
M S	1040007	62	10358	149867	14391	51652737	14906342
R S	1040008	62	15886	61374	14479	9749874	2300134
SPAR	1040009	62	31984	71884	15020	22991379	4803997
W	1040010	62	42717	72500	14327	30969825	6120065
UP	1040011		7065	63621	13876	4494824	980339
	1040012	62	60172	61823	14999	37200136	9025198
	1040013	62	21798	62503	14461	136244039	31522088
S I W	1040014	62	5424	56848	14324	3083436	776934
S	1040015		144	61015	14300	87862	20592
G	1040016	62	51756	61277	14522	31714524	7516006
	1040017	62	5764	58240	15971	3356954	920568
	1040018	62	11044	63683	13835	7033151	1527937
T	1040019	62	13812	62104	13790	8577804	1904675
	1040020	62	13100	63071	13710	8262301	1796010
T	1040021		4126	51877	14351	2140445	592122
			661050			401958351	95562341

MALTON, ONT.

PROJECT C-105 MK 2

[illegible]

AVRO AIRCRAFT LTD.

MALTON, ONT.

PROJECT C-105 MK 2

WEIGHT AND C. OF G BY FUNCTIONAL COMPONENT

	DESCRIPTION	REFERENCE NO.	COMP. NO.	WEIGHT	H
	TOTAL FUSELAGE GROUP	3000000			
	FUSELAGE BASIC STRUCTURE	3010000			
3	RADOME	3010001	51	9840	
3	RADAR NOSE STRUCTURE	3010003	51	18000	
3	SKIN F F	3010004	52	8094	1
4	SKIN C F	3010005	54	21048	3
5	SKIN D B	3010006	56	5880	5
5	SKINS E B	3010007	58	17344	6
3	FORMERS F F	3010011	52	9842	1
4	FORMERS C F	3010012	54	27786	3
5	FORMER D B	3010013	56	7457	5
5	LIGHT FORMERS E B	3010014	58	14679	6
5	HEAVY FORMERS E B	3010015	58	20976	6
3	LOWER LONGERONS F F	3010016	52	6791	1
5	INNER LONGERONS E B	3010017	58	4411	6
5	LONGERON E B	3010018	58	8035	6
5	TOP LONGERONS E B	3010019	58	638	6
3	LOWER SHEAR PANEL F F	3010020	52	2958	2
5	TOP WING LONGERONS D B	3010021	56	687	5
3	LONGERONS C F	3010022	52	532	
3	LONGERONS C F	3010023	54	1381	3
5	LONGERONS D B	3010025	56	1056	5
4	ELECTRONICS BAY STRUCTURE	3010026	54	4523	2
5	LONGITUDINAL BEAMS D B	3010027	56	6342	5
4	RADAR ACCESS DOOR C F	3010028	54	2108	2
5	MAIN FRAME AT STN 538 77	3010029	56	5966	5
5	DIVE BRAKE ACCOM STRUCTURE	3010030	56	3634	5
3	COCKPIT DECKING	3010031	52	1798	2
4	DUCT C F	3010032	54	3328	6
5	DUCT D B	3010033	56	2550	5
3	CANOPY ARCH F F	3010034	52	6485	2
3	CANOPY ARCH C F	3010035	52	1970	2
5	ACCESS PANEL STIFFNERS	3010036	56	3865	5
3	NOSE U C SUPPORT STRUCTURE	3010037	52	2868	2
3	CREW BULKHEADS	3010038	52	1212	4
4	EQUIPMENT BAY STRUCTURE	3010039	54	6016	2
3	WINDSCREEN	3010041	52	1275	4
5	SERV ACCESS DOORS AND PNLS	3010042	58	6405	6
4	DORSAL FAIRING AIR OUTLET	3010044	54	2061	2
5	INTERMEDIATE FORMERS E B	3010045	58	3884	7
5	ENGINE ACCESS DOORS E B	3010046	58	1450	6
4	SEALING MISSILE BAY	3010047	54	6997	3
4	JOINT STRAPS AND MISC	3010048	54	1553	3
4	FLOOR C F	3010049	54	1318	9
3	BULKHEAD AT STN 120	3010050	52	2868	1
3	BULKHEAD AT STA 255	3010051	52	1041	8
5	4 BULKHEAD STA 485	3010052	54	1235	1
5	ENG TUNNEL E B	3010054	58	5503	1
4	INTEGRAL FUS FUEL TANK	3010055	54	2035	9
3	COCKPIT FLOOR	3010056	52	574	3

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COMPONENTS

PROJECT C-105 MK 2

DESCRIPTION		REFERENCE NO.	COMP. NO.	WEIGHT
4	DORSAL OVER FUEL TANK	30100061	54	50974
4	SHIELD EXHAUST DEFLECTOR	30100062	54	19653
3	SHEAR PANEL BELOW NAV ARCH	30100063	52	20742
4	ARMAMENT PROVISIONS	30100064	54	26573
6	ENG ACCESS DOORS R F	30100065	59	87947
6	TUNNEL FIXED R F	30100066	59	117887
6	SKIN AND INTERCOSTAL R F	30100067	59	51557
6	FAIRING UNDER RUDDER R F	30100068	59	13527
6	FORMERS FIXED R F	30100069	59	87777
6	LONGERONS TORQUE BOX R F	30100070	59	33717
6	NACELLES REMOVABLE R F	30100071	59	195008
6	CNTR STRUC STING REMOV R F	30100072	59	92678
5	MISC ITEMS STRUCTURE E B	30100073	58	9126
5	MTG BRKTS SIDE PANEL D B	30100075	56	2135
5	FORMERS LOWER PANEL D B	30100076	56	76065
5	LOW PANEL D B & JT TO E B	30100077	56	62875
5	DROP TANK MTG STRUCT D B	30100078	56	8536
51	ENG RAILS ATTACHM TO FORM	30100079	58	34816
				602532
9	DIVE BRAKES	30200000	72	113285
				11328
	AIR INTAKES	30300000		
3	LIP AND RAMP	30301000	55	731922
				73192
	PILOTS AND NAVIG CANOPIES	30400000		
3	PILOTS CANOPY	30401000	53	237251
				23725
3	NAVIGATORS CANOPY	30402000	53	137822
				13782

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WEIGHT AND C. OF G BY FUNCTIONAL COMPONENT

 PROJECT C-105 MK 2

DESCRIPTION		REFERENCE NO.	COMP. NO.	WEIGHT
ENGINE GROUP		5000000		
41 PS 13 ENGINES		5010000		9075.626
				9075.62
41 PS 13 ENGINES SERV ACCESS		5010100		28150.6
				28150
49 ACC GEAR BOX ON FUSELAGE		5020000		23876.6
				23876
ENGINE CONTROLS		5030000		
47 ENGINE CONTROLS F F		5030001	52	14341
47 ENGINE CONTROLS C F		5030002	54	2653
47 ENGINE CONTROLS D B		5030003	56	5215
47 ENGINE CONTROLS E B		5030004	58	8776
				3097
43 STARTER AND ENG GEAR BOXES		5040000		15982.6
				15982
66 ENGINE ANTI ICING		5050000		7000.5
				7000
FIRE EXT SYSTEM		5060000		
64 ENG FIRE EXT SYSTEM		5060001		7552.7
				7552
ENGINE MTGS AND BRACKETS		5070000		
42 ENGINE MTG		5070001		10453.6
42 ENGINE MTG ACCESSORIES		5070002		5200.6
				15653
FUEL SYSTEM		5080000		
54 FUEL SYSTEM C F		5080001	54	12114.4
54 FUEL SYSTEM D B		5080002	56	14210.5

PROJECT C-105 MK 2

WEIGHT AND C. OF G BY FUNCTIONAL COMPONENTS

[illegible]

