AVRO
Rept
7-0400-05
Iss. 26

C-105 With J75
Production Engines

Report # 7-0400-05
ISSUE 26

WEIGHT SUMMARY & C.G. POSITION

N.A.E.
~~R.C.A.F.~~ [redacted]

May 1/56

(6)

~~S E C R E T~~

ANALYZED

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

Report # 7-0400-05
Sheet # 001-1 Issue 26
Prepared By: K. Griffin
Checked By: E. Burnett

INTRODUCTION

The following is a revised Weight & C.G. Summary for the C-105 Aircraft, based on the latest weight estimates available on April 30th, 1956. All weight and C. G. changes are relative to Issue 25.

GENERAL:

a) As in Issue 25 Pratt and Whitney J75 Engines comprise the Interim Power Plant (5,950 lb. each)

b) A package containing 4 "semi-submerged" Sparrow Missiles (432 lb each) is currently carried.

c) The Hughes MX 1179 Radar System is being replaced by an R.C.A. system, however, until information is available on the new system, weights will be maintained as for the Hughes MX 1179 Radar. As in issues subsequent to 23 a Douglas Missile Control System is installed.

1. STRUCTURE

(a) Wing:

	WEIGHT (lb)
I/Wing Trailing Edge - addition of fire extinguisher bottle mounting brackets	+ 1
O/Wing Ribs - Production Drawing estimate	+ 13
O/Wing Joints - Production Drawing estimate of Rib # 12	+ 28
Aileron Control Box - Production Drawing Estimate - reductions in Intercostals and Stiffeners etc.	- 29
O/Wing Skins - Production Drawing estimate	+ 5
Weight Change Increase	+ 18

Ref. 002-1

(b) Fin and Rudder:

No Weight Change

(c) Fuselage to Sta. 255":

Top Longerons - Production Drawing estimates incorporating many design changes	+ 36
Crew's Bulkheads - design alterations to Production Drawings	+ 7
Skin and Lower Shear Panel - fully estimated to Production Drgs. incorporating redesign of Shear Panel, added butt straps doublers etc. on Skin	+ 28
Windscreen - revision of estimate to Production Drawings	- 3
Miscellaneous other changes	+ 1
Weight Change Increase	+ 69

Ref. 002-2

37980

8795308

Classification cancelled / changed to Unclassified
By authority of AVRO Arrow Declassif. Board
Date 28 Jul 87
Signature , Co-Chairperson
Unit / Rank / Appointment DSIS 3

INTRODUCTION

1. STRUCTURE (Continued)

		WEIGHT (lb)
(d)	Fuselage Sta. 255" - 485"	
	Miscellaneous Changes to Dorsal Deflector	+ 2
	Deletion of Armament Pack Guide	- 1
	Weight Change Increase	+ 1
	Ref. 002-3	
(e)	Fuselage Sta. 485" Aft	
	Duct Bay - alterations to Beams 538.77 - 591.65 and Access Doors	+ 10
	Engine Bay - Changes to Access Doors etc. and first detailed estimate of insulation	- 5
	Rear Fuselage Fixed - Changes to insulation etc. - core now 5 lb/cu. ft. was 4 lb/cu. ft.	+ 5
	Rear Fuselage Remov. - Minor Changes longerons, insulation etc.	+ 2
	Weight Change Increase	+ 12
	Ref. 002-4	
	TOTAL STRUCTURE WEIGHT INCREASE	+ 100

2. LANDING GEAR

No Weight Change	0

3. POWER PLANT & SERVICES

Engines - guaranteed Weight now 5,950 lb/Engine	- 450
Ref. 002-4	
TOTAL POWER PLANT & SERVICES DECREASE	- 450

4. FLYING CONTROL GROUP

Hydraulics - These have been completely re-estimated to Production Drawing, some piping reductions also equipment weight allowances were too high etc.	- 36
Ref. 002-4	
TOTAL FLYING CONTROLS GROUP DEACREASE	- 36

5. EQUIPMENT

Hydraulics Main System - addition of 80 cu. in. accumulator	+ 15
Hand Fire Extinguisher Fluid - deleted - no longer R.C.A.F. requirment	- 3
Ref. 002-5	
TOTAL EQUIPMENT INCREASE	+ 12

~~S E C R E T~~

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

Report # 7-0400-05
Sheet # 001-3 Issue 26
Prepared By: K. Griffin
Checked By: E. Burnett

INTRODUCTION

6. OPERATIONAL LOAD — WEIGHT (lb)

No Weight Change — 0

SUMMARY

Weight Change - Aircraft Weight Empty

Structure	+ 100 lb.
Power Plant & Services	- 450 lb.
Flying Controls	- 36 lb.
Equipment	+ 12 lb.
	- 374 lb.

Weight Change - Operational Load Less Fuel

NIL

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

Issue 25	Issue 26	
44,690	44,316	- 374 lb.

~~S E C R E T~~

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Report # 7-0400-05
Sheet # 002-1 Issue 26
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WEIGHT CHANGES TO 7-0400-05 ISSUE 25

WEIGHT CHANGES

Wing:

+ 0.71	I/W Structure aft R/Spar - addition of fire extinguishing bottle mounting brackets.		
+ 12.90	O/W Ribs - These have been estimated to production drawings		
	Increase in aileron jack fitting on Rib # 18	+	3.64
	Increase in rib attachments	+	9.26
		+	12.90
+ 27.70	O/W Joints - Rib # 12 completely re-estimated to production drawings.		
	Cap increases and vertical stiffeners added	+	13.74
	Addition of posts and angles	+	13.96
		+	27.70
- 28.52	Aileron Control Box - completely re-estimated to production drawings.		
	Intercostals - some reduced, some deleted	-	11.52
	Stiffeners - some deleted	-	16.60
	Skins - refined estimate	-	1.18
	Ribs and Misc. - refined estimate	-	0.64
	Hardware - Previous allowance was too low	+	1.42
		-	28.52
+ 5.68	O/W Skins - re-estimated to production drawings - general refinement of estimate.		
+ 18.47			

Front Fuselage (Fwd. Sta. 255")

+ 1.82	Top Shear Panel - Production drawing estimate, alterations to stiffeners, doublers etc.		
+ 35.57	Top Longerons - Fully estimated to production drawings		
	Diaphragms - previous allowances too low	+	6.32
	Nut Plates - added along top surface	+	2.77
	Rudder Pedal Mounting Bracket - this fitting is now called up on longerons	+	2.18
	Welded fitting - redesigned	+	4.54
	Tapered Packers - Mounting added	+	3.77
	Skin Doublers - Contour alterations	+	1.39
	Tie Rod and End Fittings Sta. 246.25, previous allowance too low	+	2.12
	Cross Beam 246 - alt. to side doublers, stiffeners etc.	+	1.92

Continued

~~S E C R E T~~

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

Report # 7-0400-05
Sheet # 002-2 Issue 26
Prepared By: K. Griffin
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WEIGHT CHANGES TO 7-0400-05 Issue 25

WEIGHT CHANGES

Front Fuselage (Fwd. Sta. 255") (Cont'd.)

	Channel at Sta. 191 added	+	2.90
	Rain repellant further details	+	0.91
	Aft Pressing - alterations to lower aft contour	+	0.52
	Tee at Centre Arch Attach. added	+	2.26
	Hardware and general refinement of estimate	+	3.97
		+	35.57

+ 9.85	Crews Bulkheads - re-estimate to re-issue of production drawings			
	⎍ section on N.B. L.H. replaced by channnels and cap, butt straps added O/B edge etc.	+	2.43
	Butt Straps, doublers etc on N.B. R.H.	+	1.50
	Addition of drag strut att. fitting P.B.R.H.	+	2.77
	Patch plates, angles etc. upper pilots Bulk.	+	1.02
	Hardware at seat fittings, marry up etc.	+	2.13
		+	9.85
- 3.05	Nose U/C Support Structure - Frame fitting at drag strut pick-up now with Bulkhead - see above		
- 12.80	Stringers F.F. - report deleted - now included on production drawing estimate with skins, see below		
+ 13.53	Skins F.F. - estimated to production drawings		
	addition of fittings at Pilot's Bulkhead	+	1.44
	further information on doublers etc. at floor	+	2.07
	addition of doublers and strap-upper aft.	+	2.81
	addition of stringers	+	12.02
	deletion of .032 Al. Shear Panel allowance	-	6.20
	Scheme of joint to be added at Sta. 176	+	1.39
		+	13.53
- 2.14	Slinging and Jacking - Jacking fitting with associated shear plate and intercostals now integral part of lower Shear Panel see below.		
+ 29.58	Lower Shear Panel - This has been completely redesigned since last estimate, which was for a .032 Al. Panel - now .051 with heavy access door etc. This incorporates the Jacking fittings and allowances deleted from Skin report (see above)		
- 3.26	Windscreen - Revision of estimate to production drawings		
	Seal - redesigned	-	1.60
	Retainers etc. - re-estimated	-	1.66
		-	3.26
+ 69.10			

S E C R E T

Date: May 1st, 1956
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as Interim Power Plant

Report # 7-0400-05
Sheet # 002-3 Issue 26
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WEIGHT CHANGES TO 7-0400-05 ISSUE 25

WEIGHT CHANGES

Centre Fuselage (Sta. 255" - 485")

+ 1.73	Dorsal Deflector - estimated to Stress approved schemes		
	Lips added to intercostals	+	0.63
	Addition of .064 Angles and Screws	+	0.89
	Miscellaneous minor changes	+	0.21
		+	1.73
- 0.93	Armament Provisions - production drawing estimate of beam at Sta. 292 incorporating deletion of armament pack guide.		
+ 0.80			

Aft Fuselage (Sta. 255" Aft)

+ 6.06	Longitudinal Beams D.B. - redesign beams 538.77 to 591.65, angle, web and "T" replaced by heavy extrusion.		
- 0.34	Dive Brake Accommadations - Production Drawing estimate of sealing		
+ 4.46	Access Door D.B. - redesign Front Engine Mounting Door -		
	doubler now Steel etc.	+	1.46
	Rear Duct Attach. Panel - redesign, Panel .102 was .051 etc.	+	0.99
	R.H. Door Rear Duct Attach. not previously allowed for in error	+	1.71
	Hyd. and Air Conditioning Panel .064 was .051	+	0.30
		+	4.46
+ 5.28	Service Access Doors E.B. - Panel added 649" - 658"	+	1.41
	general re-estimates to production drawings including misc. changes	+	3.87
		+	5.28
- 0.41	O/Skin E.B. - Cut-out for new Service Door - see above.		
- 10.26	Engine Tunnel E.B. - Scheme drawing for insulation now available 6.9" shorter than allowed	-	6.96
	Clipping - previous allowance too high	-	3.30
		-	10.26
+ 0.09	Centre Beam 647.28 - 717.36 - Production Drawing estimate		
+ 5.03	Centre Structure & Stringer R.F. - addition of insulation		
+ 2.15	Engine Access Door R.F. - insulation core 5 lb/cu.ft. was 4 lb/cu. ft.	+	1.57
	Fasteners - allowance was too low	+	0.58
		+	2.15

Continued.

~~S E C R E T~~

Date: May 1st, 1956
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Report # 7-0400-05
Sheet # 002-4 Issue 26
Prepared By: K. Griffin
Checked By: E. Burnett

WEIGHT CHANGES TO 7-0400-05 ISSUE 25

WEIGHT CHANGES

Aft Fuselage (Sta. 255" - 485") (Cont'd.)

+ 3.27	Tunnel Fixed R.F. - Scheme drawing of insulation now available		
	Revised area of foil	-	1.22
	Core material 5 lb/cu.ft. was 4 lb/cu. ft.	+	3.04
	Fasteners - insufficient allowance	+	1.45
		+	3.27
- 3.67	Nacelles Removable R.F. - Insulation now centre Struct.	-	6.92
	Longerons - caps increased in area also .025 were .02, stub .025 was .02 etc.	+	3.25
		-	3.67
+ 11.66			

Power Plant & Services Group:

- 450.00	Engines - Manufacturers guaranteed weight has been reduced to 5,950 lb. each.	
- 450.00		

Flying Controls Group

The Hydraulics in the Wing have been completely re-estimated to production drawings and the following changes to reports made:

- 200.00	Aileron Hydraulics - This report is cancelled.		
- 217.43	Elevator Hydraulics - This report is cancelled.		
+ 247.80	F/C Hydraulics I/Wing - This includes 38.85 lb of aileron piping, however the production drawing estimate resulted in a reduction of 8.48 lb in piping (Weight was 217.43 lb for Elevator Hydraulics now 217.43 + 38.85 - 8.48 = 247.80 lb.)		
+ 132.75	F/C Hydraulics O/Wing - Weight of Aileron Hydraulics was		200.00
	Piping now in I/Wing	-	38.85
	Some piping now in Main System	-	8.86
	Mech. Linkage on Aileron Jack in Mechanical Controls	-	4.64
	Flexible hose reduced in size	-	3.30
	Pressure and return lines shorter	-	3.00
	Miscellaneous production drawing changes	-	8.60
		+	132.75
+ 0.94	F/C Hydraulics Main System - Aileron piping in Fuselage added	+	8.86
	Revision in Equipment Weights	-	7.92
		+	0.94
- 35.94			

~~S E C R E T~~

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Report # 7-0400-05
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Prepared By: K. Griffin
Checked By: E. Burnett

WEIGHT CHANGES TO 7-0400-05 ISSUE 25

EQUIPMENT GROUP

- 3.50	Hand Fire Extinguisher Fluid - Deleted - this is no longer an R.C.A.F. requirement.
+ 15.34	Hydraulics Main System - addition of 80 cu. in. accumulator for new type pump.
+ 11.84	
- 374.07	TOTAL WEIGH CHANGE

~~SECRET~~

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

Report # 7-0400-05
Sheet # 003-1 Issue 26
Prepared By: J. Murphy
Checked By: E. Burnett

WEIGHT AND C.G. SUMMARY

REF. No.	DESCRIPTION	WEIGHT lb.	H. ARM ins.	V. ARM ins.
	STRUCTURE	17,051.68	565.16	138.64
1000000	Wing	9,474.30	643.96	142.44
2000000	Fin and Rudder	995.74	754.13	209.06
3000000	Fuselage Structure Fwd. 255"	2,237.29	186.83	129.94
	255" to 485"	1,546.27	369.68	131.55
	Aft. 485"	2,798.08	641.62	111.57
4000000	UNDERCARRIAGE - UP POSITION	2,861.34	484.83	133.81
4010100	Main Undercarriage	1,848.24	539.88	141.00
4010200	Main U/C Doors and Fairings	287.32	539.21	136.40
4010300	Main U/C Hydraulics	284.84	548.06	135.75
4020100	Nose Wheel Undercarriage	315.47	168.80	99.81
4020200	Nose U/C Doors and Fairings	25.92	163.71	89.22
4020300	Nose U/C Hydraulics	99.55	210.03	106.57
5000000	POWER PLANT & SERVICES	13,454.88	656.92	120.54
5010000	Engines J75	12,197.50	666.10	119.81
5020000	Gear Box and Drive	150.00	606.00	94.66
5030000	Engine Controls	29.19	377.46	118.91
5040000	Pneumatic Starting System	52.00	610.00	94.75
5050000	Engine De-Icing	68.10	561.78	115.69
5060000	Fire Extinguishing System	70.52	701.99	127.72
5070000	Engine Mountings & Brackets	216.07	643.18	125.29
5080000	Fuel System	671.50	526.79	138.78
6000000	FLYING CONTROLS GROUP	1,730.33	653.59	138.81
6010000	Mechanical Flying Controls	839.40	682.71	145.88
6030000	Flying Controls Electronics	108.00	222.33	131.43
6000000	Flying Controls Hydraulics	782.93	681.87	132.25
	EQUIPMENT - FIXED AND REMOVABLE	6,695.77	312.69	113.06
7010000	Instruments	53.30	153.98	140.27
7010003	Probe	23.00	- 9.74	108.00
7020000	Cockpit Pressure Sealing	5.00	186.00	130.00
7030000	Oxygen System	43.60	226.99	140.27
7040000	Air Conditioning System	703.98	325.98	134.27
7050000	Hydraulics Main System	231.00	590.24	115.65
7060000	Fin Pitot System	12.30	596.69	198.16
7070000	Cabin Insulation	11.91	179.24	130.00
7080000	Brake Parachute	69.69	784.88	131.17
7090000	Electrical System	935.20	400.94	116.16
7100000	Low Pressure Pneumatics	16.60	217.17	133.41
7110000	Oil & Hydraulic Fluid Cooling	130.00	573.07	102.64
7120000	Intake De-Icing	82.62	206.33	118.82
7000000	Radio & Radar Fixed, Power Supplies	937.41	220.85	110.58
7130000	Radome Anti-Icing	23.46	62.92	126.04
7160000	Canopy Actuation	46.80	223.54	154.60
7170000	Cabin Consoles	20.65	177.37	125.23
7180000	Radar Door Actuation	10.00	268.00	95.00

~~S E C R E T~~

Date: May 1st, 1956
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Report # 7-0400-05
Sheet # 003-2 Issue 26
Prepared By: J. Murphy
Checked By: E. Burnett

WEIGHT AND C.G. SUMMARY

REF. No.	DESCRIPTION	WEIGHT lb.	H. ARM ins.	V. ARM ins.	C.G. POSITION % M.A.C.
	Equipment (Fixed & Remov.)(Cont'd)				
8010100	Ejector Seats	186.00	201.10	136.25	
8020000	Radar Removable	1,124.70	140.94	113.19	
8000000	Radio Removable & I.F.F.	247.90	291.13	112.19	
8050100	Sparrow Pack Structure	900.00	375.42	96.00	
8050200	Sparrow Pack Mechanisms	325.00	353.32	100.00	
8050300	Sparrow Pack Hydraulics	505.65	409.15	98.84	
8050400	Sparrow Pack Electronics	50.00	436.15	103.20	
	AIRCRAFT WEIGHT EMPTY	41,794.00	552.41	128.39	
9000000	USEFUL LOAD	18,121.87	516.75	136.76	
9010000	Crew	430.00	194.00	136.50	
9020000	Oil	85.08	611.71	135.00	
9050000	Alcohol For Radome De-icing	22.00	93.00	138.00	
9060000	Engine Fire Extinguisher Fluid	25.00	730.00	129.00	
9070000	Residual Fuel	218.40	553.98	134.04	
9090000	Fuel For Combat Mission	15,600.00	539.20	142.18	
9030000	Missiles (Armament)	1,728.00	389.29	88.30	
9040000	Oxygen Charge	13.39	259.69	159.91	
	U/C Up		541.62	130.92	29.18
	Normal Combat Mission	59,915.87			
	U/C Down		543.19	128.77	29.61
	Half Combat Mission Fuel 1,000 gal. @ 7.8 lb/gal.	7,800.00	540.88	139.53	
	U/C Up		542.24	128.83	29.35
	Combat Weight (Half Combat	52,115.87			
	Mission Fuel) U/C Down		544.05	126.36	29.85
	U/C Up		542.48	126.95	29.41
	Operational Weight Empty	44,315.87			
	U/C Down		544.61	124.05	30.00
	U/C Up		548.70	128.52	31.13
	Operational Weight Empty	42,587.87			
	(Less Missiles) U/C Down		550.91	125.50	31.74
	Maximum Internal Fuel 2,544 gal. @ 7.8 lb/gal.	19,843.00	538.88	144.32	
	Water (Air Conditioning System)	125.00	268.00	132.00	
	U/C Up		540.84	132.32	28.96
	A.U.W. Max. Internal Fuel	64,283.87			
	U/C Down		542.31	130.32	29.37
	Max. External Fuel 500 gal. @ 7.8 lb/gal. and Drop Tank	4,210.00	528.88	62.00	
	U/C Up		540.10	128.00	28.76
	A.U.W. Maximum Internal and	68,493.87			
	External Fuel U/C Down		541.48	126.12	29.14

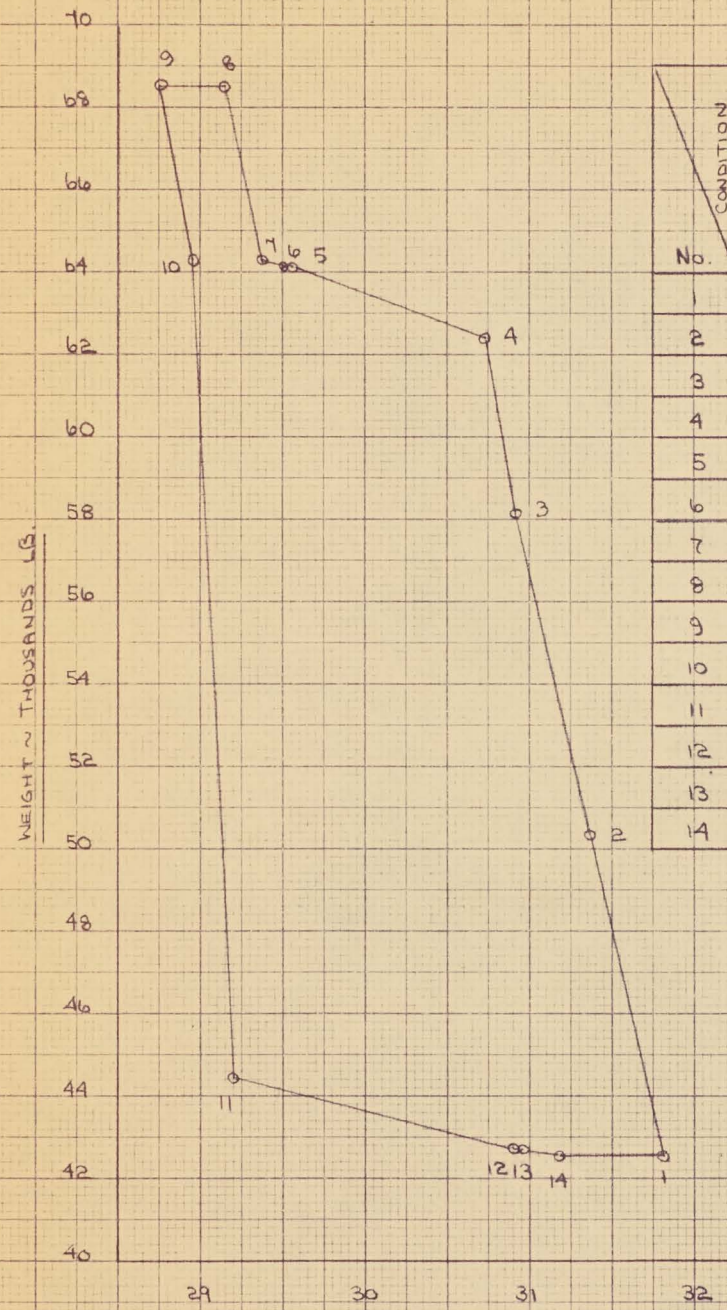
REPORT NO: J-0400-05 ISSUE 2b

BY: Kathleen Griffin

DATE: May 1st 1956

SECRET

C105 A/C C.G. ENVELOPE
FOR A/C FLIGHT CONDITIONS
WITH J75 ENGINES
& FUEL PROPORTIONER



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

N.B. IN ORDER TO BRING POINT ① TO THE AFT LIMIT ie 31% M.A.C. 290 LB BALLAST MUST BE INSTALLED AT STA 120 INS

SECRET

K&E 10 X 10 TO THE 1/2 INCH 359-12 KEUFFEL & ESSER CO. MADE IN U.S.A.

AVRO AIRCRAFT LTD.
MALTON, ONT.

WEIGHT AND C. OF G BY FUNCTIONAL COMPONE

PROJECT C-105

	DESCRIPTION	REFERENCE NO.	COMP. NO.	WEIGHT	H
	TOTAL FUSELAGE GROUP	3000000			
	FUSELAGE BASIC STRUCTURE	3010000			
3	RADOME	301000151		7819	
3	RADAR NOSE ACCESS DOORS	301000251		8340	
3	NOSE STRUCTURE FWD 120	301000351		9349	
3	SKIN F F	301000452		8094	1
4	SKIN C F	301000554		13059	3
5	SKIN D B	301000656		8317	5
5	SKIN E B	301000758		11598	6
4	STRINGERS C F	301000954		5173	3
5	STRINGERS D B	301001056		500	5
3	FORMERS F F	301001152		9347	1
4	FORMERS C F	301001254		27441	3
5	FORMERS D B	301001356		14456	5
5	LIGHT FORMERS E B	301001458		12804	6
5	HEAVY FORMERS E B	301001558		18628	6
3	LONGERONS F F	301001652		5311	1
5	LONGITUDINAL MEMBERS E B	301001758		419	7
5	LONGERON E B	301001858		7580	6
5	TOP LONGERONS E B	301001958		631	6
3	LOWER SHEAR PANEL F F	301002052		2958	2
5	TOP WING LONGERONS D B	301002156		687	5
3	LONGERONS 255 485 F F	301002252		53	2
4	LONGERONS 255 485 C F	301002354		14251	4
4	DUCT BAY LONGERONS C F	301002456		477	4
5	DUCT BAY LONGERONS D B	301002556		9366	5
4	STR BELOW BOTTOM LONGERON	301002654		4053	2
5	LONGITUDINAL BEAMS D B	301002756		6358	5
4	RADAR ACCESS DOOR	301002854		2310	2
5	MAIN FRAME AT STN 538 77	301002956		5966	5
5	DIVE BRAKE ACCOM STRUCTURE	301003056		3613	5
3	COCKPIT DECKING	301003152		17982	1
4	DUCT C F	301003254		33512	3
5	DUCT D B	301003356		25421	5
3	CANOPY ARCH F F	301003452		5806	2
3	CANOPY ARCH C F	301003552		1598	2
5	ACCESS PANEL STIFFNERS	301003656		3865	5
3	NOSE U C SUPPORT STRUCTURE	301003752		3237	2
3	CREW BULKHEADS	301003852		12124	2
4	EQUIP BAY STRUCTURE	301003954		5803	2
3	WINDSCREEN	301004152		12713	1
5	SERV ACCESS DOORS AND PNLS	301004258		4891	6
5	TORSION BOX E B	301004358		300	6
4	DORSAL FAIRING AIR OUTLET	301004454		2110	2
5	INTERMEDIATE FORMERS E B	301004558		404	8
5	ENGINE ACCESS DOORS E B	301004658		746	7
4	SEAL IN MISSILE BAY	301004754		61	8
4	JOINT STRAPS AND MISC	301004854		155	3
4	FLOOR C F	301004954		1282	5
3	BULKHEAD AT STN 120	301005052		286	8

AVRO AIRCRAFT LTD.
MALTON, ONT.

WEIGHT AND C. OF G BY FUNCTIONAL C COMPONEI

PROJECT C-105

	DESCRIPTION	REFERENCE NO.	COMP. NO.	WEIGHT	H.
3	BULKHEAD AT STN 255	301005152		98	64 25
4	BULKHEAD AT STN 485	301005254		109	84 48
5	ENGINE TUNNEL E B	301005458		455	88 66
4	INTEGRAL FUS FUEL TANK	301005554		211	54 39
3	COCKPIT FLOOR	301005652		57	43 17
4	SLING AND JACK FITTINGS CF	301005854		9	57 25
5	CENTRE BEAM 697 28 717 36	301005958		5	09 71
4	DORSAL OVER FUEL TANK	301006154		52	46 41
4	DORSAL HOT AIR DEFLECTOR	301006254		19	05 33
3	SHEAR PANEL BELOW NAV ARCH	301006352		18	90 25
4	ARMAMENT PROVISIONS	301006454		26	57 30
6	ENGINE ACCESS DOORS R F	301006559		73	79 77
6	TUNNEL AND STIFFNERS R F	301006659		112	58 77
6	SKIN AND INTERCOSTAL R F	301006759		51	55 76
6	FAIRING UNDER RUDDER R F	301006859		13	52 77
6	FORMERS FIXED R F	301006959		86	39 77
6	LONGERONS TORQUE BOX R F	301007059		33	71 77
6	NACELLES REMOV R F	301007159		150	82 82
6	CNTR STRUC STING REMOV R F	301007259		92	67 83
				548	99
9	DIVE BRAKES	302000072		111	32 50
				111	32
	AIR INTAKES	3030000			
3	LIP AND RAMP	303010055		621	87 21
				621	87
	PILOTS AND NAVIG CANOPIES	3040000			
3	PILOTS CANOPY	304010053		230	11 17
				230	11
3	NAVIGATORS CANOPY	304020053		134	35 23
				134	35

AVRO AIRCRAFT LTD.
MALTON, ONT.

WEIGHT AND C. OF G BY FUNCTIONAL C
COMPONE

PROJECT C-105

	DESCRIPTION	REFERENCE NO.	COMP. NO.	WEIGHT	H.
	FIXED EQUIPMENT GROUP	7000000			
	INSTRUMENTS	7010000			
59	INSTRUMENTS F F	701000152		5130	15
	PROBE SERVICES	701000351		800	4
106	NAVIG TABLE AND STOWAGE	701000452		200	22
				6130	
3	COCKPIT PRESSURE SEALING	702000052		500	18
				500	
	OXYGEN SYSTEM	7030000			
63	OXYGEN SYSTEM F F	703000152		2410	19
63	OXYGEN SYSTEM C F	703000254		1950	26
				4360	
	AIR CONDITIONING SYSTEM	7040000			
65	AIR CONDITIONING F F	704000152		10259	22
65	AIR CONDITIONING C F	704000254		46990	30
65	AIR CONDITIONING D B	704000356		5260	53
65	AIR CONDITIONING E B	704000458		5199	63
66	WINDSCREEN DEMISTING	704000552		2690	13
				70398	
	HYDRAULICS MAIN SYSTEM	7050000			
57	HYDRAULICS MAIN SYSTEM D B	705000156		9800	57
57	HYDRAULICS MAIN SYSTEM E B	705000258		13300	60
				23100	
	FIN PITOT SYSTEM	7060000			
	FIN PITOT SYSTEM F F	706000152		136	19
	FIN PITOT SYSTEM C F	706000254		249	37
	FIN PITOT SYSTEM D B	706000356		116	53
	FIN PITOT SYSTEM E B	706000458		16	59
	FIN PITOT SYSTEM FIN	706000583		713	76
				1230	
69	CABIN INSULATION	707000052		1191	17
				1191	

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
	7000000						
	7010000						
	701000152		5130	15141	14067	776733	721637
	701000351		800	4700	10800	37600	86400
GE	701000452		200	22000	13000	44000	26000
			6130			858333	834037
ING	702000052		500	18600	13000	93000	65000
			500			93000	65000
	7030000						
	703000152		2410	19842	12416	478192	299226
	703000254		1950	26231	16017	511505	312332
			4360			989697	611558
EM	7040000						
	704000152		10259	22360	11948	2293912	1225745
	704000254		46990	30229	13757	14204607	6464414
	704000356		5260	53184	13404	2797478	705050
	704000458		5199	63110	13606	3281089	707376
	704000552		2690	13794	13000	371059	349700
			70398			22948145	9452285
M	7050000						
M D B	705000156		9800	57274	11650	5612852	1141700
M E B	705000258		13300	60314	11503	8021762	1529899
			23100			13634614	2671599
	7060000						
	706000152		136	19105	12000	25983	16320
	706000254		249	37054	12000	92264	29880
	706000356		116	53853	12000	62469	13920
	706000458		16	59885	12000	9582	1920
	706000583		713	76245	25483	543627	181694
			1230			733925	243734
	707000052		1191	17924	13000	213475	154830
			1191			213475	154830

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WEIGHT AND C. OF G BY FUNCTIONAL G COMPONEN

PROJECT C-105

	DESCRIPTION	REFERENCE NO.	COMP. NO.	WEIGHT	H.
	BRAKE PARACHUTE	7080000			
39	BRAKE PARACHUTE F F	7080001	52	239	16
39	BRAKE PARACHUTE C F	7080002	54	132	39
39	BRAKE PARACHUTE D B	7080003	56	44	52
39	BRAKE PARACHUTE E B	7080004	58	51	67
39	BRAKE PARACHUTE R F	7080005	59	650	81
				6969	
	ELECTRICAL SYSTEM	7090000			
	HARNESS ELECTRICS	7090100			
60	HARNESS ELECTRICS F F	7090101	52	549	316
60	HARNESS ELECTRICS C F	7090102	54	360	546
60	HARNESS ELECTRICS D B	7090103	56	411	050
60	HARNESS ELECTRICS E B	7090104	58	95	562
60	HARNESS ELECTRICS FIN	7090105	83	10	84
60	HARNESS ELECTRICS I W	7090106	62	199	453
60	HARNESS ELECTRICS L E O W	7090107	65	6	264
				16229	
	ALTERNATOR SYSTEM	7090200			
60	ALTERNATOR SYSTEM F F	7090201	52	550	515
60	ALTERNATOR SYSTEM D B	7090202	56	1958	352
60	ALTERNATOR SYSTEM ENGINE	7090203		1040	055
				35488	
	AIR CONDITIONING ELECTRICS	7090300			
60	AIR CONDITIONING F F	7090301	52	116	215
60	AIR CONDITIONING C F	7090302	54	35	839
60	AIR CONDITIONING D B	7090303	56	27	053
60	AIR CONDITIONING E B	7090304	58	4	060
				1830	
	UNDERCARRIAGE ELECTRICS	7090400			
60	UNDERCARRIAGE ELECTRICS FF	7090401	52	56	514
60	UNDERCARRIAGE ELECTRICS CF	7090402	54	135	045
60	UNDERCARRIAGE ELECTRICS IW	7090403	62	34	052
				2255	
	EXTERNAL AND SERV LIGHTS	7090500			
60	EXT AND SERV LIGHTS F F	7090501	52	78	013
60	EXT AND SERV LIGHTS FIN	7090502	83	6	089
60	EXT AND SERV LIGHTS O W	7090503	64	6	079
				900	
	FUEL VALVE CONTROL	7090600			

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
	7100000						
	710000152		15222	21236	13306	323212	202517
	710000254		1382	7018	13731	37285	18949
			1660			360497	221466
NG	7110000						
NG OB	711000156		10282	56175	10130	577591 4	1041567
NG EB	711000258		2718	61587	10769	1673935	292701
			13000			7449849	1334268
	712000052		8262	20633	11882	1704698	981691
			8262			1704698	981691
	713000051		2346	6292	12604	147610	295690
			2346			147610	295690
	7140000						
	714000151		25231	9389	10068	2368939	2540257
	714000252		16688	21471	11402	3583080	1902766
	714000354		13263	31934	10710	4235406	1420467
	714000456		1970	55492	12975	1093192	255608
	714000583		3179	76177	24601	2421667	782066
	714000662		510	70000	13000	357000	66300
			60841			14059284	6967464
	7150000						
R N	715000151		7700	90122	12280	693924	945560
F F	715000252		19500	22431	9744	4374045	1900080
C F	715000354		5700	27640	9700	1575480	552900
			32900			6643449	3398540
	716000052		4680	22354	15460	1046167	723528
			4680			1046167	723528
	717000052		2065	17737	12523	366269	258600
			2065			366269	258600
	718000054		1000	26800	9500	268000	95000
			1000			268000	95000

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Classification cancelled / changed to Unclassified
By authority of AVRO Arrow Declassif. Board
Date 28 Jul 87
Signature Bdubrey , Co-Chairperson
Unit / Rank / Appointment DSIS 3