QC
Avro
C-105
Rept
7-0400-34
Iss. 11

QCX
Avro
CF105
R-7-0400-34
Iss-11

FILE IN VAULT

C-105 MK 2 Report # 7-0400-34
Prod. A/C Issue 11

UNCLASSIFIED
NON CLASSIFIE

WEIGHT SUMMARY & C.G. POSITION

R.C.A.F. Sept. 1/57

UNCLASSIFIED
NON CLASSIFIE
SECRET
UNCLASSIFIED

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

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

TO
A

DATE
JAN 07 1993
~~Dec. 7, 1992~~

Report no.: QCX - AVRO - CF105- R-7-0400-34-Iss.11

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

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

UNCLASSIFIED
S E C R E T
Report # 7-0400-34 Iss. 11

# I N D E X


| Sheet # | Content |
|---|---|
| 1-1 to 1-3 | Introductory notes and brief explanation of weight changes. |
| 2-1 to 2-2 | Detailed explanation of weight changes to weight reports as listed on I.B.M. Sheets. |
| 3-1 to 3-2 | Weight & C.G. Summaries. |
| 4-1 to 4-15 | I.B.M. Detail Sheets of Weights and C.G's. |


N. B. The flight C.G. envelopes for the MK 2 Aircraft have been omitted until such time as a fully approved fuel sequencing is established.

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


National Research Council
SEP 16 1957
Aeronautical Library

UNCLASSIFIED
SECRET
NON CLASSIFIE

49133

UNCLASSIFIED
NON CLASSIFIE

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

## INTRODUCTION

The following is a Weight & C.G. Summary of the C-105 MK 2 Production Aircraft, based on the latest weight estimates available.

All Weight and C.G. changes are relative to Issue 10 of August 1st, 1957.

GENERAL:

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

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

c) The R.C.A. Radar Astra I System is installed, weight & C.G. location being to the latest breakdown received from them, dated 3rd July 1957. The Sparrow III Auxiliaries, included in the breakdown, have been deleted, however, the Infra Red Tracker System has been re-instated as a requirement; some Avro installed Antennae have been added. (Total Weight = 2,741.0 lb).

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

The early MK 2 A/C will have the "Astra Minus" System installed (i.e. navigational and communication equipment only)

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

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

N. B. It should be noted that the early MK 2 Aircraft will not be as this summary designates, but will be flight test versions with instrumentation replacing the missile package etc. or for development of Astra I Radar System. etc.

1. STRUCTURE — WEIGHT (lb)

a) Wing:

Inner Wing - production drawing estimates of skins and centre trailing edge structure — - 25
Total Wing Decrease — - 25
Ref. 2-1

b) Fin & Rudder

No Weight Change.

UNCLASSIFIED
NON CLASSIFIE
SECRET

UNCLASSIFIED
NON CLASSIFIE

## INTRODUCTION

| 1. STRUCTURE | WEIGHT (lb) |
|---|---|
| c) Fuselage fwd. Sta. 255" | |
| Radome - due to unsatisfactory electrical properties solid laminate will replace the filled honeycomb laminate | + 75 |
| Air Intakes - estimate of MK 2 design | - 3 |
| Fwd. Fuselage Increase | + 72 |
| Ref. 2-1 | |
| d) Centre Fuselage Sta. 255"-485" | |
| Production drawing estimates of Formers, armament bay roof and C.F. Ducts | - 15 |
| Centre Fuselage Decrease | - 15 |
| Ref. 2-1 | |
| e) Duct Bay Sta. 485"-591.65" | |
| Floating Duct - estimated to preliminary schemes | + 47 |
| Joint items & H/Exchanger Duct included here (were in Engine Bay and Engine Group resp.) | + 18 |
| Total Duct Bay Increase | + 65 |
| Ref. 2-1 | |
| f) Engine Bay Sta. 591.65"-742.5" | |
| Engine Tunnel - increase in insulation based on MK 1A/C etc | + 6 |
| Joint Engine to Duct - deletion of allowance (see above) | - 12 |
| Total Engine Bay Decrease | - 6 |
| Ref. 2-2 | |
| g) Rear Fuselage Sta. 742.5" Aft. | |
| Fixed section 742.5"-803" - first estimates of formers etc | + 15 |
| Stinger & Tailcones - N155 cobalt based alloy to be used with Titanium O/Skin on Tailcones, previously weight recorded was for an entirely Titanium structure | + 168 |
| Total Rear Fuselage Increase | + 183 |
| Ref. 2-2 | |
| h) Fuselage Joints | |
| No Weight Change. | |
| TOTAL STRUCTURAL INCREASE | + 274 |

UNCLASSIFIED
NON CLASSIFIE
SECRET

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



UNCLASSIFIED
NON CLASSIFIE

## INTRODUCTION

| | WEIGHT (lb) |
|---|---|
| 2. LANDING GEAR | |
| No Weight Change | |
| 3. POWER PLANT & SERVICES | |
| Engines - Orenda's earlier estimate did not include inlet frames | + 160 |
| H/Exchanger Duct with floating duct (see above) | - 6 |
| Fire Extinguishing System - Actual Weight of bottles | - 5 |
| Fuel System - Miscellaneous design changes | + 23 |
| TOTAL POWER PLANT & SERVICES INCREASE | + 172 |
| Ref. 2-2 | |
| 4. FLYING CONTROLS GROUP | |
| No Weight Change | |
| 5. EQUIPMENT GROUP | |
| Radar System: - Revised Weights from R.C.A. The I.R. Tracker System and Radar Homer Antenna, previously deleted from this report, have now been re-instated as basic requirements | + 127 |
| TOTAL EQUIPMENT GROUP INCREASE | + 127 |
| Ref. 2-2 | |

## SUMMARY

Weight Change - Aircraft Basic Weight

| | |
|---|---|
| Structure | + 274 lb. |
| Power Plant | + 172 lb. |
| Equipment | + 127 lb. |
| | + 573 lb. |

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

| Issue 10 | Issue 11 | |
|---|---|---|
| 44,516 lb | 45,089 lb | = 573 lb |

UNCLASSIFIED
NON CLASSIFIE

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



UNCLASSIFIED
NON-CLASSIFIE

DETAILED WEIGHT CHANGES TO I.B.M.
TABULATED DETAILS OF AUG. 1st, 1957

| WEIGHT CHANGES | | WEIGHT (lb) |
|---|---|---|
| **Wings:** | | |
| - 36.70 | I/W Skins - now estimated to production drawings, an error was made in the early estimates | |
| + 11.71 | I/W Centre Trailing Edge - production drawing estimates increases in caps and webs of beams, particularly # 4 and # 5 for rear engine mountings. | |
| - 24.99 | | |
| **Front Fuselage Fwd. 255"** | | |
| + 75.50 | Radome - solid laminate replaces sandwich construction the electrical properties of the lighter sandwich type are unsatisfactory. | |
| - 3.26 | Air Intakes - estimated to production drawings for MK 2 design | |
| + 72.24 | | |
| **Centre Fuselage Sta. 255" - 485"** | | |
| + 9.63 | Formers C.F. - production drawing estimates incorporating minor changes (approx. + 0.5 lb/former) | |
| - 6.94 | Armament Bay Roof - production drawing estimates some design changes. | |
| - 17.34 | Duct C.F. - alterations to allow for ram air duct doors (doors and mechanism are included with Air Conditioning see Equip. Group) | |
| - 14.65 | | |
| **Duct Bay Sta. 485"-591.65"** | | |
| + 65.00 | Floating Duct - estimated to preliminary scheme drawings - previously only allowances | + 46.75 |
| | Addition of Joint items (see Engine Bay | + 12.00 |
| | Addition of H/Exch. Duct (see Engine Group. | + 6.25 |
| + 65.00 | | + 65.00 |
| **Engine Bay Sta. 591.65 - 742.5** | | |
| + 6.02 | Engine Tunnel - increase in insulation weight based on tolerances of actual weights of MK 1 insulation | + 3.38 |
| | Addition of floating duct support structure | + 2.64 |
| | | + 6.02 |

UNCLASSIFIED
NON-CLASSIFIE

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

UNCLASSIFIED
NON CLASSIFIE



DETAILED WEIGHT CHANGES TO I.B.M.
TABULATED DETAILS OF AUG. 1st, 1957

| WEIGHT CHANGES | | WEIGHT (lb) |
|---|---|---|
| **Engine Bay Sta. 591.65"-742.5" (cont'd.)** | | |
| - 12.00 | Joint Engine to Duct - cancelled, now included with floating Duct (see Duct Bay above) | |
| - 5.98 | | |
| **Rear Fuselage Sta. 742.5" Aft.** | | |
| + 13.91 | Formers Fixed R.F. - first estimates to MK 2 drawings | |
| + 0.84 | Engine Doors - two hinge pins previously omitted | |
| + 15.27 | Parachute Box & Stinger - redesigned, stinger now in N155, Cobalt based alloy, was previously recorded in Titanium. | |
| + 153.15 | Tailcones - first estimate to MK 2 lines using preliminary gauges supplied by Stress Office, structure of N155 except O/Skin of Titanium. Possible further increases may be expected since proposed gauges tend to be too light. | |
| + 183.17 | | |
| **Power Plant & Services** | | |
| - 5.00 | Fire Extinguishing System - Actual weight of bottles as in MK 1 A/C | |
| + 154.00 | Engines PS13 - Engine C.G. moved forward by 2.00" Inlet frames were not included in Orenda's previous estimate. | + 160.00 |
| | Heat Exchanger Duct now with Floating Duct. (see Duct Bay) | - 6.00 |
| | | + 154.00 |
| + 23.13 | Fuel System - filter added between heat exchanger and Engine to reduce risk of Engine contamination | + 9.00 |
| | Fuel no-air valves Actual weight = 3.5 lb manufacturer's weight was 3.0 lb (22 off) | + 11.00 |
| | Miscellaneous other changes | + 3.13 |
| | | + 23.13 |
| + 172.13 | | |
| **Equipment Fixed & Removable.** | | |
| + 10.00 | Radar fixed - Homer Antenna re-instated | |
| + 61.50 | Radar Remov. - latest R.C.A. estimates, I.R. Tracker system re-inst. (70 lb) | |
| + 55.00 | Missile Pack Electronics - latest R.C.A. estimate for Sparrow II auxiliaries (Sparrow III auxiliaries are not carried) | |
| + 126.50 | | |
| + 573.42 | TOTAL WEIGHT CHANGES | |

UNCLASSIFIED
NON CLASSIFIE
SECRET

Date: September 1st, 1957
Aircraft: C-105 MK2
Production A/C

SECRET
Report # 7-0400-34 Iss. 11
Sheet # 3-1

UNCLASSIFIED
NON CLASSIFIE

WEIGHT & C.G. SUMMARY

| DESCRIPTION | WEIGHT lb. | H. ARM ins. | V. ARM. ins. |
|---|---|---|---|
| STRUCTURE | 18,876.21 | 564.52 | 137.43 |
| Wings | 10,003.73 | 642.74 | 142.23 |
| Fin & Rudder | 1,024.00 | 754.25 | 209.28 |
| Fuselage: Fwd. Sta. 255" | 2,565.86 | 182.44 | 128.41 |
| Sta. 255" - 485" | 1,690.10 | 374.96 | 130.07 |
| Sta. 485" - 591.65" | 1,110.19 | 538.21 | 105.40 |
| Sta. 591.65" - 742.5" | 1,547.28 | 661.11 | 110.57 |
| Sta. 742.5" Aft. | 882.72 | 801.05 | 129.40 |
| "Marry-up" | 52.33 | 467.60 | 103.84 |
| UNDERCARRIAGE - Retracted | 2,551.77 | 487.22 | 134.79 |
| Main Undercarriages | 1,901.62 | 539.31 | 141.00 |
| Main U/C Doors & Fairings | 291.80 | 537.10 | 138.40 |
| Nose Undercarriage | 333.81 | 170.80 | 99.70 |
| Nose U/C Door & Fairing | 24.54 | 162.24 | 88.23 |
| POWER PLANT & SERVICES | 10,800.67 | 671.41 | 121.32 |
| Engines & Accessories PS 13 | 9,186.78 | 687.95 | 121.16 |
| Gear Box & Drives on Fuselage | 281.84 | 601.70 | 102.49 |
| Engine Controls | 32.43 | 375.76 | 118.61 |
| Gear Box, Starter & Drives on Engine | 315.45 | 615.98 | 105.24 |
| Engine Nose Bullet (Orenda Supplied.) | 70.00 | 587.17 | 116.00 |
| Fire Extinguishing System | 65.46 | 700.45 | 134.21 |
| Engine Mountings | 132.38 | 666.82 | 136.52 |
| Fuel System | 716.33 | 530.91 | 134.48 |
| FLYING CONTROLS GROUP | 1,780.64 | 685.55 | 140.51 |
| Mechanical Flying Controls | 946.48 | 687.84 | 148.61 |
| Hydraulic Flying Controls | 834.16 | 682.95 | 131.31 |
| EQUIPMENT FIXED & REMOVABLE | 8,229.95 | 328.80 | 112.39 |
| Instruments | 46.07 | 163.68 | 138.70 |
| Probe | 15.00 | -38.14 | 108.00 |
| Cockpit Pressure Sealing | 5.00 | 186.00 | 130.00 |
| Oxygen System | 23.59 | 253.72 | 156.43 |
| Ejector Seats | 284.42 | 202.80 | 136.25 |
| Air Conditioning System | 856.00 | 333.49 | 134.98 |
| Hydraulic Main System | 623.15 | 502.78 | 117.75 |
| Cabin Insulation | 14.31 | 187.48 | 132.00 |
| Brake Parachute | 62.38 | 769.41 | 143.24 |
| Electrical System | 1,259.16 | 432.22 | 112.68 |
| Low Pressure Pneumatics | 55.70 | 416.79 | 123.99 |
| Surface Finish | 100.00 | 591.52 | 140.20 |
| Intake De-icing Boots | 51.84 | 197.02 | 118.00 |
| Radome Anti-icing | 8.88 | 51.49 | 125.00 |
| Canopy Actuation | 64.92 | 221.99 | 154.35 |
| Cabin Consoles | 17.45 | 174.76 | 124.34 |
| Radar Door Actuation | 10.00 | 268.00 | 95.00 |
| M.H. 64 Damping System | 139.13 | 449.26 | 135.57 |
| Radio & Radar Removable | 1,912.00 | 180.31 | 103.97 |
| Radio & Radar Fixed | 631.00 | 233.17 | 115.71 |

continued

UNCLASSIF
NON CLASSIF

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

SECRET
Report # 7-0400-34 Iss. 11
Sheet # 3-2

UNCLASSIFIED
NON CLASSIFIE

WEIGHT & C.G. SUMMARY

| DESCRIPTION | | WEIGHT lb | H. ARM ins. | V. ARM ins. | M.A.C. % |
|---|---|---|---|---|---|
| Equipment (Fixed & Removable) (cont'd.) | | | | | |
| Sparrow Pack Structure | | 870.70 | 389.60 | 96.00 | |
| Sparrow Pack Mechanisms | | 582.57 | 379.30 | 99.04 | |
| Sparrow Pack Hydraulics | | 331.94 | 373.52 | 99.00 | |
| Sparrow Pack Electronics | | 198.00 | 327.96 | 100.00 | |
| Sparrow Pack Electrics | | 64.10 | 362.29 | 95.00 | |
| Sparrow Pack Air Conditioning | | 2.64 | 309.93 | 104.15 | |
| AIRCRAFT BASIC WEIGHT | | 42,239.24 | 546.36 | 128.40 | |
| USEFUL LOAD (less fuel) | | 2,850.76 | 372.91 | 105.43 | |
| Crew | | 430.00 | 194.00 | 136.50 | |
| Oil | | 138.97 | 636.92 | 110.57 | |
| Alcohol | | 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 | 259.68 | 159.91 | |
| Water for Air Conditioning | | 275.00 | 268.00 | 131.75 | |
| Operational Weight Empty | U/C Up | 45,090.00 | 535.40 | 126.95 | 27.46 |
| | U/C Down | | 537.52 | 123.44 | 28.05 |
| O.W.E. less Missiles | U/C Up | 43,362.00 | 541.22 | 128.49 | 29.07 |
| | U/C Down | | 543.43 | 124.84 | 29.68 |
| Normal Combat Mission Fuel * (2,044 gals. @ 7.8 lb/gal.) | | 15,940.00 | 542.03 | 142.30 | |
| Normal Combat Weight | U/C Up | 61,030.00 | 537.13 | 130.96 | 27.94 |
| | U/C Down | | 538.70 | 128.37 | 28.37 |
| Half Combat Mission Fuel (1,022 gals. @ 7.8 lb/gal.) | | 7,970.00 | 543.18 | 139.55 | |
| Combat Weight (half Mission Fuel | U/C Up | 53,060.00 | 536.57 | 128.84 | 27.78 |
| | U/C Down | | 538.37 | 125.86 | 28.28 |
| Maximum Internal Fuel (2,492 gals. @ 7.8 lb/gal.) | | 19,438.00 | 541.85 | 144.16 | |
| A.U.W. Maximum Internal Fuel | U/C Up | 64,528.00 | 537.34 | 132.13 | 28.00 |
| | U/C Down | | 538.82 | 129.68 | 28.41 |
| Maximum External Fuel (500 gals. @ 7.8 lb/gal. + Drop Tank | | 4,248.00 | 521.84 | 60.67 | |
| A.U.W. Maximum Internal and External Fuel | U/C Up | 68,776.00 | 536.38 | 127.72 | 27.73 |
| | U/C Down | | 537.77 | 125.42 | 28.12 |

N.B. 1) * New figures are being prepared by Aerodynamics for Mission Fuel in accordance with latest PS 13 data, but these are not yet available.

2) Aircraft Datum = 120" above and arbitrarily chosen ground line.

UNCLASSIFIED
SECRET
NON CLASSIFIE

**AVRO AIRCRAFT LTD.**
MALTON, ONT.

# WEIGHT AND C. OF G BY FUNCTIONAL GR COMPONENT

PROJECT C-105 MK 2 Production A/C

| | DESCRIPTION | REFERENCE NO. | COMP. NO. | WEIGHT | H. AF |
|---|---|---|---|---|---|
| | TOTAL WING GROUP | 1000000 | | | |
| | OUTER WING | 1010000 | | | |
| 100 | OUTER WING SKINS | 1010001 | 64 | 92910 | 706 |
| 100 | POSTS AND INTERCOSTALS | 1010002 | 64 | 2436 | 732 |
| 100 | OUTER WING SPARS | 1010003 | 64 | 39258 | 701 |
| 100 | OUTER WING RIBS | 1010004 | 64 | 13456 | 695 |
| 18 | AILERON CONTROL BOX | 1010006 | 64 | 3792 | 774 |
| 100 | RIB 12 | 1010007 | 64 | 76 | 648 |
| 100 | O W AILERON JACK FITTING | 1010009 | 64 | 1046 | 727 |
| | AILERON JOINTS AND FAIRING | 1010010 | | 3293 | 787 |
| | | | | 19794 5 | |
| | AILERON | 1020000 | | | |
| 100 | AILERON STRUCTURE | 1020001 | 74 | 336 | 00792 |
| | | | | 336 | 00 |
| 97 | ELEVATOR MARRY UP | 1030000 | | 1597 | 738 |
| 97 | ELEVATOR | 1030000 | 82 | 4490 | 0755 |
| | | | | 4649 | 7 |
| | INNER WING | 1040000 | | | |
| 79 | MAIN U C STRUCTURE | 1040001 | 62 | 3307 | 1577 |
| 27 | FRONT SPAR I W | 1040002 | 62 | 1111 | 0484 |
| 27 | MAIN SPAR I W | 1040003 | 62 | 1463 | 9565 |
| 27 | FWD CENTRE SPAR I W | 1040004 | 62 | 42 | 4560 |
| 27 | AFT CENTRE SPAR I W | 1040005 | 62 | 33 | 8654 |
| 27 | REAR SPAR | 1040006 | 62 | 76 | 7703 |
| 32 | I W STRUCTURE F S TO M S | 1040007 | 62 | 10591 | 8499 |
| | I W STRUCTURE M S TO R S | 1040008 | 62 | 1497 | 9609 |
| | STRUCTURE AFT OF REAR SPAR | 1040009 | 62 | 31 | 3972 |
| 11 | ELEVATORCONTROLBOX I W | 1040010 | 62 | 42 | 7725 |
| 25 | TRANSP JOINT MARRY UP | 1040011 | | 70 | 6536 |
| 74 | CENTRE LINE JOINTS | 1040012 | 62 | 58 | 4366 |
| | INNER WING SKINS | 1040013 | 62 | 22420 | 4624 |
| | STRUT PICK UP FITTINGS | 1040014 | 62 | 11 | 8615 |
| 31 | RIBS 1 TO 9 INNER WING | 1040016 | 62 | 51 | 2046 |
| | DORSAL FAIRING | 1040017 | 62 | | 9548 |
| 100 | RIB 10 | 1040018 | 62 | 108 | 0636 |
| | FUSELAGE HINGE JOINT I W | 1040019 | 62 | 138 | 1262 |
| 25 | TRANSP JOINT | 1040020 | 62 | 129 | 4230 |
| | FUSELAGE HINGE JOINT | 1040021 | | 37 | 4052 |
| | DORSAL FAIRINGS I W | 1040023 | | 56 | 2957 |
| | | | | 6693 2 3 | |

# WEIGHT AND C. OF G BY FUNCTIONAL GROUP COMPONENT

REPORT NO. 7-0400-34 Iss. 11
Sept. 1/57
SHEET 4-1

UNCLASSIFIED
NON CLASSIFIE

| | REFERENCE NO. | COMP. NO. | WEIGHT | H. ARM | V. ARM | H. MOMENT | V. MOMENT |
|---|---|---|---|---|---|---|---|
| | 1000000 | | | | | | |
| | 1010000 | | | | | | |
| | 101000164 | | 929107064 | 6135 97 | | 65637199 | 12632973 |
| LS | 101000264 | | 24367320 | 7134 10 | | 1783323 | 326668 |
| | 101000364 | | 392587011 | 8136 36 | | 27526924 | 5353321 |
| | 101000464 | | 134566950 | 6136 50 | | 9352727 | 1836744 |
| | 101000664 | | 379207740 | 9135 08 | | 29353493 | 5122234 |
| | 101000764 | | 762664873 | 1338 32 | | 4947215 | 1054828 |
| TING | 101000964 | | 104672791 | 1367 0 | | 761394 | 142988 |
| AIRING | 1010010 | | 32937872 | 6132 24 | | 2592447 | 435466 |
| | | | 197945 | | | 141954722 | 26905122 |
| | 1020000 | | | | | | |
| | 102000174 | | 33600792 | 1335 56 | | 26615568 | 4554816 |
| | | | 33600 | | | 26615568 | 4554816 |
| | 1030000 | | 15977381 | 0142 60 | | 1178746 | 227732 |
| | 103000082 | | 44900755 | 2314 260 | | 33909827 | 6402740 |
| | | | 46497 | | | 35088573 | 6630472 |
| | 1040000 | | | | | | |
| | 104000162 | | 33071577 | 5713 983 | | 19100817 | 4624318 |
| | 104000262 | | 11110484 | 2814 260 | | 5380351 | 1584286 |
| | 104000362 | | 14639565 | 7014 280 | | 8281282 | 2090449 |
| | 104000462 | | 4245604 | 1714 317 | | 2564702 | 607757 |
| | 104000562 | | 3386549 | 4144 46 | | 2217627 | 489142 |
| | 104000662 | | 7667037 | 4144 20 | | 5395575 | 1105581 |
| M S | 104000762 | | 105918499 | 2914 405 | | 52883798 | 15257488 |
| R S | 104000862 | | 14979609 | 6414 572 | | 9131798 | 2182740 |
| R SPAR | 104000962 | | 31639720 | 4114 887 | | 22793052 | 4710098 |
| W | 104001062 | | 42717725 | 0014 327 | | 30969825 | 6120065 |
| P | 104001 1 | | 7065636 | 2113 876 | | 4494824 | 980339 |
| | 104001262 | | 58643661 | 4315 062 | | 38788239 | 8832809 |
| | 104001362 | | 224204624 | 4014 472 | | 1399929 78 | 32446803 |
| GS | 104001462 | | 11818615 | 0014 577 | | 7268070 | 1722710 |
| NG | 104001662 | | 51204612 | 8714 499 | | 31381395 | 7424068 |
| | 104001762 | | 954828 | 0161 50 | | 45866 | 15343 |
| | 104001862 | | 10800636 | 8313 835 | | 6877764 | 1494180 |
| I W | 104001962 | | 13812621 | 0413 790 | | 8577804 | 1904675 |
| | 104002062 | | 12942630 | 7113 710 | | 8162649 | 1774348 |
| | 104002 1 | | 374052 | 7961 4309 | | 1974570 | 535157 |
| | 104002 3 | | 5629572 | 4916 026 | | 3222546 | 902104 |
| | | | 669323 | | | 409505532 | 96804460 |

WEIGHT AND C. OF G BY FUNCTIONAL GROUP COMPONENT

REPORT NO. 7-0400-34 Iss. 11

SHEET 4-2

| | REFERENCE NO. | COMP. NO. | WEIGHT | H. ARM | V. ARM | H. MOMENT | V. MOMENT |
|---|---|---|---|---|---|---|---|
| ING | 105000062 | | 22138 | 46841 | 14423 | 10369661 | 3192964 |
| | | | 22138 | | | 10369661 | 3192964 |
| | 106000065 | | 30870 | 63013 | 13561 | 19452113 | 4186281 |
| | | | 30870 | | | 19452113 | 4186281 |

UNCLASSIFIED
NON CLASSIFIE

**AVRO AIRCRAFT LTD.**
MALTON, ONT.

# WEIGHT AND C. OF G BY FUNCTIONAL GR COMPONENT

PROJECT_____

| DESCRIPTION | REFERENCE NO. | COMP. NO. | WEIGHT | H. AR |
|---|---|---|---|---|
| 12 FIN | 201000083 | | 851707495 | |
| 12 FIN TO WING MARRY UP | 2010002 | | 48306853 | |
| | | | 90000 | |
| 95 RUDDER | 202000084 | | 124008132 | |
| | | | 12400 | |

**AVRO AIRCRAFT LTD.**
**MALTON, ONT.**

# WEIGHT AND C. OF G BY FUNCTIONAL G COMPONEN

PROJECT_____

| | DESCRIPTION | REFERENCE NO. | COMP. NO. | WEIGHT | H. |
|---|---|---|---|---|---|
| | TOTAL FUSELAGE GROUP | 3000000 | | | |
| | FUSELAGE BASIC STRUCTURE | 3010000 | | | |
| | RADOME | 301000151 | | 17815 | 3 |
| | RADAR NOSE STRUCTURE | 301000351 | | 17444 | 9 |
| | SKIN F F | 301000452 | | 80941 | 9 |
| 7000 | SKIN C F | 301000554 | | 220433 | 6 |
| | SKIN D B | 301000656 | | 58805 | 3 |
| | SKIN E B | 301000758 | | 164896 | 6 |
| 4 | FORMERS F F | 301001152 | | 105311 | 8 |
| | FORMERS C F | 301001254 | | 287493 | 7 |
| 6 | FORMERS D B | 301001356 | | 73315 | 3 |
| | LIGHT FORMERS E B | 301001458 | | 103706 | 6 |
| 8 | HEAVY FORMERS E B | 301001558 | | 192146 | 6 |
| | LOWER LONGERONS F F | 301001652 | | 68461 | 8 |
| | INNER LONGERON E B | 301001758 | | 71846 | 5 |
| | LONGERON E B | 301001858 | | 69056 | 5 |
| | TOP LONGERONS E B | 301001958 | | 6386 | 6 |
| | LOWER SHEAR PANEL | 301002052 | | 29882 | 3 |
| | TOP WING LONGERONS D B | 301002156 | | 4985 | 3 |
| | LONGERONS C F | 301002252 | | 5325 | |
| | LONGERONS C F | 301002354 | | 138134 | 1 |
| | LONGERONS D B | 301002556 | | 105695 | 2 |
| | ELECTRONICS BAY STRUCTURE | 301002654 | | 45232 | 7 |
| 59 | LONGITUDINAL BEAMS D B | 301002756 | | 65705 | 2 |
| | RADAR ACCESS DOOR C F | 301002854 | | 21082 | 7 |
| 72 | MAIN FRAME AT STN 538 77 | 301002956 | | 59805 | 3 |
| | DIVE BRAKE ACCOM STRUCTURE | 301003056 | | 36345 | 0 |
| 20 | TOP LONGERONS F F | 301003152 | | 185711 | 9 |
| | DUCT C F | 301003254 | | 315523 | 5 |
| | FLOATING DUCT D B | 301003356 | | 416005 | 5 |
| | CANOPY ARCHES | 301003452 | | 85352 | 2 |
| 4 | ACCESS PANEL STIFFNERS | 301003656 | | 38655 | 3 |
| 66 | NOSE U C SUPPORT STRUCTURE | 301003752 | | 33432 | 1 |
| 3 | CREW BULKHEADS | 301003852 | | 122722 | 0 |
| | EQUIPMENT BAY STRUCTURE | 301003954 | | 71112 | 8 |
| 86 | WINDSCREEN | 301004152 | | 130031 | 3 |
| | SERV ACCESS DOORS AND PNLS | 301004258 | | 59296 | 6 |
| | DORSAL FAIRING FWD | 301004454 | | 27279 | 9 |
| | INTERMEDIATE FORMERS E B | 301004558 | | 48737 | 2 |
| | ENGINE ACCESS DOORS E B | 301004658 | | 107356 | 4 |
| | SEALING MISSILE BAY | 301004754 | | 6973 | 2 |
| | MISCELLANEOUS ITEMS C F | 301004854 | | 3923 | 7 |
| | ARMAMENT BAY ROOF | 301004954 | | 125223 | 8 |
| | BULKHEAD AT STA 120 | 301005052 | | 30601 | 2 |
| | BULKHEAD AT STA 255 | 301005152 | | 104292 | 5 |
| | BULKHEAD STA 485 | 301005254 | | 123514 | 8 |
| | ENGINE TUNNEL E B | 301005458 | | 613186 | 5 |
| | FUSELAGE FUELTANK | 301005554 | | 209603 | 9 |
| | COCKPIT FLOOR | 301005652 | | 57431 | 7 |
| | DORSAL OVER FUEL TANK | 301006154 | | 5097 | 4 |

**AVRO AIRCRAFT LTD.**
MALTON, ONT.

# WEIGHT AND C. OF G BY FUNCTIONAL G COMPONEN

PROJECT

| | DESCRIPTION | REFERENCE NO. | COMP. NO. | WEIGHT | H. A |
|---|---|---|---|---|---|
| | DEFLECTOR SHIELD | 3010062 | 54 | 20003 | 37 |
| | SHEAR PANEL BELOW NAV ARCH | 3010063 | 52 | 2074 | 257 |
| | PACK MOUNTING STRUCTURE | 3010064 | 54 | 2365 | 292 |
| | ENG ACCESS DOORS FIXED R F | 3010065 | 59 | 9326 | 773 |
| | TUNNEL FIXED R F | 3010066 | 59 | 12072 | 771 |
| | SKIN AND INTERCOSTAL R F | 3010067 | 59 | 5256 | 772 |
| | FAIRING UNDER RUDDER R F | 3010068 | 59 | 2638 | 781 |
| | FORMERS FIXED R F | 3010069 | 59 | 10681 | 780 |
| | LONGERONS C BEAM FIXED R F | 3010070 | 59 | 2690 | 771 |
| | REMOVABLE NACELLES R F | 3010071 | 59 | 34815 | 822 |
| | CNTR STRUC STING REMOV R F | 3010072 | 59 | 10794 | 834 |
| | MISC ITEMS STRUCTURE E B | 3010073 | 58 | 912 | 664 |
| | MTG BRKTS SIDE PANEL D B | 3010075 | 56 | 213 | 524 |
| | FORMERS LOWER PANEL D B | 3010076 | 56 | 741 | 654 |
| | LOWER PANEL D B | 3010077 | 56 | 505 | 554 |
| | JOINT F F TO C F | 3010078 | | 855 | 255 |
| | JOINT AIR INTAKES TO F F | 3010079 | | 952 | 220 |
| | JOINT C F TO D B | 3010080 | | 500 | 485 |
| | JOINT D B TO E B | 3010081 | | 2508 | 584 |
| | FUS JOINT AT STA 742 50 | 3010082 | | 418 | 742 |
| | DROP TANK MTG STRUCT D B | 3010083 | 56 | 853 | 674 |
| | STRUCT AT ENG ACCESS DOORS | 3010085 | 58 | 6537 | 640 |
| | MISC STRUCTURE F F | 3010086 | 52 | 552 | 187 |
| | ENG RAILS ATTACHM TO FORM | 3010087 | 58 | 362 | 685 |
| | | | | 658059 | |
| 96 | DIVE BRAKES | 3020000 | 72 | 11150 | 508 |
| 96 | DIVE BRAKES C A | 3020001 | | 406 | 487 |
| | | | | 11556 | |
| | AIR INTAKES | 3030000 | | | |
| | AIR INTAKES | 3030100 | 55 | 75502 | 210 |
| | | | | 75502 | |
| | PILOTS AND NAVIG CANOPIES | 3040000 | | | |
| 76 | PILOTS CANOPY | 3040100 | 53 | 24081 | 176 |
| | | | | 24081 | |
| | NAVIGATORS CANOPY | 3040200 | 53 | 15650 | 232 |
| | | | | 15650 | |

**AVRO AIRCRAFT LTD.**
MALTON, ONT.

# WEIGHT AND C. OF G BY FUNCTIONAL G COMPONEN

PROJECT_____

| | DESCRIPTION | REFERENCE NO. | COMP. NO. | WEIGHT | H. |
|---|---|---|---|---|---|
| | UNDERCARRIAGE UP POSITION | 4000000 | | | |
| | MAIN UNDERCARRIAGE GROUP | 4010000 | | | |
| | MAIN UNDERCARRIAGE | 401010092 | | 1901 62 | 539 |
| | | | | 1901 62 | |
| | MAIN U C DOORS FAIRINGS | 401020062 | | 291 80 | 537 |
| | | | | 291 80 | |
| | NOSE UNDERCARRIAGE GROUP | 4020000 | | | |
| 100 | NOSE UNDERCARRIAGE | 402010091 | | 333 81 | 170 |
| | | | | 333 81 | |
| | NOSE U C DOOR AND FAIRING | 402020052 | | 24 54 | 162 |
| | | | | 24 54 | |

**AVRO AIRCRAFT LTD.**
MALTON, ONT.

WEIGHT AND C. OF G BY FUNCTIONAL G
COMPONEN

PROJECT

| DESCRIPTION | REFERENCE NO. | COMP. NO. | WEIGHT | H. A |
|---|---|---|---|---|
| 19 FUEL SYSTEM C F | 5080001 | 54 | 10713 | 401 |
| 20 FUEL SYSTEM D B | 5080002 | 56 | 14955 | 546 |
| FUEL SYSTEM E B | 5080003 | 58 | 685 | 644 |
| 28 FUEL SYSTEM I W | 5080004 | 62 | 43900 | 554 |
| FUEL SYSTEM ENG | 5080005 | | 626 | 659 |
| FUEL SYSTEM C A | 5080006 | | 754 | 615 |
| | | | 71633 | |

**AVRO AIRCRAFT LTD.**
MALTON, ONT.

# WEIGHT AND C. OF G BY FUNCTIONAL G COMPONEN

PROJECT

| | DESCRIPTION | REFERENCE NO. | COMP. NO. | WEIGHT | H. |
|---|---|---|---|---|---|
| | FLYING CONTROLS GROUP | 6000000 | | | |
| | MECHANICAL CONTROLS | 6010000 | | | |
| | MECHANICAL CONTROLS F F | 6010001 | 52 | 87591 | 58 |
| | MECHANICAL CONTROLS C F | 6010002 | 54 | 8853 | 35 |
| | MECHANICAL CONTROLS D B | 6010003 | 56 | 3504 | 86 |
| | MECHANICAL CONTROLS FIN | 6010005 | 83 | 12688 | 787 |
| 11 | MECHANICAL CONTROLS I W | 6010006 | 62 | 40884 | 717 |
| | MECHANICAL CONTROLS O W | 6010007 | 64 | 30436 | 770 |
| | MECHANICAL CONTROLS C A | 6010008 | | 646 | 70 |
| | | | | 9464 | 8 |
| | FLYING CONTROLS HYDRAULICS | 6020000 | | | |
| | FLYING CONT HYDRAULICS D B | 6020001 | 56 | 2332 | 574 |
| 37 | FLYING CONT HYDRAULICS E B | 6020002 | 58 | 3907 | 6647 |
| | FLYING CONT HYDRAULICS R F | 6020003 | 59 | 48 | 758 |
| 63 | FLYING CONT HYDRAULICS I W | 6020004 | 62 | 2444 | 8703 |
| | HYDRAULICS FLYING CONT O W | 6020005 | 64 | 1218 | 1740 |
| 61 | FLYING CONT HYDRAULICS FIN | 6020006 | 83 | 533 | 1761 |
| | | | | 8341 | 6 |

**AVRO AIRCRAFT LTD.**
MALTON, ONT.

# WEIGHT AND C. OF G BY FUNCTIONAL G COMPONEN

PROJECT

| | DESCRIPTION | REFERENCE NO. | COMP. NO. | WEIGHT | H. |
|---|---|---|---|---|---|
| | BRAKE PARACHUTE I W | 708000662 | | 12462 | |
| | | | | 6238 | |
| | ELECTRICAL SYSTEM | 7090000 | | | |
| | ELECTRICAL WIRING | 7091400 | | | |
| | ELECTRICAL WIRING R N | 709140151 | | 129 | 9 |
| | ELECTRICAL WIRING F F | 709140252 | | 29661 | 19 |
| | ELECTRICAL WIRING C F | 709140354 | | 23543 | 39 |
| | ELECTRICAL WIRING A I | 709140455 | | 12742 | 21 |
| | ELECTRICAL WIRING D B | 709140556 | | 90155 | 21 |
| | ELECTRICAL WIRING E B | 709140658 | | 645 | 95 |
| | ELECTRICAL WIRING I W | 709140862 | | 8909 | 54 |
| | ELECTRICAL WIRING FIN | 709140983 | | 352 | 79 |
| | ELECTRICAL WIRING N U C | 709141091 | | 330 | 18 |
| 60 | ELECTRICAL WIRING ENG | 7091411 | | 2002 | 60 |
| | ELECTRICAL WIRING C A | 7091412 | | 13746 | 33 |
| | | | | 41141 | |
| 30 | ELECTRICS F F | 709150052 | | 15248 | 15 |
| | | | | 15248 | |
| | ELECTRICS C F | 709160054 | | 8709 | 45 |
| | | | | 8709 | |
| | ELECTRICS E B | 709170058 | | 670 | 67 |
| | ELECTRICS ENG | 7091701 | | 1763 | 25 |
| | ELECTRICS C A | 7091702 | | 718 | 61 |
| | | | | 19020 | |
| | ELECTRICS FIN | 709180083 | | 83 | 89 |
| | | | | 83 | |
| | ELECTRICS I W | 709190062 | | 2336 | 62 |
| | ELECTRICS C A | 7091901 | | 112 | 62 |
| | ELECTRICS M U C | 709190292 | | 74 | 51 |
| | | | | 2522 | |
| | ELECTRICS A I | 709200055 | | 5090 | 22 |
| | | | | 5090 | |
| | ELECTRICS D B | 709210056 | | 30089 | 51 |
| | | | | 30089 | |

IGHT AND C. OF G BY FUNCTIONAL GROUP COMPONENT

REPORT NO. 7-0400-34 Iss. 11

SHEET 4-11

| | REFERENCE NO. | COMP. NO. | WEIGHT | H. ARM | V. ARM | H. MOMENT | V. MOMENT |
|---|---|---|---|---|---|---|---|
| | 708000662 | | 124 | 62022 | 14500 | 76907 | 17980 |
| | | | 6238 | | | 4799560 | 893524 |
| | 7090000 | | | | | | |
| | 7091400 | | | | | | |
| | 709140151 | | 129 | 9285 | 12000 | 11978 | 15480 |
| | 709140252 | | 2966 | 19977 | 11200 | 592518 | 332192 |
| | 709140354 | | 2354 | 39703 | 11000 | 934609 | 258940 |
| | 709140455 | | 1274 | 21984 | 12000 | 280076 | 152880 |
| | 709140556 | | 9015 | 52769 | 9921 | 4757125 | 894378 |
| | 709140658 | | 64 | 5950 | 0 9200 | 38080 | 5888 |
| | 709140862 | | 8909 | 54111 | 13900 | 4820749 | 1238351 |
| | 709140983 | | 352 | 79754 | 30000 | 280734 | 105600 |
| C | 709141091 | | 330 | 18600 | 9800 | 61380 | 32340 |
| | 709141 1 | | 2002 | 60683 | 10000 | 1214874 | 200200 |
| | 709141 2 | | 13746 | 33473 | 11234 | 4601199 | 1544226 |
| | | | 41141 | | | 17593322 | 4780475 |
| | 709150052 | | 15248 | 15464 | 11095 | 2357951 | 1691766 |
| | | | 15248 | | | 2357951 | 1691766 |
| | 709160054 | | 8709 | 45415 | 10760 | 3955192 | 937088 |
| | | | 8709 | | | 3955192 | 937088 |
| | 709170058 | | 670 | 67944 | 11597 | 455225 | 77700 |
| | 709170 1 | | 17632 | 58919 | 11516 | 10388598 | 2030501 |
| | 709170 2 | | 7186 | 13501 | 20000 | 440493 | 86160 |
| | | | 19020 | | | 11284316 | 2194361 |
| | 709180083 | | 83 | 89550 | 28840 | 74327 | 23937 |
| | | | 83 | | | 74327 | 23937 |
| | 709190062 | | 2336 | 62053 | 14500 | 1449558 | 338720 |
| | 709190 1 | | 112 | 62946 | 13561 | 70500 | 15188 |
| | 709190292 | | 74 | 51600 | 13700 | 38184 | 10138 |
| | | | 2522 | | | 1558242 | 364046 |
| | 709200055 | | 5090 | 22059 | 13832 | 1122803 | 704049 |
| | | | 5090 | | | 1122803 | 704049 |
| | 709210056 | | 30089 | 51832 | 10258 | 15595730 | 3086530 |
| | | | 30089 | | | 15595730 | 3086530 |

UNCLASSIFIED
NON CLASSIFIE

**AVRO AIRCRAFT LTD.**
MALTON, ONT.

# WEIGHT AND C. OF G BY FUNCTIONAL COMPONE

PROJECT_____

| DESCRIPTION | REFERENCE NO. | COMP. NO. | WEIGHT | H. |
|---|---|---|---|---|
| WINDSCREEN DEMISTING | 709220052 | | 3564 | 19 |
| | | | 3564 | |
| ELECTRICS R F | 709230059 | | 136 | 80 |
| | | | 136 | |
| SPARROW ELECTRICS F F | 709240152 | | 2541 | 8 |
| SPARROW ELECTRICS C F | 709240254 | | 60 | 27 |
| | | | 314 | |
| L P PNEUMATICS | 7100000 | | | |
| 12 L P PNEUMATICS F F | 710000152 | | 2117 | 19 |
| 12 L P PNEUMATICS C F | 710000254 | | 778 | 32 |
| 12 L P PNEUMATICS D B | 710000356 | | 418 | 55 |
| 12 L P PNEUMATICS E B | 710000458 | | 1557 | 65 |
| 12 L P PNEUMATICS FIN | 710000583 | | 504 | 74 |
| 12 L P PNEUMATICS R N | 710000651 | | 136 | 6 |
| 12 L P PNEUMATICS A P | 710000794 | | 60 | 29 |
| | | | 5570 | |
| INTAKE DEICING | 712000055 | | 5184 | 19 |
| | | | 5184 | |
| RADOME ANTI ICING | 713000051 | | 888 | 5 |
| | | | 888 | |
| RADIO AND RADAR FIXED | 7140000 | | | |
| RADIO AND RADAR FIXED R N | 714000151 | | 16500 | 9 |
| RADIO AND RADAR FIXED F F | 714000252 | | 5000 | 18 |
| RADIO AND RADAR C F | 714000354 | | 19000 | 26 |
| RADIO AND RADAR FIXED D B | 714000456 | | 1800 | 51 |
| RADIO AND RADAR FIXED FIN | 714000583 | | 3200 | 76 |
| RADIO AND RADAR FIXED C A | 7140006 | | 17600 | 21 |
| | | | 63100 | |
| 29 CANOPY ACTUATION | 716000052 | | 6492 | 22 |
| | | | 6492 | |
| CABIN CONSOLES | 717000052 | | 1745 | 17 |
| | | | 1745 | |

**AVRO AIRCRAFT LTD.**
MALTON, ONT.

# WEIGHT AND C. OF G BY FUNCTIONAL COMPONE

PROJECT

| DESCRIPTION | REFERENCE NO. | COMP. NO. | WEIGHT | H. |
|---|---|---|---|---|
| RADAR DOOR ACTUATION | 718000054 | | 1000 | 26 |
| | | | 1000 | |
| SURFACE FINISH F F | 719000152 | | 363 | 18 |
| SURFACE FINISH CANOPY | 719000253 | | 64 | 20 |
| SURFACE FINISH C F | 719000354 | | 1400 | 37 |
| SURFACE FINISH 2NTAKES | 719000455 | | 408 | 22 |
| SURFACE FINISH D B | 719000556 | | 377 | 53 |
| SURFACE FINISH E B | 719000658 | | 443 | 66 |
| SURFACE FINISH R F | 719000759 | | 648 | 80 |
| SURFACE FINISH I W | 719000862 | | 3151 | 60 |
| SURFACE FINISH O W | 719000964 | | 1067 | 70 |
| SURFACE FINISH O W L EDGE | 719001065 | | 319 | 63 |
| SURFACE FINISH AILERON | 719001174 | | 353 | 79 |
| SURFACE FINISH ELEVATOR | 719001282 | | 566 | 75 |
| SURFACE FINISH FIN | 719001383 | | 39 | 74 |
| SURFACE FINISH RUDDER | 719001484 | | 202 | 81 |
| | | | 10000 | |

EIGHT AND C. OF G BY FUNCTIONAL GROUP COMPONENT

REPORT NO. 7-0400-34 Iss. 11

SHEET 4-13

UNCLASSIFIED
NON CLASSIFIE

| | REFERENCE NO. | COMP. NO. | WEIGHT | H. ARM | V. ARM | H. MOMENT | V. MOMENT |
|---|---|---|---|---|---|---|---|
| | 718000054 | | 10002 | 6800 | 9500 | 268000 | 95000 |
| | | | 1000 | | | 268000 | 95000 |
| | 719000152 | | 36 | 31874 | 4122 | 00 | 68041 | 44286 |
| | 719000253 | | 6 | 42021 | 8159 | 00 | 12940 | 10176 |
| S | 719000354 | | 140 | 03719 | 7124 | 55 | 520758 | 174370 |
| | 719000455 | | 40 | 82279 | 8120 | 20 | 93016 | 49042 |
| | 719000556 | | 37 | 75382 | 8112 | 00 | 202932 | 42224 |
| | 719000658 | | 44 | 36670 | 1112 | 00 | 295485 | 49616 |
| | 719000759 | | 6 | 48803 | 6213 | 175 | 520746 | 85374 |
| | 719000862 | | 31 | 51601 | 4414 | 400 | 1895137 | 453744 |
| | 719000964 | | 10 | 67706 | 5013 | 590 | 753836 | 145005 |
| EDGE | 719001065 | | 31 | 96394 | 8135 | 26 | 203994 | 43148 |
| N | 719001174 | | 35 | 37919 | 0135 | 56 | 279541 | 47853 |
| OR | 719001282 | | 56 | 67552 | 3142 | 60 | 427460 | 80712 |
| | 719001383 | | 6 | 39746 | 6320 | 837 | 477097 | 133148 |
| | 719001484 | | 20 | 28127 | 9214 | 31 | 164184 | 43291 |
| | | | 10000 | | | | 5915167 | 1401989 |

**AVRO AIRCRAFT LTD.**
MALTON, ONT.

# WEIGHT AND C. OF G BY FUNCTIONAL COMPONE

PROJECT_____

| DESCRIPTION | REFERENCE NO. | COMP. NO. | WEIGHT | H. |
|---|---|---|---|---|
| REMOVABLE EQUIPMENT GROUP | 8000000 | | | |
| EJECTOR SEATS | 801010052 | | 28442 | 20 |
| | | | 28442 | |
| RADAR REMOV GROUP | 8020000 | | | |
| RADAR REMOVABLE | 8020100 | | | |
| RADIO AND RADAR REM R N | 802010151 | | 102070 | 9 |
| RADIO AND RADAR REM F F | 802010252 | | 17860 | 18 |
| RADIO AND RADAR REM C F | 802010354 | | 61520 | 27 |
| RADIO AND RADAR REM D B | 802010456 | | 57505 | 1 |
| RADIO AND RADAR REM C A | 8020106 | | 40005 | 5 |
| | | | 191200 | |
| DAMPING SYSTEM | 8030000 | | | |
| DAMPING SYSTEM F F | 803010152 | | 6351 | 6 |
| DAMPING SYSTEM C F | 803010254 | | 2180 | 31 |
| DAMPING SYSTEM E B | 803010358 | | 3696 | 3 |
| DAMPING SYSTEM I W | 803010462 | | 5800 | 52 |
| DAMPING SYSTEM O W | 803010564 | | 957 | 4 |
| DAMPING SYSTEM R N | 803010651 | | 52 | 0 8 |
| DAMPING SYSTEM C A | 8030107 | | 4314 | 48 |
| | | | 13913 | |
| SPARROW PACK | 8050000 | | | |
| SPARROW PACK STRUCTURE | 805010094 | | 87070 | 38 |
| | | | 87070 | |
| SPARROW PACK MECHANISMS | 805020094 | | 58257 | 37 |
| | | | 58257 | |
| SPARROW PACK HYDRAULICS | 805030094 | | 33194 | 37 |
| | | | 33194 | |

**AVRO AIRCRAFT LTD.**
MALTON, ONT.

WEIGHT AND C. OF G BY FUNCTIONAL C
COMPONEI

PROJECT

| DESCRIPTION | REFERENCE NO. | COMP. NO. | WEIGHT | H. |
|---|---|---|---|---|
| SPARROW PACK ELECTRONICS | 805040094 | | 19800 | 32 |
| | | | 19800 | |
| SPARROW PACK ELECTRICS | 805050054 | | 6410 | 36 |
| | | | 6410 | |
| MISSILE AIRCONDITIONING | 807000094 | | 264 | 30 |
| | | | 264 | |

**AVRO AIRCRAFT LTD.**
MALTON, ONT.

# WEIGHT AND C. OF G BY FUNCTIONAL COMPONE

PROJECT_____

| DESCRIPTION | REFERENCE NO. | COMP. NO. | WEIGHT | H |
|---|---|---|---|---|
| OPERATIONAL LOAD | 9000000 | | | |
| CREW MEMBERS | 901000052 | | 43000 | 19 |
| | | | 43000 | |
| ENGINE OIL | 9020000 | | | |
| ENGINE OIL DRAINABLE | 9020001 | | 9290 | 65 |
| ENGINE OIL TRAPPED ENG | 9020002 | | 1773 | 63 |
| ENGINE OIL TRAPPED D B | 902000356 | | 1925 | 58 |
| ENGINE OIL TRAPPED E B | 902000458 | | 909 | 59 |
| | | | 13897 | |
| SPARROW MISSILES | 903000054 | | 172800 | 38 |
| | | | 172800 | |
| OXYGEN CHARGE | 9040000 | | | |
| OXYGEN CHARGE F F | 904000152 | | 72 | 20 |
| OXYGEN CHARGE C F | 904000254 | | 1267 | 26 |
| | | | 1339 | |
| ALCOHOL FOR RADOME DEICING | 905000051 | | 2200 | 9 |
| | | | 2200 | |
| ENGINE FIRE EXT FLUID | 9060000 | | 2500 | 71 |
| | | | 2500 | |
| RESIDUAL FUEL | 9070000 | | | |
| RESIDUAL FUEL C F | 907000154 | | 4680 | 39 |
| RESIDUAL FUEL I W | 907000262 | | 17160 | 59 |
| | | | 21840 | |
| WATER FOR AIR CONDITIONING | 910000054 | | 26000 | 26 |
| UNUSABLE WATER FOR AIRCOND | 910000154 | | 1500 | 26 |
| | | | 27500 | |

GHT AND C. OF G BY FUNCTIONAL GROUP COMPONENT

REPORT NO. 7-0400-34 Iss. 11

SHEET 4-16

UNCLASSIFIED
NON CLASSIFIE

| | REFERENCE NO. | COMP. NO. | WEIGHT | H. ARM | V. ARM | H. MOMENT | V. MOMENT |
|---|---|---|---|---|---|---|---|
| | 9000000 | | | | | | |
| | 901000052 | | 43000 | 19400 | 13650 | 8342000 | 5869500 |
| | | | 43000 | | | 8342000 | 5869500 |
| | 9020000 | | | | | | |
| | 9020001 | | 9290 | 65225 | 11390 | 6059403 | 1058131 |
| | 9020002 | | 17736 | 36761 | 11640 | 1128975 | 206377 |
| | 902000356 | | 19255 | 80845 | 9555 | 1118117 | 183934 |
| | 902000458 | | 9095 | 99928 | 9704 | 544746 | 88209 |
| | | | 13897 | | | 8851241 | 1536651 |
| | 903000054 | | 172800 | 38929 | 8830 | 67269312 | 15258240 |
| | | | 172800 | | | 67269312 | 15258240 |
| | 9040000 | | | | | | |
| | 904000152 | | 72 | 20493 | 13200 | 14755 | 9504 |
| | 904000254 | | 12672 | 62801 | 6150 | 332968 | 204621 |
| | | | 1339 | | | 347723 | 214125 |
| CING | 905000051 | | 2200 | 9300 | 13800 | 204600 | 303600 |
| | | | 2200 | | | 204600 | 303600 |
| | 9060000 | | 2500 | 73000 | 12900 | 18250000 | 322500 |
| | | | 2500 | | | 18250000 | 322500 |
| | 9070000 | | | | | | |
| | 907000154 | | 4680 | 39424 | 12300 | 1845043 | 575640 |
| | 907000262 | | 17160 | 59755 | 13705 | 10253958 | 2351778 |
| | | | 21840 | | | 12099001 | 2927418 |
| NING | 910000054 | | 26000 | 26800 | 13200 | 6968000 | 3432000 |
| COND | 910000154 | | 1500 | 26700 | 12700 | 400500 | 190500 |
| | | | 27500 | | | 7368500 | 3622500 |

HILROSE INC.
3558
MADE IN U.S.A.