AIR PUBLICATION
101B-0418-1B

Sect. 6 to 9

CANBERRA TT. MK. 18 AIRCRAFT

GENERAL AND TECHNICAL INFORMATION

BY COMMAND OF THE DEFENCE COUNCIL

Ministry of Defence

Sponsored for use in the

ROYAL AIR FORCE by D.Air.Eng.(RAF)

Prepared by British Aerospace, Aircraft Group, Warton Division

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Service users should send their comments through the channel prescribed for the purpose in:

AP 100B-01, Order 0504 (RAF)

AMENDMENT RECORD SHEET

Incorporation of an Amendment List in this publication is to be recorded by signing in the appropriate column and inserting the date of making the amendments

A.L. No.	Amended by	Date
1-51	INCORPORATED IN THIS REPRINT NOV. 90	

A.L. No.	Amended by	Date

A.L. No.	Amended by	Date

(Continued overleaf)

A.L. No.	Amended by	Date

A.L. No.	Amended by	Date

A.L. No.	Amended by	Date

LETHAL WARNINGS

ENTRY INTO CABIN

Before entering the cabin, personnel must report to the N.C.O. i/c the aircraft, who will ensure that all the relevant safety precautions have been taken.

ASSISTED ESCAPE SYSTEM

1. Ejection seats and canopy jettison mechanisms are sources of potential danger to personnel and of damage to the aircraft. Serious injury (possibly fatal) may result if any firing mechanisms are inadvertently operated whilst the aircraft is on the ground.

2. The following instructions detailing the responsibilities and positioning of the assisted escape system safety devices are to be strictly adhered to:-

R.N. Safety precautions contained in A.P.(N) 140 - Naval Aircraft Maintenance Manual.

R.A.F. Lethal Warnings contained in the A.P.101B-0400-5A2, Safety and Servicing Notes.

3. Additional information concerning assisted escape system safety device positioning is to be found in the Aircraft Servicing Schedules, A.D.5037 series of Air Diagrams and A.P.101B-0418-10.

ARMAMENT SAFETY BREAK

4. The armament safety break plug must be removed from its mating socket as soon as practicable after the aircraft has landed and not refitted until just prior to take off, except when it is required to test the system.

GENERAL

CANOPY JETTISON	:	EXPLOSIVE BOLTS
CREW HATCH JETTISON	:	EXPLOSIVE BOLTS
CONTROL COLUMN RELEASE	:	EXPLOSIVE COLLAR
WING TIP TANK JETTISON	:	EXPLOSIVE BOLTS
TARGET CABLE CUTTER	:	EXPLOSIVE CARTRIDGE

Personnel are warned not to interfere with the controls associated with the above equipment unless the following precautions have been carried out:-

(a) The internal service batteries and the detonator-circuit emergency batteries are disconnected and no ground electrical supply is connected to the external supply socket.

(b) The detonator leads are disconnected where necessary.

(c) The detonators are removed where necessary.

Note . . .

Detonators are not to be held in the hand. During all operations, detonators must be supported by their electrical leads. Hold the leads near the detonator base. THIS IS MOST IMPORTANT.

HIGH ENERGY IGNITERS

5. The energy stored in the capacitors of high energy igniter units can be of a lethal nature. No servicing should be attempted until at least one minute has elapsed after disconnection of the L.T. supply to the input plug.

HIGH VOLTAGE ELECTRICAL SYSTEMS

6. Voltages in excess of 30 volts (R.M.S.) a.c. or 50 volts d.c. can in certain circumstances be lethal. When working on such systems requiring the exposure of live terminals, a second tradesman is always to be in attendance.

A.P.1018-0418-1B
A.L.29, July 79

NOTE TO READERS

The subject matter of this publication may be affected by Defence Council Instructions, Servicing Schedules, or 'General Orders and Modifications' leaflets in this A.P., in the associated publications listed overleaf, or even in some others. If possible, Amendment Lists are issued to correct this publication accordingly, but it is not always practicable to do so. When an Instruction, Servicing schedule or leaflet contradicts any portion of this publication, the Instruction, Servicing schedule or leaflet is to be taken as the over-riding authority.

The inclusion of references to items of equipment does not constitute authority for demanding the items.

Each leaf, except the original issue of preliminaries, bears the date of issue and the number of the Amendment List with which it was issued. New or amended technical matter will be indicated by triangles positioned in text thus:- ◀ ▶ show the extent of amended text, and thus:- ▶◀ to show where text has been deleted. When a Section or Chapter is issued in a completely revised form, the triangles will not appear.

If more than one copy of this publication is held, each set of covers should be given a copy number and kept together.

LAYOUT OF A.P.101B-0418

101B-0418-1A and 1B	General and technical information
101B-0418-2	General orders and modifications
101B-0418-3A	Schedule of spare parts
101B-0418-3B	Appendix 'A'
101B-0418-3C	Scales of unit equipment
101B-0418-3D	Scales of servicing spares
101B-0400-5	Periodic servicing schedule
101B-0400-6	Repair and reconditioning instructions
◀ 101B-0418-10	Servicing Diagrams Manual
101B-0418-12	Ground handling notes
101B-0400-13	Modification List ▶
101B-0418-15	Pilot's notes
101B-0418-16	Operating data manual

MODIFICATION STANDARD

This Air Publication has been written to the Canberra T.T. Mk.18 modification standard 18Y1 and the modifications listed below. Modifications subsequent to this standard are listed separately.

1	96	197	299	349	512	711	1002	1405	1736	2335	2690	3593	4094	4473	4958
2	97	198	300	401	513	713	1008	1407	1740	2347	2701	3701	4107	4474	4959
3	99	199	301	402	519	716	1009	1413	1744	2348	2704	3702	4112	4479	4960
4	150	250	302	403	523	721	1016	1421	1750	2353	2705	3703	4151	4482	5015
8	153	251	303	405	528	724	1021	1425	1769	2361	2710	3706	4152	4483	5020
9	154	252	305	409	531	731	1022	1427	1911	2372	2712	3710	4160	4488	5027
10	155	256	306	410	533	733	1023	1431	1924	2379	2717	3726	4220	4489	5028
11	156	258	308	411	535	739	1024	1432	1925	2380	2740	3745	4270	4491	5035
12	157	259	309	418	536	745	1027	1433	1932	2386	3156	3747	4271	4494	5045
13	159	260	311	419	537	749	1033	1434	1960	2392	3158	3749	4275	4495	5046
14	161	261	313	420	538	750	1036	1435	1968	2394	3211	3757	4286	4497	5048
15	162	262	314	421	540	851	1047	1442	1995	2395	3221	3773	4288	4498	5049
16	164	263	315	422	541	852	1050	1450	2107	2398	3225	3774	4303	4701	5050
18	165	264	316	424	542	853	1151	1454	2108	2501	3245	3797	4333	4704	5051
19	167	265	319	426	543	857	1152	1460	2121	2511	3258	3881	4335	4706	5058
51	168	266	320	427	545	858	1155	1464	2132	2517	3274	3883	4337	4707	5061
54	169	268	321	428	546	859	1160	1465	2133	2523	3278	3906	4351	4715	5070
57	170	269	322	430	547	860	1165	1466	2134	2531	3282	3911	4357	4718	5087
62	171	270	323	432	550	862	1169	1470	2148	2535	3299	3922	4412	4723	5091
63	174	275	324	433	606	863	1170	1477	2151	2541	3330	3937	4416	4726	5093
66	175	276	325	434	607	864	1171	1490	2154	2544	3352	3948	4420	4781	5096
67	176	277	326	440	612	868	1175	1493	2159	2545	3367	3949	4427	4783	5102
68	178	278	328	441	616	871	1176	1494	2160	2555	3368	3955	4435	4855	5103
69	180	279	329	442	617	872	1189	1498	2176	2564	3390	3960	4437	4856	5105
71	181	280	332	443	618	874	1196	1703	2177	2571	3391	3962	4439	4858	5111
75	182	281	333	445	620	878	1197	1705	2178	2578	3423	3971	4448	4866	5112
80	184	282	334	447	621	880	1199	1707	2183	2580	3428	4003	4449	4925	5117
81	185	283	335	449	628	883	1254	1712	2186	2585	3429	4011	4451	4933	5185
82	186	291	337	450	632	886	1266	1713	2301	2593	3480	4042	4454	4935	5190
83	188	292	339	502	636	887	1271	1714	2306	2594	3481	4045	4464	4936	5197
85	189	293	340	504	641	888	1272	1716	2308	2599	3487	4058	4465	4939	5198
87	190	294	343	506	643	890	1277	1720	2316	2614	3521	4063	4468	4949	5200
89	194	295	344	507	644	894	1288	1721	2317	2621	3522	4077	4469	4951	
90	195	296	346	508	706	895	1294	1728	2326	2670	3562	4078	4470	4953	
95	196	297	347	509	710	1001	1401	1734	2334	2689	3585	4080	4472	4956	

MODIFICATIONS INCLUDED SUBSEQUENT TO STANDARD

Modification Number	Effect on Publication	Incorporated by A.L. Number
5233 (Royal Navy only)	Incorporates supplement after Section 9	33
5251	Sect.8, Chap.3	35
5254	Sect.6, Chap.11 Sect.8, Chap.3	35
714	Leading Particulars Sect.6, Chap.9	36
5209	Leading Particulars	36
5250	Sect.6, Chap.6	36
5507	Sect.6, Chap.1 Sect.6, Chap.7	42
5234 (Royal Navy only)	Supplement	43
5505	Leading Particulars	44
5262	Sect.6, Chap.5	47
4851 (Royal Navy only)	Supplement	48
◀ 5542 (Royal Navy only)	Supplement	50 ▶

PREFACE

Because of the volume of the information given, A.P.1018-0418-1 is issued as two books, the breakdown being as follows:-

A.P.1018-0418-1A

Introduction

Leading particulars

Section 1 - Controls and exits

Section 2 - Ground handling and preparation for flight

Section 3 - Airframe

Section 4 - Power unit installation

Canberra Mod.4851 Supplement (applicable to Royal Navy TT Mk.18 aircraft only)

A.P.1018-0418-1B

Introduction

Leading particulars

Section 6 - Electrical installation

Section 7 - Instrument installation

Section 8 - Radio installation

Section 9 - Radar installation

◀ Canberra Mod.5233, Mod.5234, Mod.4851 and Mod.5542 Supplement (applicable to Royal Navy TT Mk.18 aircraft only) ▶

LIST OF ASSOCIATED AIR PUBLICATIONS AND AIR DIAGRAMS

	A.P.
Accessory gearboxes and drives, Rotol	*2240A & B*
Aero engine, Avon Mk.1	*102C-1522-1*
Aircraft assisted escape systems	*109B-0101-1*
Aircraft painting	*119A-0601-0*
Aircraft metal fuel tanks	*106B-0100 series*
Aircraft flexible fuel tanks	*106B-0200 series*
Aircraft wheels, tyres and brakes	*104 series and 2337*
A.R.I. 23134	*114J-0101-16*
A.R.I. 5877	*116B-0102-16*
A.R.I. 18089	*116N-0105-1*
A.R.I. 18107	*116B-0304-1*
A.R.I. 23057	*116D-0110-1*
A.R.I. 23118	*116B-0407-1*
A.R.I. 23143/1	*116D-0105-1*
A.R.I. 23189	*116H-0301-1*
A.R.I. 23190	*116H-0302-1*
A.R.I. 23232/7	*116B-0215-1*
A.R.I. 23288/3	*116D-0150-1*
◀ *A.R.I.23301/61*	*116D-0154-1* ▶

	A.P.
Ejector release unit	*110G series*
Armament loading and hoisting equipment	*110H-0200 series*
Cartridges and miscellaneous explosive devices	*110N series*
Ejection seats, Type 2CA series	*109B-0107-1*
Electrical manual	*113D series and 4343 series*
Hydraulic equipment	*104B/105B series and 1803 series*
Instrument manuals	*107, 112G series and 1275A series*
Navigation instruments	*112G series and 1275B series*
Prefabricated constructional equipment (Basic) — Canberra access structures	*119F-2100 series and 4549A Book 3*
Pressurizing and air conditioning equipment	*107B series and 4340 series*
Starting systems for aero engines	*1181E*
Rushton airborne long-tow winch and target launcher assembly	*101T-0703-16*
Rushton target, Mk.2	*101T-0301-1*
Air launcher container, Mk.4 and Mk.5, for banner target	*101T-1002-1*

	A.D.
Lubrication	*101B-0418-D1*
Hydraulic system	*101B-0418-D3*
Emergency equipment	*101B-0418-D8*

CONTENTS

LUBRICATION – OILS AND GREASES

THE LUBRICATION DIAGRAMS THROUGHOUT THIS PUBLICATION REFER TO OILS AND GREASES BY SYMBOLS. REFERENCE MUST ALWAYS BE MADE TO THIS MARKER CARD FOR INTERPRETATION OF THE LUBRICANT REQUIRED AND THE METHOD OF APPLICATION.

SYMBOL	NOMENCLATURE	REFERENCE NO.	N.A.T.O. CODE NO.
	Oil OEP-71	34B/9100540	O-136
	Oil OM-15	(1 gall.) 34B/9100572 (45 gall.) 34B/2202291	H-515
	Oil OM-150	34B/9100550	O-140
	Oil OX-14	(2 oz) 34B/9100589 (½ pint) 34B/9100590	O-147
	Oil OX-38	(1 gall.) 34B/9100591 (45 gall.) 34B/2201941	O-149
	Grease XG-235	34B/9440585	G-363
	Grease XG-271	34B/9100510	G-362
	Grease XG-273	34B/9423151	G-357
	Grease XG-276	34B/9425139	G-353
	Grease XG-287	(2 oz.) 34B/2241973 (28 lb.) 34B/2241861	G-354
	Grease XG-293	34B/2241797	G-395
	Grease XG-315	(4 oz.) 34B/2201436 (225 grm.) 34B 2204466	G-394
	Grease SP-5	34B/2247666	
	Grease ZX-38	34B/9437518	S-722
	Grease ZX-32	34B/2202430	S-717

METHOD OF APPLICATION SYMBOLS

 GUN OILCAN  HAND ♦ LUBRICATED ON ASSEMBLY ONLY

UK RESTRICTED

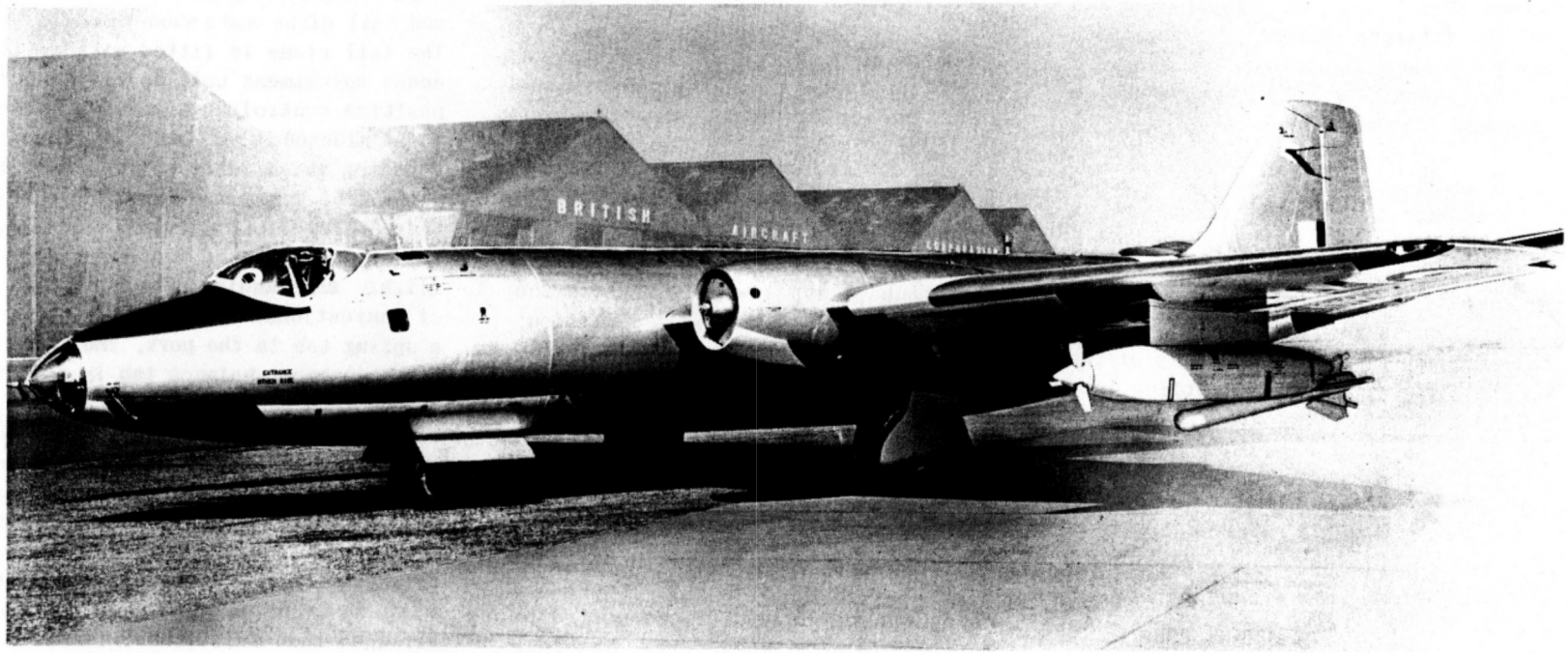


FIG. 1. CANBERRA TT. Mk. 18

◀TITLE AMENDED▶

INTRODUCTION

1. The Canberra TT Mk.18, a twin-engined, jet-propelled, target tower, is a mid-wing monoplane with retractable tricycle alighting gear. The aircraft is powered by two Rolls-Royce Avon Mk.1 engines, one mounted in each main plane. It carries a crew of two, pilot and navigator/target systems operator; both are provided with an ejection seat and a third ejection seat is provided for a passenger.

2. The all-metal fuselage is of monocoque construction, consisting of a stressed skin covering supported by a framework of transverse frames connected by longitudinal stringers; it is built in three units - front, centre and rear fuselage. To facilitate assembly of the complete aircraft and dismantling into main units, junctions are provided in all controls, hydraulic pipes, electrical wiring etc. at the ends of the units into which they are built.

3. The front fuselage comprises a transparent-plastic nose fairing, fitted with a toughened-glass sighting panel, a pressurized cabin sealed off from the remainder of the fuselage by a pressure bulkhead placed diagonally across the fuselage, equipment compartments, and the alighting gear nose-wheel unit. A door, which may be jettisoned in an emergency, is provided on the starboard side of the cabin for normal entry and exit. The pilot's canopy and the hatch above the navigator's and passenger's seats are both jettisonable, and provide escape exits for the crew members. The pilot's seat is offset, to improve visibility, to port of the centre line of the aircraft, and the navigator's and passenger's seats are at the rear of the cabin, side by side and backed on to the pressure bulkhead; the seats are mounted on separate support structures raising them above the level of the main cabin floor. An extension of the floor forms a sloping ramp in the nose. Two windows in the fuselage side at the navigator's station, one port and one starboard, are each fitted with a mirror for observing the target packs which are carried on under-wing pylons. A curtain fitted to the canopy coaming cross tube, when lowered, divides the crew station from the pilot's station; curtains are also fitted to the navigator's hatch windows, and a sun blind is positioned above the pilot's seat.

4. A metal floor, supported by arched diaphragm members, divides the centre fuselage into fuel and bomb bays. Three fireproof tanks are carried in the fuel bay; the forward and centre tanks are self-sealing and rigidly supported by internal bracing structures, the rear tank is a crash-proof collapsible fuel bag. The main plane centre section frame is an integral part of the fuselage and, passing through the fuel bay, forms a bulkhead between the centre and rear tanks. Aft of the rear tank the fuel bay is sealed by a removable bulkhead. The bomb bay is of full fuselage width and is closed by two hydraulically-operated bomb doors. Bulkheads at each end of the bomb bay carry the bomb door jacks and operating linkage and form separate compartments at each end of the centre fuselage. The forward bomb beam carries an auxiliary fuel tank.

5. The rear fuselage carries the tail unit, which comprises a metal rudder and tail plane and a wood-and-metal fin. The tail plane is fitted with an incidence adjustment unit designed to give positive control at high Mach numbers. The incidence is varied by an electrical actuator which ensures irreversibility of control under any condition of flight and enables quick changes to be made in fore-and-aft trim during take-off, flight, and landing. The elevators are of conventional design and incorporate a spring tab in the port, and a geared, fixed-movement balance tab in the starboard elevator. Forward of the spar the fin is of wooden construction, aft of the spar the rudder shroud is of metal with the aerofoil section maintained by flanged plate ribs. The rudder is all-metal and incorporates a spring tab which, through an electrical actuator, acts also as a trim tab; it is so arranged that full travel is available for either function. The rear fuselage tail fairing incorporates the rear radome.

6. The main planes are all-metal cantilever structures of symmetrical section, with a main spar and a sectional rear wall, carrying the power units mounted mid-wing. The main spar is a single web with machined booms, the web cut away and reinforced by ring plates

for the accommodation of the engine jet pipe. Four main and seven shear bolts attach the spar root to the main spar centre section in the fuselage. The rear wall consists of three pressed sections, the inner and centre sections being attached to a forged ring through which the engine jet-pipe passes; at the main-plane root, the inner section is attached by one bolt to a fuselage pick-up point. The outer section has a curved web which forms the forward wall of the pressure-balance box. The inner leading-edge section of the main plane, into which the main undercarriage unit retracts, is divided transversely by a diaphragm which forms the front wall of the wheel well; extending from the inboard engine-rib to the fuselage, the diaphragm is attached by one bolt to the fuselage. The main plane and fuselage skins intersect smoothly without fillet, the skin at the main-plane root fitting over a joint angle riveted to the fuselage. Each main plane is fitted with air brakes, aileron, and split flaps. Provision is made for fitting jettisonable fuel tanks. A pylon is attached to the under surface of each main plane, outboard of the engine; each pylon carries a target winch pack and target, controlled from panels mounted at the navigator's station.

7. The flying controls are conventional, rudder pedals operating the rudder, and a horn-type control operating the ailerons and elevators. All control runs consist of push-pull tubes and levers.

8. The fully-retractable tricycle alighting gear is operated hydraulically through electrically-actuated selectors, the main units retracting inwards into the main planes and the nose-wheel unit retracting rearward into the front fuselage. The main unit struts are oleo-pneumatic with single wheels mounted in cantilever and with hydraulic disc-type brakes. The nose-wheel unit is fully castering and self-centring with twin wheels keyed together to eliminate shimmy.

9. The engines are attached to engine ribs just forward of the main spar. Each is slung on four self-aligning attachments, the collar of the rear outboard mounting being allowed to float to take up expansion. All auxiliaries are mounted on gearboxes inboard of the engines. Turbo-starters are fitted, the units being faired into the engine air-intakes. Oil is carried in the engine sumps only and is cooled by fuel-cooled oil coolers mounted on the engines.

10. Fuel galleries connect each engine with the fuel tanks. Two fuel pumps are submerged in each tank, including the auxiliary tank; separate switches operate each pump together with its associated low-pressure cock. Fuel from the wing-tip tanks, when fitted, is transferred to No.3 tank by air pressure ducted from the engine compressor casings. Fuel from the auxiliary tank is fed into the wing-tip tank transfer lines downstream of non-return valves. Smith-Waymouth capacitor-type gauge units, fitted in all fuselage fuel tanks except the auxiliary tank, operate fuel contents gauges on the pilot's engine panel. A fuel tank venting system is also provided. Flame detectors and extinguisher spray pipes are installed in the engine bays and spray pipes in the fuselage tank bay.

11. All electrical power is drawn from two 6-kilowatt generators and from four 12-volt accumulators, with appropriate inverters for radar equipment. Two 12-volt batteries, independent of the main system, supply emergency power for the detonator circuits, the turn and slip indicator and emergency lighting, in the event of failure of the main d.c. supply.

12. Radio, radar and target towing equipment, suitable to the role of the aircraft, is installed; controls and associated equipment are installed in postions convenient to the crew member concerned. For Royal Navy aircraft, a radar altimeter is fitted.

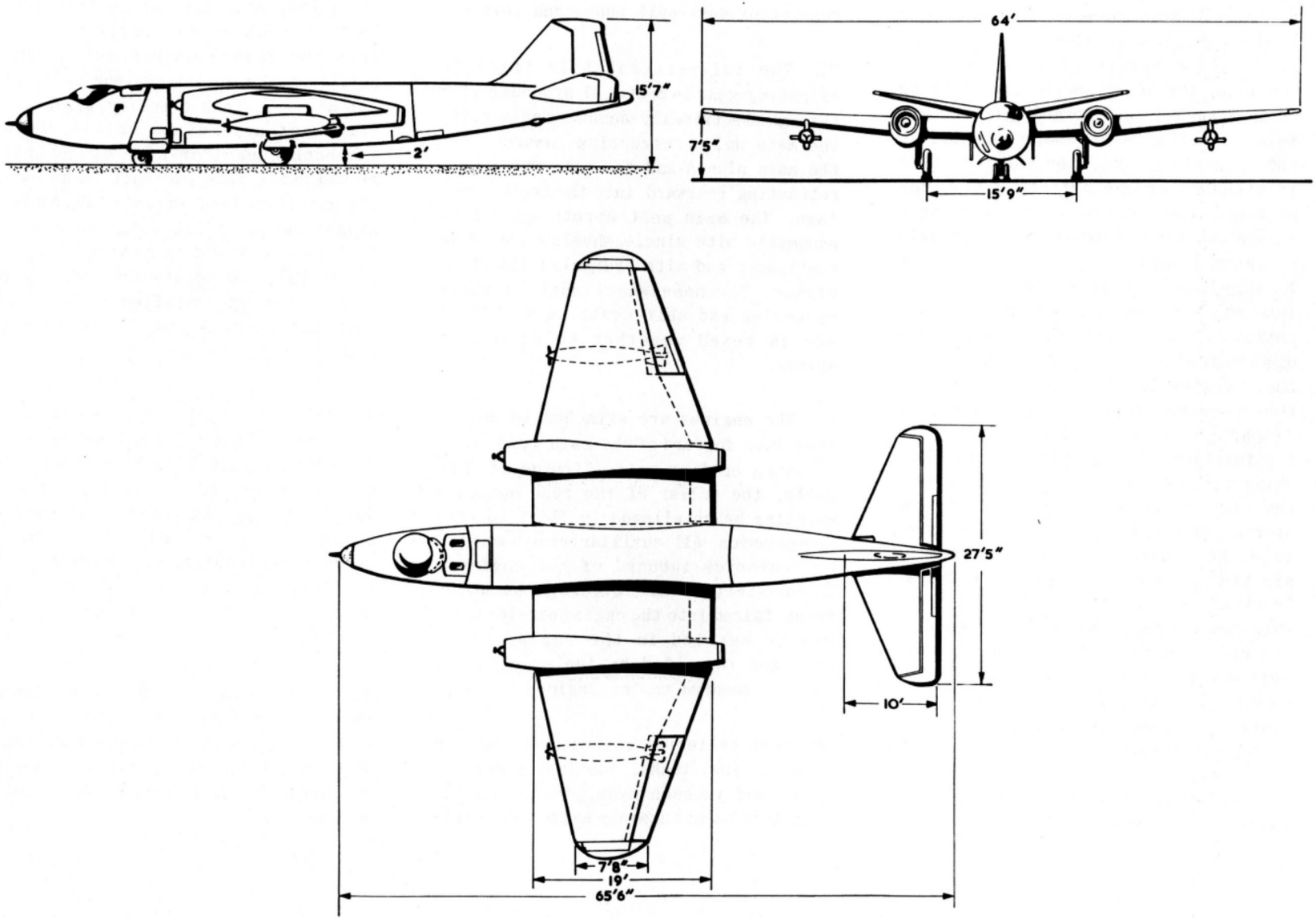


FIG. 2. GENERAL ARRANGEMENT—CANBERRA TT. Mk. 18

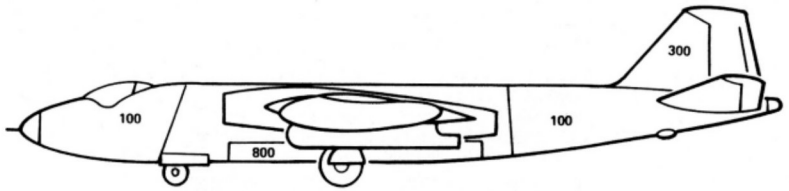
◀TITLE AMENDED▶

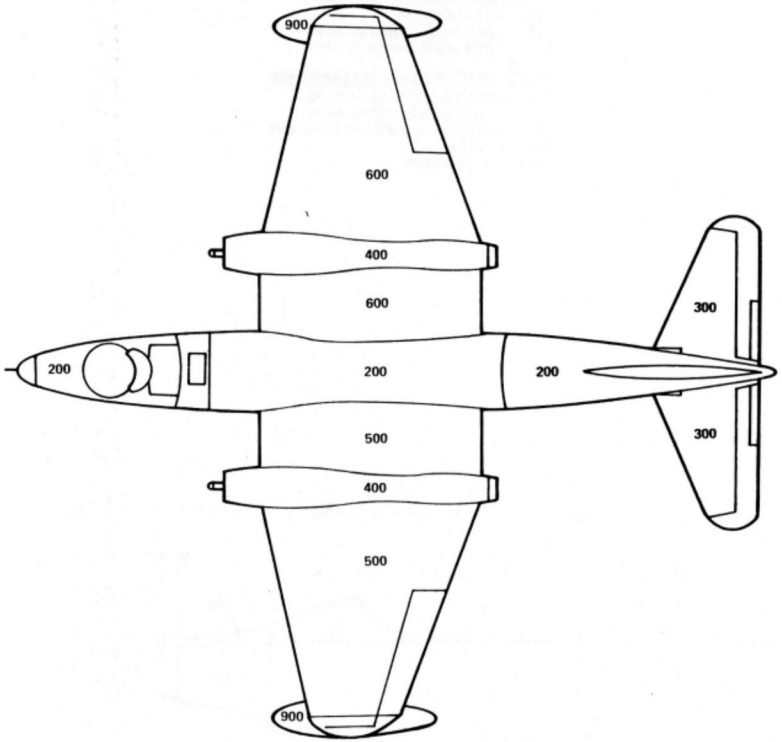
A.P.101B-0418-1B
A.L.51,Aug.90

CANBERRA-TT. Mk.18
ZONES

◀ *(New Section)* ▶

UK RESTRICTED





MAJOR ZONES

100 – LOWER FUSELAGE
200 – UPPER FUSELAGE
300 – TAIL UNIT
400 – ENGINE AND JET PIPE BAY
500 – PORT WING
600 – STBD. WING
700 – LANDING GEAR AND DOORS
800 – DOORS
900 – SPECIAL FIT EQUIPMENT

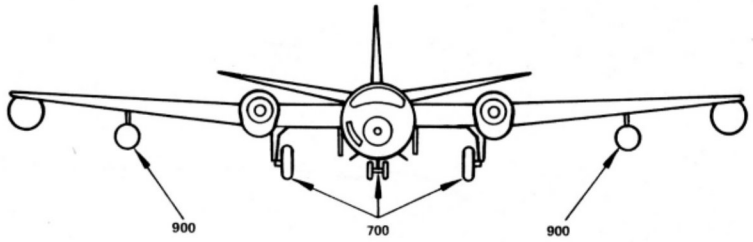


FIG. 3. GENERAL ARRANGEMENT OF MAJOR ZONES

UK RESTRICTED

MAJOR ZONES 100 AND 200 – LOWER AND UPPER FUSELAGE

MAJOR ZONE 100 – LOWER FUSELAGE

SUB-MAJOR ZONES

110 – FUSELAGE FORWARD OF THE PRESSURE BULKHEAD
- 111 BENEATH CABIN FLOOR

120 – FUSELAGE FROM PRESSURE BULKHEAD TO FRAME 21
- 121 PORT EQUIPMENT COMPARTMENT
- 122 STARBOARD EQUIPMENT COMPARTMENT
- 123 NOSE WHEEL BAY
- 124 BATTERY COMPARTMENT
- 125 BOMB BAY FORWARD

130 – FUSELAGE FROM FRAME 21 TO 31
- 131 BOMB BAY AFT

MAJOR ZONE 200 – UPPER FUSELAGE

SUB-MAJOR ZONES

210 – FUSELAGE FORWARD OF THE PRESSURE BULKHEAD
- 211 NOSE SECTION FORWARD OF FRAME 1
- 212 CABIN

220 – FUSELAGE FROM PRESSURE BULKHEAD TO FRAME 21
- 221 MAIN EQUIPMENT COMPARTMENT
- 222 No.1 FUEL TANK
- 223 No.2 FUEL TANK

230 – FUSELAGE FROM FRAME 21 TO 31
- 231 No.3 FUEL TANK
- 232 AREA FROM FRAME 27 TO 29
- 233 AREA FROM FRAME 29 TO 31

240 – FUSELAGE FROM FRAME 31 REARWARDS
- 241 AREA FROM FRAME 31 TO 42
- 242 AREA FROM FRAME 42 TO 46
- 243 REAR FAIRING (FRAME 46 TO 42F)
- 244 FIN STUB
- 245 RUDDER STUB

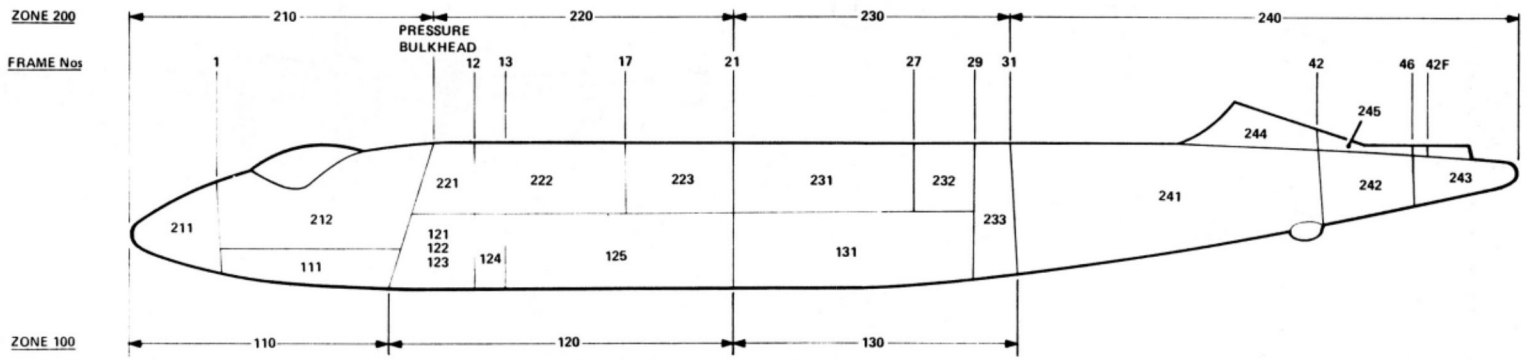


FIG. 4. MAJOR ZONES - LOWER AND UPPER FUSELAGE

UK RESTRICTED

MAJOR ZONE 300 – TAIL UNIT

SUB-MAJOR ZONES

310 – PORT TAILPLANE

320 – STARBOARD TAILPLANE

330 – FIN AND RUDDER

310 – PORT TAILPLANE AND CENTRE SECTION

- 311 TAILPLANE
- 312 ELEVATOR
- 313 TAB
- 314 CENTRE SECTION

320 – STARBOARD TAILPLANE

- 321 TAILPLANE
- 322 ELEVATOR
- 323 TAB

330 – FIN AND RUDDER

- 331 FIN
- 332 RUDDER
- 333 TAB

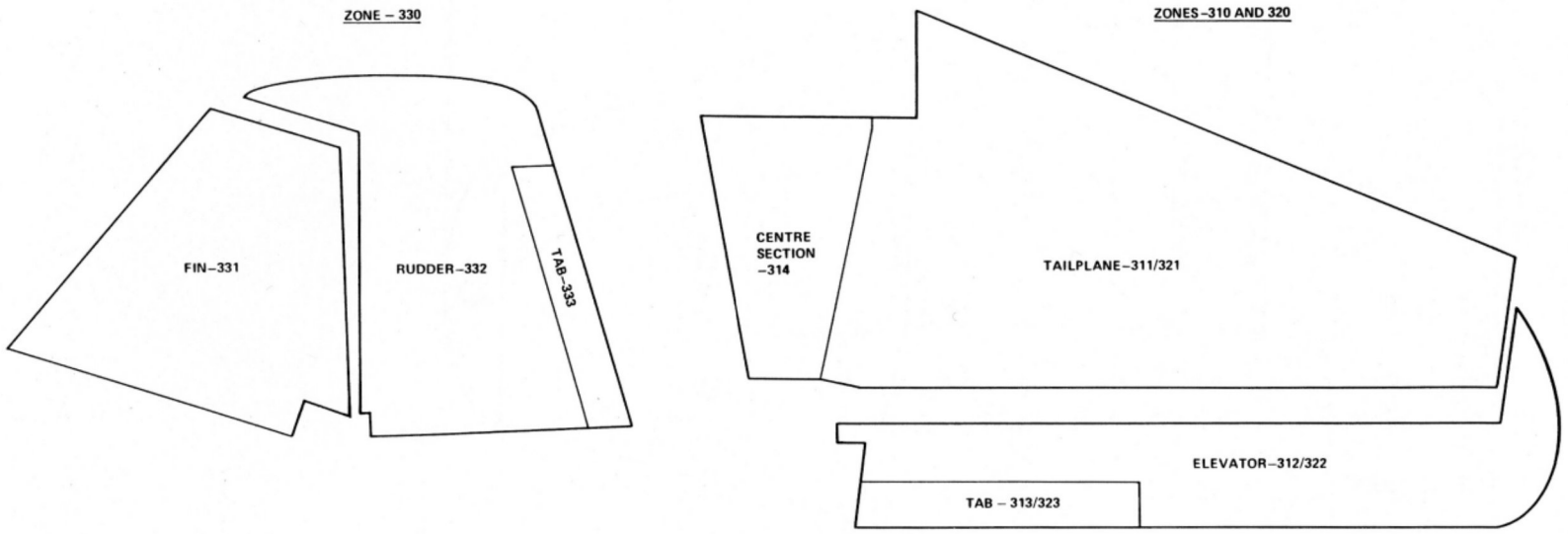


FIG. 5. MAJOR ZONES - TAIL UNIT

UK RESTRICTED

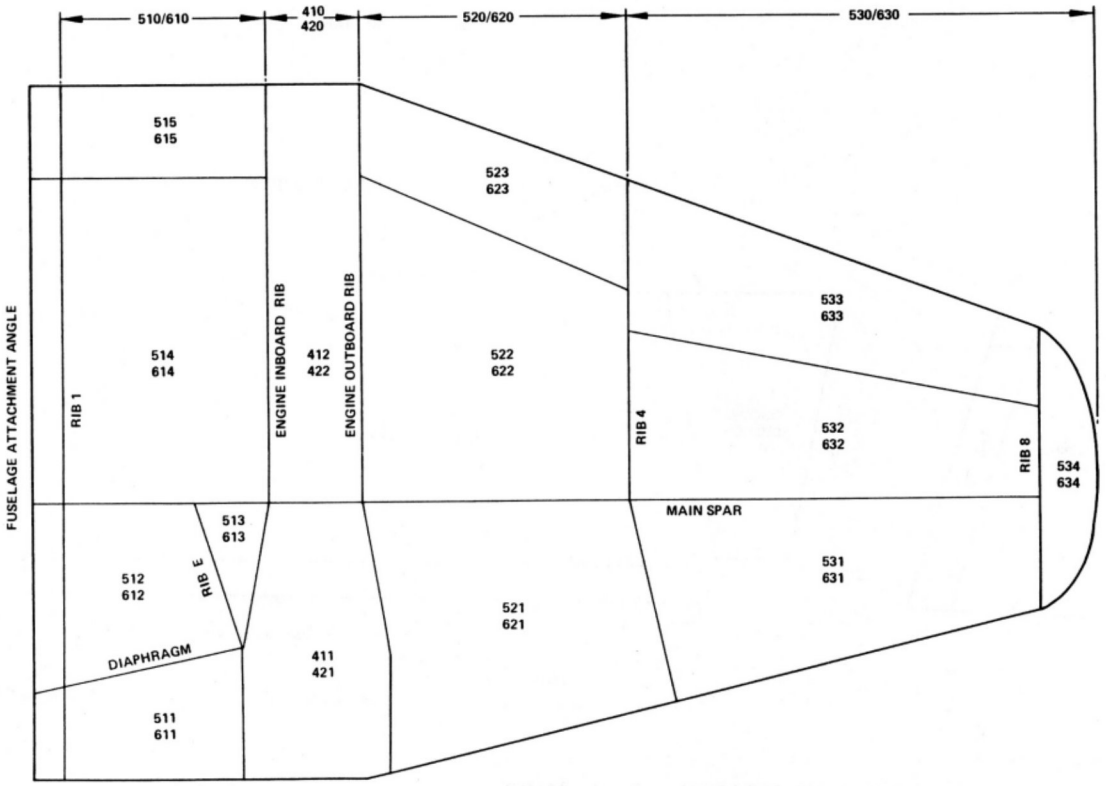
MAJOR ZONES – 400,500 AND 600 - PORT AND STARBOARD ENGINE/JET PIPE BAYS; PORT AND STARBOARD WINGS

MAJOR ZONE 400 – PORT AND STBD. ENGINE/JET PIPE BAYS

MAJOR ZONE 500 – PORT WING

MAJOR ZONE 600 – STBD. WING

ZONES–400/500/600



SUB–MAJOR ZONES

410/420 - JET PIPE REAR CONE

411/421 - ENGINE BAY

412/422 - JET PIPE BAY

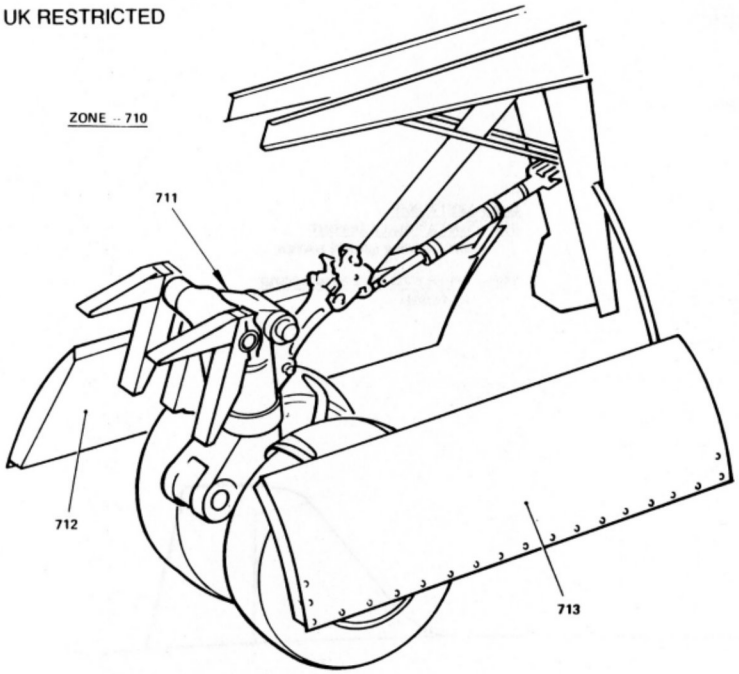
510/610 - INBOARD WING SECTION BETWEEN FUSELAGE ATTACHMENT ANGLE AND ENGINE INBOARD RIB

520/620 - CENTRE SECTION WING BETWEEN ENGINE OUTBOARD RIB AND RIB 4

530/630 - OUTBOARD WING SECTION BETWEEN RIB 4 AND WING TIP

FIG. 6. MAJOR ZONES - ENGINE AND JET PIPE BAYS AND PORT AND STBD. WINGS

UK RESTRICTED



MAJOR ZONE 700 – LANDING GEAR AND DOORS

SUB–MAJOR ZONES

710 – NOSE LANDING GEAR AND GEAR DOORS

720 – STBD.MAIN LANDING GEAR AND GEAR DOORS

730 – PORT MAIN LANDING GEAR AND GEAR DOORS

710 – NOSE LANDING GEAR AND GEAR DOORS

- 711 NOSE LANDING GEAR
- 712 NOSE LANDING GEAR DOOR RIGHT
- 713 NOSE LANDING GEAR DOOR LEFT

720 – STBD.MAIN LANDING GEAR AND GEAR DOORS

- 721 MAIN LANDING GEAR
- 722 MAIN LANDING GEAR SPAT AND FLAP
- 723 MAIN LANDING GEAR DOOR

730 – PORT MAIN LANDING GEAR AND GEAR DOORS

- 731 MAIN LANDING GEAR
- 732 MAIN LANDING GEAR SPAT AND FLAP
- 733 MAIN LANDING GEAR DOOR

ZONE – 720 / 730

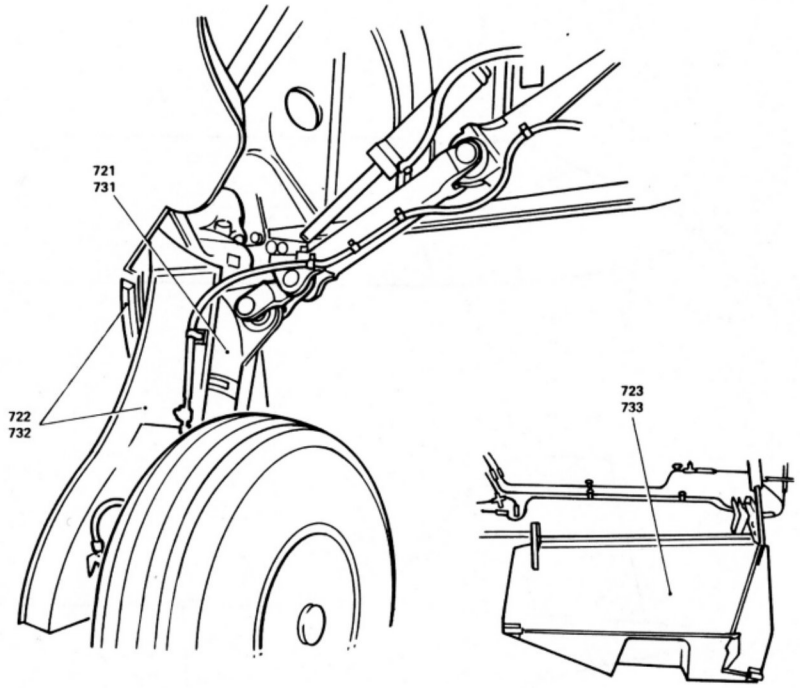


FIG. 7. MAJOR ZONES - LANDING GEAR AND DOORS

UK RESTRICTED

MAJOR ZONE 800 – DOORS

SUB-MAJOR ZONES
810 – LOWER FUSELAGE PORT
811 BOMB BAY DOOR
812 REAR DOOR

820 – LOWER FUSELAGE STARBOARD
821 CREW ENTRANCE DOOR
822 BOMB BAY DOOR

SUB-MAJOR ZONES
830 – UPPER FUSELAGE PORT
831 CREW ESCAPE HATCH

840 – UPPER FUSELAGE STARBOARD
NOT USED

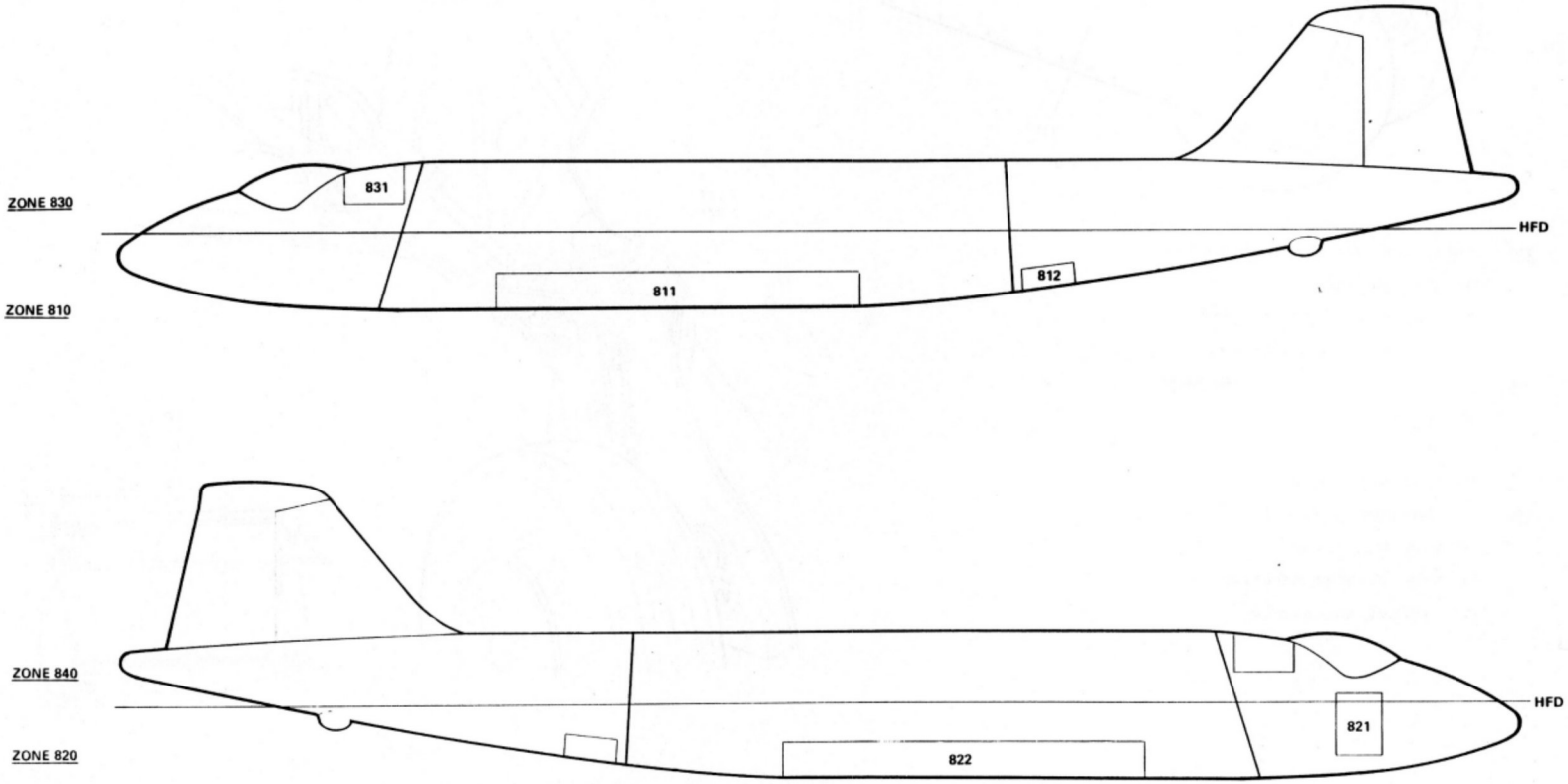


FIG. 8. MAJOR ZONES - DOORS

UK RESTRICTED

MAJOR ZONE 900 – SPECIAL FIT

910– PORT WING TIP TANK
920– PORT TARGET TOWING PYLON
930– PORT TARGET TOWING PACK
940– STBD. TARGET TOWING PACK
950– STBD. TARGET TOWING PYLON
960– STBD. WING TIP TANK

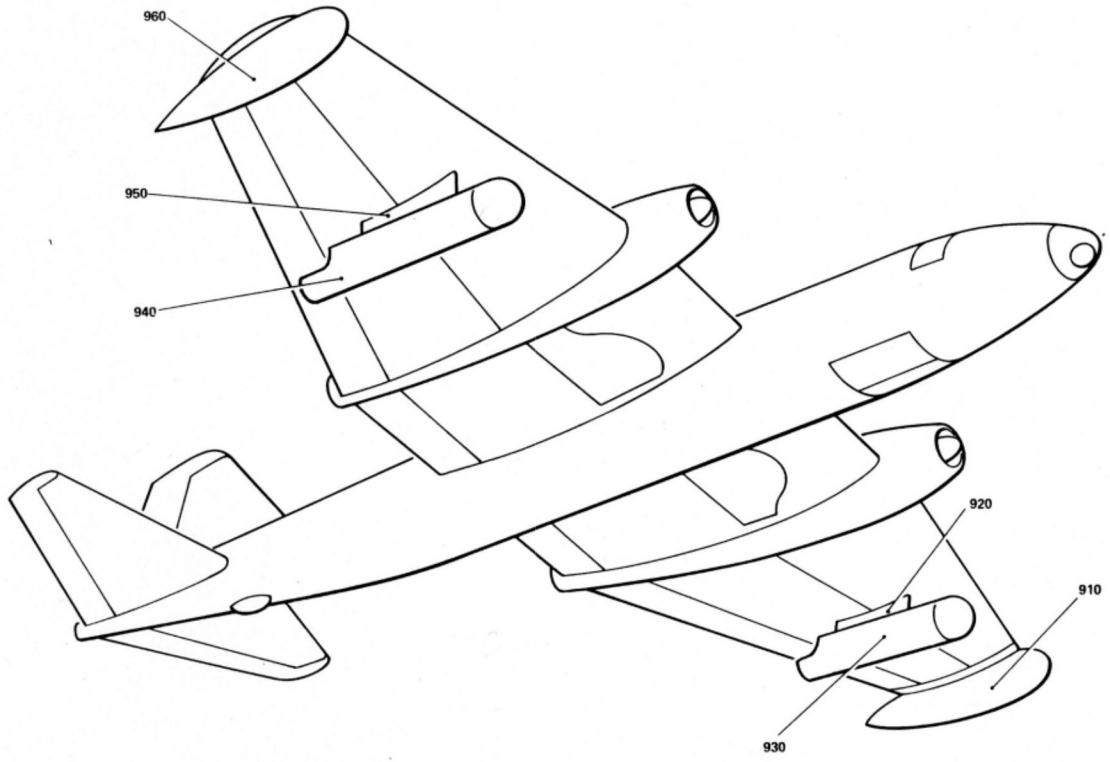


FIG. 9. MAJOR ZONES - SPECIAL FIT

LEADING PARTICULARS

NAME ..... **CANBERRA TT MK 18**

TYPE ..... **TWIN-ENGINED, JET PROPELLED MID-WING MONOPLANE**

DUTY ..... **TARGET TOWING**

CREW ..... **TWO**

PRINCIPAL DIMENSIONS

For the principal dimensions of the aircraft refer to the General Arrangement illustration. For the settings and range of movement of the main control surfaces refer to Section 3, Chapter 4.

MAIN PLANE

Aerofoil section ..... *R.A.E./D*
Chord
At root ..... *19 ft.*
At tip ..... *7 ft. 8 in.*
Incidence ..... *2 deg.*
Dihedral
Measured on top surface of wing ..... *2 deg. ± 10 deg.*
Sweep back (at leading edge) ..... *13 deg.33 min.*
Sweep forward (at trailing edge) ..... *19 deg.53 min.*

TAIL PLANE

Aerofoil section ..... *R.A.E./D*
Chord
At root (leading edge extended to aircraft centre line) ..... *10 ft.*
At tip ..... *4 ft.*
Incidence (as measured at starboard inboard rigging gauge position)
Take-off position ..... *3 deg.15 min. ± 2 min.*
Range between electrical stops ..... ~~*2 deg 12 min. +5 -4 min.*~~ *to 3 deg. 59 min. +4 -5 min.*

TAIL PLANE – *continued*

Dihedral (measured at inboard rigging gauge position) ..... *7 deg.57 min. ± 15 min.*
Tail-plane stub incidence ..... *1 deg.*

FIN AND RUDDER

Aerofoil section ..... *R.A.E./D*
Chord
At root ..... *12 ft. 8½ in.*
At tip ..... *5 ft. 0½ in.*

AREAS

Main plane. including aileron (gross) ..... *960 ft²*
Main plane, including aileron (nett) ..... *836.5 ft²*
Ailerons (total) ..... *72 ft²*
Aileron trim tabs (total), aft of hinge ..... *3.65 ft²*
Flaps (total) ..... *64.2 ft²*
Tail plane, including elevators (gross) projected ..... *190.8 ft²*
Tail plane, including elevators (nett) projected ..... *166.8 ft²*
Elevators, including horn ..... *56.8 ft²*
Elevator trim tabs (total), aft of hinge ..... *5.44 ft²*
Fin, including rudder and tab ..... *66.53 ft²*
Rudder, including horn ..... *28.06 ft²*
Rudder trim tab ..... *2.577 ft²*

EXTERNAL FINISH

Acrylic finish *D.T.D.5599A*

ALIGHTING GEAR

MAIN UNDERCARRIAGE

Type ..... *Two single-wheel units, retracting inwards. B.A.C. EA3.40.233, 234*

ALIGHTING GEAR – *continued*

Shock absorber
- *Type* ..... *Oleo pneumatic*
- *Nitrogen pressure (with wheels off the ground)*
  - *A.U.W. Up to 33,000 lb* ..... *375 lb/in²*
  - *Above 33,000 lb* ..... *450 lb/in²*

(For pressures for different all-up weights refer to Sect.2, Chap.2)
- *Fluid* *OM-15*
- *Capacity – fluid* ..... *12 pints (approx.)*

Wheels
- *Type* ..... *Dunlop AH.9485*
- *Tyres* ..... *Dunlop KJ-N-16N or DR.4521*
- *Tubes* ..... *Dunlop K.J.9*
- *Tyre pressure* ..... *Refer to AP101B-0400-5A2*

Brakes ..... *Dunlop hydraulic*

NOSE UNDERCARRIAGE

Type . . . . . .Twin wheel, non-steerable, castering, rearward retracting, Dowty 2.0039.6040 (pre-mod.5505) or 2.0039.6041 (post-mod.5505)

Shock absorber ..... *Levered suspension, liquid spring, Dowty, Type A7307Y*
- *Pressure (with wheels off the ground)* ..... *1,500 lb/in²*
- *Fluid* *OM-15*
- *Capacity – fluid* ..... *1½ pints*

Wheels
- *Type* ..... *Dunlop AH.9238 or AH.9590*
- *Tyres* ..... *Dunlop K.K.E.N.14N or DR.2565*
- *Tubes* *K.K.2*
- *Tyre pressure* ..... *Refer to AP101B-0400-5A2*

HYDRAULIC SYSTEM

Pumps ..... *Lockheed Mk.7 (Ref.No.37J/264) or (post Mod.2335) Lockheed Mk.9 (Ref.No.37J/266)*

Fluid *OM-15*

Capacity of system ..... *31 pints approx.*

HYDRAULIC SYSTEM – *continued*

Pressure settings

Cut-out valve ..... *Cut-out, 2500^{+0}_{-100} lb/in²*

Cut-in, 2000 lb/in² (min.)

Thermal relief valves ..... *Open, 3450±100 lb/in²*

Reseat, 3100 lb/in² (min.)

Flaps relief valve ..... *Open, 2850±50 lb/in²*

Accumulator inflation pressure (main and wheel brakes)

At 40 deg F, 1300^{+50}_{-0} lb/in²

At 60 deg F, 1350^{+50}_{-0} lb/in²

At 80 deg F, 1400^{+50}_{-0} lb/in²

when exhausted of hydraulic pressure

Reservoir pressure relief valve ..... *Open, 12-17 lb/in²*

Reseat, 8 lb/in²

ELECTRICAL SYSTEM

Wiring ..... *Plessey*

Voltage *28*

Generators ..... *Two 30V, 6kW, Type P3 (Ref.No.5UA/4751)*

Batteries ..... *Four 12V, 40 Ah, Type C, connected in series parallel*

Voltage regulators ..... *Two Type 23 and one Type 32*

Emergency batteries ..... *Two 12V, 4 Ah*

ENGINES

Name ..... *Avon Mk.1*

Type ..... *Pure jet, gas turbine*

Starter ..... *Rolls Royce turbo-starter, Type S.B.S. 720 Mk.1 (Ref.No.37F/11000)*

Cartridge ..... *No.9 Mk.1 (720 grammes)*

Fuel ..... *Avtur with F.S.I.I. D.E.R.D.2453 (Ref.No.34A/2201036) - N.A.T.O. Code F-34*

ENGINES – *continued*

◀

Avtag with F.S.I.I. D.E.R.D.2454
(Ref.No.34A/2201037) - N.A.T.O.Code F-40
In case of emergency, only the
following alternative fuels may be used
**Avtur without F.S.I.I. D.E.R.D.2494*
(Ref.No.34A/9431771) - N.A.T.O.Code F-35
**Avcat without F.S.I.I. D.E.R.D.2498*
(Ref.No.0722/2202148) - N.A.T.O.Code F-43
Avcat with F.S.I.I. D.E.R.D. 2452
NATO Code F-44
French Navy Fuel A.I.R. 3404A similar
to Avcat D.E.R.D. 2498 with F.S.I.I.
**If these fuels are used FSII must be added in concentrations*
of between 0.10 and 0.15 per cent by volume
F.S.I.I. AL31 D.Eng.R.D. 2451 NATO Code S748

▶

Fuel pressure warning lamps ..... *Illuminated when pressure falls below* $6^{+\frac{1}{2}}_{-0}$ *lb/in²*

Oil *OM-11*

Accessories gearboxes

Port engine ..... *Rotol, Type PTG3/1 (Ref.No.37L/158) or Type PTG3/3 (Ref.No.37L/160)*

Starboard engine ..... *Rotol, Type PTG3/2 (Ref.No.37L/159) or Type PTG3/4 (Ref.No.37L/161)*

Oil ..... *OX38 or OEP71*

Two-speed gearbox (post Mod.714) ..... *Type D9*

Oil ..... *OEP 71*

PRESSURE HEAD

Type *Mk.8W*

Position ..... *On nose tip*

Angular setting ..... *Parallel with fore and aft datum line ± 1 deg*

TANK CAPACITIES

Fuel tanks		*Weight (lb)*	
		Avtur	*Avtag*
No. 1	*520 gal*	*4160*	*4056*
No. 2	*317 gal*	*2536*	*2473*
No. 3	*540 gal*	*4320*	*4212*
Auxiliary (bomb bay)	*300 gal*	*2400*	*2340*
Wing tip jettisonable Tanks (two)	*488 gal*	*3904*	*3806*
Total fuel	*2165 gal*	*17320*	*16887*

Oil

Engine sumps (each engine) ..... *16 pints*
Total oil (each engine) ..... *19 pints*
Accessories gearboxes (each gearbox) ..... *3.125 pints*
2-speed accessories gearbox (each gearbox) ... *0.875 pints*
Hydraulic fluid tank ..... *16 pints*

Note . . .

The fuel tank capacities given above are nominal; individual aircraft capacities may vary slightly.

TARGET PACKS

Type . . . Rushton winch pack ..... *Flight Refuelling Ltd.*

Gearbox

Oil *OEP-30*
Capacity ..... *6 pints*

Hydraulic system

Fluid *OM-15*

Capacity

Reservoir ..... *20 pints*
System ..... *20 pints*

Accumulators

Inflation pressure ..... *750 lb/in²* *(when exhausted of hydraulic pressure)*

Nitrogen cylinder

Inflation ..... *to ambient temperature (as shown on gauge)*

Note . . .

The lubricant reference and N.A.T.O. code numbers are printed on the reverse of the List of Contents marker card.