4th Edition

AP 4328 F.PN

RESTRICTED

Pilot's Notes

Canberra B (I) Mk 6

RESTRICTED

Sgt. Black

AMENDMENTS

Amendment lists will be issued as necessary and should be inserted in the appropriate place in the Notes. New or amended paragraphs will be indicated by triangles positioned in the text thus: ◀.....▶ to show the extent of the amended text, and thus: ▶◀ to show where text has been deleted. When a page is issued or re-issued by amendment the number of the Amendment will appear at the bottom of the page. When a chapter is issued or re-issued in a completely revised form the triangles will not appear. Incorporation of an Amendment list must be certified by inserting the date of its issue, the date of incorporation and signature below.

Amdt list		Signature	Date of Incorporation	Amdt. list		Signature	Date of Incorporation
No.	Date			No.	Date		
1.	Oct 62	3-1-63		7.	Dec 68		7 Feb 69
2.	Feb 64		1-5-64	8.			
3.	NOV. 64		6-1-65	9.			
4.	OCT. 65		19-1-66	10.			
5.	FEB 67		11-5-67	11.			
6.	MAY 67		30-6-67	12.			

Comments and suggestions regarding Pilot's Notes should be forwarded to the Officer Commanding, Handling Squadron, Royal Air Force, Boscombe Down, Wiltshire.

November 1961

A.P.4326F.PN
4th Edition.

PILOT'S NOTES
CANBERRA B(I) Mk.6.

Prepared by Direction of the Minister of Aviation

Promulgated by Command of the Air Council

RESTRICTED

NOTES TO USERS

1. These notes are intended primarily for the Canberra B(I) Mk. 6; however, Part I, Chapter 12 includes information on the variations between the Canberra B(I) Mk. 6 and the Canberra B Mk. 6 with SRIM's 2951 or 2696 embodied.

2. The notes are complementary to A.P.129 (6th Edition) Flying, and reference should also be made to the Operating Data Manual (A.P.4326F-O.D.).

3. The limitations quoted in Part II are mandatory and are not to be exceeded except in emergency. The contents of other parts of the book are mainly advisory but instructions containing the word "must" are also mandatory.

4. The notes are divided by marker cards into five Parts each consisting of a number of chapters listed on the marker cards. A Folio Sheet reference number is at the top left-hand corner of each sheet, each Part starting at FS1. The following conventions also apply:—

(a) Words in large capital letters in the text indicate the actual markings on the controls concerned.

(b) Unless otherwise indicated, all airspeeds, mach numbers and accelerometer readings quoted are indicated values.

5. (a) The Flight Reference Cards are complementary to the Notes and reference is made to them, where necessary, throughout the Notes. With effect from Amendment List No. 7 the Flight Reference Cards for the Canberra B(I) Mk. 6, A.P.4326F-FRC, are issued separately from the Notes and are subject to separate amendment procedure.

(b) Special check lists for the Canberra B. Mk. 6 are held by the Central Reconnaisance Establishment, Royal Air Force, Brampton, Hunts.

6. Each Amendment List instruction sheet includes a list of Special Flying Instructions and a list of the modifications covered by the Amendment.

7. Modification numbers are only referred to in these Notes when it is necessary to differentiate between pre and post-mod. states. For ease of reference a list of modifications mentioned in the text is included before the main contents list, with a cross reference to the position in the text where details of the modifications are given.

LIST OF ASSOCIATED AIR PUBLICATIONS

Title	*A.P. No.*
Canberra B(I) Mk. 6 aircraft	4326F Vol. 1 (101B-0406-1)
Avon Mk. 109 aero engine	4321G, J, L, N, U and V
Aircrew equipment assemblies	1182
Electrical equipment ...	4343 series (113D series)
Engine starting systems ...	1181
Ejection seats	4288 series (109B-0101-1)
Guns — 20 mm. Hispano ...	1641F
Hydraulic equipment ...	1803 series (105B series)
Instrument manual ...	1275A (112G series)
Navigation instruments ...	1275B (112G series)
Intercomm. equipment ...	2876E
VHF equipment	2528P
Radio altimeter equipment (AYF)	2533 series
ILS equipment	2534E
Signal manual	1186 series
R.A.F. engineering ...	1464 series
Oxygen equipment ...	1275G (112G series)
Pressurising and air conditioning equipment...	4340 (107B series)
Canberra B(I) Mk. 6 Operating Data	A.P.4326F-OD
UHF	2531J
ARI 23057	2531N

CANBERRA B(I)MK.6.

MAIN DIMENSIONS.

HEIGHT TO TOP OF FIN	15' – 7"
LENGTH OVERALL	65' – 6"
SPAN WITHOUT TIP TANKS	64'
SPAN WITH TIP TANKS	65' – 6"

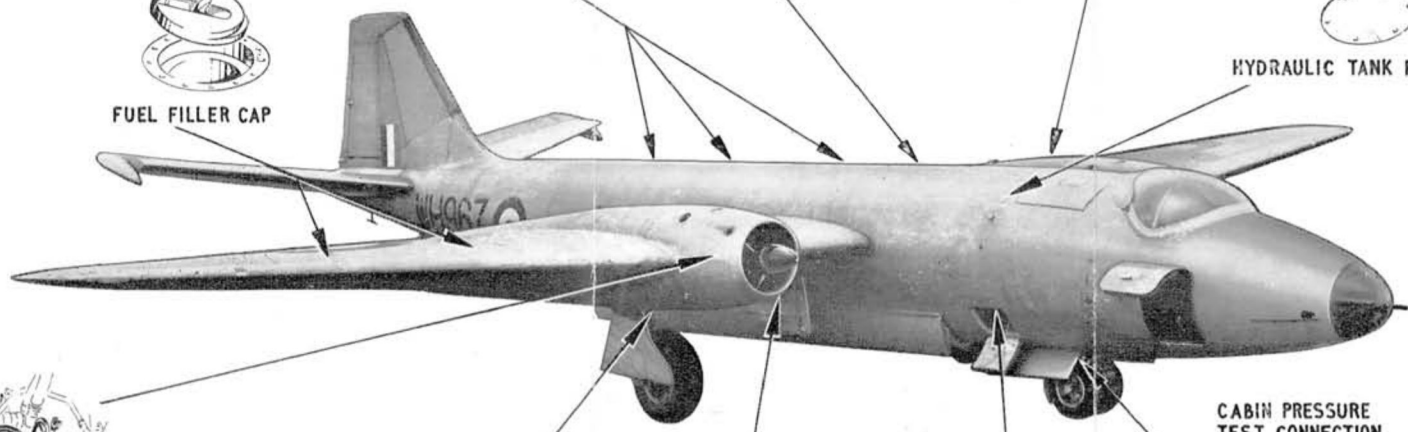
FUEL FILLER CAP

HYDRAULIC ACCUMULATOR (BRAKES) AIR CHARGING VALVE AND PRESSURE GAUGE ON REAR FACE OF FORWARD BOMB BAY BULKHEAD.

OXYGEN CHARGING VALVE IN LOWER EQUIPMENT BAY PORT SIDE

FUEL FILLER CAP

HYDRAULIC TANK FILLER CAP



ENGINE SUMP OIL FILLER ON PORT SIDE OF EACH ENGINE

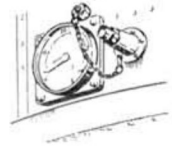
CABIN PRESSURE TEST CONNECTION

GROUND PRESSURE CONNECTION

CABIN PRESSURE TEST CONNECTION AND GROUND PRESSURE CONNECTION ON THE PRESSURE BULKHEAD ACCESSIBLE THROUGH THE NOSE WHEEL WELL

ON MAIN U/C FAIRING (PORT AND STB'D.)

BRAKE HYDRAULIC TEST CONNECTION



HYDRAULIC ACCUMULATOR AIR CHARGING VALVE & PRESSURE GAUGE IN MAIN U/C WHEEL WELL (STB'D. ONLY)

EXTERNAL SUPPLY SOCKET IN STB'D. EQUIPMENT BAY

MODIFICATION NUMBERS MENTIONED IN THE TEXT

Mod. No.	*Title*	*Location in text (Pt.,Chap.,para.)*
	CANBERRA MODS.	
	Long range fuel tank.	I, 2, 1(d)
715	Introduction of zero reader.	I, 6, 6(a)
1447	To accommodate fuel expansion	I, 2, 2
2572	in integral tanks.	
2685	Introduction of Type 2CA 2 Mk. 1 ejection seats for rear crew members.	I, 9, 1(a)
2695	To provide mounting for an F.95 camera in the nose.	I, 11, 15(c) (i)
3243	Provision for Mk. 2 Ventilated Suits.	I, 8, 5
3367	Revised position for fuel gauge capacitor belt studs in No. 3 fuel tank.	I, 2, 8
3391	To introduce co-axial cable to No. 3 fuel tank and fuel contents gauge A.G.144.	I, 2, 8
3518	To introduce the Type 2CA 1 Mk. 1 ejection seat and single lever ejection at the pilot's station.	I, 5, 5 and I, 9, 1(a)
3525	Introduction of removable fittings for pylon ducts.	I, 11, 16
3545	Revised fuel pressure warning light setting.	I, 2, 7(b)
3776	To introduce Type 2CA2 Mk. 2 ejection seats and single lever ejection at the rear crew station.	I, 9, 1(a)
3911	Revised fuel pressure warning light setting.	I, 2, 7(b)
4064/5	To introduce Type 2CA Mk. 1 ejection seats on the B Mk. 6,	I, 9, 1(a)
4072	To transfer detonator circuits from busbar P9 to P10.	I, 1, 11
4231	To introduce gun selector switch panel to B (I) 6 aircraft.	I, 11, 5
4296	To provide an external electrical supply point for pre-heating Decca crystals.	I, 1, 4(b)
4319	To introduce PTR175 (V/UHF) and ARI 23057 (Standby UHF) in lieu of AN/ARC52 (UHF) and VHF.	I, 10, 3
4325	To introduce periscopic sextant Mk. 2A and mounting.	I, 10, 9
4329/4411	To make provision for a revised armament control panel.	I, 11, 10

Modification Numbers Mentioned in the Text (*continued*)

Mod. No.	*Title*	*Location in text (Pt., chap., para.)*
4345/6	To modify the practice bomb facility box to provide wing practice bomb facilities in conjunction with, or without, Simulator type 105.	I, 11, 13
4420	To replace windscreen heater part No. E.A3.81.2665.	I, 8, 8
4442	To introduce safety points with integral tallies and new stowages	I, 9, 2(b)(i)
0209/RAFG	To re-position the crash axe.	I, 7, 3
0216/RAFG	To introduce gun port transit covers.	I, 11, 5
0217/RAFG	To introduce empty case chute transit covers.	I, 11, 5
0248/RAFG	To introduce SFOM gunsight	I, 11, 4
0279/RAFG	To introduce a demister control at the nose station.	I, 8, 7(d)
0325/RAFG	To re-position the hand-operated fire extinguisher.	I, 7, 2(d)
	AVON MODS.	
843	Modified starter fairings.	I, 4, 6(b)(ii)
	EJECTION SEAT MODS.	
544	To introduce leg restraint (Mk. 1C series seats).	I, 9, 1(a) (Appendix)
545	To introduce strengthened thigh-guards (Mk. 1C series seats).	
577	To introduce canopy breakers (Mk. 1C series seats).	
ES3107	To introduce a downward pull negative G restraint strap on Type 2CA series ejection seats.	I, 9, 21(h)-(o)
ES3241	To introduce a modified drogue assembly (Type 2CA seats).	I, 9, 23
ESA9	To introduce modified ejection gun assemblies (Type 2CA seats).	
ESA10	To introduce modified time release assembly (Type 2CA seats).	
ESA11	To introduce modified drogue gun assemblies (Type 2CA seats).	

LEADING PARTICULARS

Principal dimensions

	Ft.	In.
Span without tip tanks ..	64	0
Span with tip tanks ..	65	6
Length overall	65	6
Height to top of fin ..	15	7
◀Height to top of canopy	8	8▶

Undercarriage

MAINWHEEL UNIT

Type	Single wheel, inwards retracting
Shock absorber	Oleo pneumatic
Air pressure	Refer to Vol. 1
Fluid	OM-15
Capacity..	12 pints
Tyre pressure	Refer to Servicing Schedules (Vol. 4)
Brakes	
Pressure at reducing valve	2,700 (+50-0) PSI
Pressure at brakes ..	1,500 (+150-0) PSI

NOSEWHEEL UNIT

Type	Twin wheel, non-steerable, castering, rearward retracting.
Shock absorber	Levered suspension, liquid spring.
Pressure (wheels off ground)	1500 PSI
Fluid	OM-15
Capacity..	1½ pints
Tyre pressure	Refer to Servicing Schedules (Vol. 4)

Hydraulic system

GENERAL

Fluid	OM-15
Pumps	Lockheed Mk. 9
Maximum (relief) pressure	2,700 to 2,750 PSI
Accumulator, charging gas	Air
Thermal relief valve setting	3,350 to 3,550 PSI see Pt. I, Chap. 3, para. 3 (b)

Hydraulic System (continued)

Number of pumps	Two
Capacity of system	33 pints (approx.)
Accumulator inflation pressures main and wheelbrakes:—	
	1,350 (+50, −0) PSI at +5°C
	1,400 (+50, −0) PSI at +15°C
	1,435 (+50, −0) PSI at 20°C
	1,475 (+50, −0) PSI at 30°C
Cut-out valve setting	2,700 to 2,750 PSI
Flaps relief valve setting	2,850 to 2,900 PSI
Header tank relief valve setting	12 to 17 PSI

Power units

ENGINES

Name	Avon Mk. 109 (ECU Mk. 10901)
Type	Pure jet gas turbine
Fuel	Refer to Part II, Chapter 1
Oil	Refer to Part II, Chapter 1
Oil system capacity	19 pints per engine
Oil sump capacity	16 pints per engine

STARTING SYSTEM

Type	BTH turbo, type TBS 720 Mk. 3
Cartridge	No. 10 Mk. 1 (720 grammes)

Accessories gearboxes

Oil	~~O.E.P. 71~~ DX 38
Oil sump capacity	$3\frac{1}{8}$ pints

Electrical system

Voltage	28 volts
Generators	Type 519
Aircraft battery	4×12v, 40 amp. hr. Type C connected in series parallel.
Emergency batteries	2×12 volts, 4 amp. hr. 1×2·4 volt

Fuel system

Type of fuel	◀See Pt. II, Ch. 1, para. 3 ▶	
Tank capacities	At 7·7 lb./gall.	8·0 lb./gall.
No. 1 520 gall. ...	4,004 lb.	4,160 lb.
No. 2 317 gall. ...	2,441 lb.	2,536 lb.
No. 3 540 gall. ...	4,158 lb.	4,320 lb.
Main plane integral tanks:		
Port 450 gall. ...	3,465 lb.	3,600 lb.
Starboard 450 gall. ...	3,465 lb.	3,600 lb.
Total	17,533 lb.	18,216 lb.
Wing tip tanks:		
Port 244 gall. ...	1,878·5 lb.	1,952 lb.
Starboard 244 gall. ...	1,878·5 lb.	1,952 lb.
Total	21,290 lb.	22,120 lb.
Overload tank (if fitted):		
300 gall.	2,310 lb.	2,400 lb.
Total	23,600 lb.	24,520 lb.

NOTE: With Mod. 2572 embodied the capacity of each integral tank is reduced by approximately 20 gallons.

COMPLETE LIST OF CONTENTS

Chapter 4 — Engine Systems and Controls — (cont.)

Chapter 5 — Aircraft Controls

Chapter 6 — Flight Instruments

Chapter 7 — General Equipment and Controls

Chapter 8 — Air Conditioning, Pressurising, Heating and Demisting Systems

Chapter 10 — Radio, Radar and Navigation Equipment

Chapter 11 — Armament and Camera Controls

Chapter 12 — Canberra B Mk. 6 Aircraft with SRIM's 2951 or 2696 Embodied

PART II — LIMITATIONS

Chapter 1 — Engine Limitations

Chapter 2 — Airframe Limitations

Chapter 2 — Airframe Limitations — (cont.)

Chapter 3 — Miscellaneous Limitations

PART III — HANDLING

Chapter 1 — Preparation for flight

Chapter 2 — Handling in flight

Chapter 3 — Circuit and landing procedures

ILLUSTRATIONS

Chapter 4 — Asymmetric flying

PART IV — INDEX TO EMERGENCY PROCEDURES

PART V — ILLUSTRATIONS

INTRODUCTION

1. General

The Canberra B(I) Mk. 6 is a twin-engined tactical bomber modified for night-interdictor duties. Reversion to the tactical bomber role can be effected at short notice. The aircraft is powered by two Avon Mk. 109 engines each of 7,400 lb. static thrust at sea level.

2. Armament

(a) The aircraft is designed to operate as a bomber or interdictor as required, the armament installation being readily adaptable to either role. When required for bombing duties the whole of the bomb-bay and the pylon mounting under each wing are available to carry the armament stores. In the interdictor role a gun pack mounting four 20 mm. guns, is installed in the rear of the bomb bay, the forward portion being occupied by a flare carrier, and the underwing pylons may carry either rockets or bombs.

(b) A Mk. 3N reflector sight is above the pilot's instrument panel. An F.95 camera may be carried in the nose in place of the bomb sight and provision is made for an F.24 camera in the rear fuselage aft of the bomb bay. A G.45 camera may be carried in the starboard wing leading edge. Gun/Bomb/R.P. and camera controls are on the control column, and at the bomb aimer's rear and forward stations.

3. Crew accommodation

The crew cabin is pressurised and extends from the nose fairing to an aft sloping bulkhead which seals off the compartment from the remainder of the fuselage. Accommodation is provided for a crew of three seated in ejection seats. There is an alternative position in the nose for the bomb-aimer but no provision is made for his ejection from this station. A folding seat is provided for occasional use on the starboard side of the cockpit.

4. Entrances and emergency exits

Entrance for all crew members is through the entrance door on the starboard side in line with the pilot's seat. The canopy is jettisonable and provides an emergency

exit for the pilot. A jettisonable hatch is situated in the cabin roof and provides an emergency exit for crew members.

5. Fuselage

There are four bays, upper, lower, port and starboard immediately aft of the pressure bulkhead containing various items of aircraft equipment.

6. Flying Controls

The ailerons, elevators and rudder are all manually operated. The variable-incidence tailplane, aileron trim and rudder trim are all electrically operated.

7. Layout of controls and instruments

(a) *Pilot's station*

The location of the flying controls is conventional, other controls and instruments are grouped as follows:-

(i) To the left of the pilot on the cockpit port wall, on the port console and on the engine controls quadrant (Fig. A).

(ii) In front of the pilot on the main instrument panel, on the coaming above this panel and on the engine starter panel (Fig. B). The main instrument panel is divided into three sections, from left to right; the flight instruments panel, the engine instruments panel and the miscellaneous instruments panel (Fig. C).

(b) *Navigator's station*

The navigator's controls and instruments are grouped around him on the cabin port wall, on the forward instrument panel and equipment racks (Fig. E).

(c) *Bomb-aimer's stations*

The bomb aimer's controls and equipment are grouped on the fuselage starboard wall (Fig. F) at the ejection seat position, also in the nose and on the port and starboard sides at the forward position.

(d) The location of all controls and instruments is given relative to the above positions.