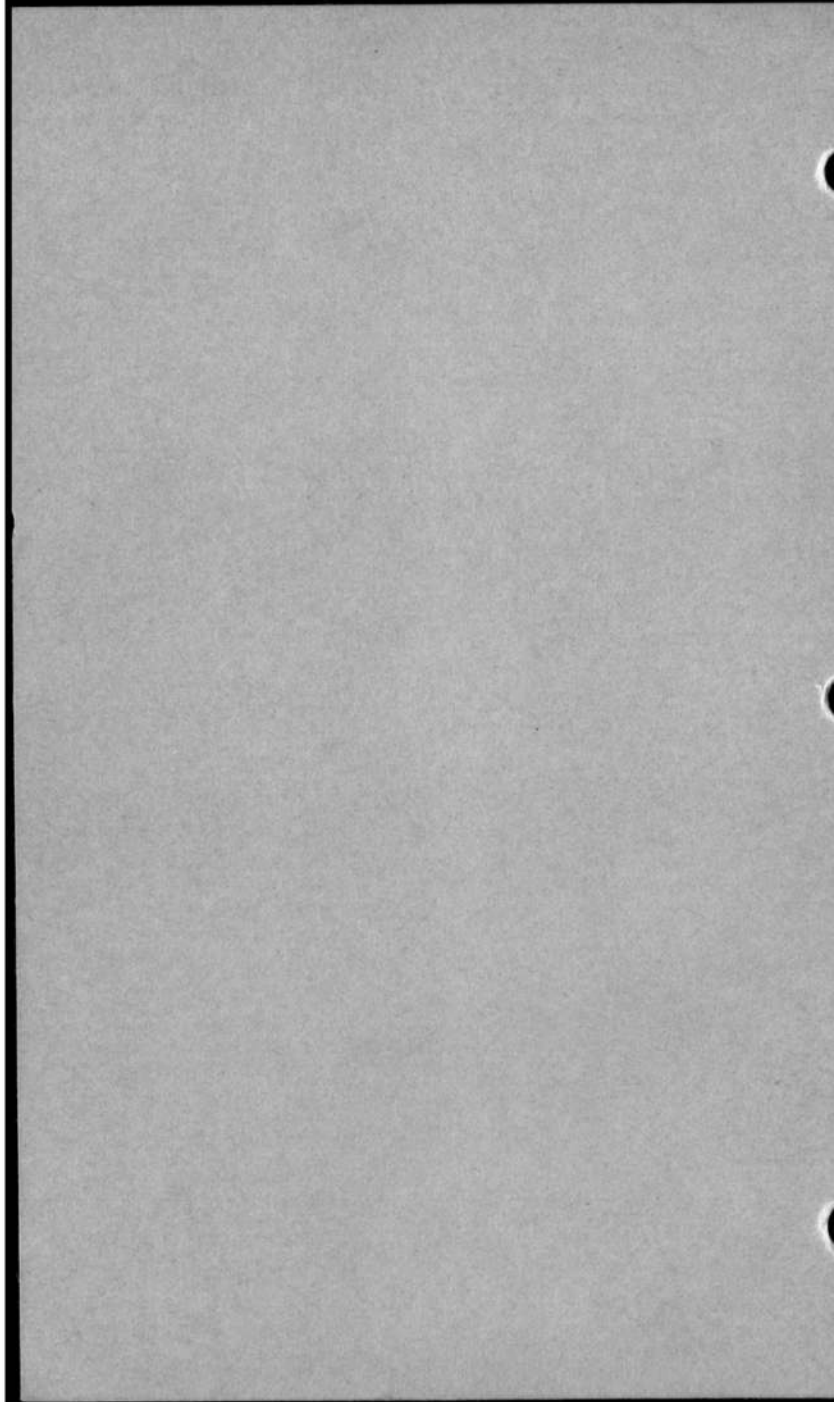


PART 2**LIMITATIONS****LIST OF CHAPTERS**

	Chapter
Engine limitations	1
Airframe and miscellaneous limitations	2



PART 2

CHAPTER 1 — ENGINE LIMITATIONS

Contents

	Para
Engine Limitations — Avon Mk 1	1
Oil Pressure Limitations	2
Fuel and Oil Specifications	3

The limitations given in this Part are taken from the Release to Service Document Issue No 2 unamended. The Release to Service Document must be consulted to ascertain the latest release standard.

1 Engine Limitations — Avon Mk 1

<i>Power Rating</i>	<i>Time Limit per Flight</i>	<i>RPM</i>	<i>Max JPT °C</i>
Take-off and operational necessity	30 minutes (combined total)	7800 ± 50	600
Max continuous	Unrestricted	7600	565
Idling on ground	Unrestricted	2750 ± 100	500

Note 1: At low air temperature the engines may underspeed to as low as 7650 RPM at full throttle, but they will still maintain maximum thrust.

Note 2: The governed RPM will vary with a change in fuel density from that at which the engine settings were made. A higher density will cause a drop in RPM and a lower density a rise. Every 0.01 change in density will cause a corresponding difference of 50 in the governed RPM.

2 Oil Pressure Limitations

Minimum at idling RPM	3 PSI
Minimum at 7400 RPM and above	15 PSI
Normal at 7400 RPM	20 PSI

3 Fuel and Oil Specifications

◀(a) Fuel Specification

<i>NATO Code No</i>	<i>UK Joint- Service Designation</i>	<i>UK Specification</i>	<i>US Designation/ Specification</i>
-------------------------	--	-----------------------------	--

Approved Fuels. The following fuels may be used without flight or maintenance restrictions:

F-34 (Note 1)	Avtur/FSII	DERD 2453	JP-8/ MIL-T-83133
F-40 (Note 1)	Avtag/FSII	DERD 2454	JP-4/ MIL-T-5624

Alternative Fuels. The following fuels may be used only if an approved fuel is not available; subject to the relevant notes:

F-35 (Note 2,3)	Avtur	DERD 2494	Jet A-1 or Jet A (Note 2, 3, 4,)/ASTM- D-1655
F-44 (Note 2)	Avcat/FSII	DERD 2452	JP-5/ MIL-T-5624
F-43 (Note 2,3)	Avcat	DERD 2498	— Jet B (Note 2, 3, 5,)/ASTM- D-1655

Note 1: F-34 and F-40 supplied at French and Canadian bases may be subject to Note 2 below.

Note 2: Unless blended during refuelling, these fuels do not contain a lubricity additive to DERD specification 2461; consequently, early HP fuel pump failure is possible. Pump operation on these fuels is limited to a cumulative total of 50 hours. All uplifts are to be recorded in the MOD Form 700.

Note 3: Unless either AL-31 or AL-38 is blended during refuelling, these fuels do not contain Fuel System Icing Inhibitor (FSII). Therefore:

a. Operation on these fuels is limited to 14 elapsed days to limit fungus growth and an equal number of days on a fuel containing FSII is to follow; this limit applies whether or not flying takes place. All uplifts of non-FSII fuel are to be recorded in the MOD Form 700.

b. Operational commanders should note the possibility of LP filter blockage with ice if the fuel temperature falls below 0°C.▶

- ◀ c. Water drain checks are particularly important when operating on these fuels, especially if refuelling at high ambient temperatures when the maximum possible time should be allowed between refuelling and drain checks.

Note 4: This fuel is an aviation kerosene with a freezing point of minus 40°C. When using this fuel, the flight profile is to be planned to avoid low outside air temperatures; the subsequent flight must also be operated as if Jet A were being used.

Note 5: This fuel is an aviation wide-cut Avtag similar to F-40 with a freezing point of minus 50°C. When using this fuel, the flight profile is to be planned to avoid low outside air temperatures; the subsequent flight must be operated as if Jet B were being used.

(b) Oil Specification

The approved oil is to DERD specification 2490, Joint-Service Designation OM-11, NATO Code No O-135. As an emergency alternative, OM-13, NATO Code No O-134 may be used. ▶

Intentionally Blank

PART 2

CHAPTER 2—AIRFRAME AND
MISCELLANEOUS LIMITATIONS

Contents

	Para
General	1
Speed and Mach Number Limitations	2
Maximum Altitude	3
Maximum Weights	4
CG Limits (Feet Aft of Datum)	5
Manoeuvre Limitations	6
Jettisoning of Wing-Tip Tanks	7
Aircraft Approach Limitations (True Heights (feet))	8
Engine Out Allowance	9
Visual Committal Height	10
Maximum Crosswind Component	11
Aircraft Arresting Barrier Engagement	12
Aircraft Arresting Gear Trampling	13
Pilot Limitation	14
Ejection Seats	15
◀ Tyre Limiting Speed	16
Radio and Radar Installations	17 ▶

1 General

Intentional spinning and aerobatics are prohibited.

2 Speed and Mach Number Limitations

<i>Condition</i>	<i>Max IAS (knots)</i>	<i>Max IMN</i>
Clean aircraft	450	0.75 below 15,000 feet 0.79 15,000 to 25,000 feet Above 25,000 feet limited by compressibility effects The speed at which a strong nose-up change of trim occurs, ie about 0.84 must not be exceeded
With wing-tip tanks	365	0.79 below 25,000 feet 0.80 above 25,000 feet

<i>Condition</i>	<i>Max IAS (knots)</i>	<i>Max IMN</i>
For the operation of: Bomb doors	350	0.75 up to 40,000 feet 0.80 above 40,000 feet
Airbrakes	As for clean aircraft	As for clean aircraft
Undercarriage	190	
Flaps	160	

Note 1: The speed for the operation of a service also applies for flight with the service in the extended position.

◀ Note 2: There is no role requirement to open the bomb doors in flight. They should be opened only during emergencies, icing let-downs and as required by the flight test schedule. However, QFIs on 231 OCU may demonstrate bomb door operation to student pilots. ▶

3 Maximum Altitude

The aircraft is limited to a maximum altitude of 45,000 feet.

4 Maximum Weights

(a)	<i>Role</i>		<i>Take-Off AUW</i>	<i>Landing AUW</i>
	Flying training	...	38,000 lb	31,500 lb
	Support roles by experienced pilots	...	39,000 lb	32,000 lb

(b) In emergency the aircraft may be landed at weights up to 39,000 lb but the initial touchdown must be made on the mainwheels only, and the brakes must be used with care.

5 CG Limits (Feet Aft of Datum)

(a) *Forward Limit (With or Without Wing-Tip Tanks)*
1.235 at weights up to 29,000 lb; it then moves linearly aft to 1.718 at 39,000 lb.

(b) *Aft Limit*

(1) *Without Wing-Tip Tanks.* 3·058 up to an altitude of 25,000 feet; it then moves linearly forward to 2·660 at 45,000 feet.

(2) *With Wing-Tip Tanks.* 2·808 up to an altitude of 37,000 feet; it then moves linearly forward to 2·660 at 45,000 feet.

(c) *Taxying Over Uneven Surfaces*

When taxying over uneven surfaces the aft limit is not to exceed 2·885.

6 Manoeuvre Limitations

Combined application of coarse aileron and g loading or the application of negative-g loading is to be avoided. The normal acceleration limitations are as follows:

(a) *At weights Up to 37,600 lb Without Wing-Tip Tanks*

(i) With negligible aileron applied 4·0g

(ii) With aileron applied 2·0g

(b) *At Weights Above 37,600 lb or With Wing-Tip Tanks*

(i) With negligible aileron applied 3·0g

(ii) With aileron applied 1·5g

7 Jettisoning of Wing-Tip Tanks

The wing-tip tanks may be jettisoned (any fuel state) at any speed within the limitations imposed when carrying wing-tip tanks.

8 Aircraft Approach Limitations (True Heights (feet))

	<i>Raw ILS</i>	<i>Rate ILS</i>	<i>PAR</i>
In-line localiser	250	200	200
Off-set localiser	270	250	—

9 Engine Out Allowance

The engine out allowance (EOA) is 450 feet.

10 Visual Committal Height

The visual committal height (VCH) is 600 feet.

11 Maximum Crosswind Component

The maximum recommended crosswind component for take-off is 25 knots. The maximum permitted crosswind component for landing is 25 knots.

12 Aircraft Arresting Barrier Engagement

The aircraft is cleared for engagement with the Mk 5, Mk 6, Mk 12, Mk 12A, Type A and Type B arresting barriers; in the case of the Mk 12, Mk 12A and Type B barriers at the 'Light Aircraft' setting only. A table giving the recommended maximum entry groundspeed for aircraft weight is in the FRC. An aircraft engaging a barrier at speed / weight combinations higher than those shown runs the net out to its maximum length, the cables then come off the brake units and the aircraft continues forward at some residual velocity. An aircraft entering a barrier at a groundspeed in excess of 120 knots may exceed the impact strength of the net and burst through.

13 Aircraft Arresting Gear Trampling

The aircraft is cleared to trample the supported and tensioned cable of RHAG, SPRAG, PUAG, CHAG, BAK 9, BAK 12 and Bliss 500 S types of arresting gear at speeds up to unstick speed.

14 Pilot Limitation

Pilots having a thigh length in flying clothing of more than 26.5 inches must not fly the aircraft. This restriction is imposed because pilots with a greater thigh length are liable to injury due to their knees fouling the coaming if the ejection seat is used.

15 Ejection Seats

The best speed for ejection is 200 knots, in straight and level flight. Ejection may be initiated, in straight and level flight, at any height from ground level upwards. However, runway ejections should only be made when the speed of the aircraft is above 90 knots or the circumstances of the emergency dictate that ejection is the only reasonable solution. If at any time the aircraft is nose-down or descending, the minimum safe height is increased and depends on the angle of dive and aircraft speed.

◀ 16 Tyre Limiting Speed

The tyre limiting speed on the ground is 161 knots groundspeed.

17 Radio and Radar Installations

The following radio and radar installations are cleared for use subject to the limitations stated in the notes below:

ARI 5388	...	Intercom A 1961 amplifier
ARI 23143	...	V/UHF PTR 175 (see Note 1)
ARI 23159	...	Standby UHF (D403M)
ARI 18011	...	Military ILS (see Note 1)
ARI 23023	...	Radio compass (AD 7092D) (see Note 1)
ARI 23134	...	IFF/SSR (Cossor 1520) (see Note 3)
ARI 18107	...	Tacan (see Note 2)

Note 1: In ambient temperatures above +30°C, operating periods should be kept to a minimum and should not exceed 10 minutes in temperatures of +35°C to +40°C.

Note 2: Tacan lock may be lost when UHF transmissions are made on harmonically related frequencies.

Note 3: There is a possibility of interference, causing loss or reduction of interrogation replies, when transmitting on UHF between 255.5 and 259.5 MHz and between 341.5 and 345.5 MHz. ▶

Intentionally Blank

This file was downloaded
from the RTFM Library.
Link: www.scottbouch.com/rtfm
Please see site for usage terms,
and more aircraft documents.

