

PART II

LIMITATIONS

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PART II LIMITATIONS

CHAPTER 1—ENGINE LIMITATIONS

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1. Engine limitations—Avon MK.1

Power rating	Time limit	RPM	JPT °C.
Max. take-off and operational necessity	30 mins. combined duration	7,800 \pm 50	600
Max. continuous	Unrestricted	7,600	565
Idling on the ground	Unrestricted	2,750 \pm 100	500

NOTE: 1. At low air temperatures the engines may underspeed to as low as 7,650 RPM at full throttle, but they will still maintain maximum thrust.

2. The ground RPM at take-off thrust 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 ground RPM.

2. Oil limitations

Oil pressures:

Minimum at 7,400 RPM and above	15 PSI
Normal at 7,400 RPM	20 PSI
Minimum at idling RPM	3 PSI

RESTRICTED

3. Fuel and oil specifications

The engines are cleared for the following fuels and oils:—

<i>NATO</i>		
<i>Fuel</i>	<i>Reference No.</i>	<i>Code No.</i>
AVTAG (USA JP4)	34A/9100448	F.40
AVTUR/50	34A/9431771	F.34
<i>Oil</i>		
OM-11	34A/9105055	O-135

NOTE: If Avon Mod. 861 is embodied, AVTAG or AVTUR/50 may be used without adjusting the engines. Pre-Avon Mod. 861 the same fuels may be used but the engines will have to be adjusted accordingly. (See Note 2 to para. 1.).

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Chapter 2—AIRFRAME AND MISCELLANEOUS LIMITATIONS

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1. General

The aircraft is designed as a light bomber. Intentional spinning and aerobatics are prohibited.

2. Speed and mach number limitations

Condition	Max. IAS	Max. IMN
Clean	450	<p>0.75 M below 15,000 ft. 0.79 M 15,000 to 25,000 ft. Above 25,000 ft. limited by compressibility effects.</p> <p>The speed at which a nose-up trim change occurs, i.e. about 0.84M must not be exceeded.</p>

Condition	Max. IAS	Max. IMN
With wing tip tanks	365	0.79 M below 25,000 ft. 0.80 M above 25,000 ft.
For the operation of :		
Bomb doors	350	0.75 M up to 40,000 ft. 0.80 M above 40,000 ft.
2-position airbrakes	No limit	No limit
3-position airbrakes MID	No limit	No limit
3-position airbrakes OUT	400	0.75 M 12,500 to 25,000 ft. 0.79 M above 25,000 ft.
Undercarriage	190	
Flaps	160	
NOTE: The speed for the operation of a service also applies for flight with the service in the extended position.		

3. Maximum weights

For take-off and all permitted forms of flying 46,000 lb.

For landing 40,000 lb.

In emergency the aircraft may be landed at higher weights but greater care will be required particularly when braking.

4. CG limits (feet aft of datum)

(a) Forward limit

With or without wing tip tanks, 1·235 ft. at weights up to 29,000 lb.; then varying linearly aft to 2·200 ft. at 46,000 lb.

(b) Aft limit

With wing tip tanks 2·810 ft.

Without wing tip tanks 3·058 ft.

(c) When taxiing over uneven surfaces the aft limit should not exceed 2·885 ft. ►

5. Manoeuvre limitations

The acceleration limitations are as follows:—

(a) *At weights up to 37,600 lb. without tip-tanks*

With negligible aileron applied	...	...	4.0G
With aileron applied	...	...	2.0G

(b) *At weights above 37,600 lb. or with wing-tip tanks fitted:*

With negligible aileron applied	...	...	3.0G
With aileron applied	...	...	1.5G

6. Jettisoning of wing tip tanks

The wing tip tanks may be jettisoned at any speed, full or empty within the limitations imposed when carrying wing tip tanks.

7. Armament limitations

When carrying armament stores there may be certain limitations imposed additional to those quoted above. It is essential, therefore, that if any armament stores are carried, any limitations associated with their carriage and release or jettisoning are obtained from the "Release to Service" before flight.

8. Pilot limitations

Pilots having a thigh length in flying clothing of more than 26.5 inches must not fly the aircraft. This restriction is imposed because personnel with a greater thigh length are liable to injury due to the knees fouling the coaming if the ejection seat is used. All pilots should press the legs back as far as possible if the ejection seat is to be used.

9. Aircraft approach limitations

The following are the normal aircraft approach limitations:—

Precision radar (GCA)	...	...	200 ft.
ILS (if fitted)	...	...	300 ft.

The AALs are subject to the standard conditions of pilot proficiency, airfield approach lighting, minimum visibility and accurate height information.

10. Ejection seats

The minimum height recommended for ejection in straight and level flight is 1,000 feet. If possible eject at 200 kts.

11. Arrestor barrier engagement

The aircraft is cleared for engagement with the Mk. 5 and Mk. 6 arrestor barriers. ▶