PART II

LIMITATIONS

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PART II

Chapter 1—ENGINE LIMITATIONS

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1. Engine limitations—Avon 203

(*a*)

Power rating	Time limit	R.p.m.	J.P.T. °C.
*Take-off and operational necessity	10 mins. (combined)	8,000±50	685
Intermediate	30 mins.	7,800	660
Maximum continuous	Unrestricted	7,600	630
Ground idling	Unrestricted	2,500 +200 —0	525

*During climbs on the govenor the governed speed may be permitted to rise to 8,100 r.p.m. J.p.t. may be exceeded during hot re-slam accelerations and may be allowed to rise to 740°C. for a period not exceeding 10 seconds.

(*b*) *Oil pressures*

Normal at 7,600 r.p.m. . . . . 35 lb./sq. in.
Minimum at 7,600 r.p.m. . . . . 25 lb./sq. in.

PART II

Chapter 2—AIRFRAME LIMITATIONS

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1. General—all configurations

(*a*) Intentional spinning is prohibited. Stalling practice is not to be carried out below 25,000 feet nor continued beyond the buffet stage.

(*b*) The following accelerometer readings must not be exceeded at any height :

Positive +7G
Negative $-3\frac{3}{4}$G

but see para. 3(*f*).

(*c*) Maximum speeds for the operation of and flight with the service in the extended position :

Undercarriage	250 knots
Flaps over full travel	250 knots (see Part III, Chap. 3, para. 3).
Flaps to and from 38°	300 knots or 0.9M. (See Part III, Chap. 3, para. 3).

(*d*) The aircraft approach limitations (AAL) subject to the standard conditions of pilot proficiency, airfield approach lighting, minimum visibility and accurate height information are :

G.C.A. Precision radar	200 feet
Search radar and BABS	300 feet

(*e*) 38° flap is to be used for take-off with any combination of inboard or outboard drop tanks, bombs and RP.

(*f*) Full gun ammunition (or equivalent ballast) is to be carried on all flights when RP's or outboard drop tanks

are carried and is to be retained until the RP's are fired or the drop tanks are empty.

(*g*) Max. a.u.w. for take-off and all forms of flying . . . . . 24,100 lb.
Max. a.u.w. for landing, post mod. 785 . 17,000 lb.
Max. a.u.w. for landing, pre mod. 785 . 16,250 lb.

(*h*) Special care is to be taken during ground manoeuvres at weights above 20,000 lb. because of undercarriage strength limitations.
(*j*) The follow-up tailplane should be OFF for all ground attack manoeuvres.

2. **Clean aircraft—in Power**
Max. Speed 620 knots ; no mach limit but see Part III, Chap. 3, para. 3.

3. **Drop tanks—in Power** (See 1 (f))
(*a*) Two 230 gallon drop tanks may be carried on inboard pylons, with or without 100 gallons tanks on outboard pylons for ferrying purposes only.

(*b*) Combat manoeuvres and aerobatics may be performed with fuel in the 100 gallon drop tanks if Mod. 463 pylons are fitted. Manoeuvres in the rolling plane are restricted to 360° as long as fuel remains in the outboard drop tanks. However, if Mod. 9 pylons are fitted combat manoeuvres and aerobatics are not permitted until all drop tanks are empty.

(*c*) With Mod. 9 pylons the fuel flow from inboard or outboard drop tanks is insufficient to meet engine requirements under all conditions of flight. Operation at full throttle below 15,000 feet is to be kept to a minimum. There is no restriction with Mod. 463 pylons.

(*d*) *Max. speed with* 100 *gallon drop tanks*
Outboard tanks 590 knots or 0·88M
Inboard tanks 590 knots, no mach limit.

(*e*) *Max. speed with* 230 *gallon tanks*
No mach limit unless outboard 100 gallon drop tanks are carried. Limits are then :
0 to 10,000 ft. 0·84M
10-20,000 ft. 0·86M
Above 20,000 ft. 0·88M

(*f*) *Maximum accelerations—230 gallon drop tanks*

(i) The maximum permitted normal acceleration is 4G.

(ii) Not more than half lateral movement of the control column is permitted while fuel remains in the drop tanks. With empty drop tanks full movement is permitted.

(*g*) *Drop tank jettisoning*

100 gallon tanks, without fins	150-300 knots
100 gallon tanks, with fins	200-450 knots
230 gallon tanks	200-550 knots

Jettisoning is to be carried out in straight and level flight without yaw or side slip.

4. **Gun firing**

(*a*) Air to ground gunnery is prohibited when outboard drop tanks are carried because a critical CG position is reached before the ammunition is expended.

(*b*) The guns may be fired on the ground.

(*c*) In the air, gun firing is permitted at any height and irrespective of the length of burst subject to the following limitations :—

No. of Guns	Type of Ammo.	Maximum speed (Knots)	Remarks
2	LV or HV	550	Without Mod. 646
2	LV or HV	620	With Mod. 646
4	LV	400	Without Mods. 592 & 598
4	HV	250 below 25,000ft.	,,
4	HV	350 above 25,000ft.	,,
4	LV or HV	550	With Mods. 592 & 598
4	LV or HV	620	With Mods. 592, 598 & 646

NOTE :

1. If the guns are fired, with the airbrake OUT, at speeds above 550 knots a limited number of ejected case strikes on the airbrake will be experienced ; such firing should, therefore be confined to cases of operational necessity.
2. When carrying external stores the minimum firing speed is :—
   350 knots without Mod. 645 embodied.
   150 knots with Mod. 645 embodied.

5. **With RP's—in Power** (see 1(*f*))

(*a*) RP's may be carried and fired with or without drop tanks fitted on the inboard pylons. The max. diving angle during firing must not exceed 60°.

(*b*) Max. speed, carriage and release	590 knots	No mach limit. but see Pt. III, Ch. 3, para. 4

6. **With bombs—in Power** (See 1 (*f*))

Bombs may be carried on inboard pylons with or without drop tanks on outboard pylons subject to the following :—

Type	Max. speed (Knots) for		Max. dive angle for release	Max. A.U.W. (lb.)
	Carriage	Release		
1,000lb. MC Mk. 6 7* and 9	590	590 without outboard drop tanks 570 with outboard drop tanks	60°	21735
25lb. No. 1 Mk. 1				
0·025in. vanes	400	400	60°	
0·037in. vanes	500	500	60°	
25lb. No. 2 Mk. 1	500	500	60°	

*Landings may be made, in Power, with either symmetric or asymmetric bomb loads.

7. **Braking parachute**

The braking parachute is not to be streamed until touchdown nor in crosswind components exceeding 18 knots on a dry runway or 15 knots on a flooded runway.

8. **Manual flying**

(*a*) *Maximum speeds in Manual*

Below 15,000 ft.	0·75M
Above 15,000 ft.	0·85M

(*b*) Landings must not be made with any asymmetric load other than an empty inboard drop tank.