PART II

LIMITATIONS

54. Engine limitations—Sapphire Mk. 101

Power rating	Time limit	R.p.m.	J.p.t. °C.
Take-off and Operational Necessity	15 mins. (Combined)	8,600 ± 50*	660
Intermediate	30 mins.	8,400	620
Max. Continuous	Unrestricted	8,200	580
Min. Approach	Unrestricted	5,000	—
Ground idling	Unrestricted	3,000 + 200 —0	570

Min. oil pressure in flight at
8,200 r.p.m. and above ..... 20 lb./sq. in.

*Due to control system characteristics the maximum r.p.m. vary with altitude. Up to 20,000 ft. maximum r.p.m. increase to approximately 8,700, which speed is permitted for a period of 5 minutes duration. Above this altitude maximum r.p.m. decrease progressively to approximately 8,350 at 50,000 ft.

55. Flying limitations

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

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(ii) Drop tanks, 1,000 lb. bombs or 25 lb. practice bombs may be carried on inboard pylons, subject to the observance of the limitations below. When carrying stores, other than empty inboard drop tanks, practice selections of Manual must not be made since the presence of such stores increases the difficulties of re-selecting Power. Gun ammunition must be carried to maintain the C.G. within reasonable limits during take-off.

(iii) When dropping bombs, if 0.9M is exceeded care must be taken that sufficient height is available for dive recovery because of the reduced longitudinal control at these high speeds.

(b) *Maximum speeds*

In power

Clean	620 knots; no Mach limit, but see paras. 72 and 73
With drop tanks or 1,000 lb. bombs	590 knots; no Mach limit, but see paras. 72 and 73
With 25 lb. bombs	
No. 1 Mk. 1. 0.025 in. vanes*	400 knots (No Mach Limit)
No. 1 Mk. 1. 0.037 in. vanes*	500 knots (No Mach Limit)
No. 2 Mk. 1	500 knots (No Mach Limit)
(*Minimum thickness)	

In Manual

Clean or with stores	0.75M below 15,000 ft. 0.85M above 15,000 ft. (If inadvertent Manual reversion occurs at higher speeds reduce speed immediately.)

For drop tank jettisoning

Drop tanks jettisoning must be carried out in straight and level flight without yaw or sideslip in the speed ranges quoted:

Drop tanks without fins	250–300 knots
Drop tanks with fins	200–450 knots

For bomb release and jettisoning

Any speed within the limitations for carriage and up to 60° dive angle.

For the operation of the:

Undercarriage	230 knots
Flaps over full travel	250 knots (See para. 67(d))
Flaps to or from 38°	300 knots or 0.9M (See para. 67 (d))

NOTE.—The speeds for the operation of a service also apply for flight with the service in the extended position.

(c) *G limitations*

(i) The following accelerometer readings must not be exceeded, clean or with drop tanks:—

At any height	+7G
Between 10,000 ft. and 30,000 ft.	*Below* 0.90M. The reading at which buffeting commences. *Above* 0.90M. +4G

(ii) An accelerometer reading of $-3\frac{1}{4}$G must not be exceeded at any height.

(d) *Loading data—all-up weights*

Max. for take-off and all forms of flying:—

With drop tanks or bombs	19,500 lb.
Clean	17,250 lb.
Max. for landing	15,600 lb.