PART III

OPERATING DATA

43. Engine data, Goblin I and II

(i) *Fuel.* Aviation Kerosene, Spec. AV/TURB—stores ref. : 34A/179, plus 1% lubricating oil " X " stores ref. : 34A/32.

(ii) *Oil.* Lubricating oil, turbine engines, to specification RDE/0/59 (Intava 620) (Stores Ref. 34A/187).

(iii) *The principal engine limitations are as follows* :—

	R.P.M.		Max. Temperatures °C			
			Jet Pipe		Rear	Oil
	Goblin I	Goblin II	Goblin I	Goblin II	Bearing	
TAKE-OFF (5 min. limit)	10,000	10,200	670	720	130	70*
MAX. CLIMBING (30 min. limit)	9,500	9,700	610	650		
MAX. CONTINUOUS	8,500	8,700	540	550		
COMBAT (5 min. limit)	10,000	10,200	670	720		
IDLING (10 min. limit)	3,000†	3,000†	540	550		

* Minimum for opening up ... ... MINUS 5°C.

† (± 200 r.p.m.)

OIL PRESSURE :

Goblin I	Goblin II	
Normal, at 8,500 r.p.m. ...	8,700 r.p.m.	40/45 lb./sq. in.
Emergency minimum (5 min. limit)		25 lb./sq. in.

44. Flying limitations. (AP. 2095, 3rd Edition, Part I, Chap. I refers).

(i) The aircraft is designed for the duties of a single-seat fighter but, until spinning trials have been completed, intentional spinning is prohibited. If an unintentional spin occurs, normal recovering action should be applied immediately.

(ii) *Maximum speeds*: The maximum permissible speeds are:

Diving:

If Mod. No. 148 *is not incorporated*: 400 m.p.h. (348 knots) I.A.S.

If Mod. No. 148 *is incorporated or when a pressure cabin is fitted*:

Sea level to 5,000 ft. :	525 m.p.h.	(455 knots)	I.A.S.
5,000 ft. to 10,000 ft. :	480 ,,	(416 ,,)	,,
10,000 ft. to 15,000 ft. :	440 ,,	(382 ,,)	,,
15,000 ft. to 20,000 ft. :	400 ,,	(348 ,,)	,,
*20,000 ft. to 25,000 ft. :	350 ,,	(305 ,,)	,,
*25,000 ft. to 30,000 ft. :	320 ,,	(280 ,,)	,,
*30,000 ft. to 35,000 ft. :	290 ,,	(255 ,,)	,,

*See para. 33, Note (*b*).

If a Machmeter is fitted a reading of 0.75 must not be exceeded.

Dive brakes open	Up to the maximum permissible diving speed			
Undercarriage down :	200 ,,	(174 ,,)	I.A.S.
Flaps down :	180 ,,	(156 ,,)	,,

(iii) *Maximum weights*:

For take-off and all forms of flying ... ... 8,700 lb.
For landing ... ... 8,500 lb.

(iv) *Maximum altitude* ... ... (See para. 33, Note (*b*)).

(v) The navigation lights cause considerable compass deviation when they are switched on: they should, therefore, not be used until modification Vampire 163 has eliminated interference.

45. **Position error corrections**

At sea level.

From ...	170	230	280	325	370	415	460	495	m.p.h. I.A.S.
To ...	230	280	325	370	415	460	495	525	
Add ...	4	6	8	10	12	14	16	18	m.p.h. or kts
From ...	170	220	270	320	365	405	435		knots I.A.S.
To ...	220	270	320	365	405	435	455		

46. **Maximum performance**

(i) *Climb* : The speed for maximum rate of climb at full climbing power is :

Goblin I, 250 m.p.h. (220 knots) I.A.S.
Goblin II, 260 „ (226 „) I.A.S.

from sea level to 5,000 ft., and a reduction of 2 m.p.h. (knots) I.A.S. for every 1,000 ft. thereafter, is recommended.

(ii) *Cruise* : The indicated speeds quoted in para. 44 (ii) must not be exceeded in any circumstances nor, to attain them at altitude, should power be increased beyond the maximum continuous r.p.m. quoted in para. 43 (iii).

47. **Economical flying**

For maximum range, cruise at maximum permissible continuous r.p.m. provided that the resultant speed does not exceed 320—360 m.p.h. (278—312 knots) I.A.S. from sea level to 5,000 feet. Reduce this optimum figure by 20 m.p.h. (17 knots) I.A.S. for every subsequent 5,000 feet.

48. **Estimated fuel consumptions**

(i) The following table and curves have been estimated from test-bed data, and are subject to confirmation when calculations based on flight performance are available.

(ii) Consumption, in gallons per hour :

Altitude	R.P.M.							
	GOBLIN I				GOBLIN II			
	Take-off and Combat		Max. climb	Max. cont.	Take-off and Combat		Max. climb	Max. cont.
Sea level	460	(2.6)*	360	250	500	(2.6)*	385	275
10,000 ft.	355	(2.0)*	265	180	387	(2.0)*	290	205
20,000 ft.	275	(1.75)*	200	135	300	(1.8)*	220	155
30,000 ft.	210	(1.5)*	150	95	225	(1.5)*	170	105

* Reduction of endurance, in minutes, for every minute of operation.

(iii) The cruising speeds shown below must not be used if, to obtain them, it is necessary to exceed the maximum permissible continuous r.p.m.