

PART III

OPERATING DATA

50. Engine data : Centaurus V

- (i) Fuel—100 octane only.
 (ii) Oil—see A.P. 1464/C.37.
 (iii) The principal engine limitations are as follows :

		R.p.m.	Boost lb./sq. in.	Temp. °C. Cyl.	Oil
TAKE-OFF TO 1,000 FT.	M	2,700	+8½	—	—
CLIMBING 1 HR. LIMIT	M } S }	2,400	+6	300	90
CRUISING RICH	M } S }	2,400	+6	300	80
CRUISING WEAK	M } S }	2,400	+2	300	80
COMBAT 5 MINS. LIMIT	M } S }	2,700	+8½	310	100

OIL PRESSURE :

NORMAL	... ..	100 lb./sq. in.
EMERGENCY MINM. (5 MINS.)		80 lb./sq. in.

MINM. TEMP. FOR TAKE-OFF :

OIL : NORMAL TAKE-OFF	... ..	15°C.
OPERATIONAL NECESSITY	5°C.

MAX. CYLINDER TEMPERATURE

FOR STOPPING ENGINE	230°C.
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FUEL PRESSURE	20 lb./sq. in.
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(iv) Supercharger gear changes

In flight the supercharger gear must, whenever possible, be changed at power not exceeding 0 lb./sq. in. boost, 2,400 r.p.m.

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51. Flying limitations

- (i) The aircraft is designed for the duties of a single-seater fighter/bomber but intentional spinning is prohibited. When external stores or drop tanks are carried aerobatics are prohibited and violent manoeuvres are to be avoided.

(ii) *Maximum speeds*

					I.A.S.	
					m.p.h.	knots
(a) <i>Without external stores</i>						
Below 30,000 feet	...	...	...	...	340	296
Below 25,000 feet	...	...	...	...	380	330
Below 20,000 feet	...	...	...	...	420	366
Below 15,000 feet	...	...	...	...	460	400
Below 12,000 feet	...	...	...	...	480	416

(b) *With external stores at low altitudes*

Light series carrier with adaptor (10 lb. or 25 lb. practice bombs)					460	400
2 × 500 lb. GP, MC or SAP bombs					460	400
R.P. Mk. III—8-60 lb. or 8-25 lb. heads					460	400
2 × 500 lb. smoke L.C. Mk. II					410	356
† 2 × Type CLE Mk. III containers (max. weight 300 lb. each)					400	348
2 × 1,000 lb. MC, ANM 59 or ANM 65 bombs					360	313
* 2 × 1,000 lb. Incendiary bombs Mk. II					360	313
2 × 200 lb. smoke floats No. 2 Mk. II					360	313

*These bombs must be released in straight and level flight.

†The max. permissible speed for dropping containers varies according to the type of parachute fitted :

With Type R parachute ... 250 m.p.h. (217 knots) I.A.S.

With Type C " } ... 180 m.p.h. (156 knots) I.A.S.
" " CLE " }

Containers must be released in straight and level flight and not below an altitude of 500 ft.

(c) *With 2 × 45 gallon or 90 gallon drop tanks*

The maximum diving speed when drop tanks are carried is 410 m.p.h. (356 knots) I.A.S. up to 15,000 ft. Above this height the

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speeds are 60 m.p.h. (52 knots) less than those for a "clean" aircraft.

NOTE.—The drag of the drop tanks is small and they should not be jettisoned unless necessary operationally. While jettisoning, the aircraft should be flown straight and level. 45-gallon drop tanks may be jettisoned at any speed between 230 m.p.h. (200 knots) I.A.S. and 400 m.p.h. (348 knots) I.A.S. and 90-gallon drop tanks may be jettisoned at any speed between 210 m.p.h. (183 knots) I.A.S. and 300 m.p.h. (260 knots) I.A.S.

(d) Other limitations

					I.A.S.	m.p.h.	knots
Undercarriage down	...	...	...	...	210	183	
Flaps down to 20°	...	...	...	...	210	183	
Flaps fully down	...	...	...	...	160	140	
Sliding hood	...	...	...	...	300	260	

(iii) Maximum permissible all-up weights

Take-off, straight flying and gentle manoeuvres	13,750 lb.
All forms of flying and landing ...	12,000 lb.

NOTE.—Landings above this weight should only be made in an emergency.

52. Position error corrections

(i) The air speed indicator corrections are as follows :—

From ...	130	160	200	300	} m.p.h. I.A.S.
To ...	160	200	300	400	
Deduct ...	2				} m.p.h.
Add ...		2	4	6	

From ...	111	137	172	258	} knots I.A.S.
To ...	137	172	258	344	
Deduct ...	2				} knots
Add ...		2	4	6	

(ii) The corrections for altimeter are :

From ...	150	200	300	350	} m.p.h. I.A.S.
To ...	200	300	350	400	
Add ...	20	60	120	200	feet

From ...	128	172	258	301	} knots I.A.S.
To ...	172	258	301	344	
Add ...	20	60	120	200	feet

53. Maximum performance

- (i) Climbing. --The speed for maximum rate of climb is 190 m.p.h. (164 knots) I.A.S. from sea level to 20,000 feet, thereafter decreasing speed by 3 m.p.h. or knots per 1,000 ft. Change to high gear when, with the throttle at the climbing gate, the boost in low gear has fallen to ± 3 lb./sq. in.
- (ii) Combat. --Change to high gear when the maximum obtainable boost in low gear is $\pm 4\frac{1}{2}$ lb./sq. in.

54. Economical flying

- (i) Climbing. --With the propeller speed control lever at AUTO set the throttle to the economical cruising gate and climb at the speed for maximum rate of climb given in para. 53. Change to high gear when, with the throttle in this position, the boost in low gear has fallen to 0 lb./sq. in.
- (ii) Cruising. --With the propeller speed control lever at AUTO adjust the throttle to maintain a speed of 230 m.p.h. (198 knots) I.A.S. but do not advance the throttle beyond the economical cruising gate. Low gear should always be used if the recommended speed can be obtained with the throttle lever at or behind the cruising gate and the propeller speed control lever at AUTO.

55. Fuel capacity and consumption**(i) Capacities :**

					gallons
Main tank	...	...	...	...	76
2 Interspar tanks (each 28 gal.)	...	...	...	...	56
Nose tank	28

Total (permanent tanks)	160
2 Drop tanks (each 45 gal.)	90

Total all tanks	250

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(ii) Fuel consumptions

The approximate rich mixture consumptions are as follows :

Supercharger gear	Boost lb./sq. in.	R.p.m.	gals./hr.
M (low)	+ 8½	2,700	270
S (high)	+ 8½	2,700	260
M (low)	+ 6	2,400	210
S (high)	+ 6	2,400	200

The approximate weak mixture consumptions in gals./hr. at 5,000 ft. in M (low) gear and at 15,000 ft. in S (high) gear are as follows :

Boost lb./sq. in.	R.p.m.				
	2,400	2,200	2,000	1,800	1,600
+ 2	96	90	83	—	—
+ 1	90	84	78	69	—
0	84	78	72	63	56
- 1	78	73	66	58	54