

SECTION V

OPERATING LIMITATIONS

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OPERATING LIMITATIONS

This section includes aircraft and engine limitations which must be observed during normal operation. These limitations are derived from extensive wind tunnel and flight testing to ensure your safety and to help obtain maximum utility of the equipment.

MINIMUM CREW REQUIREMENTS

The minimum crew required for this aircraft is one pilot. When the aircraft is flown solo by a student pilot, the student must occupy the left seat.

The minimum crew required for this aircraft is one fully qualified T-41D pilot. When occupied by two squadron pilots, both must be qualified in the T-41D. Only designated IPs may qualify another pilot.

INSTRUMENT MARKINGS

Airspeed Limitations

The following are the calibrated airspeed limits for the aircraft:

Maximum	182 mph	
(glide, dive, or smooth air)		
Caution Range	145-182 mph	
Normal Operating Range	64-145	
Flaps (maximum)	100 mph	
(Top of the White Arc)		
Maneuvering speed	127 mph*	

*The maximum speed at which you can use abrupt control travel without exceeding the design load limit.

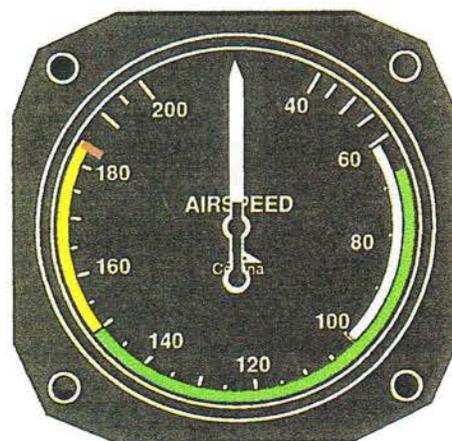


Figure 5-1. Airspeed Limitations Gauge

Cylinder Head Temperature Gauge

Normal Operating Range .. (Green Arc)	
Maximum Allowable	460°F

Oil Temperature Gauge

Normal Operating Range	
Maximum Allowable	(240°)

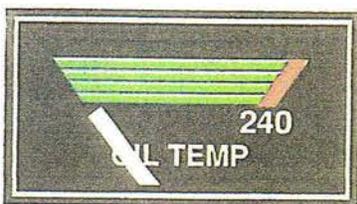


Figure 5-2. Oil Temperature Gauge

Oil Pressure Gauge

- Minimum Idling10 psi
 - Normal Operating Range30-75 psi*
 - Maximum100 psi
- *Green Arc may indicate 30-60 psi.

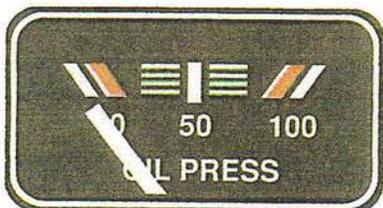


Figure 5-3. Oil Pressure Gauge

Tachometer

Normal operating Range:

- At Sea Level2200-2650 RPM (Inner Green Arc)
- At 3,000 feet MSL2200-2725 RPM (Middle Green Arc)
- At 6,000 feet MSL2200-2800 RPM (Outer Green Arc)
- Maximum2800 RPM ()
(engine rated speed)
- Minimum for Takeoff2270 RPM
- Idle RPM850 ± 25



Figure 5-4. Tachometer

NOTE

If RPM exceeds 2800, adjust throttle to maintain 2800 RPM or less. Make an entry in the AFTO 781 indicating highest RPM and duration (in seconds).

D Manifold Pressure Gauge

Normal Operating Range15" - 25" Hg
(Green Arc)

WARNING

Except during full throttle/prop FULL INCREASE operations such as takeoffs and go-arounds, never allow manifold pressure to exceed engine RPM.

WARNING

At low pressure altitudes manifold pressure may exceed 25" during takeoffs or go-arounds. Do not reduce throttle (manifold pressure) until called for in the After Takeoff checklist.

D Propeller

- Normal Operating Range2200-2600 RPM
- Maximum Allowable2800 RPM
- Minimum for Takeoff2650 RPM

WARNING

If RPM stabilizes above 2800 RPM refer to checklist for Runaway Propeller and terminate the mission.

CAUTION

Do not cruise above 2600 RPM as this will result in premature wear of the engine and governor.

NOTE

If RPM momentarily surges beyond 2800 when applying throttle, then stabilizes below 2800, this may indicate abrupt throttle application.

Fuel Flow Indicator

Normal Operating Range4.5-11.5 gph

Minimum

Maximum



Figure 5-5. Fuel Flow Indicator

Fuel Quantity Indicators

Full Mark52 gal
(26 gal each tank)

Usable Fuel51 gal
(25.5 gal each tank)
(level flight)

Usable Fuel46 gal
(23 gal each tank)
(all flight conditions)

EmptyE
(3 gal unusable, each tank)



Figure 5-6. Fuel Quantity Indicator

Suction Gauge

At 1800 RPM or Above4.6-5.4
inches Hg

CAUTION

If the suction gauge reads less than 4.6 inches Hg with 1800 RPM or above, the attitude and heading indicators should be caged (1968 models). If the gauge reads less than 1 inch, the mission should be terminated.



Figure 5-7. Suction Gauge

Ammeter

Normal	0 to +2 needle widths
Maximum (for flight)	+2 needle widths

Landing/Taxi Lights

On Ground:	Taxi Light 15 minutes
	Landing Light 5 minutes

PROHIBITED MANEUVERS

1. Spins.
2. Whip stalls.
3. IMC flight
4. Formation flight.
5. Touchdowns from SFLs (except on prepared surfaces at authorized airfields).
6. Night flight.
7. Aerobatic maneuvers.
8. Maneuvers requiring zero or negative G flight.
9. Engine shutdowns in-flight for practice.
10. Slips with over 30° flaps extended.

WEIGHT LIMITATIONS

Normal Category (Gross Weight - 2,500 lbs)

This aircraft is certified in both the normal and utility category. The normal category is applicable to aircraft intended for nonaerobatic operations, these include any maneuvers incidental to normal flying, stalls (except whip stalls), and turns in which the angle of bank is not more than 60 degrees.

D Weight Limitations

Normal Category - Gross Weight2,550 lbs

Utility Category - Gross Weight2,250 lbs

Utility Category (Gross Weight - 2,200 lbs)

This aircraft is not designed for purely aerobatic flight. However, certain maneuvers are allowed when the aircraft is operated in the utility category. In the utility category, the area behind the pilot's and instructor's seats must not be occupied.

For center of gravity and weight and balance computations, refer to the Appendix.

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