

KINDS OF OPERATION LIMITS

The airplane is equipped for day VFR and may be equipped for night VFR and/or IFR operations. FAR Part 91 establishes the minimum required instrumentation and equipment for these operations. The reference to types of flight operations on the operating limitations placard reflects equipment installed at the time of Airworthiness Certificate issuance.

Flight into known icing conditions is prohibited.

FUEL LIMITATIONS

2 Standard Tanks: 26 U.S. gallons each.

Total Fuel: 52 U.S. gallons.

Usable Fuel (all flight conditions): 49 U.S. gallons.

Unusable Fuel: 3.0 U.S. gallons.

NOTE

To ensure maximum fuel capacity when refueling, place the fuel selector valve in either LEFT or RIGHT position to prevent cross-feeding.

NOTE

Takeoff, climb and land with the fuel selector valve handle in the BOTH position.

Approved Fuel Grades (and Colors):

100LL Grade Aviation Fuel (Blue).

100 (Formerly 100/130) Grade Aviation Fuel (Green).

RANGE PROFILE
45 MINUTES RESERVE
49 GALLONS USABLE FUEL

CONDITIONS:

2550 Pounds
Recommended Lean Mixture for Cruise
Standard Temperature
Zero Wind

NOTES:

1. This chart allows for the fuel used for engine start, taxi, takeoff and climb, and the distance during a normal climb as shown in figure 5-6.
2. Reserve fuel is based on 45 minutes at 45% BHP and is 5.0 gallons.

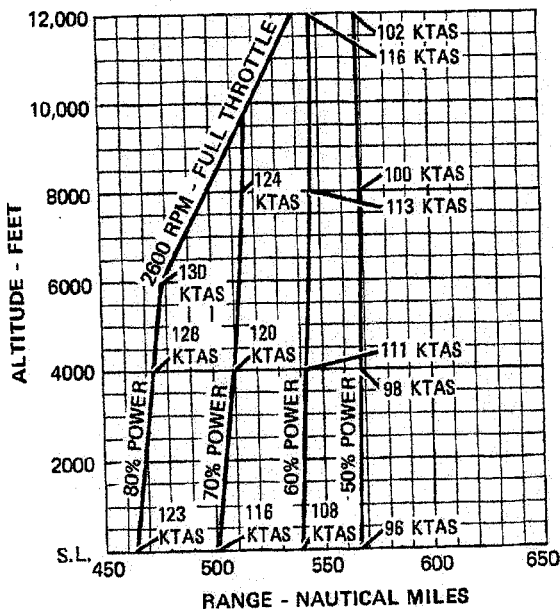


Figure 5-8. Range Profile

CRUISE PERFORMANCE

PRESSURE ALTITUDE 8000 FEET

CONDITIONS:
2550 Pounds
Recommended Lean Mixture
Cowl Flap Closed

NOTE

For best fuel economy at 70% power or less, operate at 1 GPH leaner than shown in this chart or at peak EGT if an EGT indicator is installed.

		20°C BELOW STANDARD TEMP -21°C			STANDARD TEMPERATURE -1°C			20°C ABOVE STANDARD TEMP 19°C		
RPM	MP	% BHP	KTAS	GPH	% BHP	KTAS	GPH	% BHP	KTAS	GPH
2600	21	77	127	10.9	74	128	10.5	72	127	10.1
	20	72	123	10.1	69	123	9.8	67	122	9.4
	19	66	118	9.4	64	118	9.0	62	116	8.8
	18	61	113	8.6	59	111	8.3	57	110	8.1
2500	21	74	125	10.4	71	125	10.0	69	124	9.7
	20	69	120	9.7	66	120	9.4	64	119	9.1
	19	64	116	9.0	61	115	8.7	59	113	8.4
	18	59	110	8.4	56	109	8.1	54	108	7.8
2400	21	68	120	9.6	65	119	9.3	63	118	9.0
	20	63	115	9.0	61	114	8.6	59	113	8.4
	19	58	110	8.3	56	108	8.0	54	107	7.8
	18	54	104	7.7	52	103	7.5	50	101	7.2
2300	21	64	116	9.1	62	115	8.7	59	114	8.5
	20	59	111	8.5	57	109	8.2	55	109	7.9
	19	55	105	7.9	53	104	7.6	51	103	7.4
	18	50	100	7.3	48	98	7.0	47	96	6.8
2200	21	60	111	8.5	57	110	8.2	55	109	7.9
	20	55	106	7.9	53	105	7.7	51	103	7.4
	19	51	100	7.4	49	99	7.1	47	97	6.9
	18	47	94	6.8	45	93	6.6	43	91	6.4

Figure 5-7. Cruise Performance (Sheet 4 of 6)

AMPLIFIED PROCEDURES

ENGINE FAILURE

If an engine failure occurs during the takeoff run, the most important thing to do is stop the airplane on the remaining runway. Those extra items on the checklist will provide added safety during a failure of this type.

Prompt lowering of the nose to maintain airspeed and establish a glide attitude is the first response to an engine failure after takeoff. In most cases, the landing should be planned straight ahead with only small changes in direction to avoid obstructions. Altitude and airspeed are seldom sufficient to execute a 180° gliding turn necessary to return to the runway. The checklist procedures assume that adequate time exists to secure the fuel and ignition systems prior to touchdown.

After an engine failure in flight, the best glide speed as shown in figure 3-1 should be established as quickly as possible. While gliding toward a suitable landing area, an effort should be made to identify the cause of the failure. If time permits, an engine restart should be attempted as shown in the checklist. If the engine cannot be restarted, a forced landing without power must be completed.

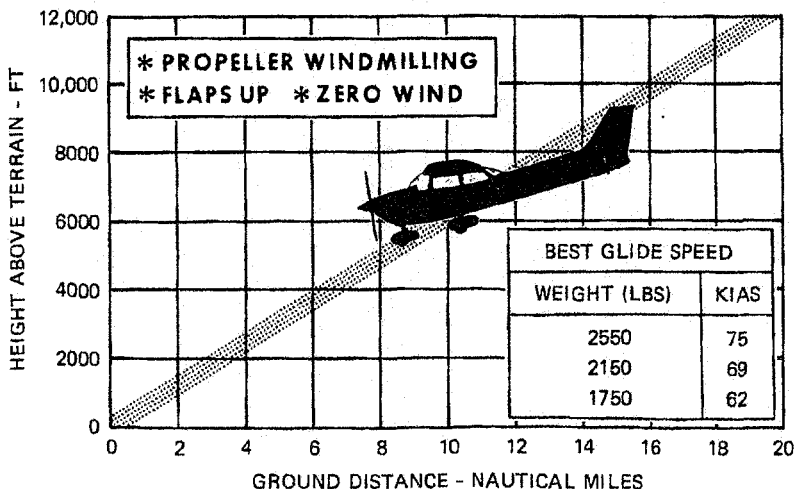


Figure 3-1. Maximum Glide

SECTION 3
EMERGENCY PROCEDURES

CESSNA
MODEL R172K

ENGINE FAILURE IMMEDIATELY AFTER TAKEOFF

- (1) Airspeed -- 70 KIAS (flaps UP),
65 KIAS (flaps DOWN).
- (2) Mixture -- IDLE CUT-OFF.
- (3) Fuel Shutoff Valve -- OFF (pull out).
- (4) Ignition Switch -- OFF.
- (5) Wing Flaps -- AS REQUIRED (full down recommended).
- (6) Master Switch -- OFF.

ENGINE FAILURE DURING FLIGHT

- (1) Airspeed -- 75 KIAS.
- (2) Primer -- IN and LOCKED.
- (3) Fuel Shutoff Valve -- ON (push full in).
- (4) Fuel Selector Valve -- BOTH.
- (5) Mixture -- RICH.
- (6) Throttle -- 1/2 OPEN.
- (7) Auxiliary Fuel Pump -- LOW for 3-5 seconds then OFF.
- (8) Ignition Switch -- BOTH (or START if propeller is stopped).

FORCED LANDINGS

EMERGENCY LANDING WITHOUT ENGINE POWER

- (1) Airspeed -- 70 KIAS (flaps UP),
65 KIAS (flaps DOWN).
- (2) Seat Belts and Shoulder Harnesses -- SECURE.
- (3) Mixture -- IDLE CUT-OFF.
- (4) Fuel Shutoff Valve -- OFF.
- (5) All Switches (except master switch) -- OFF.
- (6) Wing Flaps -- AS REQUIRED (full down recommended).
- (7) Master Switch -- OFF.
- (8) Doors -- UNLATCH PRIOR TO TOUCHDOWN.
- (9) Touchdown -- SLIGHTLY TAIL LOW.
- (10) Brakes -- APPLY HEAVILY.

PRECAUTIONARY LANDING WITH ENGINE POWER

- (1) Seat Belts and Shoulder Harnesses -- SECURE.
- (2) Wing Flaps -- 20°.
- (3) Airspeed -- 65 KIAS.
- (4) Selected Field -- FLY OVER, noting terrain and instructions, then retract flaps upon reaching a safe altitude and airspeed.
- (5) All Switches (except master and ignition switches) -- OFF.

CESSNA
MODEL R172K

SECTION 3
EMERGENCY PROCEDURES

- (6) Wing Flaps -- FULL DOWN (on final approach).
- (7) Airspeed -- 65 KIAS.
- (8) Master Switch -- OFF.
- (9) Doors -- UNLATCH PRIOR TO TOUCHDOWN.
- (10) Touchdown -- SLIGHTLY TAIL LOW.
- (11) Ignition Switch -- OFF.
- (12) Brakes -- APPLY HEAVILY.

DITCHING

- (1) Radio -- TRANSMIT MAYDAY on 121.5 MHz, giving location and intentions.
- (2) Heavy Objects (in baggage area) -- SECURE or JETTISON.
- (3) Seat Belts and Shoulder Harnesses -- SECURE.
- (4) Wing Flaps -- 20° - 40°.
- (5) Power -- ESTABLISH 300 FT/MIN DESCENT at 55 KIAS.
- (6) Approach -- High Winds, Heavy Seas -- INTO THE WIND.
Light Winds, Heavy Swells -- PARALLEL TO SWELLS

NOTE

If no power is available, approach at 65 KIAS with flaps up or at 60 KIAS with 10° flaps.

- (7) Cabin Doors -- UNLATCH.
- (8) Face -- CUSHION at touchdown with folded coat.
- (9) Touchdown -- LEVEL ATTITUDE AT ESTABLISHED DESCENT.
- (10) Airplane -- EVACUATE through cabin doors. If necessary, open window to flood cabin to equalize pressure so doors can be opened.
- (11) Life Vests and Raft -- INFLATE.

FIRES

DURING START ON GROUND

- (1) Auxiliary Fuel Pump -- OFF.
- (2) Mixture -- IDLE CUT-OFF.
- (3) Parking Brake -- RELEASE.
- (4) Fire Extinguisher -- OBTAIN (have ground attendants obtain if not installed).
- (5) Airplane -- EVACUATE.
- (6) Fire -- EXTINGUISH.

AIRSPPEED INDICATOR MARKINGS

Airspeed indicator markings and their color code significance are shown in figure 2-2.

MARKING	KIAS VALUE OR RANGE	SIGNIFICANCE
White Arc	46 - 85	Full Flap Operating Range. Lower limit is maximum weight V_{S_0} in landing configuration. Upper limit is maximum speed permissible with flaps extended.
Green Arc	54 - 129	Normal Operating Range. Lower limit is maximum weight V_S at most forward C.G. with flaps retracted. Upper limit is maximum structural cruising speed.
Yellow Arc	129 - 163	Operations must be conducted with caution and only in smooth air.
Red Line	163	Maximum speed for all operations.

Figure 2-2. Airspeed Indicator Markings

POWER PLANT LIMITATIONS

Engine Manufacturer: Teledyne Continental.

Engine Model Number: IO-360-K.

Engine Operating Limits for Takeoff and Continuous Operations:

Maximum Power: 195 BHP.

Maximum Engine Speed: 2600 RPM.

Maximum Cylinder Head Temperature: 238°C (460°F).

Maximum Oil Temperature: 116°C (240°F).

Oil Pressure, Minimum: 10 psi.

Maximum: 100 psi.

Fuel Pressure, Minimum: 3 psi.

Maximum: 17 psi (17 gal/hr).

Propeller Manufacturer: McCauley Accessory Division.

Propeller Model Number: 2A34C203/90DCA-14.

Propeller Diameter, Maximum: 76 inches.

Minimum: 74.5 inches.

Propeller Blade Angle at 30 Inch Station, Low: 12.0°.

High: 25.1°.