

SECTION II — OPERATION LIMITATIONS* AND PERFORMANCE DATA

OPERATIONS AUTHORIZED:

Your Cessna 170 with standard equipment as licensed under CAA type certificate No. 799 is authorized for contact flight both day and night.

For instrument flight (not for hire) the Model 170 must be equipped with two-way radio, sensitive altimeter, turn and bank indicator, and clock with sweep second hand.

The Model 170 may be operated for hire, beyond the three-mile radius from the airport, in the above categories when equipped with one landing light and certificated flares in addition to the above.

MANEUVERS — NORMAL CATEGORY

The Model 170 is designed to the Civil Air Regulations, Part 03, set forth by the United States Government for airworthiness. Spins and aerobatic maneuvers are not permitted in the normal category.

MANEUVERS — UTILITY CATEGORY

Gross wt. 1900 pounds.

This airplane is not designed for purely aerobatic flight. However, in the acquisition of various certificates by the pilot owner such as private pilot, commercial pilot, instrument pilot and flight instructor, certain maneuvers are required by the CAA. All of these maneuvers are permitted in the Cessna 170 when operated in the utility category.

In connection with the above the following maneuvers may be performed: †

	Recommended Entry Speed
(1) Steep Turns	110
(2) Spins	power off
(3) Stalls (except whip-stalls)	—

† Your airplane must be operated in accordance with the CAA approved Airplane Flight Manual. If there is any information in this section which contradicts the CAA approved manual, it is to be disregarded.

(4) Lazy Eights	110
(5) Chandelles	110

Spins with flaps down are prohibited due to the fact that recovery cannot be made without exceeding flap design speeds. Acrobatics that may impose high inverted loads should not be attempted. The important thing to bear in mind in flight maneuvers is that the Cessna 170 is clean in aerodynamic design and will build up speed quickly with the nose down. Proper speed control is an essential requirement for execution of any maneuver and care should always be exercised to avoid excessive speed which in turn can impose excessive loads. In the execution of all maneuvers avoid abrupt use of controls.

Limit loads — Normal category *	Gross weight 2200 pounds
Flaps up	+3.8 —1.52
Flaps down	+3.8 —1.52

Limit loads — Utility category *	Gross weight 1900 pounds
Flaps up	+4.4 —1.76
Flaps down	+4.4 —1.76

AIRSPEED LIMITATIONS:

The following are the certificated airspeed limits:

	LANDPLANE
Glide or Dive (smooth air)	160 m.p.h. (red line)
Level Flight or Climb	140 m.p.h. (normal range marked with green arc, caution range marked with yellow arc, 140 to 160 m.p.h.)
Flap Extension and Operation	90 m.p.h. (flap operating range marked by a white arc)

All airspeeds are true indicated

FLAP SETTINGS:

For normal take-offUp — 0°

* The design load factors are 150% of the above and in all cases the structure meets or exceeds design loads.

For shortest take-offFull down — 30°
For landingFull down — 30°

ENGINE OPERATING LIMITATIONS:

Power and Speed.....145 b.h.p. at 2700 r.p.m.

Instrument Markings:

Oil Temperature.....225° F. maximum

Oil Pressure:

Minimum Idling.....5 p.s.i.

Normal Operating.....30 to 40 p.s.i.

Fuel Pressure:

Minimum.....1 p.s.i.

Normal Operating.....1½ to 3 p.s.i.

Maximum.....6 p.s.i.

Tachometer:

Normal Operation.....2200-2450 (green arc)

Cautionary Range.....2450-2700

Maximum Allowable.....2700 (red line)

WEIGHT AND BALANCE:

The safety of an airplane is directly affected by its weight and balance simply because the airplane was designed for a certain limit load and balance condition. The weight and balance limitations for the 170 is as follows:

Gross Weight Limit.....2200 pounds

Center of Gravity Limits:

From +36.3 inches aft of firewall datum.

To +45.2 inches aft of firewall datum.

The horizontal datum is the forward face of the firewall with measurements considered + (aft) and — (forward) of this line.

To level the airplane during weighing, use the lower edge of the upper door sill.

A weight and balance report is furnished with each airplane which gives the weight and balance of that particular airplane. Also, an equipment list is furnished with the airplane which shows weights and arms for various equipment and accessory items.

The actual loading of the airplane is up to the pilot. 2200

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lbs. gross weight is not to be exceeded — and the useful load in the airplane can be distributed in any way the pilot desires, that is, in baggage (up to the baggage compartment placard limit), gasoline, or passenger load. These are all variables including the pilot's weight, and of course, baggage may be carried in the passenger's location instead of a passenger. It is the responsibility of the pilot and operator to see that the weight and balance are within limitations.

OPERATIONAL DATA:

PERFORMANCE INFORMATION

The following operational data are compiled from actual tests with airplane and engine in good condition and using average piloting technique. Data are based upon a gross weight of 2200 lbs. with McCauley propeller installed, and full throttle for take-off and climb. Performance figures are for zero wind velocity and hard surface level runway. Speeds are true indicated airspeeds.

ITEM	ALTITUDE	OUTSIDE AIR TEMPERATURE					
		0°F	20°F	40°F	60°F	80°F	100°F
Take Off Distance (Ft.)	Sea Level	1460	1580	1700	1820	1930	2050
To clear 50 ft. obstacle	2000 Ft.	1780	1910	2050	2190	2340	2500
Airspeed 76 MPH Take-off	4000 Ft.	2140	2290	2450	2610	2790	3000
Full Throttle, Flaps Up	6000 Ft.	2550	2740	2930	3140	3360	3620

Take Off Correction: Reduce above distances 10% for each 6 MPH Wind Velocity. Ground run approx. 40% of distances shown.

Landing Distance (Ft.)	Sea Level	1580	1640	1700	1755	1810	1860
Over 50 ft. obstacle	2000 Ft.	1685	1745	1805	1860	1915	1965
Approach at 71 MPH	4000 Ft.	1790	1850	1910	1970	2020	2075
Flaps Down	6000 Ft.	1900	1955	2020	2075	2130	2180

Landing Correction: Reduce above distances 10% for each 6 MPH Wind Velocity. Roll approx. 45% distances shown.

Normal Rate Climb	89	Sea Level	760	740	715	690	670	645
(Feet Per Minute)	86	2000 Ft.	670	645	625	600	580	555
Flaps Up	84	4000 Ft.	580	555	535	510	485	465
Full Throttle	81	6000 Ft.	490	465	440	420	395	370

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Stalling Speed M.P.H. T.I.A.S.	Condition	Angle of Bank Degrees			
		0°	20°	40°	60°
No Stall	Power Off; Flaps Up	59	61	68	84
Warning	Power Off; Flaps Down	55	57	63	78
Evident	Power On; Flaps Up	53	55	61	74
	Power On; Flaps Down	47	48	54	67

CLIMB:

The rate of climb and speed for best climb at various altitudes for gross weight of 2200 lbs. and equipped with metal McCauley propeller is given in the table below:

Attitude (ft.)	Sea Level	2500'	5000'	7500'	10,000'	12,500'	15,000'
Best Climb Speed (T.I.A.S.)	89	86	82	79	75	72	68
Rate of Climb (ft./min.)	690	590	485	380	277	173	68

- (1) Density altitude.
- (2) Gross weight 2200 with McCauley propeller.

The above table is for standard conditions.