

SECTION 2  
LIMITATIONS

2.1 GENERAL

This section provides the "FAA Approved" operating limitations, instrument markings, color coding and basic placards necessary for the operation of the airplane and its systems.

Limitations associated with those optional systems and equipment which require handbook supplements can be found in Section 9 (Supplements).

2.3 AIRSPEED LIMITATIONS

SPEED	KIAS	KCAS
Never Exceed Speed (VNE) - Do not exceed this speed in any operation.	190	186
Maximum Structural Cruising Speed (VNO) - Do not exceed this speed except in smooth air and then only with caution.	149	148
Design Maneuvering Speed (VA) - Do not make full or abrupt control movements above this speed.		
At 2750 lbs. G.W.	121	121
At 1863 lbs. G.W.	96	97

*CAUTION*

Maneuvering speed decreases at lighter weight as the effects of aerodynamic forces become more pronounced. Linear interpolation may be used for intermediate gross weights. Maneuvering speed should not be exceeded while operating in rough air.

SPEED	KIAS	KCAS
Maximum Flaps Extended Speed (VFE) - Do not exceed this speed with the flaps extended.	108	104
Maximum Landing Gear Extension Speed - Do not exceed this speed when extending the landing gear.	130	130
Maximum Landing Gear Retraction Speed- Do not exceed this speed when retracting the landing gear.	109	109
Maximum Landing Gear Extended Speed (VLE) - Do not exceed this speed with the landing gear extended.	130	130

**2.5 AIRSPEED INDICATOR MARKINGS**

MARKING	IAS
Red Radial Line (Never Exceed)	190 KTS
Yellow Arc (Caution Range - Smooth Air Only)	149 KTS to 190 KTS
Green Arc (Normal Operating Range)	58 KTS to 149 KTS
White Arc (Flap Down)	53 KTS to 108 KTS

2.7 POWER PLANT LIMITATIONS

(a) Number of Engines	1
(b) Engine Manufacturer	Lycoming
(c) Engine Model No.	IO-360-C1C6
(d) Engine Operating Limits	
(1) Takeoff Power - 5 Min. Limit (BHP)	200
(2) Takeoff Engine Speed - 5 Min. Limit (RPM)	2700
(3) Maximum Oil Temperature	245° F
(4) Maximum Continuous Power (BHP)	196
(5) Maximum Continuous Engine Speed (RPM)	2650
(e) Oil Pressure	
Minimum (red line)	25 PSI
Maximum (red line)	100 PSI
(f) Fuel Pressure	
Minimum (red line)	14 PSI
Maximum (red line)	45 PSI
(g) Fuel (minimum octane)	100 or 100LL Aviation Grade
(h) Number of Propellers	1
(i) Propeller Manufacturer	McCauley
(j) Propeller Hub and Blade Model	
(1) McCauley	2D34C215/90DJA-14E
(k) Propeller Diameter	
(1) McCauley	
Minimum	75
Maximum	76
(l) Blade Angle Limits	
(1) McCauley	
Low Pitch Stop	12.5 + 0.2°
High Pitch Stop	27.5 + 1°
(m) RPM Restrictions	Avoid Continuous Operation Between 1400 and 1750 RPM Below 15 Inches Map

## 2.9 POWER PLANT INSTRUMENT MARKINGS

- |                                          |                   |  |
|------------------------------------------|-------------------|--|
| (a) Tachometer                           |                   |  |
| Green Arc (Normal Operating Range)       | 500 to 2650 RPM   |  |
| Yellow Arc (Caution Range - 5 Min. Max.) | 2650 to 2700      |  |
| Red Line (Take Off Power)                | 2700 RPM          |  |
| (b) Oil Temperature                      |                   |  |
| Green Arc (Normal Operating Range)       | 75° to 245 °F     |  |
| Red Line (Maximum)                       | 245°F             |  |
| (c) Oil Pressure                         |                   |  |
| Green Arc (Normal Operating Range)       | 60 PSI to 90 PSI  |  |
| Yellow Arc (Caution Range) (Idle)        | 25 PSI to 60 PSI  |  |
| Yellow Arc (Ground Warm Up)              | 90 PSI to 100 PSI |  |
| Red Line (Minimum)                       | 25 PSI            |  |
| Red Line (Maximum)                       | 100 PSI           |  |
| (d) Fuel Pressure                        |                   |  |
| Green Arc (Normal Operating Range)       | 14 PSI to 45 PSI  |  |
| Red Line (Minimum)                       | 14 PSI            |  |
| Red Line (Maximum)                       | 45 PSI            |  |

## 2.11 WEIGHT LIMITS

- |                     |           |
|---------------------|-----------|
| (a) Maximum Weight  | 2750 LBS. |
| (b) Maximum Baggage | 200 LBS.  |

### NOTE

Refer to Section 5 (Performance) for maximum weight as limited by performance.

### 2.13 CENTER OF GRAVITY LIMITS

Weight Pounds	Forward Limit Inches Aft of Datum	Rearward Limit Inches Aft of Datum
2750	90.0	93.0
2400	85.5	93.0

#### NOTES

Straight line variation between points given.

The datum used is 78.4 inches ahead of the wing leading edge at the intersection of the straight and tapered section.

It is the responsibility of the airplane owner and the pilot to insure that the airplane is properly loaded. See Section 6 (Weight and Balance) for proper loading instructions.

### 2.15 MANEUVER LIMITS

No acrobatic maneuvers including spins approved.

### **2.17 FLIGHT LOAD FACTORS**

- (a) Positive Load Factor (Maximum) 3.8 G
- (b) Negative Load Factor (Maximum) No inverted maneuvers approved

### **2.19 TYPES OF OPERATIONS**

The airplane is approved for the following operations when equipped in accordance with FAR 91 or FAR 135.

- (a) Day V.F.R.
- (b) Night V.F.R.
- (c) Day I.F.R.
- (d) Night I.F.R.
- (e) Non Icing

### **2.21 FUEL LIMITATIONS**

- (a) Total Capacity 77 U.S. GAL.
- (b) Unusable Fuel 5 U.S. GAL.  
The unusable fuel for this airplane has been determined as 2.5 gallons in each wing tank in critical flight attitudes.
- (c) Usable Fuel 72 U.S. GAL.  
The usable fuel in this airplane has been determined as 36.0 gallons in each wing tank.
- (d) Fuel remaining when the quantity indicators read zero cannot be used safely in flight.

### 2.23 NOISE LEVEL

The noise level of this aircraft is 75.1 d B(A).

No determination has been made by the Federal Aviation Administration that the noise levels of this airplane are or should be acceptable or unacceptable for operation at, into, or out of, any airport.

The above statement notwithstanding the noise level stated above has been verified by and approved by the Federal Aviation Administration in noise level test flights conducted in accordance with FAR 36, Noise Standards - Aircraft Type and Airworthiness Certification. This aircraft model is in compliance with all FAR 36 noise standards applicable to this type.