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SECTION 2

LIMITATIONS

MULTIPLY	BY	TO OBTAIN
kilograms per square meter (kg/m^2)	2.896×10^{-3}	in. Hg
	1.422×10^{-3}	lb./sq. in.
	0.2048	lb./sq. ft.
kilometers (km)	1×10^{-5}	cm
	3280.8	ft.
	0.6214	mi.
	0.53996	NM
kilometers per hour (km/hr.)	0.9113	ft./sec.
	58.68	ft./min.
	0.53996	kt
	0.6214	mph
	0.27778	m/sec.
	16.67	m/min.
knots (kt)	1	nautical mph
	1.689	ft./sec.
	1.1516	statute mph
	1.852	km/hr.
	51.48	m/sec.
liters (l)	1000	cm^3
	61.02	cu. in.
	0.03531	cu. ft.
	33.814	fl. oz.
	0.264172	U.S. gal.
	0.2200	Imperial gal.
	1.05669	qt.
liters per hectare (l/ha)	13.69	fl. oz./acre
	0.107	gal./acre
liters per second (l/sec.)	2.12	cu. ft./min.
meters (m)	39.37	in.
	3.280840	ft.
	1.0936	yd.
	0.198838	rod
	6.214×10^{-4}	mi.
	5.3996×10^{-4}	NM
meter-kilogram (m-kg)	7.23301	ft.-lb.
	86.798	in.-lb.

MULTIPLY	BY	TO OBTAIN
meters per minute (m/min.)	0.06	km/hr.
meters per second (m/sec.)	3.280840	ft./sec.
	196.8504	ft./min.
	2.237	mph
	3.6	km/hr.
microns	3.937×10^{-5}	in.
miles, statute (mi.)	5280	ft.
	1.6093	km
	1609.3	m
	0.8684	NM
miles per hour (mph)	44.7041	cm/sec.
	4.470×10^{-1}	m/sec.
	1.467	ft./sec.
	88	ft./min.
	1.6093	km/hr.
	0.8684	kt
miles per hour square (m/hr. sq.)	2.151	ft./sec. sq.
millibars	2.953×10^{-2}	in. Hg
millimeters (mm)	0.03937	in.
millimeters of mercury at 0°C (mm Hg)	0.03937	in. Hg
nautical miles (NM)	6080	ft.
	1.1516	statute mi.
	1852	m
	1.852	km
ounces, avdp. (oz. avdp.)	28.35	g
	16	dr. avdp.
ounces, fluid (fl. oz.)	8	dr. fl.
	29.57	cm^3
	1.805	cu. in.
	0.0296	l
	0.0078	U.S. gal.

MULTIPLY	BY	TO OBTAIN
ounces, fluid per acre (fl. oz./ acre)	0.073	l/ha
pounds (lb.)	0.453592	kg
	453.6	g
	3.108×10^{-2}	slug
pounds per acre (lb./acre)	1.121	kg/ha
pounds per cubic foot (lb./cu. ft.)	16.02	kg/m^3
pounds per cubic inch (lb./cu. in.)	1728	lb./cu. ft.
	27.68	g/cm^3
pounds per square foot (lb./sq. ft.)	0.1414	in. Hg
	4.88243	kg/m^2
	4.725×10^{-4}	atm
pounds per square inch (psi or lb./sq. in.)	5.1715	cm Hg
	2.036	in. Hg
	0.06804	atm
	0.0689476	bar
	703.1	kg/m^2
quart, U.S. (qt.)	0.94635	l
	57.749	cu. in.
radians	57.30	deg. (arc)
	0.1592	rev.
radians per second (radians/sec.)	57.30	deg./sec.
	0.1592	rev./sec.
	9.549	rpm
revolutions (rev.)	6.283	radians
revolutions per minute (rpm or rev./min.)	0.1047	radians/sec.
revolutions per second (rev./sec.)	6.283	radians/sec.

MULTIPLY	BY	TO OBTAIN
rod	16.5	ft.
	5.5	yd.
	5.029	m
slug	32.174	lb.
square centimeters (cm^2)	0.1550	sq. in.
	0.001076	sq. ft.
square feet (sq. ft.)	929	cm^2
	0.092903	m^2
	144	sq. in.
	0.1111	sq. yd.
	2.296×10^{-5}	acres
square inches (sq. in.)	6.4516	cm^2
	6.944×10^{-3}	sq. ft.
square kilometers (km^2)	0.3861	sq. mi.
square meters (m^2)	10.76391	sq. ft.
	1.196	sq. yd.
	0.0001	ha
square miles (sq. mi.)	2.590	km^2
	640	acres
square rods (sq. rods)	30.25	sq. yd.
square yards (sq. yd.)	0.8361	m^2
	9	sq. ft.
	0.0330579	sq. rods
yards (yd.)	0.9144	m
	3	ft.
	36	in.
	0.181818	rod

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	CAS
Never Exceed Speed (V_{NE}) - Do not exceed this speed in any operation.	217 MPH (188 KTS)
Maximum Structural Cruising Speed (V_{NO}) - Do not exceed this speed except in smooth air and then only with caution.	172 MPH (149 KTS)
Design Maneuvering Speed (V_A) - Do not make full or abrupt control movements above this speed.	125 MPH (109 KTS)
Maximum Flaps Extended Speed (V_{FE}) - Do not exceed this speed with the flaps extended.	125 MPH (109 KTS)
Maximum Landing Gear Extension Speed - Do not exceed this speed when extending the landing gear.	150 MPH (130 KTS)
Maximum Landing Gear Retraction Speed - Do not exceed this speed when retracting the landing gear.	125 MPH (109 KTS)
Maximum Landing Gear Extended Speed (V_{LE}) - Do not exceed this speed with the landing gear extended.	150 MPH (130 KTS)

2.5 AIRSPEED INDICATOR MARKINGS

MARKING	CAS
Red Radial Line (Never Exceed)	217 MPH (188 KTS)
Yellow Arc (Caution Range - Smooth Air Only)	172 MPH to 217 MPH (149 KTS to 188 KTS)
Green Arc (Normal Operating Range)	77 MPH to 172 MPH (67 KTS to 149 KTS)
White Arc (Flap Down)	70 MPH to 125 MPH (61 KTS to 109 KTS)

2.7 POWER PLANT LIMITATIONS

(a)	Number of Engines	1
(b)	Engine Manufacturer	Lycoming
(c)	Engine Model No. (Serial Nos. 32R-7680001 through 32R-7680140)	IO-540-K1A5D
	(Serial Nos. 32R-7680141 through 32R-7680525)	IO-540-K1G5D
(d)	Engine Operating Limits	
	(1) Maximum Horsepower	300
	(2) Maximum Rotation Speed (RPM)	2700
	(3) Maximum Oil Temperature	245°F
(e)	Oil Pressure	
	Minimum (red line)	25 PSI
	Maximum (red line)	100 PSI
(f)	Fuel Pressure	
	Minimum (red line)	12 PSI
	Maximum (red line)	40 PSI
(g)	Fuel Grade (AVGAS ONLY) (minimum octane)	100/130 - Green
(h)	Number of Propellers	1
(i)	Propeller Manufacturer	Hartzell
(j)	Propeller Hub and Blade Model	HC-C2YK-1( )F/F8475D-4
(k)	Propeller Diameter	
	Minimum	78.5 IN.
	Maximum	80 IN.
(l)	Blade Angle Limits	
	Low Pitch Stop	13.5 ± .2°
	High Pitch Stop	34° ± 1°

2.9 POWER PLANT INSTRUMENT MARKINGS

(a) Tachometer	
Green Arc (Normal Operating Range)	500 to 2700 RPM
Red Line (Maximum Continuous 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 (Caution Range) (Start and 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)	18 PSI to 40 PSI
Red Line (Minimum)	12 PSI
Red Line (Maximum)	40 PSI
Yellow Arc (Idle Range)	12 PSI to 18 PSI

2.11 WEIGHT LIMITS

(a) Maximum Weight	3600 LBS
(b) Maximum Baggage (100 lbs each compartment)	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
3600	91.4	95.0
2900	80.0	95.0
2400	76.0	95.0

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	98 U.S. GAL
(b)	Unusable Fuel The unusable fuel for this airplane has been determined as 2.0 gallons in each wing in critical flight attitudes (2.0 gallons is the total per side, each side having two interconnected tanks).	4 U.S. GAL
(c)	Usable Fuel The usable fuel in this airplane has been determined as 47.0 gallons in each wing (47.0 gallons is the total per side, each side having two interconnected tanks).	94 U.S. GAL

2.23 FLIGHT WITH REAR CABIN DOOR OR REAR CABIN DOOR AND CARGO DOOR REMOVED

The following limitations must be observed in the operation of this airplane with the rear cabin door or rear cabin door and cargo door removed:

(a) The airplane may be flown with the rear cabin door or rear cabin door and cargo door removed. Flight with the front door removed is not approved.
(b) Maximum speed - 165 MPH (143 KTS)
(c) No smoking.
(d) All loose articles must be tied down and stowed.
(e) Jumper's static lines must be kept free of pilot's controls and control surfaces.
(f) Operation approved VFR flight conditions only.

2.25 PLACARDS

In full view of the pilot:

"THIS AIRPLANE MUST BE OPERATED AS A NORMAL CATEGORY AIRPLANE IN COMPLIANCE WITH THE OPERATING LIMITATIONS STATED IN THE FORM OF PLACARDS, MARKINGS AND MANUALS. NO ACROBATIC MANEUVERS, INCLUDING SPINS, APPROVED."

THIS AIRCRAFT APPROVED FOR V.F.R., I.F.R., DAY AND NIGHT NON-ICING FLIGHT WHEN EQUIPPED IN ACCORDANCE WITH FAR 91 OR FAR 135.

In full view of the pilot, the following takeoff and landing check lists will be installed:

TAKEOFF CHECK LIST

Fuel on Proper Tank
Electric Fuel Pump - On
Engine Gauges - Checked
Alternate Air - Closed
Seat Backs Erect
Mixture - Set
Propeller - Set
Fasten Belts/Harness
Flaps - Set
Trim Tab - Set
Controls - Free
Door - Latched
Air Conditioner - Off

LANDING CHECK LIST

Fuel on Proper Tank
Seat Back Erect
Fasten Belts/Harness
Electric Fuel Pump - On
Mixture - Rich
Propeller - Set
Gear Down (150 MPH Max)
Flaps - Set (125 MPH)
Air Conditioner - Off

The "AIR CONDITIONER OFF" item in the above takeoff and landing check lists is mandatory for air conditioned aircraft only.

On the instrument panel in full view of the pilot:

"ROUGH AIR OR MANEUVERING SPEED 125 MPH"

On the instrument panel in full view of the pilot:

DEMONSTRATED CROSSWIND COMPONENT 20 MPH"

In full view of the pilot: (For operation with the rear door removed)

"FOR FLIGHT WITH THE DOOR REMOVED, SEE THE LIMITATIONS AND PROCEDURES SECTIONS OF THE PILOT'S OPERATING HANDBOOK."

On instrument panel in full view of the pilot:

"GEAR DOWN	150 MPH MAX"
"GEAR UP	125 MPH MAX"
"EXTENDED	150 MPH MAX"

Near emergency gear lever:

"EMERGENCY DOWN"

| Near emergency lever: (Aircraft equipped with the backup gear extender)

"OVERRIDE ENGAGED

TO ENGAGE OVERRIDE:
LEVER UP, LATCH DOWN
TO RELEASE OVERRIDE:
LEVER FULL UP & RELEASE"

| On gear override latch: (Aircraft equipped with the backup gear extender)

"GEAR OVERRIDE LATCH"

Near gear selector switch:

"GEAR UP	125 MPH MAX"
"DOWN	150 MPH MAX"

Adjacent to upper door latch (front and rear doors):

"ENGAGE LATCH BEFORE FLIGHT"

On the instrument panel in full view of the pilot:

"WARNING — TURN OFF STROBE LIGHTS WHEN TAXIING IN VICINITY OF OTHER AIRCRAFT, OR DURING FLIGHT THROUGH CLOUD, FOG OR HAZE."

In full view of the pilot, in the area of the air conditioner controls when the air conditioner is installed:

"WARNING – AIR CONDITIONER MUST BE OFF TO INSURE NORMAL TAKEOFF CLIMB PERFORMANCE."

On the inside of forward baggage compartment:

"MAXIMUM BAGGAGE THIS COMPARTMENT 100 LBS. SEE THE LIMITATIONS SECTION OF THE PILOT'S OPERATING HANDBOOK."

On aft baggage closeout:

"MAXIMUM BAGGAGE THIS COMPARTMENT 100 LBS. NO HEAVY OBJECTS ON HAT SHELF."

On storm window:

"DO NOT OPEN ABOVE 150 MPH"

Adjacent to fuel tank filler caps:

"FUEL – 100/130 AVIATION GRADE – USABLE CAPACITY 47.0 GAL."