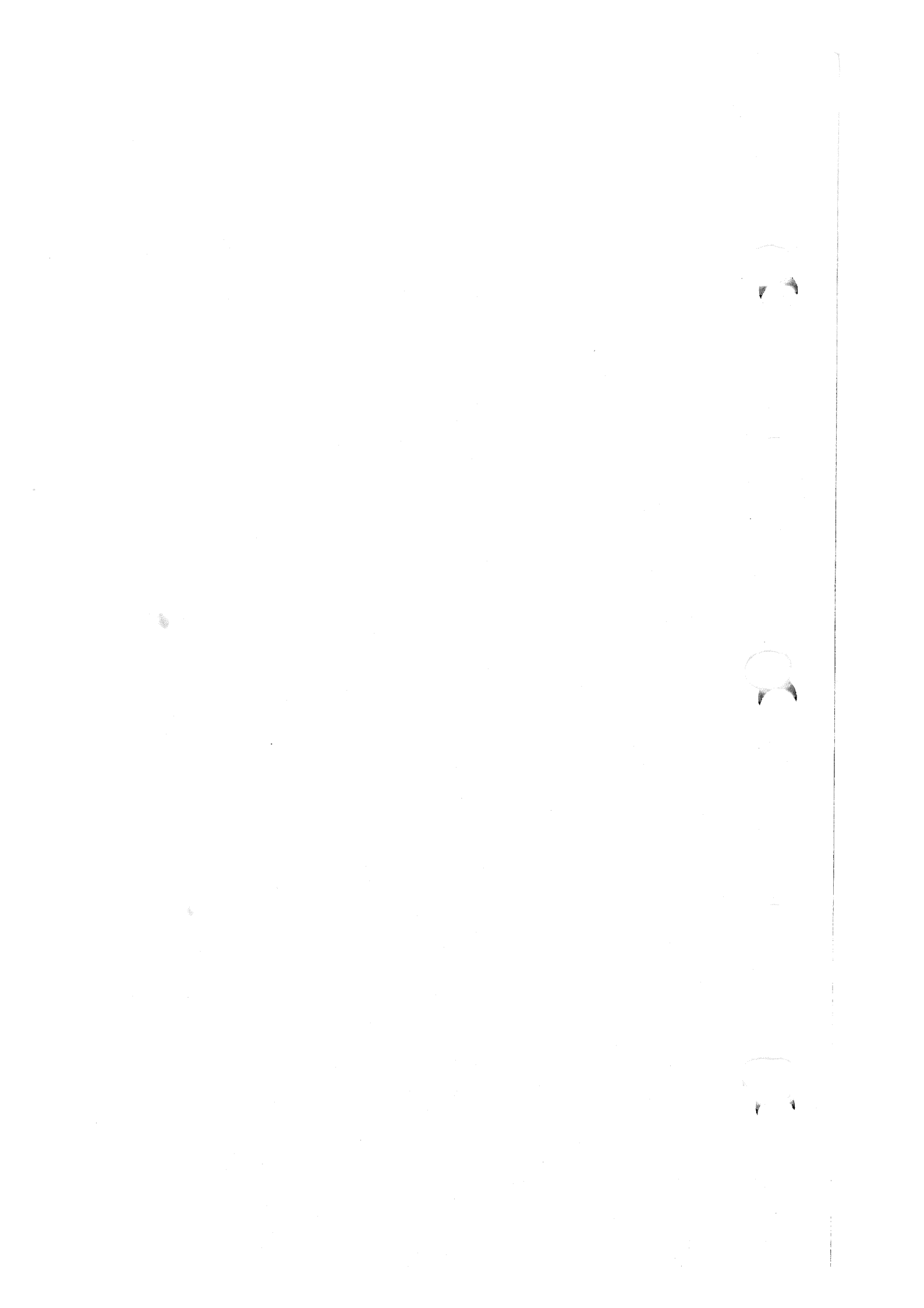


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**SECTION 2
LIMITATIONS**

**PIPER AIRCRAFT CORPORATION
PA-34-220T, SENECA III**

SPEED	KIAS	KCAS
Never Exceed Speed (VNE) - Do not exceed this speed in any operation.	205	203
Maximum Structural Cruising Speed (VNO) - Do not exceed this speed except in smooth air and then only with caution.	166	165
Maximum Flaps Extended Speed (VFE) - Do not exceed this speed with the flaps extended.	115	113
Maximum Gear Extended Speed (VLE) - Do not exceed this speed with landing gear extended.	130	130
Maximum Landing Gear Extending Speed (VLO) - Do not extend landing gear above this speed.	130	130
Maximum Landing Gear Retracting Speed (VLO) - Do not retract landing gear above this speed.	108	109
Air Minimum Control Speed (VMCA) - Lowest airspeed at which airplane is controllable with one engine operating at takeoff power and no flaps.	66	65
One Engine Inoperative Best Rate of Climb Speed. (VYSE)	92	91

2.5 AIRSPEED INDICATOR MARKINGS

MARKING	KIAS
Red Radial Line (Never Exceed)	205
Red Radial Line (One Engine Inoperative Air Minimum Control Speed)	66

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.

This airplane must be operated as a normal category airplane in compliance with the operating limitations stated in the form of placards and markings and those given in this section and handbook.

Limitations associated with those optional systems and equipment which require handbook supplements can be found in Section 3 (Supplements).

2.3 AIRSPEED LIMITATIONS

SPEED	KIAS	KCAS
Design Maneuvering Speed (V_A) - Do not make full or abrupt control movements above this speed.		
4407 lbs. (1999 Kg.) G.W.	135	137
3205 lbs.	114	5

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.

MARKING	KIAS
Blue Radial Line (One Engine In-operative Best Rate of Climb (Speed))	92
Yellow Arc (Caution Range - Smooth Air Only)	166 to 205
Green Arc (Normal Operating Range)	67 to 166
White Arc (Flap Down)	64 to 115

2.7 POWER PLANT LIMITATIONS

(a) Number of Engines		2
(b) Engine Manufacturer		Continental
(c) Engine Model Number		
(1) Left		TSIO-360KB
(2) Right		LTSIO-360KB
(d) Engine Operating Limits		
	T.O. Power 5 Min. Limit	Max. Cont. Power
(1) Rated Horsepower (BHP)	220	200
(2) Max. Rotational Speed (RPM)	2800	2600
(3) Max. Manifold Pressure (Inches of Mercury)		40
(4) Max. Cylinder Head Temperature		460°F
(5) Max. Oil Temperature		240°F
(e) Oil Pressure		
Minimum (red line)		10 PSI
Maximum (red line)		100 PSI
(f) Fuel Flow (Pressure)		
Normal Operating Range (green arc)	3.5 PSI to 18.1 PSI	
Maximum at Sea Level (red line)		21 PSI
(g) Fuel Grade (AVGAS ONLY) (min. grade)		100 or 100LL Aviation Grade
(h) Number of Propellers		2

**SECTION 2
LIMITATIONS**

**PIPER AIRCRAFT CORPORATION
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- (i) Propeller Manufacturer
Hartzell (Two Blade) (Standard)
Propeller Hub and Blade Models
 - a. Left BHC-C2YF-2CKUF/
FC8459-8R
 - b. Right BHC-C2YF-2CLKUF/
FJC8459-8R

NOTES

Avoid continuous operation between 2000 and 2200 RPM above 32 IN. HG. manifold pressure.

Avoid continuous ground operation between 1700 and 2100 RPM in cross and tail winds over 10 knots.

- McCauley (Three Blade) (Optional)
Propeller Hub and Blade Models
 - a. Left 3AF32C508-()/
()-82NFA-6
 - b. Right 3AF32C509-()/
()-L82NFA-6

- (j) Propeller Diameter (inches)
 - Maximum 76
 - Minimum 75

2.9 POWER PLANT INSTRUMENT MARKINGS

- (a) Tachometer
Green Arc (Normal Operating Range) 500 RPM to 2600 RPM
Yellow Arc (Takeoff - 5 Min.) 2600 RPM to 2800 RPM
Red Line (Maximum) 2800 RPM
- (b) Fuel Flow (Pressure)
Green Arc (Normal Operating Range) 3.5 PSI to 18.1 PSI
Yellow Arc (Takeoff - 5 Min.) 18.1 PSI to 21.0 PSI
Red Line (Max. at Sea Level) 21.0 PSI
- (c) Cylinder Head Temperature
Green Arc (Normal Range) 240° F to 460° F
Red Line (Maximum) 460° F
- (d) Oil Temperature
Green Arc (Normal Operating Range) 100° F to 240° F
Red Line (Maximum) 240° F
- (e) Oil Pressure
Green Arc (Normal Operating Range) 30 PSI to 80 PSI
Yellow Arc (Caution - Ground
Operation Only) 10 PSI to 30 PSI and
80 PSI to 100 PSI
Red Line (Minimum) 10 PSI
Red Line (Maximum) 100 PSI
- (f) Manifold Pressure
Green Arc (Normal Operating Range) 10 IN. to 40 IN. HG.
Red Line (Maximum) 40 IN. HG.
- (g) Exhaust Gas Temperature
Red Line 1650° F
Green Arc 1200° F to 1525° F
Yellow Arc (65% to 75%
Leaning Limit) 1525° F to 1650° F

**SECTION 2
LIMITATIONS**

**PIPER AIRCRAFT CORPORATION
PA-34-220T, SENECA III**

2.11 WEIGHT LIMITS

(a) Max. Takeoff Weight	4407 LBS./1999 Kg.
(b) Max. Landing Weight	4407 LBS./1999 Kg.
(c) Max. Weights in Baggage Compartments	
Forward	100 LBS./45 Kg.
Aft	100 LBS./45 Kg.
(d) Max. Zero Fuel Weight	4407 LBS./1999 Kg.

2.13 CENTER OF GRAVITY LIMITS

Weight Pounds	Forward Limit Inches Aft of Datum	Rearward Limit Inches Aft of Datum
3400	82.0	94.6
4250	86.7	94.6
4407	88.0	94.6

NOTES

Straight line variation between points given.

The datum used is 78.4 inches ahead of the wing leading edge at the inboard edge of the fuel tank.

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

2.15 MANEUVER LIMITS

All intentional acrobatic maneuvers (including spins) are prohibited. Avoid abrupt maneuvers.

2.17 FLIGHT MANEUVERING LOAD FACTORS

- (a) Positive Load Factor (Maximum)
 - (1) Flaps Up 3.8 G
 - (2) Flaps Down 2.0 G
- (b) Negative Load Factor (Maximum) No inverted maneuvers approved.

2.19 TYPES OF OPERATION

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) Icing conditions when equipped per Ice Protection System Installation Supplement (refer to Section 9).

2.21 FUEL LIMITATIONS

- (a) Standard Fuel Tanks
 - (1) Total Capacity 98 U.S. GALS.
 - (2) Unusable Fuel 5 U.S. GALS.
The unusable fuel for this airplane has been determined as 2.5 U.S. gallons in each wing in critical flight attitudes.
 - (3) Usable Fuel 93 U.S. GALS.
- (b) Optional Fuel Tanks
 - (1) Total Capacity 128 U.S. GALS.
 - (2) Unusable Fuel 5 U.S. GALS.
 - (3) Usable Fuel 123 U.S. GALS.

2.23 NOISE LEVEL

The corrected noise level of this aircraft is 70.1d B(A) with the two blade propeller and 72.9d B(A) with the three blade propeller.

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.

2.25 HEATER LIMITATIONS

Operation of the combustion heater above 25,000 feet is not approved.

2.27 OPERATING ALTITUDE LIMITATIONS

Flight above 25,000 feet is not approved. Flight up to and including 25,000 feet is approved if equipped with oxygen in accordance with FAR 23.1441 and avionics in accordance with FAR 91 or FAR 135.

2.29 GYRO SUCTION LIMITS

The operating limits for the suction system are 4.8 to 5.1 inches of mercury for all operations as indicated by the gyro suction gauge.

2.31 OPERATION WITH AFT DOORS REMOVED

The maximum speed with the aft doors removed is 129 KIAS and the minimum single engine control speed is 67 KIAS. Door off operation is approved for VFR non-icing conditions only.

2.33 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, NIGHT AND ICING FLIGHT WHEN EQUIPPED IN ACCORDANCE WITH FAR 91 OR FAR 135.

In full view of the pilot:

**MAXIMUM TAKEOFF WEIGHT 4407 POUNDS
MAXIMUM LANDING WEIGHT 4407 POUNDS**

MINIMUM SINGLE ENGINE CONTROL SPEED 66 KIAS

On instrument panel in full view of the pilot:

**V_A 136 AT 4407 LBS.
(SEE A.F.M.)
V_{LO} 130 DN, 108 UP
V_{LE} 130 MAX.
DEMO X-WIND 17 KTS**

Near emergency gear release:

**EMERGENCY GEAR EXTENSION
PULL TO RELEASE. SEE A.F.M.
BEFORE RE-ENGAGEMENT**

**SECTION 2
LIMITATIONS**

**PIPER AIRCRAFT CORPORATION
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Near gear selector switch:

GEAR UP	108 KIAS MAX.
DOWN	130 KIAS MAX.

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

ENGAGE LATCH BEFORE FLIGHT

In full view of pilot:

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

On the inside of forward baggage compartment door:

MAXIMUM BAGGAGE THIS COMPARTMENT 100 LBS. SEE THE LIMITATIONS SECTION OF THE AIRPLANE FLIGHT MANUAL.

On aft baggage closeout:

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

In full view of pilot:

SINGLE ENGINE STALLS NOT RECOMMENDED. CAN CAUSE 400 FT. LOSS OF ALTITUDE AND 15° PITCH ANGLE.

On sun visor:

TAKEOFF CHECK LIST

Fuel Selectors On
Aux. Fuel Pumps Off
Alternators On
Engine Gages Checked
Mixtures Set
Propellers Set
Alt. Air Off
Cowl Flaps Open
Seat Backs Erect
Flaps Set
Trim Set (Stab. & Rudder)
Fasten Belts/ Harness
Controls Free - Full Travel
Doors Latched/ Air Cond. Off

LANDING CHECK LIST

Seat Backs Erect
Fasten Belts, Harness
Fuel Selectors On
Cowl Flaps Set
Mixtures Rich
Aux. Fuel Pumps Off
Propellers Set
Gear Down
Flap Set - (White Arc)
Air Conditioner Off

The "Air Conditioner Off" item in the above takeoff and landing check list is mandatory for air conditioned aircraft only.

On storm window:

DO NOT OPEN ABOVE 129 KIAS

In full view of the pilot for flight with the aft fuselage doors removed:

**FOR FLIGHT WITH AFT DOORS REMOVED,
CONSULT THE LIMITATIONS AND PROCEDURES
SECTIONS OF THE AIRPLANE FLIGHT MANUAL.**

**SECTION 2
LIMITATIONS**

**PIPER AIRCRAFT CORPORATION
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On the inside of both oil filter access doors:

**OIL COOLER WINTERIZATION PLATE TO BE
REMOVED WHEN AMBIENT TEMPERATURE
EXCEEDS 50°F.**

On the executive writing table:

**CAUTION - THIS TABLE MUST BE STOWED
DURING TAKEOFF AND LANDING.**

On the instrument panel in full view of the pilot (2-blade propellers
only):

**AVOID CONTINUOUS GROUND OPERATION 1700 -
2100 RPM IN CROSS/TAIL WIND OVER 10 KT.**

**AVOID CONTINUOUS OPERATIONS 2000 - 2200
RPM ABOVE 32" MANIFOLD PRESSURE.**

Near the magnetic compass:

**CAUTION - COMPASS CALIBRATION MAY BE IN
ERROR WITH ELECTRICAL EQUIPMENT OTHER
THAN AVIONICS ON.**

Adjacent to fuel tank filler caps:

FUEL 100 OR 100LL AVIATION GRADE

Adjacent to fuel tank filler caps (serial numbers 34-8333042 and up):

