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SECTION 2

LIMITATIONS

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SECTION 2
 LIMITATIONS

2.1 GENERAL

This section provides the "FAA Approved" operating limitations, instrument markings, color coding and basic placards necessary for the safe 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 (V_{NE}) - Do not exceed this speed in any operation. | 183 | 186 |
| Maximum Structural Cruising Speed (V_{NO}) - Do not exceed this speed except in smooth air and then only with caution. | 146 | 148 |
| Design Maneuvering Speed (V_A) - Do not make full or abrupt control movements above this speed. | | |
| At 2900 LBS. G.W. | 119 | 121 |
| At 1865 LBS. G.W. | 96 | 96 |

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.

| | | |
|---|-----|-----|
| Maximum Flaps Extended Speed (V_{FE}) - Do not exceed this speed with the flaps extended. | 103 | 104 |
| Maximum Landing Gear Extension Speed - Do not exceed this speed when extending the landing gear. | 129 | 130 |
| Maximum Landing Gear Retraction Speed - Do not exceed this speed when retracting the landing gear. | 107 | 109 |
| Maximum Landing Gear Extended Speed (V_{LE}) - Do not exceed this speed with the landing gear extended. | 129 | 130 |

**SECTION 2
LIMITATIONS**

**PIPER AIRCRAFT CORPORATION
PA-28R-201T, CHEROKEE TURBO ARROW III**

2.5 AIRSPEED INDICATOR MARKINGS

| MARKING | IAS |
|--|--------------------|
| Red Radial Line (Never Exceed) | 183 KTS |
| Yellow Arc (Caution Range - Smooth Air Only) | 146 KTS to 183 KTS |
| Green Arc (Normal Operating Range) | 63 KTS to 146 KTS |
| White Arc (Flap Down) | 56 KTS to 103 KTS |

2.7 POWER PLANT LIMITATIONS

| | |
|---|------------------------------------|
| (a) Number of Engines | 1 |
| (b) Engine Manufacturer | Teledyne Continental |
| (c) Engine Model No. | TSIO-360-F |
| (d) Engine Operating Limits | |
| (1) Maximum Horsepower | 200 |
| (2) Maximum Rotation Speed (RPM) | 2575 |
| (3) Maximum Manifold Pressure (In. Mercury) | 41 |
| (4) Maximum Oil Temperature | 240°F |
| (e) Oil Pressure | |
| Minimum (red line) | 10 PSI |
| Maximum (red line) | 100 PSI |
| (f) Fuel Pressure | |
| Maximum (red line) | 19 PSI |
| (g) Fuel Grade (minimum octane) | 100LL - Blue or 100/130 - Green |
| (h) Number of Propellers | 1 |
| (i) Propeller Manufacturer | Hartzell |
| (j) Propeller Hub and Blade Model | BHC-C2YF-1BF/F8459A-8R |
| (k) Propeller Diameter | |
| Minimum | 76 IN. |
| Maximum | 75 IN. |
| (l) Blade Angle Limits | |
| Low Pitch Stop | 14.2 ± .2° |
| High Pitch Stop | 29 ± 1° |

2.9 POWER PLANT INSTRUMENT MARKINGS

| | |
|--|---|
| (a) Tachometer | |
| Green Arc (Normal Operating Range) | 500 to 2000 RPM and 2200 to 2575 RPM |
| Yellow Arc (Avoid continuous operation above 32" Hg. manifold pressure) | |
| Red Line (Maximum Continuous Power) | 2000 to 2200 RPM 2575 RPM |
| (b) Oil Temperature | |
| Green Arc (Normal Operating Range) | 100° to 240° F |
| Red Line (Maximum) | 240° F |
| (c) Oil Pressure | |
| Green Arc (Normal Operating Range) | 30 PSI to 80 PSI |
| Yellow Arc (Caution Range) (Idle) | 10 PSI to 30 PSI |
| Yellow Arc (Caution Range) (Start and Warm Up) | 80 PSI to 100 PSI |
| Red Line (Minimum) | 10 PSI |
| Red Line (Maximum) | 100 PSI |
| (d) Fuel Pressure | |
| Green Arc (Normal Operating Range) | 3.5 PSI to 19 PSI |
| Red Line (Maximum) | 19 PSI |
| (e) Exhaust Gas Temperature (EGT) | |
| Green Arc (Normal Operating Range) | 1200° F to 1650° F |
| Red Line (Maximum) | 1650° F |
| (f) Manifold Pressure | |
| Green Arc (Normal Operating Range) | 10 IN. to 41 IN. HG. |
| Red Line (Maximum) | 41 IN. HG. |

2.11 WEIGHT LIMITS

| | |
|---------------------|----------|
| (a) Maximum Weight | 2900 LBS |
| (b) Maximum Baggage | 200 LBS |

NOTE

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

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2.13 CENTER OF GRAVITY LIMITS

| Weight Pounds | Forward Limit Inches Aft of Datum | Rearward Limit Inches Aft of Datum |
|--------------------------|--|---|
| 2900 | 86.0 | 90.0 |
| 2240 | 78.0 | 90.0 |

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 OPERATING ALTITUDE LIMITATIONS

Flight above 20,000 feet is not approved. Flight up to and including 20,000 feet is approved if equipped with oxygen in accordance with F.A.R. 23.1441 and avionics in accordance with F.A.R. 91 or F.A.R. 135.

2.25 NOISE LEVEL

The noise level of this aircraft is 68.8 dBA.

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.

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2.27 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.”

THIS AIRCRAFT APPROVED FOR NIGHT IFR 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
Auxiliary Fuel Pump - Off
Engine Gauges - Checked
Alternate Air - Closed
Seat Backs Erect

Mixture - Set
Propeller - Set
Fasten Belts/Harness

Flaps - Set
Trim Tab - Set
Controls - Free
Doors - Latched
Air Conditioner - Off

LANDING CHECK LIST

Fuel on Proper Tank
Seat Backs Erect
Fasten Belts/Harness

Auxiliary Fuel Pump - Off
Mixture - Rich
Propeller - Set

Gear Down (129 KIAS Max)
Flaps - Set (103 KIAS Max)
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:

**MANEUVERING SPEED
119 KIAS AT 2900
LBS. (SEE P.O.H.)**

On the instrument panel in full view of the pilot:

“DEMONSTRATED CROSSWIND COMPONENT 17 KTS”

On the instrument panel in full view of the pilot:

“NO ACROBATIC MANEUVERS, INCLUDING SPINS, APPROVED.”

**SECTION 2
LIMITATIONS**

**PIPER AIRCRAFT CORPORATION
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On instrument panel in full view of the pilot:

| | |
|------------|-----------------|
| "GEAR DOWN | 129 KIAS (MAX)" |
| "GEAR UP | 107 KIAS (MAX)" |
| "EXTENDED | 129 KIAS (MAX)" |

Near emergency gear lever:

"EMERGENCY DOWN"

"OVERRIDE ENGAGED AUTO-EXT-OFF
LOCK PIN ON SIDE
TO ENGAGE OVERRIDE:
PULL LEVER FULL UP, PUSH LOCK PIN
TO RELEASE OVERRIDE:
PULL LEVER FULL UP & RELEASE"

Near gear selector switch:

| | |
|----------|---------------|
| "GEAR UP | 107 KIAS MAX" |
| "DOWN | 129 KIAS MAX" |

Adjacent to upper door latch:

"ENGAGE LATCH BEFORE FLIGHT"

On the instrument panel in full view of the pilot:

"WARNING - TURN OFF STROBE LIGHTS WHEN IN CLOSE
PROXIMITY TO GROUND 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 inside of baggage compartment door:

"BAGGAGE MAXIMUM 200 LBS. SEE WEIGHT AND
BALANCE DATA FOR BAGGAGE LOADING BETWEEN 150
LBS AND 200 LBS."

Adjacent to fuel tank filler caps:

"FUEL — 100/130 AVIATION GRADE — MIN. USABLE
CAPACITY 36 GAL."

"USABLE CAPACITY TO BOTTOM OF FILLER NECK
INDICATOR 25 GAL."

Above fuel quantity gauges:

"FUEL REMAINING WHEN QUANTITY INDICATOR READS
ZERO CANNOT BE USED SAFELY IN FLIGHT."

On the instrument panel in full view of the pilot:

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

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

On the aft baggage closeout:

"MAXIMUM BAGGAGE 200 LBS. NO HEAVY OBJECTS ON
HAT SHELF."

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