

# PIPER AIRCRAFT CORPORATION

LOCK HAVEN, PENNA.

REPORT..... 126

PAGE.....

MODEL..... PA-

AIRPLANE FLIGHT MANUAL  
FOR  
THE PIPER TWIN COMANCHE

MODEL PA-30

"DO NOT EXCEED 2100 R. P. M. ENGINE SPEED WHEN DEMONSTRATING OR  
PRACTICING POWER-ON STALLS"

*Successful OK  
12 Aug 70 OK*

PIPER AIRCRAFT CORPORATION, LOCK HAVEN, PA.

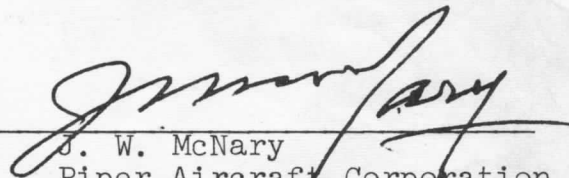
FAA APPROVED  
FLIGHT MANUAL  
FOR  
PIPER TWIN COMANCHE

Applicable to Serial No. 30-1 thru 30-1716 and  
30-1718 thru 30-1744

THIS MANUAL MUST BE KEPT IN THE AIRPLANE AT ALL TIMES.

MANUFACTURER'S MODEL - PA-30  
MANUFACTURER'S SERIAL NO. - 30-603  
REGISTRATION NO. - N7539Y

FAA Approved By:

  
J. W. McNary  
Piper Aircraft Corporation  
D.O.A. No. EA-1  
Lock Haven, Pennsylvania

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Section 1  
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## I. LIMITATIONS

The following limitations must be observed in the operation of this airplane:

Engine	Two Lycoming IO-320-B1A Series
Engine Limits	For all operations 2700 RPM, 160 HP (See Maneuvers)
Fuel	91/96 Minimum Octane Aviation Gasoline
Propeller	Two Hartzell HC-E2YL-2 Constant Speed Full Feathering, Blades 7663-4. Pitch Settings at 30 in. Station: High 78°, Low 12°. Diameter: Not Over 72 Inches Not Under 70 Inches (No further reduction permitted)
Cowl Flaps	Cowl flaps are provided to allow manual control of engine temperatures. The cowl flaps should be open during ground operations and in climbs. In no case should the cylinder-head temperatures be allowed to exceed 500°F and the oil temperatures allowed to exceed 245°F.
Power Instruments	<u>Oil Temperature:</u> Green Arc (Normal Operating Range) 120° to 245° F; Yellow Arc (Caution), 60° to 120° F; Red Line (Max.) 245° F. <u>Oil Pressure:</u> Green Arc (Normal Operating Range) 60 to 90 PSI; Yellow Arc (Caution) 25 to 60 PSI and 90 to 100 PSI; Red Line (Min.) 25 PSI; Red Line (Max.) 100 PSI. <u>Tachometer:</u> Green Arc (Normal Operating Range) 500 to 2700 RPM; Red Line (Max.) 2700 RPM. <u>Fuel Flow:</u> Green Arc (Normal Operating Range) 0 to 16 GPH; Red Line (Maximum at Sea Level) 16 GPH (7 PSI). <u>Cylinder Head Temperature:</u> Green Arc (Normal Range) 200° to 500° F, Red Line (Maximum) 500°F.

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I. LIMITATIONS - (Continued)

Airspeed Limits (Calibrated Airspeed)	Never Exceed (Smooth Air)	230 MPH (Red Line)
	Caution Range (Smooth Air)	194 to 230 MPH (Yellow Arc)
	Normal Operating Range	76 to 194 MPH (Green Arc)
	Flap Extended	69 to 125 MPH (White Arc)
	Max.-Structural Cruising	194 MPH
	Max. Gear Extended	150 MPH <i>- ? Extending</i>
	Maneuvering Speed (Min.) 2450 lb. (Max.) 3600 lb.	135 MPH 162 MPH
	Minimum Control Speed (Single Engine)	90 MPH (Red Radial Line)
	One Engine Inopera- tive Best Rate-Of-Climb Speed	105 MPH (Blue Radial Line)
	Stalling Speed Gear & Flaps Up Gear & Flaps Dn	76 MPH 69 MPH
Flight Load Factors	Maximum Positive Maximum Negative	3.8g No inverted maneuvers approved.

Maximum Weight

IT IS THE RESPONSIBILITY OF THE AIRPLANE OWNER AND THE PILOT TO ASSURE THAT THE AIRPLANE IS PROPERLY LOADED. MAXIMUM ALLOWABLE GROSS WEIGHT 3600 POUNDS. SEE WEIGHT AND BALANCE SECTION FOR PROPER LOADING INSTRUCTIONS.

C.G. Range

Datum is 79" ahead of the wing leading edge at spanwise Station 97.0 (First leading edge skin lap outboard of engine nacelle).

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I. LIMITATIONS - (Continued)

C.G. Range (Cont'd.)	FORWARD LIMIT		AFT LIMIT	
	WEIGHT	IN. AFT OF DATUM	IN.	AFT OF DATUM
	3600	86.5		92
	3200	83.0		92
	2450	81.0		92

Straight line variation between the points given.

Maneuvers All intentional acrobatic maneuvers (including spins) are prohibited. Avoid abrupt maneuvers. When performing power on stalls do not exceed 2100 RPM.

Wing Flap Settings Take-Off 0° or 15°, Landing 27°

The flaps are electrically operated and the deflection is displayed on a flap position indicator. Take-off range indicated by White Arc on flap indicator.

Unusable Fuel The unusable fuel in this aircraft has been determined as 3 gallons in each inboard tank in critical flight attitudes.

Usable Fuel Inboard tanks - 27 gal. each  
Auxiliary tanks (outboard) for use in level flight only - 15 gal. each. *5 3/4*

Placards (a) On pedestal in full view of the pilot:

"THIS AIRPLANE MUST BE OPERATED AS A NORMAL CATEGORY AIRPLANE IN COMPLIANCE WITH THE AIRPLANE FLIGHT MANUAL. ACROBATIC MANEUVERS (INCLUDING SPINS) PROHIBITED."

(b) On the baggage compartment door:

"MAXIMUM BAGGAGE 200 POUNDS". (SERIAL NO. 30-1 THRU 30-852 AND 30-854 THRU 30-901)

"EMERGENCY EXIT

HOLD KNOB UP

TURN LATCH CLOCKWISE"

(SERIAL NO. 30-853 AND 30-902 AND UP)

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I. LIMITATIONS - (Continued)

Placards (Cont'd.)

- (c) On landing gear operating motor access door:  
"EMERGENCY GEAR EXTENSION. REMOVE COVER.  
EXTENSION INSTRUCTIONS ON REVERSE SIDE."
- (d) On instrument panel:  
"MAXIMUM GEAR DOWN SPEED 150 MPH." *Extended and In Transit*
- (e) On instrument panel:  
"STALL WARNING"  
The stall warning system is inoperative when the master switch is off.
- (f) At the fuel strainer compartment:  
"FUEL STRAINERS DRAIN ONLY TANK INDICATED BY FUEL SELECTOR. ALLOW SUFFICIENT DRAIN TIME."
- (g) On the instrument panel in full view of the pilot:  
"MANEUVERING SPEED 162 MPH."
- (h) On circuit breaker access door:  
"CIRCUIT BREAKER ACCESS DOOR."
- (i) On right rear window moulding in baggage area:  
"MAXIMUM BAGGAGE AND/OR PASSENGER WEIGHT 250 LBS. IN BAGGAGE AREA INCLUDING SEATS SEE WEIGHT AND BALANCE" (SERIAL NO. 30-853 and 30-902 AND UP)..
- (j) On the instrument panel:  
MIN. SINGLE ENGINE CONTROL SPEED  
90 MPH CAS
- (k) On the instrument panel:  
"WARNING - UNCOORDINATED MANEUVERS, INCLUDING LONG SIDE SLIPS AND FAST TAXI TURNS JUST PRIOR TO TAKEOFF, MAY CAUSE LOSS OF POWER, ESPECIALLY IF FUEL TANKS IN USE ARE LESS THAN ONE QUARTER FULL."

Instrument  
Markings

Wing Flap Setting  
Take-Off (White Arc 0° to 15°)  
Landing (Down 27°)

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## I. LIMITATIONS - (Continued)

Landing Gear  
Down Light

The green gear down light on the instrument panel indicates the landing gear is down and locked. When the instrument panel light is turned on the intensity of the gear down light is reduced, and may be invisible during daylight.

## II. PROCEDURES

### A. Fuel System

#### 1. Normal Operation

##### a. Take-off and landing

- (1) Fuel valve "ON" main tanks.
- (2) Electric fuel pumps "ON".

##### b. Cruising

- (1) Fuel valves "ON" (main or Auxiliary)
- (2) Electric fuel pumps "OFF"

#### 2. Emergency Operation - Single Engine

A crossfeed is provided to increase the range during single engine emergency operating conditions. Fuel system operation is as follows:

##### a. Cruising

- (1) When using fuel from tanks on the same side as the operating engine the following will apply:
  - (a) Fuel Valve "ON" (main or auxiliary) on Operating engine side.
  - (b) Fuel Valve "OFF" on Inoperative engine side.
  - (c) Electric fuel pumps "OFF" (except in case of engine driven pump failure, electric fuel pump on operating engine side must be used).

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## II. PROCEDURES - (Continued)

### a. Cruising (Cont'd.)

(2) When using fuel from tanks on the opposite side of the operating engine the following will apply:

- (a) Fuel Valve "ON" (main or auxiliary) on In-operative engine side.
- (b) Electric fuel pumps "OFF" (except in case of engine driven pump failure, electric fuel pump on operating engine side must be used).
- (c) "CROSSFEED ON" on Operative engine side.

Warning: Do not attempt to put both Fuel Selector Valves on Crossfeed.

### b. Landing

- (1) Fuel Valve "ON" main tank on operating engine side.
- (2) Fuel Valve "OFF" on inoperative engine side.
- (3) Electric fuel pump "ON" on operating engine side.

## B. Feathering Procedure

- 1. "Open Throttle" on Operating Engine to maintain altitude and airspeed above 97 MPH.
- 2. "Close Throttle" on Inoperative Engine.
- 3. Pull mixture control on inoperative engine to "Idle Cut-Off".
- 4. Pull prop control on Inoperative engine to the "Feather" position.
- 5. Ignition switches "OFF" on inoperative engine.
- 6. Electric fuel pumps "OFF".
- 7. Main fuel valve on inoperative engine "OFF".  
See Fuel System Emergency Operation Sec. II.A.2. for fuel scheduling.

## C. Unfeathering Procedure

- 1. Turn fuel valve "ON" on inoperative engine side.
- 2. Turn electric fuel pump "OFF".

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## II. PROCEDURES - (Continued)

### C. Unfeathering Procedure - (Cont'd.)

3. "OPEN" throttle 1/4 inch.
4. Advance propeller to "HIGH RPM".
5. Advance mixture to "FULL RICH".
6. Turn ignition switches "ON".
7. Engage starter and hold until engine is started.
8. Reduce propeller control to cruise RPM.
9. Advance throttle to desired power.

### D. Landing Gear Extension - Emergency

1. Reduce power-airspeed not to exceed 100 MPH.
2. Place landing gear selector switch in center "OFF" position on aircraft equipped with center "OFF" position.  
OR  
Place landing gear selector switch in "GEAR DOWN LOCKED" position on aircraft equipped with no center "OFF" position.
3. Disengage motor-raise motor release arm and push forward through full travel.
4. Remove gear extension handle from stowage. If left socket is not in clear position, place handle in right socket. Engage slot and twist clockwise to lock handle. Extend handle and rotate forward until left socket is in clear position. Remove handle and place in left socket, lock and extend handle. Rotate handle Full travel to extend landing gear. Green light on panel indicates landing gear down and locked.

NOTES: 1. Do not retract with handle in slot.  
2. Do not re-engage motor in flight.  
3. Reducing power and rocking the gear extension handle will aid in manually extending the landing gear.

### E. Circuit Breakers

All circuit breakers are grouped in one panel in floor immediately aft the nose wheel well under door marked "CIRCUIT BREAKER ACCESS DOOR".

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11. PROCEDURES - (Continued)

E. Circuit Breakers - (Cont'd.)

To reset the circuit breakers push in on the reset button.

F. Stopping Engines

When operating under high ambient temperature conditions engine shutdown by mixture alone may not be positive.

Shutting down the engine under these conditions should be as follows:

1. Pull the mixture control to idle cut-off.
2. Depress button on left side of quadrant.
3. Pull back the throttles and hold until engines stop.

G. Warning

1. Maneuvers: This airplane is certified as a normal category airplane and must be operated in compliance with the Airplane Flight Manual. Acrobatic Maneuvers (including spins) are prohibited. Stalls and slow flight should be performed only in accordance with the Airplane Flight Manual.

Avoid abrupt maneuvers. Maneuvers at speeds and weights in excess of the maneuvering speeds and loadings listed under Limitations Section of this Flight Manual may subject the airplane to load factors beyond which it is certificated.

Maintain at least 5000 ft. of terrain clearance when practicing stalls.

2. Spins:

All spins are prohibited; however in the event an unintentional spin is encountered recovery can be accomplished by immediately using the following procedures:

- a. Retard both throttles to the idle position.
- b. Apply full rudder in the opposite direction to the spin.

II. PROCEDURES - (Continued)

3. Spins: (Cont'd.)

- c. Push control wheel full forward. While it is not necessary for recovery, the use of ailerons against the turn (i.e. right aileron if spin is to the left) will expedite recovery.
- d. Maintain controls in these positions until the spin stops. Then neutralize rudder and ailerons.
- e. Recover from dive with smooth back pressure on the control wheel. No abrupt control movement should be used during recovery from the dive, as the maneuvering load factor may be exceeded.

III. PERFORMANCE

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**WARNING**

Do not perform asymmetric power stalls or single engine stalls. Do not perform symmetrical power-on stalls unless maneuver is initiated at least 5000 feet above terrain and with not more than pilot and copilot aboard except during flight checks.

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