

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-
REGISTRATION NO. -

FAA Approved By: 

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

Date of Original Approval: February 5, 1963

Approval Basis: CAR 3 and Reg. of Admin. 410

Date of Approved Reissue : November 15, 1969

Approval Basis : CAR 3 and FAR Part 21, Subpart J

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
	Maneuvering Speed (Min.) 2450 lb.	135 MPH
	(Max.) 3600 lb.	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)
Flight Load Factors	Stalling Speed Gear & Flaps Up	76 MPH
	Gear & Flaps Dn	69 MPH
Maximum Weight	Maximum Positive	3.8g
	Maximum Negative	No inverted maneuvers approved.
<u>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.</u>		
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.

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."
- (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
SIDE SLIPS OF 30 SECONDS OR MORE, FOR ANY
REASON, AND FAST TAXI TURNS JUST PRIOR TO
TAKE-OFF CAN CAUSE LOSS OF POWER IF FUEL
TANKS IN USE ARE LESS THAN 1/4 FULL."

Instrument
Markings

Wing Flap setting
Take-Off (White Arc 0° to 15°)
(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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II. 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

The loss of altitude during a power off stall with gear and flaps retracted is 280 ft.

See Paragraph II.G.1. for recommended terrain clearance when practicing stalls.

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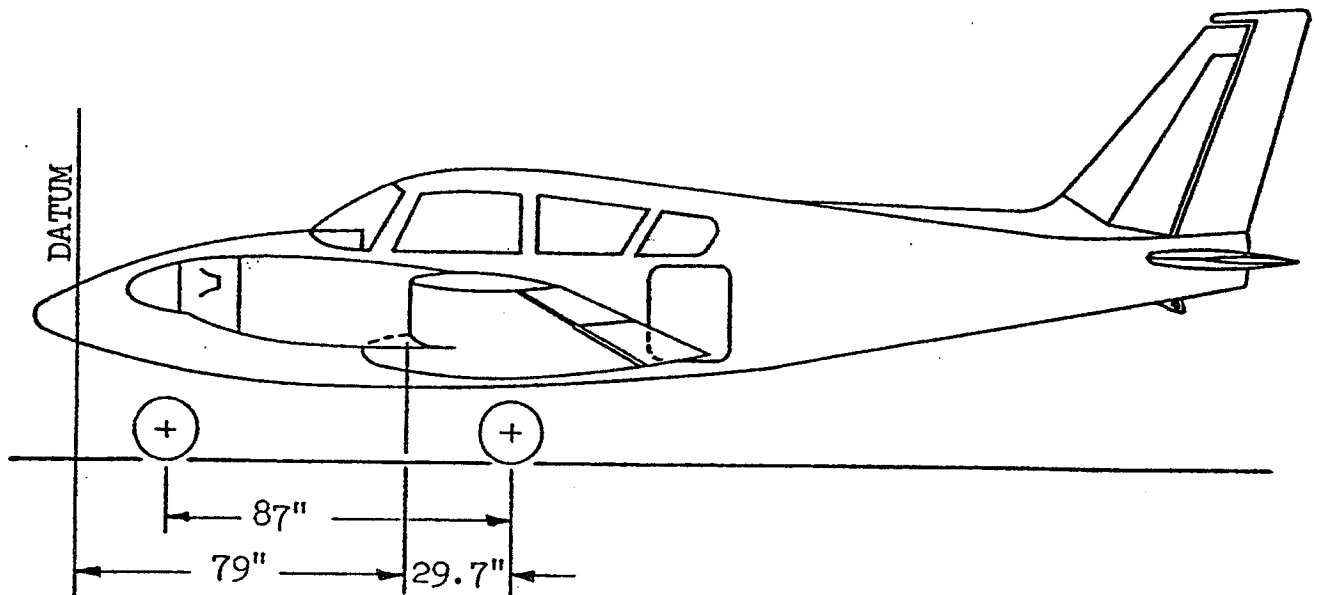
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ACTUAL WEIGHT AND BALANCE
MODEL PA-30

SERIAL NO. 30-

IDENTIFICATION NO. N

DATE:



Empty Weight as Weighed (Includes Items checked on Equipment List)

Left Wheel

Right Wheel

Nose Wheel (N)

TOTAL (T)

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EMPTY WEIGHT C.G. AS WEIGHED

Empty Weight C.G. Forward Main Wheel Centerline:

A. $\frac{(N)}{(T)} \times 87 =$ Inches

Empty Weight C.G. Aft of Wing Leading Edge at Wing Station 97.0:

B. 29.7 - (A) = Inches

Empty Weight C.G. Aft Datum:

C. 79.0 + (B) = Inches

EMPTY WEIGHT AND C.G. WITH UNUSABLE FUEL

Item	Weight	Arm	Moment
Empty Weight As Weighed			
Unusable Fuel (6.0 Gal. Inboard Tanks)	<u>36</u>	<u>90</u>	<u>3240</u>

TOTAL

BASIC WEIGHT AND C.G. (With unusable fuel and oil - for use with Visual Plotter, and Weight vs. C.G. Chart.)

The following calculation is performed here for simplicity to aid the pilot in his calculations. This weight and C.G. will be referred to as "Basic Weight and C.G."

Item	Weight	Arm	Moment
Empty Weight As Weighed			
Oil (4.0 Gal.)	30	51.0	1530
Unusable Fuel (6.0 Gal. Inboard Tanks)	<u>36</u>	<u>90.0</u>	<u>3240</u>

Total

BASIC WEIGHT AND C.G. IS LBS AT INCHES
AFT DATUM.

570 008

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NOTES:

(1) The Empty and Basic Weights include 6 gallon of unusable fuel (at 6.0 lbs. per gal. = 36 lbs. total). This fuel should not be considered part of the disposable load which the pilot wishes to add to the airplane. However, any fuel beyond this amount which remains in the tanks from previous flights must be considered part of the disposable load.

(2) Each engine has an oil capacity of 2 gal. (at 7.5 lbs. per gal. = 30 lbs. total).

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PA-30 TWIN COMANCHE WEIGHT AND BALANCE - VISUAL PLOTTER

The chart showing the approved Weight vs. Center of Gravity envelope and the Visual Plotter contained in the following pages will enable the pilot to graphically determine whether or not his proposed loading will fall within the allowable envelope. They will also allow him to easily determine the necessary adjustments to make if his first proposed loading is not within this envelope.

When plotting successive points, the pilot is graphically adding weights and corresponding moments. As the weight increases, through the addition of various items of disposable load, the pilot will see the shift in the center of gravity.

Going clockwise around the envelope, the heavy lines represent allowable weight at the forward C.G. limit (81 in.), the maximum allowable weight as the C.G. shifts rearward, the gross weight (3600 lbs.), and the maximum rearward C.G. limit (92 in.).

The sample problem which follows, will demonstrate the use of the Visual Plotter included with this manual. The pilot is not restricted to adding the items in the same succession as outlined, since the sample problem illustrates only one of many possible loadings. When plotting successive items of disposable load, the items most important to the mission under consideration range or payload) may be added first.

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SAMPLE PROBLEM

Assume (for demonstration purposes only) a Basic Weight and C.G. of 2330 pounds at 83.6 inches. Assume the disposable load to consist of pilot and 3 passengers (170, 170, 180, 160 pounds) 86 pounds baggage and maximum allowable fuel.

- (1) On the Weight vs. C.G. Envelope opposite 2330 pounds locate the C.G. at 83.6 inches (Point 1). This point represents the Basic empty airplane with oil and 6 gallons of unusable fuel included.
- (2) Lay the transparent Visual Plotter over the envelope (always keep BASE LINES parallel to horizontal or Weight ordinates) and plot along the proper scale the combined weight of the front seat occupants (340 pounds - Point 2).
- (3) From Point 2, following the proper scale of the Visual Plotter, plot the combined weights of the rear seat occupants (340 pounds) and mark Point 3.
- (4) From Point 3 plot the proper distance (Use correct scale of Visual Plotter for each) which represent addition of baggage and finally fuel. (Points 4, 5 and 6.)

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- (5) When the final step of adding fuel is plotted, the point falls within the envelope at 3600 pounds, and 89.8 inches aft of datum. (The fuel graduations on the plotter run from 0 to 54 gallons, 0 to 30 gals. The inboard tanks will always contain 6 gallons of unusable fuel, and these two figures total to the listed tank capacity of 90 gallons).
- (6) Fuel of 30 gallons is included for the optional tip tanks on the visual plotter.

NOTE: The dotted portion of the plotter (3600 lbs. to 3725 lbs.) should be used only when tip tanks are installed. Any weight in excess of 3600 lbs. must consist of symmetrically loaded fuel in the tip tanks.

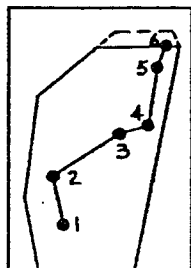


ILLUSTRATION
SAMPLE PROBLEM

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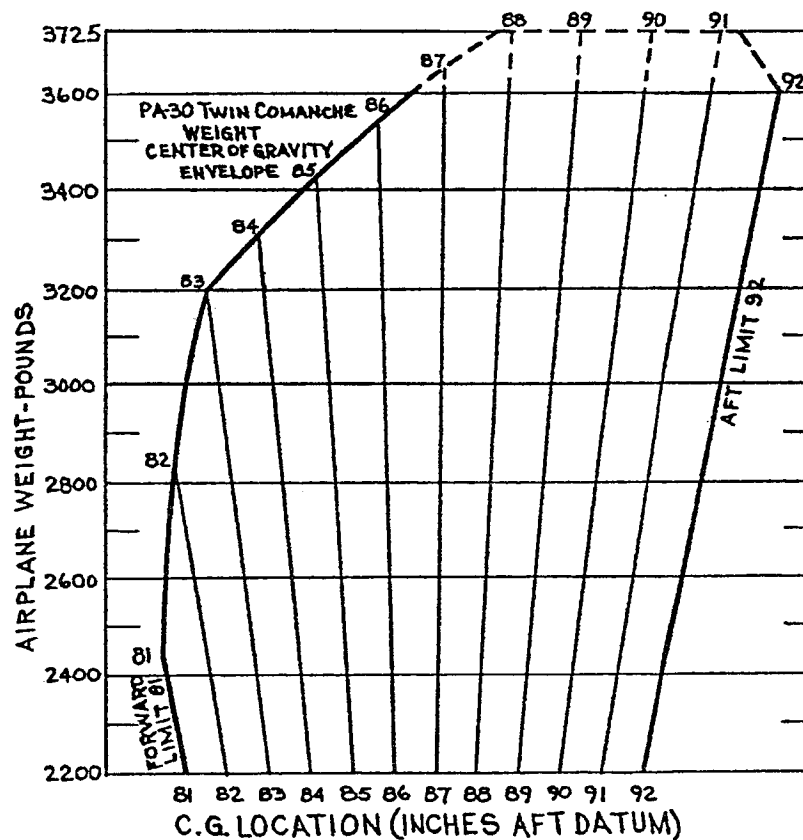
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IT IS THE RESPONSIBILITY OF THE OWNER AND PILOT TO ASCERTAIN THAT THE AIRPLANE ALWAYS REMAINS WITHIN THE ALLOWABLE WEIGHT VS. CENTER OF GRAVITY ENVELOPE WHILE IN FLIGHT.



Moment due to retracting Landing Gear = +770 in.-lbs.

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WEIGHT AND BALANCE SUMMARY OF DISPOSABLE LOAD

ITEM	WEIGHT	ARM	MOMENT
Oil (4 Gal.)	30	51.0	1530
Fuel - Inboard Tanks (54 Gal.)	324	90.0	29160
Fuel - Outboard Tanks (30 Gal.)	180	95.0	17100
Fuel - Tip Tanks (30 Gal.)	180	90.5	16290
Pilot Seat #1	170	84.8	14416
Co-Pilot Seat 82	170	84.8	14416
Passenger Seat #3 (30-590 & Up)	170	120.5	20485
Passenger Seat #3 (30-1 thru 30-589)	170	118.5	20145
Passenger Seat #4 (30-590 & Up)	170	120.5	20485
Passenger Seat #4 (30-1 thru 30-589)	170	118.5	20145
Passenger Seat #5 (30-853 & 30-902 & Up)	235	148.0	34780
Passenger Seat #6 (30-853 & 30-902 & Up)			
Baggage * (30-853 & 30-902 & Up)	250	142.0	35500
Baggage (30-1 thru 30-852 & 30-854 thru 30-901)	200	142.0	28400

6 gal. of unusable fuel of inboard tanks plus oil are part of the airplane basic weight.

* Baggage replaces seats 5 & 6.

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	July 9, 1963	Sept. 30, 1963	Feb. 24, 1964	June 25, 1965
	Aug. 13, 1963	Oct 16, 1964	Oct. 2, 1964	Aug. 27, 1965
			Oct. 16, 1964	

ACTUAL WEIGHT AND BALANCE
MODEL PA-30, TWIN COMANCHE
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Item	Weight Lbs.	Arm Aft Datum	Cert. Basis
Two Engines - Lycoming Model IO-320-B1A	293.0 ea.	45.8	TC 1E12
Two Oil Coolers - Piper Dwg. 18622 Harrison Model No. AP07AU06-03 Installed in accordance with Piper Dwg. 24086	2.1 ea.	62.3	TC A1EA
Two Fuel Pumps - Engine Driven			
a. AC Type JT Model 5656696-A	2.0 ea.	58	TC 1E12
b. AC Type JT Model 6440160	2.0 ea.	58	TC 1E12
c. AC Type JT Model GP5656999	2.0 ea.	58	TC 1E12
d. AC Type JT Model 6440296	2.0 ea.	58	TC 1E12
e. AC Type JT Model 6440652	2.0 ea.	58	TC 1E12
Two Fuel Pumps - Elect. - Rotary			
a. One Weldon Model No. 8100A Right and One Weldon Model No. 8100AA Left	3.0 ea.	90.0	TC A1EA
b. One Weldon Model No. A8100C Right and One Weldon Model No. A8100CC Left	3.0 ea.	90.0	TC A1EA
c. One Weldon Model No. B8100C Right and One Weldon Model No. B8100CC Left	3.0 ea.	90.0	TC A1EA
Two Starters - 12 V			
a. Delco-Remy Model 1109511	18.0 ea.	37.0	TC 1E12
b. Prestolite Model MZ-4206	18.0 ea.	37.0	TC A1EA
Two Vacuum Pumps			
a. Airborne Mechanisms Model 113A8	3.5 ea.	59.3	TC A1EA
b. Airborne Mechanisms Model 200CC	3.5 ea.	58.9	TC A1EA
Two Hydraulic Governors			
a. Hartzell Model F-6 Per PAC Dwg. 16564-6	4.6 ea.	61.8	TC P9EA
b. Hartzell Model F-6-3 Per PAC Dwg. 16564-6	4.6 ea.	61.8	TC P9EA
c. Hartzell Model F-6-3S or F-6-3A per PAC Dwg. 16564-7	4.6 ea.	61.8	TC P9EA

* Denotes Optional Equipment

Revised:	May 1, 1963	Sept. 16, 1963	Oct. 22, 1964	Aug. 27, 1965
	May 21, 1963	Feb. 24, 1964	Mar. 12, 1965	Sept. 9, 1965
	July 9, 1963	Apr. 22, 1964	May 28, 1965	Aug. 8, 1966
	Dec. 18, 1963	Oct. 2, 1964	June 25, 1965	Mar. 7, 1967
				Sept. 1, 1967
				Feb. 21, 1968

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<u>Item</u>	<u>Item</u>	<u>Weight</u> <u>Lbs.</u>	<u>Arm</u> <u>Aft</u> <u>Datum</u>	<u>Cert.</u> <u>Basis</u>
<u>Engine and Engine Accessories - Fuel and Oil Systems (Continued)</u>				
—	Two Induction Air Filters - Fram Model CA144PL	0.7 ea.	57.0	TC A1EA
* —	Brittain Industries Tip Tanks, Model TT-5 Installed in accordance with Piper Drawing 25348 or Brittain Industries Installation Instructions #12070. Brittain Industries Flight Manual Supplement #11472, dated July 2, 1964 Revision A dated November 17, 1967 and Delegation Option Authorization, EA-1 Approved Supplement No. 10 to Airplane Flight Manual Piper Report 1269 required.	25	91.2	STC SA727W
* —	Two engines - Lycoming Model IO-320-C1A With Rajay Turbocharger Model 325H10, Per STC SA787WE, Dated September 16, 1964, Revised June 7, 1965. Installed per Piper Drawing 25600 or Rajay Dwg. RJ0601. Rajay Flight Manual Supplement Dated September 16, 1964, Revised June 7, 1965 Required..	Use Actual Wt. Change		STC SA787W
* —	Two Oil Filters with Adapters Full Flow AC Model 5578941 Lycoming 75528	2.5 lbs. ea.	60.6	TC 1E12
* —	Two Oil Filters with Adapters Full Flow AC Model 5578770 Lycoming 74911	2.5 lbs. ea.	60.6	TC 1E12
* —	Two Oil Filters with Adapters Full Flow AC Model 5578770 Lycoming Part Nos. 77853 Housing and 77852 Base	2.5 lbs. ea.	60.6	TC 1E12

*Denotes Optional Equipment

Revised:	May 9, 1963	June 25, 1965
	July 9, 1963	Aug. 27, 1965
	Aug. 13, 1963	Mar. 7, 1966
	Feb. 12, 1964	Sept. 1, 1967
	July 6, 1964	Nov. 22, 1967
	Mar. 12, 1965	Feb. 21, 1968
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<u>Item</u>	<u>Item</u>	<u>Weight</u> <u>Lbs.</u>	<u>Arm</u> <u>Aft</u> <u>Datum</u>	<u>Cert.</u> <u>Basis</u>
<u>Landing Gear</u>				
Two Main Wheel - Brake Assemblies:				
—	(With #40-34 Wheel Assemblies #30-23 Brake Assemblies), 6.00-6, Type III, Cleveland Products No. 20-29, PA-30 Serial No. 30-1 thru 30-845.	10.6 ea.	108.5	FAA TSO C26
—	(With #40-90 Wheel Assemblies #30-23 Brake Assemblies), 6.00-6 Type III, Cleveland Products No. 20-74, PA-30 Serial No. 30-846 and Up.	10.6 ea.	108.5	FAA TSO C26
—	Two Main 6-Ply Rating Tires 6.00-6 Type III, with Regular Tubes.	9.4 ea.	108.5	TC A1EA
—	One Nose Wheel a. 6.00-6, Type III Cleveland Aircraft Products Number 38501.	6.4	21.0	FAA TSO C26
—	b. 6.00-6 Type III Cleveland Aircraft Products Number 20-76B.	3.8	21.0	FAA TSO C26a
—	One Nose Wheel - 6-Ply Rating Tire 6.00-6 Type III, with Regular Tube.	9.4	21.0	TC A1EA
—	Kit - Landing Gear Emergency Extension Security, PAC #760 627. Delegation Option Authorization, EA-1 Approved Supplement No. 13 to Airplane Flight Manual, Piper Report #1269, required.			TC A1EA

Revised:	May 1, 1963	Oct. 2, 1964	June 25, 1965
	May 9, 1963	Jan. 4, 1965	Aug. 27, 1965
	May 21, 1963	Feb. 1, 1965	May 22, 1972
	Feb. 24, 1964	Mar. 12, 1965	July 14, 1972
	Mar. 30, 1964	Apr. 30, 1965	
	July 6, 1964	May 28, 1965	

ACTUAL WEIGHT AND BALANCE
MODEL PA-30, TWIN COMANCHE
EQUIPMENT LIST

REPORT : 1269
PAGE : 12, Sec. 2
MODEL : PA-30

✓ Item	Item	Weight Lbs.	Arm Aft Datum	Cert. Basis
<u>Electrical Equipment</u>				
—	One Generator - 12V. 50 Amp. Delco-Remy Model 1101915	18.0	37.0	TC 1E12
—	One Battery - 12V. 35 ampere hour (Serial No. 30-1 thru 30-852 and 30-854 thru 30-901)	27.0	162.0	TC A1EA
—	One Battery - 12V. 35 ampere hour (Serial No. 30-853 and Serial No. 30-902 and up)	27.0	16.75	TC A1EA
—	a. Wisco			
—	b. Reading R-35			
—	c. Bowers B-34			
—	Two Landing Lights:			
—	a. G. E. Model 4509	1.0 ea.	86.0	TC A1EA
—	b. Westinghouse Model 4509	1.0 ea.	86.0	TC A1EA
—	Rotating Beacon Model WRML-12	1.4	275.0	TC A1EA
* —	Dual Generators 12V. 50 Amp. Delco-Remy 1101915 with Regulator, Brackets and Relay	38.7	38.15	TC 1E12
* —	Auxiliary Power Receptacle Installation Per PAC Dwg. 24628 (Includes Power Cable). (Serial No. 30-1 thru 30-852 and 30-854 thru 30-901).	7.0	153.3	TC A1EA
* —	Auxiliary Power Receptacle Installation Per PAC Dwg. 25585 (Includes Power Cable in Baggage Area). (Serial No. 30-853 and Serial No. 30-902 and Up.)	6.5	113.34	TC A1EA

*Denotes Optional Equipment

Revised: October 2, 1964
 January 4, 1965
 March 12, 1965
 April 30, 1965
 May 28, 1965
 June 25, 1965
 Aug. 27, 1965

ACTUAL WEIGHT AND BALANCE
MODEL PA-30, TWIN COMANCHE
EQUIPMENT LIST

REPORT : 1269
PAGE : 13, Sec. 2
MODEL : PA-30

<u>Item</u>	<u>Item</u>	<u>Weight</u> <u>Lbs.</u>	Arm <u>Aft</u> <u>Datum</u>	<u>Cert.</u> <u>Basis</u>
<u>Interior Equipment</u>				
_____	DMCR Approved Airplane Flight Manual Piper Report No. 1269, Dated February 5, 1963, Revised October 22, 1964. (Serial No. 30-1 thru 30-852 and 30-854 thru 30-901.)			TC A1EA
_____	DMCR Approved Airplane Flight Manual Piper Report No. 1269, Dated February 5, 1963, Revised August 31, 1966 required. (Serial No. 30-853 and Serial No. 30-902 and up.)			TC A1EA
_____	DMCR and Delegation Option Authoriza- tion Approved Airplane Flight Manual Piper Report 1269, Dated February 5, 1963, Revised November 22, 1967. (serial No. 30-1 and up.)			TC A1EA
* _____	Glar Ban Lights Per PAC Dwg. 24230 Heater:	Neglect	Wt. Chg.	TC A1EA
_____	a. Modified Stewart Warner 940-DC12 Per PAC Dwg. 23770	24.5	15.0	FAA TSO C20
_____	b. Janitrol Model 20D35 Per PAC Dwg. 24728	29.0	15.0	FAA TSO C20
* _____	Altimatic II Auto-Pilot Inst. Mitchell AK089, in accordance with Piper Dwg. 24240, DMCR Approved Supplement No. 1 to Airplane Flight Manual, Piper Report No. 1269, Required. Eligible on Airplane Serial Numbers 30-1 and up.	13.1	56.5	TC A1EA
* _____	DMCR Approved Supplement No. 1 Dated May 10, 1963, to Airplane Flight Manual, Piper Report No. 1269. Required when Altimatic II Auto-Pilot Installation is Installed.			TC A1EA
* _____	AutoControl II Auto-Pilot Installa- tion Mitchell AK065-E, in accordance with Piper Dwg. 24250, DMCR approved Supplement No. 2 dated August 13, 1963, or DMCR approved Supplement No. 2 dated August 13, 1963, Revised July 6, 1964 to Airplane Flight Manual, Piper Report No. 1269, required. Eligible on Airplane Serial Number 30-1 and up.	4.6	55.3	TC A1EA

*Denotes Optional Equipment

Revised: May 28, 1965 Dec. 1, 1965 Oct. 13, 1966
570 008 June 25, 1965 Jan. 6, 1966 Nov. 22, 1967

ACTUAL WEIGHT AND BALANCE
MODEL PA-30, TWIN COMANCHE
EQUIPMENT LIST

REPORT: 1269
PAGE: 14, Sec. 2
MODEL: PA-30

<u>Item</u>	<u>Item</u>	<u>Weight Lbs.</u>	<u>Arm Aft Datum</u>	<u>Cert. Basis</u>
<u>Interior Equipment (Cont'd.)</u>				
* _____	DMCR Approved Supplement No. 2 Dated August 13, 1963, Revised July 6, 1964, to Airplane Flight Manual, Piper Report No. 1269, Required when AutoControl II Auto-Pilot Installation is installed.			TC A1EA
* _____	Altimatec II Auto-Pilot Inst. Mitchell AK089 with Automatic Electric Trim in accordance with Piper Drawing 25001. DMCR Approved Supplement No. 3 to Airplane Flight Manual, Piper Report No. 1269, required. Eligible on Airplane Serial Number 30-1 and up.	17.1	81.4	TC A1EA
* _____	DMCR Approved Supplement No. 3 Dated July 6, 1964, to Airplane Flight Manual, Piper Report No. 1269. Required when Altimatec II Auto-Pilot Installation with Automatic Electric Trim is installed.			TC A1EA
* _____	DMCR Approved Supplement No. 4 Dated January 4, 1965, or DMCR Approved Supplement No. 4 Dated January 4, 1965, Revised October 13, 1966, to Airplane Flight Manual, Piper Report No. 1269. Required when Heated Glass Panel Installation is installed.			TC A1EA
* _____	DMCR Approved Supplement No. 5 Dated February 1, 1965 to Airplane Flight Manual Piper Report No. 1269 Required when Mixture Monitor is installed			TC A1EA

*Denotes Optional Equipment

Revised: June 25, 1965
Aug. 27, 1965
Oct. 13, 1966

ACTUAL WEIGHT AND BALANCE
MODEL PA-30, TWIN COMANCHE
EQUIPMENT LIST

REPORT: 1269
PAGE: 15, Sec. 2
MODEL: PA-30

<u>Item</u>	<u>Weight</u> <u>Lbs.</u>	<u>Arm</u> <u>Aft</u> <u>Datum</u>	<u>Cert.</u> <u>Basis</u>
<u>Interior Equipment (Cont'd.)</u>			
* _____ FAA Approved Flight Manual Supplement, Brittain Industries, Inc., No. 11472, Dated July 2, 1964, Revision A Dated November 17, 1967 and Delegation Option Authorization EA-1 Approved Supplement No. 10 Dated November 22, 1967, to Airplane Flight Manual, Piper Report #1269, required when Brittain Industries Model TT-5 Tip Tanks are installed.			STC SA727WE
* _____ DMCR Approved Supplement No. 6 Dated April 30, 1965 To Airplane Flight Manual, Piper Report No. 1269. Required when Oxygen System Installation is installed.			TC A1EA
* _____ FAA Approved Airplane Flight Manual Supplement, Rajay Corporation, Dated September 16, 1964, Revised June 7, 1965, Required when RaJay Corporation Model 325H10 Turbochargers are installed.			STC SA787WE
* _____ AutoControl III, Auto-Pilot Inst. Mitchell AK161, In Accordance with Piper Dwg. 25676, Delegation Option Authorization, EA-1 Approved Supplement No. 7 to Airplane Flight Manual, Piper Report No. 1269, required. Eligible on Airplane Serial Number 30-853 and 30-902 and up.	4.0	113	TC A1EA
* _____ Delegation Option Authorization EA-1 Approved Supplement No. 7 Dated February 9, 1966, to Airplane Flight Manual, Piper Report No. 1269. Required when AutoControl III Auto-Pilot Installation is installed.			TC A1EA

*Denotes Optional Equipment

Revised:	June 25, 1965	June 17, 1966
	Aug. 27, 1965	Nov. 22, 1967
	Feb. 9, 1966	Feb. 29, 1968

ACTUAL WEIGHT AND BALANCE
MODEL PA-30, TWIN COMANCHE
EQUIPMENT LIST

REPORT: 1269
PAGE: 16, Sec.
MODEL: PA-30

<u>Item</u>	<u>Item</u>	<u>Weight Lbs.</u>	<u>Arm Aft Datum</u>	<u>Cert. Basis</u>
<u>Interior Equipment (Cont'd.)</u>				
* _____	Altimatec III Auto-Pilot Installation In accordance with Piper Dwg. 25708, Delegation Option Authorization EA-1. Approved Supplement No. 8 to Airplane Flight Manual, Piper Report No. 1269, required. Eligible on Airplane Serial Number 30-853 and 30-902 and up.	18.9	119. 5	TC A1EA
* _____	Delegation Option Authorization EA-1 Approved Supplement No. 8 dated June 17, 1966, or Delegation Option Authorization EA-1 Approved Supplement No. 8 dated June 17, 1966, Revised August 8, 1966, to Airplane Flight Manual, Piper Report No. 1269. Required when Altimatec III Auto-Pilot Installation is installed. Revision dated 12/9/66 required when radio coupler is installed.			TC A1EA
* _____	Delegation Option Authorization EA-1 Approved Supplement Number 9 dated June 29, 1967, to Airplane Flight Manual, Piper Report No. 1269, or Delta Products, Inc. Operation recommendations required when Mixture Control Indicator is installed.			TC A1EA
* _____	Delegation Option Authorization EA-1 Approved Supplement Number 13, dated July 14, 1972, to Airplane Flight Manual, Piper Report No. 1269. Required when Landing Gear Emergency Extension Security Kit is installed.	---	--	TC A1EA

*Denotes Optional Equipment

Revised: June 17, 1966
Oct. 13, 1966
Dec. 9, 1966
June 29, 1967
July 14, 1972

ACTUAL WEIGHT AND BALANCE
MODEL PA-30, TWIN COMANCHE
EQUIPMENT LIST

REPORT 1269
PAGE: 17, Sec. 2
MODEL: PA-30

Item	Item	Weight Lbs.	Arm Aft Datum	Cert. Basis
<u>Miscellaneous Equipment (Not Listed Above)</u>				
* _____	Heated Pitot Head - PAC 21301	1	99.0	TC A1EA
_____	Stall Warning Indicator PAC Dwg. 23445 and 23700	Neglect	Wt. Ch.	TC A1EA
* _____	Fire Extinguisher and Bracket Type A-20 Spec. MIL-E-5220A Per PAC Dwg. 21731	8	84.8	TC A1EA
* _____	Fire Extinguisher and Bracket Type 2 1/2 DCK (Purch. Walter Kidde) Per PAC Dwg. 21731	5	84.8	TC A1EA
* _____	Piper Electric Trim Per PAC Dwg. 24889	4	163.0	TC A1EA
* _____	Piper Radio Coupler Per PAC Dwg. 25001	.5	66.0	TC A1EA
* _____	Heated Glass Panel Installation Per Piper Drawing 25221. DMCR Approved Supplement No. 4 dated January 4, 1965 or DMCR Approved Supplement No. 4 dated January 4, 1965, Revised October 13, 1966, to Airplane Flight Manual, Piper Report No. 1269 Required. Eligible on Airplane Serial No. 30-1 and up.	2.5	60.0	TC A1EA
* _____	Alternate Static System Installation PAC Dwg. 25237	Neglect	Wt. Ch.	TC A1EA
* _____	Mixture Monitor Per PAC Dwg. 25280 DMCR Approved Supplement No. 5 to Airplane Flight Manual, Piper Report No. 1269, Required. Eligible on Airplane Serial No. 30-1 and Up.	2	68.0	TC A1EA
* _____	Dual Brake Installation Per PAC Dwg. 24438 (Co-Pilot only) eligible. PA-30 Serial No. 30-5 and up.	5.0	58.0	TC A1EA
* _____	Oxygen System Installation Per PAC Dwg. 25342, DMCR Approved Supplement No. 6 to Airplane Flight Manual, Piper Report No. 1269 required. Eligible on Airplane Serial No. 30-1 thru 30-852 and 30-854 thru 30-901.	41.5	161.2	TC A1EA

*Denotes Optional Equipment

Revised: May 28, 1965
June 25, 1965
Aug. 27, 1965
June 17, 1966
Oct. 12, 1966

ACTUAL WEIGHT AND BALANCE - MODEL PA-30
TWIN COMANCHE, EQUIPMENT LIST (CONT'D)

REPORT: 1269
PAGE: 18, Sec. 2
MODEL: PA-30

✓ Item	Item	Weight Lbs.	Arm Ø	Aft Datum ◆	Cert. Basis
<u>Radios</u>					
* ____	Narco Mark 12 Installation (Less Antennas)	12.1	104.4	103.8	TC A1EA
* ____	Narco Mark 12 Installation (Less Antennas)	12.1	104.4	103.8	TC A1EA
* ____	Bendix ADF-T12B with Antenna and Cables	10.8	80.1	80.1	TC A1EA
* ____	Narco UGR-1A Glide Slope with Antenna and Cables	9.25	146.0	144.5	TC A1EA
* ____	Narco UDI-2 DME with Antenna and Cables	19.25	106.0	105.3	TC A1EA
* ____	Narco VOA-4 Omni Head and Converter	3.25	64.0	64.0	TC A1EA
* ____	Narco VOA-5 Omni and G.S. Head and Converter	3.25	64.0	64.0	TC A1EA
* ____	Narco MBT-12 with Antenna and Cables	2.25	99.9	99.9	TC A1EA
* ____	Omni Antenna Narco Type VRP-37	1.0	268.0	268.0	TC A1EA
* ____	Transmitting Antenna #1 Narco No. VTP-17	1.0	139.5	139.5	TC A1EA
* ____	Transmitting Antenna #2 Narco No. VTP-17	1.0	187.5	187.5	TC A1EA
* ____	Piper PM-1 Marker Beacon with Antenna, Cables and Control Panel	2.5	18.7	18.7	TC A1EA
* ____	Narco UGR-1A Glide Slope with C.C.C. GS-401 Antenna and Cables	9.25	146.0	144.5	TC A1EA
* ____	Narco UDI-3 DME/Ground Speed Indicator with Antenna and Cables	9.0	60.0	60.0	TC A1EA
* ____	Anti-Static Equipment Installation Per PAC Dwg. 25043	2.0	154.0	154.0	TC A1EA
* ____	Narco UDI-2A DME with Antenna and Cables	19.25	106.0	105.3	TC A1EA
* ____	Bendix ADF-T12C with Antenna and Cables	10.8	80.1	80.1	TC A1EA
* ____	Narco ADF-31 with Antenna and Cables	14.2	93.8		TC A1EA
* ____	Narco UDI-4 DME/Ground Speed Indicator with Antenna and Cables	9.0	60.0	60.0	TC A1EA
* ____	Narco Mark 12A Installation (Less Antennas)	12.1	104.4	103.8	TC A1EA
* ____	Narco Mark 12A Installation (Less Antennas)	12.1	104.4	103.8	TC A1EA

ØSerial Nos. 30-853 and 30-902 and up

◆Serial Nos. 30-1 through 30-852 and 30-854 through 30-901.

* Denotes Optional Equipment.

Revised: October 2, 1964
January 4, 1965
March 12, 1965
April 30, 1965

May 28, 1965
June 25, 1965
Aug. 27, 1965
Sept. 9, 1965

Nov. 8, 1965
June 17, 1966

ACTUAL WEIGHT AND BALANCE
MODEL PA-30, TWIN COMANCHE
EQUIPMENT LIST

REPORT: 1269
PAGE: 18, Sec. 2
MODEL: PA-30

<u>Item</u>	<u>Item</u>	<u>Weight Lbs.</u>	<u>Arm Aft Datum</u>	<u>Cert. Basis</u>
<u>Miscellaneous Equipment (Not Listed Above) (Cont'd.)</u>				
* —	Oxygen System Installation Per PAC Dwg. 25542 or 25724, DMCR Approved Supplement No. 6 to Airplane Flight Manual, Piper Report No. 1269 required. Eligible on Airplane Serial No. 30-853 and 30-902 and up.	41.5	161.2	TC A1EA
* —	Seat Installation - Fifth and Sixth Per PAC Dwg. 25302. Eligible on Airplane Serial No. 30-853 and 30-902 and up.	7.5(ea.seat)	148.0	TC A1EA
* —	Dual Tachometer Installation Per PAC 25703. Eligible on Airplane Serial Number 30-853 and 30-902 and up.	2.2	64.6	TC A1EA
* —	Dual Altimeter Installation Per PAC Dwg. #25737. Eligible on Airplane Serial Number 30-1 and up.	3.0	64.2	TC A1EA
* —	Piper Radio Coupler Per PAC Dwg. 25678	.5	66.0	TC A1EA
* —	Delta Mixture Control Indicator Model 2000 Installation Per PAC Dwg. 26317 or Delta Products Installation Instructions. Delegation Option Authorization EA-1, Approved Supplement No. 9 to Airplane Flight Manual, Piper Report No. 1269 required. Eligible on Airplane Serial Number 30-1 and up.	2.5	61.6	STC SA1315WE
* —	Fire Extinguisher & Bracket Type #42211-00 (Purch. Scott Aviation) 2 1/2 lb. 10 bc rating per PAC Dwg. 21731	4.3	84.8	TC A1EA

*Denotes Optional Equipment

Revised: June 25, 1965
Aug. 27, 1965
March 17, 1966
June 17, 1966
570 008 Dec. 9, 1966
June 29, 1967

Revised: June 22, 1973

REPORT: 1269
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ACTUAL WEIGHT AND BALANCE
 MODEL PA-30, TWIN COMANCHE
 EQUIPMENT LIST (CONT'D)

✓ Item	Item	Weight Lbs.	Arm Ø	Aft ◆	Datum	Cert. Basis
	<u>Radios</u>					
* ____	Narco UGR-2 Glide Slope with Antenna and Cables	5.2	125.2	-		TC A1EA
* ____	Narco UGR-2 Glide Slope with C.C.C. GS-401 Antenna and Cables	5.2	125.2	-		TC A1EA
* ____	Narco UAT-1 Transponder Installation, Per PAC Dwg. 25789 (Includes transponder control unit, antennas, antenna cables, and shock mounted base.)	13.5	148.1			TC A1EA
* ____	Narco ADF-31A with BFO to include Antenna and Cables	14.2	93.8			TC A1EA

Revised: June 17, 1966

February 8, 1967

August 22, 1967

ØSerial Nos. 30-853 and 30-902 and up

◆Serial Nos. 30-1 through 30-852 and 30-854 through 30-90T.

*Denotes Optional Equipment.

570-008

LOG OF PA-30 FLIGHT MANUAL SUPPLEMENTS

NOTE

A flight manual supplement is required to be in the manual only if the equipment which is the subject of the supplement is installed.

<u>No.</u>	<u>Subject</u>	<u>Date</u>
1	Altimatic II	May 10, 1963
2	Autocontrol II	July 6, 1964
3	Altimatic II with Altimatic Trim	July 6, 1964
4	Icing Equipment	Oct. 13, 1966
5	Mixture Monitor	Feb. 1, 1965
6	Oxygen System	Apr. 30, 1965
7	Autocontrol III	Feb. 9, 1966
8	Altimatic III	Dec. 9, 1966
9	Mixture Control Indicator	June 29, 1967
10	Brittain Tip Tanks	Nov. 22, 1967
11	Counter Rotating Power Plant	Jan. 16, 1970
12	Air Flow Modification Kit	June 10, 1970

PIPER AIRCRAFT CORPORATION

LOCK HAVEN, PENNA.

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Supplement 1

PAGE1.....

MODEL ..PA-30....

SUPPLEMENT NO. 1 TO PIPER MODEL PA-30 FLIGHT MANUAL

THIS DOCUMENT MUST BE ATTACHED
TO THE BASIC AIRPLANE FLIGHT
MANUAL AND KEPT IN THE AIRPLANE
WHEN THE ITEM OF EQUIPMENT
DESIGNATED BELOW IS INSTALLED.

Approval Basis CAR 3 and 410
Dated May 10, 1963
Piper Model PA-30
Equipped with Piper Altimatic II
Normal Category Only

Rev.:
7/9/63

FAA IDENTIFICATION NO. _____

INSTALLATION OF PIPER ALTIMATIC PILOT II (MODEL AK089)

Placards:

(1) Below the directional gyro:

PULL TO SELECT HEADING

(2) To the right of the control console:

PIPER ALTIMATIC PILOT INSTRUCTIONS

LIMITATIONS:

1. Pilot off during take-off and landing.
2. Pilot off during single engine operation.

NORMAL OPERATION:

REFER TO FLIGHT MANUAL.

EMERGENCY:

1. Disengage Altimatic controls
2. Altimatic pilot may be overpowered manually.

(3) & Adjacent to the pitch control knob:

(4)

UP

PULL

ALT.

DN

HOLD

PIPER AIRCRAFT CORPORATION

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MODEL ..PA-30...

Operating Instructions:

Prior to operating the Altimatic Pilot, check the vacuum and ascertain that the directional gyro and artificial horizon are functioning properly. For daytime operation, the dim switch must be pushed in for trim indication on the trim or servo effort lights. This switch also controls the dial lights of the altitude scale.

SECTION I - AUTOMATIC HEADING SELECTOR

1. Adjust directional trim.
2. Set the directional gyro with the magnetic compass.
Uncage by pulling fully out and engaging with the heading selector card.
NOTE: Spinning or excessive precession will result if D.G. is not fully uncaged.
3. Select the desired heading at the top of the heading selector card index line.
4. Subsequent course changes may be made by turning the heading select knob.
5. After reaching a safe altitude, turn the "ROLL" engage knob clockwise to engage the roll portion of the Autopilot. At this time, a pitch servo effort light may come on. This has no effect on the aircraft until the pitch servo is engaged. See Section II or III.

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MODEL ..PA-30....

SECTION I - AUTOMATIC HEADING SELECTOR (CONTINUED)

6. The TURN TRIM knob located on the control console should be used to bring the exact heading, shown on the D. G. card, into agreement with the Course Selector.
7. Steeper banks (additional 4 deg.) may be obtained by adding any portion of the TURN TRIM knob, but it must be re-positioned at termination of the turn.

SECTION II - MANUAL PITCH CONTROL

1. Trim the aircraft for hands-off flight after a safe altitude is attained. (If in a climb, trim to 125-135 MPH).
2. Push in the PITCH CONTROL knob. If a servo effort light comes on, rotate the PITCH CONTROL knob in the proper direction, until the light goes out.
3. When the servo effort lights are both out, engage the PITCH Engage knob.
4. Subsequent changes in pitch attitude may be made by rotating the PITCH CONTROL knob in the appropriate direction.

NOTE:

- (1) Always keep the aircraft in trim by adjusting mechanical trim "Nose Up" when the "Up" effort light is on and "Nose Down" when the "Down" effort light is on.
- (2) The aircraft should be in proper trim before disengaging the Autopilot.
- (3) NEVER disengage pitch servo without having a firm grip on the control wheel.

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APPROVED.....

PIPER AIRCRAFT CORPORATION

LOCK HAVEN, PENNA.

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PAGE4.....

MODEL ..PA-30...

SECTION III - AUTOMATIC ALTITUDE SELECT

1. Trim the aircraft for "hands-off" flight.

If in a climb, trim at approximately 125 to 135 MPH.

2. Select the desired altitude on the console dial.
3. Center the PITCH CONTROL knob and pull out.
4. If an effort light appears, rotate the PITCH CONTROL knob in the proper direction until the light goes out.
5. When the servo effort lights are both out, engage the PITCH Engage knob, rocking the wheel gently fore and aft, if necessary.
6. The PITCH CONTROL knob may be used to allow the AutoPilot to:

(a) Compensate for loading. With C.G. forward, climb and descent speeds will be normal with knob centered. With C.G. rearward, about 10° downward rotation of the knob will allow normal climb and descent airspeeds.

(b) Change climb and descent speeds. Airspeed can be effected by as much as ± 10 MPH if aircraft is in trim with knob centered.

7. Climbs and descents may be made by selecting a new altitude on the console scale. The Altitude Selector knob should be turned very slowly at first to avoid an abrupt change of attitude. When it is evident that further movement of the knob will produce no further attitude change, the knob may then be rotated more quickly.

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PIPER AIRCRAFT CORPORATION

LOCK HAVEN, PENNA.

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MODEL ..PA-30...

Rev.:
7/9/63

SECTION III - AUTOMATIC ALTITUDE SELECT (CONTINUED)

8. One complete revolution of the Altitude Selector knob will result in an altitude change of about 500 feet.

NOTE:

- (1) NEVER disengage pitch servo without having a firm grip on the control wheel.
- (2) ALWAYS keep the aircraft trimmed (effort lights out).

SECTION IV - EMERGENCY PROCEDURES

1. In event of malfunction, turn both pitch and roll servo knobs completely counterclockwise, disengaging both axes of altimatic from the control system.
2. Altimatic may be overpowered by exertion of 16 ± 3 pounds of force on either control wheel for roll servo, and 20 ± 3 pounds fore or aft on either control wheel for pitch servo.
3. In case of pitch control interference, a replaceable break-away link is installed under the floorboard which will break at $40 \begin{smallmatrix} +5 \\ -3 \end{smallmatrix}$ lbs. push or pull. This break-away feature will completely isolate the pitch servo from the aircraft control system.
4. In cruise configuration, altimatic malfunction with a 3 second recovery delay results in a 27 bank and 165 ft. altitude loss.

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PIPER AIRCRAFT CORPORATION

LOCK HAVEN, PENNA.

REPORT...1269....

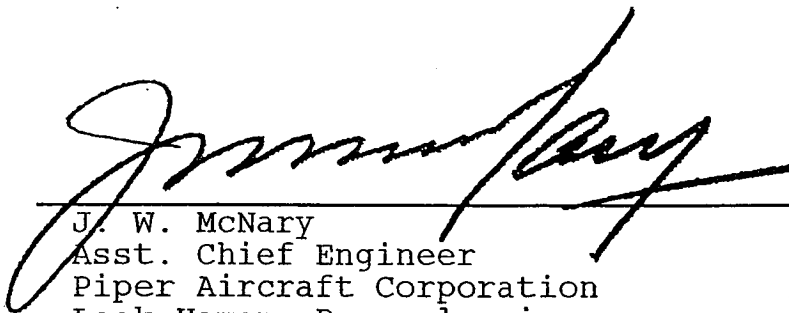
Supplement 1

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MODEL ..PA-30....

SECTION IV — EMERGENCY PROCEDURES (CONTINUED)

5. In approach configuration, Altimatic malfunction with a 1 second recovery delay results in an 8° bank and 70 ft. altitude loss.



J. W. McNary
Asst. Chief Engineer
Piper Aircraft Corporation
Lock Haven, Pennsylvania
DMCR 1-1
Approval Basis CAR 3 and 410
May 10, 1963

PREPARED.....

CHECKED.....

APPROVED.....

PIPER AIRCRAFT CORPORATION

LOCK HAVEN, PENNA.

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Supplement 2
PAGE1.....

MODEL ..PA-30...

SUPPLEMENT NO. 2 TO PIPER MODEL PA-30 FLIGHT MANUAL

THIS DOCUMENT MUST BE ATTACHED
TO THE BASIC AIRPLANE FLIGHT
MANUAL AND KEPT IN THE AIRPLANE
WHEN THE ITEM OF EQUIPMENT
DESIGNATED BELOW IS INSTALLED

Approval Basis CAR 3 and 410
August 13, 1963
Revised July 6, 1964
Piper Model PA-30
Equipped with Piper
AutoControl II
Normal Category Only

FAA IDENTIFICATION NO. _____

INSTALLATION OF PIPER AUTOCONTROL II (MODEL AK065-E)

Placards:

WITH ZERO HEADING DIRECTIONAL GYRO INSTALLED

On instrument panel in full view of pilot:

1. For instrument identification on face of D.G.:

"Modified for Piper AutoControl"

2. On the control console:

Piper Autocontrol II

INSTRUCTIONS

TO ENGAGE: Push Heading Lock button to "OUT" position.

Center TURN-TRIM knob. Engage roll.

TO TURN: Move TURN-TRIM knob in desired direction.

FOR HEADING LOCK: Set D.G. at 0°. Uncage. Push

"Heading Lock" Button to "IN" position.

Use TURN-TRIM knob to obtain exact 0° heading".

DISENGAGE: During take-off and landing

WITH COURSE SELECTOR DIRECTIONAL GYRO INSTALLED

- *1. For instrument identification on face of D.G.:

"Piper Course Selector"

*Not applicable when Piper 3" face gyros are installed.

PIPER AIRCRAFT CORPORATION

LOCK HAVEN, PENNA.

REPORT...1269...
Supplement 2
PAGE2.....

MODEL ..PA-30....

WITH COURSE SELECTOR DIRECTIONAL GYRO INSTALLED (CONTINUED)

2. On the control console:

Piper AutoControl II

INSTRUCTIONS

TO ENGAGE: Push Heading Lock button to "OUT" position.

Center TURN-TRIM knob. Engage roll.

TO TURN: Move TURN-TRIM knob in desired direction.

FOR HEADING LOCK: Set D.G. with magnetic compass.

Pull knob out, select desired heading.

Push Heading Lock button to "IN" position.

Use TURN-TRIM knob to obtain exact heading.

DISENGAGE: During take-off and landing.

*3. "Pull to select heading" at D.G. caging knob.

Normal Operation

1. Be sure airplane is properly trimmed. (Ball Centered).
2. Check vacuum and ascertain that the directional gyro and artificial horizon are functioning properly.
3. Push Heading Lock button to "OUT" position.
4. Center TURN-TRIM knob and engage roll.
5. (Ground Check Only.) Rotate the TURN-TRIM knob full right and full left. Determine that the control wheel describes a corresponding right and left turn, then center knob.

*Not applicable when Piper 3 inch face gyros are installed.

PIPER AIRCRAFT CORPORATION

LOCK HAVEN, PENNA.

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MODEL ..PA-30...

Normal Operation (Continued)

6. If aircraft is equipped with Zero Heading D.G., mechanically cage the directional gyro and move card to zero heading and uncage.

If aircraft has Course Selector:

Set the directional gyro with the magnetic compass.

*Uncage by pulling fully out and engaging with the heading selector card.

Select the desired heading at the top of the index line.

7. Push Heading Lock button to "IN" position. The AutoControl is now "locked-in" for directional control. The TURN-TRIM knob is now used for vernier trimming and is necessary to obtain exact heading for various conditions of power, load, etc.
8. Turns may be accomplished by either of the following methods:
 - a. Push Heading Lock button to "OUT" position.

Rotate the TURN-TRIM knob in desired direction.
 - b. (For zero Heading D.G. only) Push Heading Lock button to "IN" position. Mechanically cage the directional gyro. Move card number of degrees of turn desired.

Uncage.
 - c. (For Course Selector D.G. Only) Push Heading Lock button to "IN" position. Select new heading at top of index line, on D.G. Selector Card.

*Not applicable when Piper 3 inch face gyros are installed

PIPER AIRCRAFT CORPORATION

LOCK HAVEN, PENNA.

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PAGE4.....

MODEL ..PA-30....

Normal Operation (Continued)

9. For Course Control:

- a. With Zero Heading D.G.: Push Heading Lock Button to "IN" position. Cage and offset (from 0°) the D.G. the number of degrees of turn desired and immediately uncage the D.G..
- b. With Course Selector D.G.: Push Heading Lock button to "IN" position. Rotate Course Selector to desired heading.

10. Maximum angle of bank will depend on type of D.G. installed but should not exceed 30° using both D.G. knob and TURN-TRIM.

11. Disengage AutoControl by pulling the ROLL ENGAGE knob out (off).

WITH PIPER RADIO COUPLER INSTALLED

The Auto-Pilot is coupled to the VOR NAV receiver in the modes indicated on the function switch.

In the Heading (HDG) mode, the Auto-Pilot is controlled by the directional gyro.

Emergency Procedures

1. In the event of a malfunction in the AutoControl, pull the ROLL ENGAGE knob out. This completely disengages the AutoControl from the control system.
2. AutoControl may be overpowered manually by exertion of 16 ($\pm$ 3) pounds force on the control wheel.
3. In cruise configuration AutoControl malfunction with a 3 second recovery delay resulted in a 15 degree bank and no altitude loss.

PIPER AIRCRAFT CORPORATION

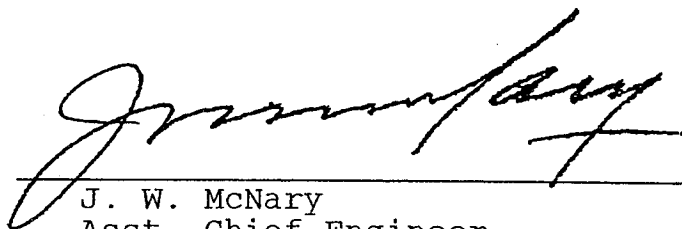
LOCK HAVEN, PENNA.

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MODEL ..PA-30...

Emergency Procedures: (Continued)

4. In approach configuration AutoControl malfunction with a 1 second recovery delay resulted in a 5-8 degree bank and no altitude loss.



J. W. McNary
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Lock Haven, Pennsylvania
DMCR 1-1
Approval Basis CAR 3 and 410
August 13, 1963
Revised July 6, 1964

PIPER AIRCRAFT CORPORATION

LOCK HAVEN, PENNA.

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Supplement No. 3
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MODEL PA-30.....

SUPPLEMENT NO. 3 TO PIPER MODEL PA-30 FLIGHT MANUAL

THIS DOCUMENT MUST BE ATTACHED
TO THE BASIC AIRPLANE FLIGHT
MANUAL AND KEPT IN THE AIRPLANE
WHEN THE ITEM OF EQUIPMENT
DESIGNATED BELOW IS INSTALLED.

Approval Basis CAR 3 and 410
Approved July 6, 1964
Piper Model PA-30
Equipped with Piper Altimatic
II With Automatic Trim
Normal Category Only

FAA IDENTIFICATION NO. _____

INSTALLATION OF PIPER ALTIMATIC MODEL AK089 WITH AUTOMATIC TRIM

Placards:

- *(1) Below the directional gyro :

PULL TO SELECT HEADING

- (2) To the right of the control console:

PIPER ALTIMATIC PILOT
INSTRUCTIONS

LIMITATIONS:

1. Pilot off during take-off and landing.
2. Pilot off during single engine operation.

NORMAL OPERATION:

1. Refer to Flight Manual

EMERGENCY:

1. Disengage Altimatic Controls
2. Altimatic may be overpowered manually.

- (3) To the right of the Pitch Control Knob:

PULL
ALT
HOLD

- (4) To the left of the Pitch Control Knob:

UP
DN

*Not applicable when Piper 3 inch face gyros are
installed.

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PAGE2.....

MODEL ..PA-30....

Placards: (Cont'd.)

(5) On left Control Wheel:

NOSE
TRIM

DOWN



UP

Operating Instructions:

Prior to operating the Altimatic Pilot, check the vacuum and ascertain that the directional gyro and artificial horizon are functioning properly. For daytime operation the dim switch must be pushed in for trim indication on the trim or servo effort lights. This switch also controls the dial lights of the altitude scale.

Pitch trim is automatically accomplished when the pitch engage knob in the console is rotated clockwise. This will keep the efforts lights out.

With the Altimatic Pilot Turned Off: The airplane can be trimmed (1) manually with the crank or (2) by actuating the toggle switch on the pilot's control wheel. Push toggle switch forward for nose down trim and rearward for nose up trim.

PIPER AIRCRAFT CORPORATION

LOCK HAVEN, PENNA.

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MODEL ..PA-30....

SECTION I - AUTOMATIC HEADING SELECTOR

- (1) Directionally trim the aircraft.
- (2) Set the directional gyro with the magnetic compass.
*Uncage by pulling fully out and engaging with the heading selector card. Spinning or excessive precession will result if D.G. is not fully uncaged.
- (3) Select the desired heading at the top of the heading selector card index mark.
- (4) Subsequent course changes may be made by turning the heading select knob.
- (5) After reaching a safe altitude, turn "ROLL" engage knob clockwise to engage the roll portion of the autopilot. At this time, a pitch servo effort light may come on. This has no effect on the aircraft until the pitch Servo is engaged. See Section II or III.
- (6) The "TURN TRIM" knob located to the right of artificial horizon (below the D.G. when Piper 3 inch face gyros are installed) should be used to bring the exact heading, shown on the D.G. card, into agreement with the course selector.
- (7) Steeper banks (additional 4 deg.) may be obtained by adding any portion of the "TURN TRIM" Knob, but it must be repositioned at the termination of the turn.

*Not applicable when Piper 3 inch face gyros are installed.

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LOCK HAVEN, PENNA.

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Supplement 3
PAGE4.....

MODEL ..PA-30...

SECTION II - MANUAL PITCH CONTROL

- (1) Push in "PITCH CONTROL" Knob and rotate until aircraft reaches desired attitude.
- (2) Turn the "PITCH" engage Knob clockwise to engage pitch portion of the autopilot.
- (3) Subsequent changes in pitch attitude may be made by rotating the "PITCH CONTROL" knob in the appropriate direction.

NOTE:

- (1) Never disengage the pitch servo without having a firm grip on the control wheel.

SECTION III - ALTIMATIC ALTITUDE SELECT

- (1) Select the desired altitude on the console dial.
- (2) Center the "PITCH CONTROL" knob and pull out.
- (3) Engage the "PITCH" engage knob, rocking the wheel gently fore and aft, if necessary.
- (4) On reaching desired altitude, adjust altimatic dial scale to match altimeter using CAL knob.
- (5) Recalibration will be necessary only when altimeter is reset.
- (6) The "PITCH CONTROL" knob may be used to allow the autopilot to:
 - (a) Compensate for loading. With C.G. forward, climb and descent speeds will be normal with knob centered.

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PIPER AIRCRAFT CORPORATION

LOCK HAVEN, PENNA.

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MODEL ..PA-30...

With C.G. rearward, about 10° downward rotation of the knob will allow normal climb and descent air-speeds.

- (b) Change speed of the airplane by as much as ± 10 MPH, by positioning the "PITCH CONTROL" knob full up or down.
- (7) Climbs and descents may be made by selecting a new altitude on the console scale. The Altitude Selector knob should be turned very slowly at first to avoid an abrupt change of attitude. When it is evident that further movement of the knob will produce no further attitude change, the knob may then be rotated more quickly.
- (8) One complete revolution of the Altitude selector knob will result in an altitude change of about 500 feet

NOTE:

- (1) Never disengage pitch servo without having a firm grip on the control wheel.

WITH PIPER RADIO COUPLER INSTALLED

The Auto-Pilot is coupled to the VOR NAV receiver in the modes indicated on the function switch.

In the Heading (HDG) mode, the Auto-Pilot is controlled by the directional gyro.

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PIPER AIRCRAFT CORPORATION

LOCK HAVEN, PENNA.

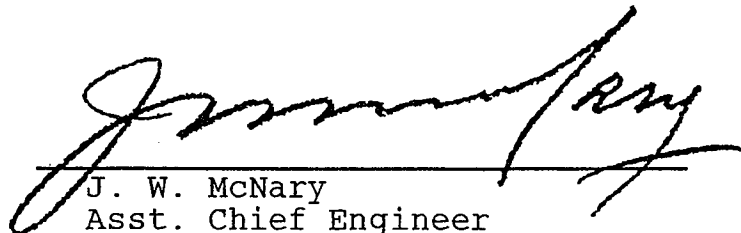
REPORT...1269...
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MODEL ..PA-30....

SECTION IV - EMERGENCY PROCEDURES

1. In the event of malfunction, turn both pitch and roll servo knobs completely counterclockwise, disengaging both axes of altimatic from the control system
2. Altimatic may be overpowered by exertion of 16 ± 3 pounds of force on either control wheel for roll servo, and 20 ± 3 pounds fore or aft on either control wheel for pitch servo.
3. In case of pitch control interference, a replaceable break-away link is installed on the stabilator control cable which will break at $40 \begin{smallmatrix} +5 \\ -3 \end{smallmatrix}$ lbs. push or pull. This break-away feature will completely isolate the pitch servo from the aircraft control system.
4. In cruise configuration, altimatic malfunction with a 3 second recovery delay results in a 27° bank and 165 foot altitude loss.
5. In approach configuration, altimatic malfunction with a 1 second recovery delay results in an 8° bank and 70 foot altitude loss.



J. W. McNary
Asst. Chief Engineer
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Lock Haven, Pennsylvania
DMCR 1-1
Approval Basis CAR 3 and 410
July 6, 1964

PREPARED.....

CHECKED.....

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PIPER AIRCRAFT CORPORATION

LOCK HAVEN, PENNA.

REPORT...1269....
Supplement 4

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MODEL ..PA-30....

Supplement No. 4 to Piper Model PA-30 Flight Manual

THIS DOCUMENT MUST BE ATTACHED
TO THE BASIC AIRPLANE FLIGHT
MANUAL AND KEPT IN THE AIRPLANE
WHEN THE EQUIPMENT DESIGNATED
BELOW IS INSTALLED.

Approval Basis CAR 3 and 410
January 4, 1965
Revised October 13, 1966
Piper Model PA-30
Icing Equipment Installation
Normal Category Only

FAA IDENTIFICATION NO. _____

ICING EQUIPMENT INSTALLATION

The following items of equipment must be installed and operable to effectively cope with normally encountered icing conditions:

- I. Wiggins Airways Wing and Tail Reservoir Type Pneumatic Deicing Boots installed per Wiggins Airways S.T.C. No. SA233EA dated October 27, 1964 or S.T.C. No. SA233EA dated September 20, 1966 or FAA approved equivalent.
- II. Wiggins Airways Alcohol Propeller Anti-icing Kit installed per Wiggins Airways S.T.C. No. SA184EA dated February 4, 1964, or FAA approved equivalent.
- III. Piper Antennas installed per P.A.C. Dwg. 25043. No special operating instructions required.
- IV. Heated Pitot Head installed per PAC Dwg. 21301. No special operating instructions required.
- V. Piper Heated Glass Panel on Windshield installed per P.A.C. Dwg. 25221.

Placards:

1. At switch located to right of park brake control:

ON
WSHLD
HEAT
OFF

2. On circuit breaker panel under circuit breaker access door:

WSHLD
HEAT

PIPER AIRCRAFT CORPORATION
LOCK HAVEN, PENNA.

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V. (Continued)

3. When heated glass panel only is installed, on instrument panel: "Warning - This aircraft is not fully equipped for flight in icing conditions."

NOTE: WHEN ALL ITEMS OF EQUIPMENT LISTED ABOVE ARE
INSTALLED. PLACARD NO. 3 IS NOT REQUIRED.

Operating Instructions

Prior to flight in conditions where the possibility of encountering icing exists, the HEATED PANEL assembly should be attached to the aircraft and the lead wire plug firmly inserted in socket provided.

An operational check should then be accomplished by turning the HEATED PANEL switch ON for a period not exceeding 30 SEC.

Proper operation is indicated by the glass section being warm to the touch.

If icing conditions are encountered the HEATED PANEL switch should be turned ON and remain ON until the icing conditions cease.

When icing is not prevalent the unit should be turned OFF. UNDER NO CIRCUMSTANCE SHOULD THE UNIT BE TURNED ON FOR A PERIOD EXCEEDING 30 SEC. UNLESS:

1. The aircraft is in flight, or
2. Ice exists on the HEATED PANEL.

PIPER AIRCRAFT CORPORATION

LOCK HAVEN, PENNA.

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MODEL ..PA-30....

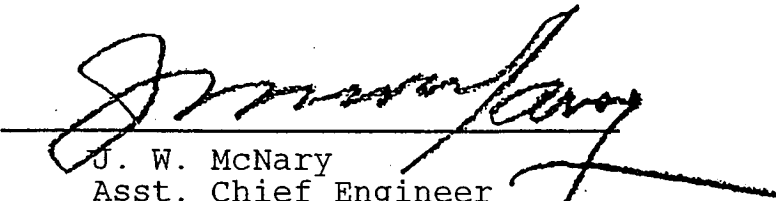
CAUTION

This equipment cannot be expected to cope with heavy or very prolonged moderate icing conditions. The latter can be expected to tax the equipment beyond its capacity.

Pilots should always strive to avoid heavy icing conditions. If heavy icing is encountered unexpectedly or unavoidably, prompt action must be taken to get into more favorable flying weather conditions.

NOTE 1: When all items of equipment listed above are installed, the placard "Warning - This aircraft is not fully equipped for flight in icing conditions."

IS NOT REQUIRED. When the heated panel is removed or any of the above listed installed equipment is inoperable (known before flight) the warning placard must be reinstalled.



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Lock Haven, Pennsylvania
DMCR 1-1
January 4, 1965
Revised: October 13, 1966

PIPER AIRCRAFT CORPORATION

LOCK HAVEN, PENNA.

REPORT...1269...
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MODEL ..PA-30....

SUPPLEMENT NO. 5 TO PIPER MODEL PA-30 FLIGHT MANUAL

THIS DOCUMENT MUST BE ATTACHED
TO THE BASIC AIRPLANE FLIGHT
MANUAL AND KEPT IN THE AIRPLANE
WHEN THE ITEM OF EQUIPMENT
DESIGNATED BELOW IS INSTALLED.

Approval Basis CAR 3 & 410
February 1, 1965
Piper Model PA-30
Equipped with Mixture Monitor
Normal Category Only

F.A.A. IDENTIFICATION NO. _____

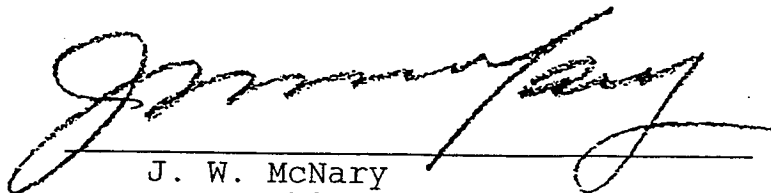
INSTALLATION OF MIXTURE MONITOR

Operating Limitations:

This indicator is to be used only as an aid in setting the mixture during cruise at powers up to 75% METO but not take-off, climb or descent. It is recommended not to operate at peak exhaust gas temperature at any power setting except for mixture control adjustment.

Operating Instructions:

1. Turn (Left - Right) switch to desired engine.
2. At 75% power and below, lean to peak exhaust gas temperature and then enrich mixture until temperature drops 25°F minimum. The amount of drop desired can be determined by resultant fuel consumption and engine smoothness.



J. W. McNary
Asst. Chief Engineer
Piper Aircraft Corporation
Lock Haven, Pennsylvania
DMCR 1-1
February 1, 1965

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PIPER AIRCRAFT CORPORATION

LOCK HAVEN, PENNA.

REPORT...1269...
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PAGE1.....

MODEL ..PA-30...

SUPPLEMENT NO. 6 TO PIPER MODEL PA-30 FLIGHT MANUAL

THIS DOCUMENT MUST BE ATTACHED
TO THE BASIC AIRPLANE FLIGHT
MANUAL AND KEPT IN THE AIRPLANE
WHEN THE ITEM OF EQUIPMENT
DESIGNATED BELOW IS INSTALLED.

Approval Basis CAR 3 & 410
April 30, 1965
Piper Model PA-30
Equipped with Oxygen
System Installation
Normal Category Only

F.A.A. IDENTIFICATION NO. _____

OXYGEN SYSTEM INSTALLATION

Limitations

No smoking while the oxygen system is in use.

Procedures

1. Check pressure gage in rear of cabin for sufficient pressure for anticipated requirements for flight. Full system pressure is approximately 1850 PSIG. If necessary recharge cylinder.
2. When oxygen is desired pull out control cable knob placing regulator in "ON" position.
3. At seating positions where oxygen is to be used plug mask assembly into oxygen outlet turn clockwise 90° and apply mask to face.
4. The flow indicator located in the mask assembly oxygen line should be checked. When red indicator disappears the oxygen is flowing through the line normally.

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PIPER AIRCRAFT CORPORATION

LOCK HAVEN, PENNA.

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PAGE2.....

MODEL ..PA-30....

Procedures: (Continued)

5. To stop flow of oxygen push in control cable knob placing regulator in "OFF" position and remove mask from face.
6. Leave mask assembly connected to oxygen outlet for at least 3 minutes to completely bleed down low pressure lines.

Placards:

1. At each oxygen outlet:

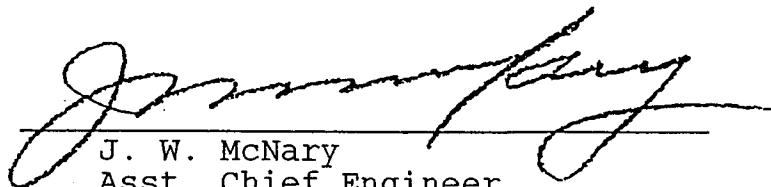
NO SMOKING WITH OXYGEN IN USE.

2. At the oxygen control knob:

PULL ON, OXYGEN

Emergency:

In the event that during operation the red indicator appears in any of the flow indicators, the aircraft should be lowered to a safe altitude immediately.



J. W. McNary
Asst. Chief Engineer
Piper Aircraft Corporation
Lock Haven, Pennsylvania
DMCR 1-1
April 30, 1965

PREPARED.....
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PIPER AIRCRAFT CORPORATION

LOCK HAVEN, PENNA.

REPORT...1269...
Supplement 7

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MODEL ..PA-30...

SUPPLEMENT NO 7 TO PIPER MODEL PA-30 FLIGHT MANUAL

THIS DOCUMENT MUST BE ATTACHED
TO THE BASIC AIRPLANE FLIGHT
MANUAL AND KEPT IN THE AIRPLANE
WHEN THE ITEM OF EQUIPMENT
DESIGNATED BELOW IS INSTALLED.

Approval Basis CAR 3 and
Part 21 Subpart J
February 9, 1966
Piper Model PA-30
Equipped with Piper
AutoControl III
Normal Category Only

FAA IDENTIFICATION NO. _____

INSTALLATION OF PIPER AUTOCONTROL III (MODEL AK161)

LIMITATIONS

Disengage during take-off and landing.

Disengage above 225 MPH CAS

OPERATING INSTRUCTIONS

TO ENGAGE:	Push Console Heading Lock button (HDG) to "OFF" position. Center ROLL knob. Push ON/OFF button to "ON" position
TO TURN:	Rotate console ROLL knob in desired direction.
FOR HEADING LOCK:	Set directional gyro (D.G.) with magnetic compass. Push D.G. HDG knob in, rotate to select desired heading. Push console Heading Lock button (HDG) to "IN" position.
TO DISENGAGE:	Push ON/OFF button to "OFF" position.

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APPROVED.....

PIPER AIRCRAFT CORPORATION

LOCK HAVEN, PENNA.

REPORT...1269...
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PAGE2.....

MODEL ..PA-30...

NORMAL OPERATION:

1. Be sure airplane is properly trimmed. (Ball Centered).
2. Check vacuum and ascertain that the directional gyro and artificial horizon are functioning properly.
3. Engage AutoControl
4. (Ground Check Only.) Rotate the ROLL knob full right and full left. Determine that the control wheel describes a corresponding right and left turn, then center knob.
5. Set the directional gyro with the magnetic compass.
Push D.G. HDG knob in, rotate to select desired heading.
6. Push Console Heading Lock button to "IN" position. The AutoControl is now "locked-in" for directional control.
7. Turns may be accomplished by either of the following methods:
 - a. Push Console Heading Lock button to "OUT" position.
Rotate the ROLL knob in desired direction.
 - b. Push Console Heading Lock button to "IN" position.
Select new heading by pushing D.G. HDG knob in and rotating.
8. Maximum angle of bank should not exceed 20°.
9. Disengage AutoControl by pushing the ON/OFF button to "OFF" position.

PREPARED.....
CHECKED.....
APPROVED.....

PIPER AIRCRAFT CORPORATION

LOCK HAVEN, PENNA.

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MODEL ..PA-30...

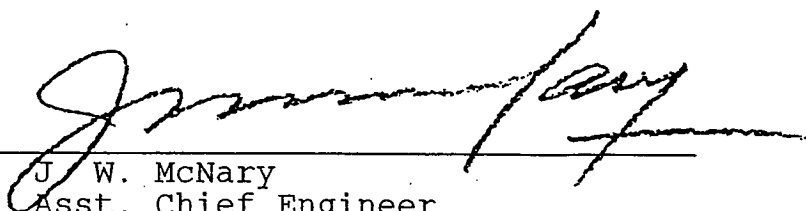
WITH PIPER RADIO COUPLER INSTALLED

The Auto-Pilot is coupled to the VOR NAV receiver in the modes indicated on the function switch.

In the Heading (HDG) mode, the Auto-Pilot is controlled by the directional gyro.

EMERGENCY PROCEDURES

1. In the event of a malfunction in the AutoControl, push the ON/OFF button to "OFF" position. This disengages the AutoControl from the control system.
2. AutoControl may be overpowered manually by exertion of 12 (± 3) pounds force on the control wheel.
3. In cruise configuration AutoControl malfunction with a 3 second recovery delay resulted in a 35 degree bank and 30 ft. altitude loss.
4. In approach configuration AutoControl malfunction with a 1 second recovery delay resulted in a 25 degree bank and 40 ft. altitude loss.



J. W. McNary

Asst. Chief Engineer

Piper Aircraft Corporation

D.O.A. EA-1

Lock Haven, Pennsylvania

Approval Basis CAR 3 and Part 21 Subpart J

February 9, 1966

PREPARED.....

CHECKED.....

APPROVED.....

PIPER AIRCRAFT CORPORATION

LOCK HAVEN, PENNA.

REPORT...1269...
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MODEL ..PA-30...

SUPPLEMENT NO. 8 TO PIPER MODEL PA-30 FLIGHT MANUAL

THIS DOCUMENT MUST BE ATTACHED
TO THE BASIC AIRPLANE FLIGHT
MANUAL AND KEPT IN THE AIRPLANE
WHEN THE ITEM OF EQUIPMENT
DESIGNATED BELOW IS INSTALLED.

Approval Basis CAR 3 and
Part 21, Subpart J
June 17, 1966
Piper Model PA-30
Equipped with Piper
Altimatec III
Normal Category Only
Revised December 9, 1966

FAA IDENTIFICATION NO. _____

INSTALLATION OF PIPER ALTIMATEC III

LIMITATIONS

ROLL and PITCH "OFF" during take-off and landing.

ROLL, PITCH, and AUTOFLITE "OFF" above 225 MPH

OPERATING INSTRUCTIONS

ROLL SECTION

TO ENGAGE:

Push console heading lock button (HDG) "OFF".

Center ROLL knob. Push ROLL button to "ON" position.

TO TURN:

Rotate console ROLL knob in desired direction.

(Maximum angle of bank should not exceed 30°.

Maximum angle will be 20° with heading lock engaged.)

HEADING LOCK:

Set directional gyro with magnetic compass. Push
directional gyro HDG knob in, rotate to select
desired heading. Push console heading lock button
(HDG) to "ON" position.

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APPROVED.....

PIPER AIRCRAFT CORPORATION
LOCK HAVEN, PENNA.

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PAGE2.....

MODEL ..PA-30....

OPERATING INSTRUCTIONS: (Continued)

ROLL SECTION (Continued)

ROLL SECTION GROUND CHECK:

With heading lock button "OFF", engage ROLL SECTION
Rotate ROLL knob full right and full left.

Determine that the control wheel describes a
corresponding right and left turn, then center
knob and disengage prior to take-off.

PITCH SECTION (ROLL SECTION must be engaged prior to
engaging PITCH SECTION)

TO ENGAGE:

Push altitude preselect button (ALT) to "OFF"
position. Center the PITCH command disk. Push
PITCH button to "ON" position.

TO CHANGE ALTITUDE:

Rotate PITCH command disk in desired direction.

ALTITUDE PRESELECT:

Center PITCH command disk. With airplane in level
flight, rotate the altitude selector DN/UP knob
until trim UP/DN indicator is level. Calibrate
the altitude indicator to match altimeter by
rotating the knurled altitude indicator dial.
Rotate the altitude selector knob to select desired
altitude. Push altitude preselect button (ALT)
to "ON" position.

PREPARED.....
CHECKED.....
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PIPER AIRCRAFT CORPORATION

LOCK HAVEN, PENNA.

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MODEL ..PA-30....

OPERATING INSTRUCTIONS: (Continued)

PITCH SECTION (Continued)

ALTITUDE PRESELECT: (Continued)

The altitude preselect button may also be engaged when the aircraft is climbing or descending.

Rotate the altitude selector knob until trim indicator indicates UP or DOWN as desired, then engage the altitude preselect button.

PITCH SECTION GROUND CHECK:

With altitude preselect button "OFF", rotate the PITCH command disk full DOWN and full UP. Determine that the control wheel describes a corresponding fore and aft movement, then center the disk and disengage prior to take-off.

AUTOFLITE SECTION

The AUTOFLITE SECTION of the Altimatic III is approved for all attitudes, including take-off and landing. The engagement of the ROLL SECTION of the Altimatic automatically disengages the AUTOFLITE SECTION.

TO ENGAGE:

Place AUTOFLITE toggle switch in "ON" position.
Correct minor heading variation by rotating AUTOFLITE "TRIM" knob in desired direction.

PREPARED.....

CHECKED.....

APPROVED.....

PIPER AIRCRAFT CORPORATION

LOCK HAVEN, PENNA.

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PAGE4.....

MODEL ..PA-30....

OPERATING INSTRUCTIONS: (Continued)

AUTOFLITE SECTION (Continued)

TO TURN:

Push AUTOFLITE "OFF" button on control wheel.

Make turn manually. Release button to re-engage

AUTOFLITE on completion of turn.

PITCH TRIM SECTION:

The airplane can be trimmed (1) Manually with the crank or (2) by actuating the pitch trim toggle switch on the pilots control wheel. Push switch forward for nose down trim and rearward for nose up trim. Pitch trim is automatically accomplished when the PITCH SECTION is engaged.

WITH PIPER RADIO COUPLER INSTALLED:

The ALTIMATIC is coupled to the VOR NAV receiver in the modes indicated on the function switch.

In the heading (HDG) mode, the ALTIMATIC is controlled by the directional gyro.

PREPARED.....

CHECKED.....

APPROVED.....

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LOCK HAVEN, PENNA.

REPORT...1269...
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PAGE5.....

MODEL ..PA-30....

NORMAL FLIGHT OPERATION

1. Be sure airplane is properly trimmed. (Ball Centered).
2. Engage AUTOFLITE SECTION.
3. Check vacuum and ascertain that the directional gyro and artificial horizon are functioning properly.
4. Engage ROLL SECTION.
5. Engage PITCH SECTION.
6. Disengage ROLL and PITCH SECTIONS before landing.

EMERGENCY PROCEDURES

1. In the event of a malfunction in the ROLL or PITCH SECTION, push the ROLL ON/OFF button "OFF". This disengages both ROLL and PITCH SECTIONS of the ALTIMATIC from the control system.
2. The PITCH TRIM SECTION may be overpowered manually. In the event of a malfunction in the PITCH TRIM SECTION, pull the Electric Trim circuit breaker.
3. The Altimatic ROLL SECTION and AUTOFLITE SECTION may be overpowered manually by exertion of 12 ± 3 pounds of force on either control wheel. The Altimatic PITCH SECTION may be overpowered manually by exertion of 15 ± 2 pounds of force on either control wheel.
4. In cruise configuration, Altimatic malfunction with a 3 second recovery delay results in a 45° bank and 300 foot altitude loss.

PREPARED.....
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APPROVED.....

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LOCK HAVEN, PENNA.

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MODEL ..PA-30....

EMERGENCY PROCEDURES (CONT'D.)

5. In approach configuration, Altimatic malfunction with a 1 second recovery delay results in a 28° bank and 220 foot altitude loss.
6. In cruise configuration, Autoflite malfunction with a 3 second recovery delay results in a 35° bank and an 80 foot altitude loss.
7. In approach configuration, Autoflite malfunction with a 1 second recovery delay results in a 25° bank and 40 foot altitude loss.

PLACARDS

1. On left control wheel

NOSE
TRIM

DOWN
↑
↓
UP

2. On left control wheel

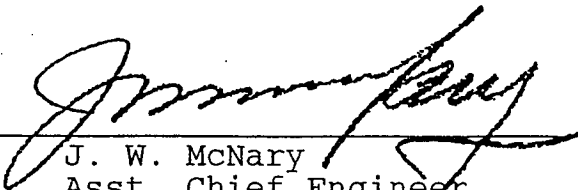
AUTOFLITE PUSH OFF

3. On instrument panel

AUTOFLITE ON/OFF TRIM

4. On instrument panel (when radio coupler is installed)

OMNI-1 OFF OMNI-2


J. W. McNary
Asst. Chief Engineer
Piper Aircraft Corporation
D.O.A. EA-1
Lock Haven, Pennsylvania
Approval Basis CAR 3 and Part 21
Subpart J
June 17, 1966
Revised December 9, 1966

PREPARED.....
CHECKED.....
APPROVED.....

PIPER AIRCRAFT CORPORATION

LOCK HAVEN, PENNA.

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MODEL ..PA-30....

SUPPLEMENT NO. 9 TO PIPER MODEL PA-30 FLIGHT MANUAL

THIS DOCUMENT MUST BE ATTACHED
TO THE BASIC AIRPLANE FLIGHT
MANUAL AND KEPT IN THE AIRPLANE
WHEN THE ITEM OF EQUIPMENT
DESIGNATED BELOW IS INSTALLED.

Approval Basis CAR 3 and
Part 21 Subpart J
June 29, 1967
Piper Model PA-30
Equipped with Mixture Control
Indicator Installation
Normal Category Only

F.A.A. IDENTIFICATION NO. _____

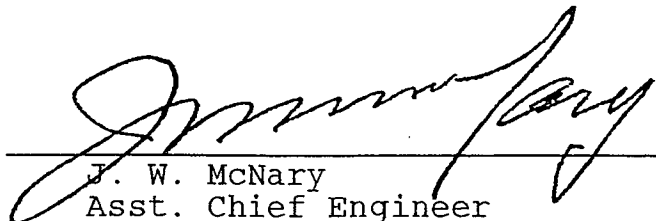
INSTALLATION OF MIXTURE CONTROL INDICATOR

Operating Limitations:

This indicator is to be used only as an aid in setting the mixture during cruise at powers up to 75% METO but not take-off, climb or descent. It is recommended not to operate at peak exhaust gas temperature at any power setting, except for mixture control adjustment.

Operating Instructions:

1. Turn (Left - Right) switch to desired engine.
2. At 75% power and below, lean to peak exhaust gas temperature and then enrich mixture until temperature drops 25°F minimum. The amount of drop desired can be determined by resultant fuel consumption and engine smoothness.



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Asst. Chief Engineer
Piper Aircraft Corporation
Lock Havens Pennsylvania
D.O.A. No. EA-1
Approval Basis CAR 3 and Part 21
Subpart J
June 29, 1967

PIPER AIRCRAFT CORPORATION

LOCK HAVEN, PENNA.

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MODEL ..PA-30...

SUPPLEMENT NO. 10 TO PIPER MODEL PA-30 FLIGHT MANUAL

THIS DOCUMENT MUST BE ATTACHED
TO THE BASIC AIRPLANE FLIGHT
MANUAL AND KEPT IN THE AIRPLANE
WHEN THE ITEM OF EQUIPMENT
DESIGNATED BELOW IS INSTALLED.

Approval Basis CAR 3 and
Part 21 Subpart J
November 22, 1967
Piper Model PA-30
Equipped with Brittain
Industries, Inc.,
Model TT-5 Tip Tanks
Normal Category Only

F.A.A. IDENTIFICATION NO. _____

INSTALLATION OF BRITTAIN INDUSTRIES, INC. MODEL TT-5 TIP TANKS

The information in this document is F.A.A. approved material which, together with the appropriate basic CAA-FAA approved Airplane Flight Manual is applicable and must be carried in the airplane when modified by the installation of Brittain Industries, Inc., Model TT-5 Tip Tanks in accordance with S.T.C. SA727WE dated June 25, 1964.

The information in this document supersedes the basic Airplane Flight Manual only where covered in the items contained in this supplement. For limitations and procedures not contained in this supplement, consult the manual proper.

I. LIMITATIONS SECTION

Same as prescribed in appropriate F.A.A. approved Airplane Flight Manual except:

- A. Auxiliary wing tip tank fuel to be used in level flight only.
- B. When using auxiliary fuel, use wing tip tank fuel first.
- C. Maximum allowable gross weight 3725 lbs. Any weight in excess of 3600 lbs. must consist of symmetrically loaded fuel in the tip tanks.
- D. Never exceed air speed limit of 230 MPH (red line).

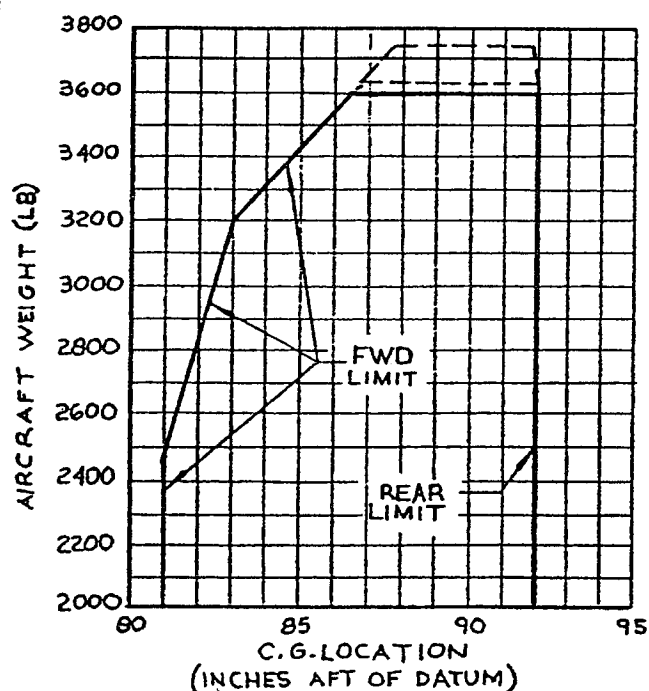
PIPER AIRCRAFT CORPORATION

LOCK HAVEN, PENNA.

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MODEL ..PA-30....

I. LIMITATIONS SECTION - (Continued)



C.G. Range with symmetrical fuel quantity in each tip tank:

87.62" to 91.38" at 3725 lbs.

C.G. Range with 0.3 gals. in each tip tank:

86.72" to 91.87" at 3625 lbs.

C.G. Range with tip tanks empty:

86.5" to 92" at 3600 lbs.

C.G. of Wing Tip Tank fuel is 90.5\"/>

Straight line variation between points given.

II. OPERATING PROCEDURES SECTION - NORMAL

Same as prescribed in appropriate F.A.A. approved Airplane Flight Manual except:

- A. Select tip tank fuel by positioning Fuel Selector Valve in "AUX" position and TIP/AUX Fuel Selector Switch in "TIP" position.
- B. Select auxiliary tank fuel by positioning Fuel Selector Valve in "AUX" position and TIP/AUX Fuel Selector Switch in "AUX" position.
- C. Aircraft fuel gauges register fuel quantity of tank selected.
- D. TIP/AUX Fuel Selector Switch to be in "AUX" position when using main tank fuel.
- E. If the Tip Tanks have been run completely dry in flight, air may be trapped in the line from Tip Tank to solenoid valve when Tip Tanks are subsequently filled. The air pocket in the line may prevent immediate feeding of fuel from Tip Tanks. To avoid this condition, purge air from lines prior to starting of aircraft.

1. Turn fuel selector valve to "AUX" position.

PIPER AIRCRAFT CORPORATION

LOCK HAVEN, PENNA.

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II. OPERATING PROCEDURES SECTION - NORMAL - (Continued)

- E. 2. Turn on aircraft master switch and place tip tank fuel selector switch to tip tank position. Ascertain that tip tank solenoid switch, under fuel console, is operating by listening for a slight click when switch is operated.
3. Lift up appropriate fuel drain valve and allow fuel to drain. Observe for flow in clear plastic tube, followed by interrupted flow of no fuel for a few seconds, further followed by a bubbling flow then full flow. Total drain time should not be less than 30 seconds.
4. Procedure shall be accomplished for each tip tank separately.
5. In addition to above procedure operate the power plant from each wing tip separately until steady fuel flow is assured during ground runup prior to flight.

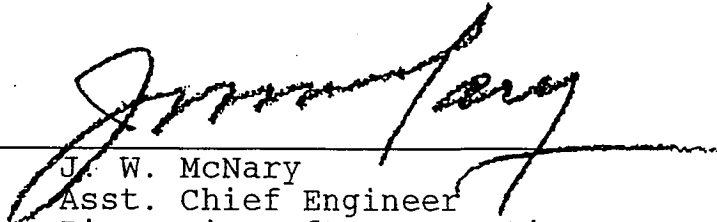
III. PERFORMANCE

Same as prescribed in appropriate F.A.A. approved airplane flight manual.

IV. EMERGENCY

- A. In the event of malfunction of the tip tank fuel system, place the TIP/AUX Fuel Selector Switch in the "AUX" position.

NOTE: Fuel Solenoid Valve failure automatically switches fuel flow from "TIP" to "AUX" tank.



J. W. McNary
Asst. Chief Engineer
Piper Aircraft Corporation
Lock Haven, Pennsylvania
D.O.A. No. EA-1
Approval Basis CAR 3 and Part 21
Subpart J
November 22, 1967

LOCK HAVEN, PENNA.

MODEL ..PA-30....

Approval Basis CAR 3 and
Part 21 Subpart J
January 16, 1970
Piper Model PA-30
Equipped with counter
rotating power plant on
right side, flow strips
on wing leading edges,
and Rudder-Aileron System
interconnection.
Normal Category Only

C. Propellers One Hartzell HC-E2YL-2 (Left) Series
 Constant Speed
 Full Feathering; Blades 7663-4
 Pitch Settings at 30 in.
 Station : High 76° - 77°, Low 12°
 Diameter : Not over 72 inches
 Not under 70 inches
 (No further reduction
 permitted)

PIPER AIRCRAFT CORPORATION

LOCK HAVEN, PENNA.

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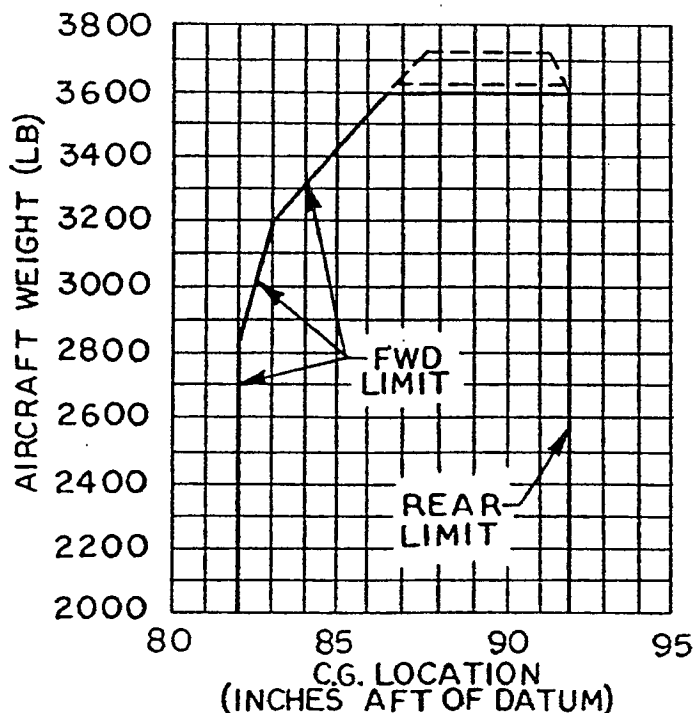
MODEL ..PA-30....

I. LIMITATIONS SECTION - (Continued)

C. Propellers (Cont.) One Hartzell HC-E2YL-2BL (Rt.) Series
Constant Speed
Full Feathering; Blades J7663-4
Pitch Settings at 30 in.
Station : High 76°-77°, Low 12°
Diameter : Not over 72 inches
Not under 70 inches
(No further reduction permitted)

D. Airspeed Limits
(Calibrated Airspeed)
Flap Extended 70 to 125 MPH
Minimum Control Speed 80 MPH
(Single Engine)(Red Radial Line)
One Engine Inoperative 105 MPH
(Best Rate of Climb (Blue Radial Speed) Line)
Stall Speed
Gear & Flaps Down 70 MPH
Gear & Flaps Up 76 MPH
Never Exceed Speed 230 MPH

E. C.G. Range



Weight	Forward Limit In. Aft of Datum	Aft Limit In. Aft of Datum
3600	86.5	92.0
3200	83.0	92.0
2825	82.0	92.0

Straight line variations between the points given.

NOTE

Dotted area may be used only when tip tanks are installed. Weight in excess of 3600 lbs. must be symmetrically loaded fuel in tip tanks.

PIPER AIRCRAFT CORPORATION

LOCK HAVEN, PENNA.

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MODEL ..PA-30....

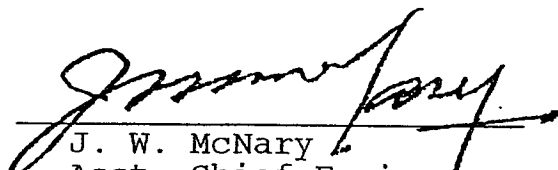
I. LIMITATIONS SECTION - (Continued)

F. Placards	On Instrument Panel:	
	Min. Single Engine Control Speed	80 MPH
	Maneuvering Speed	162 MPH
	Max. Gear Down Speed	150 MPH
	On Each Fuel Filler Door:	
	100/130 Min. Grade Aviation Gasoline	

II. PERFORMANCE

Performance is the same as prescribed in appropriate FAA Approved Airplane Flight Manual except the loss of Altitude during a power off stall with gear and flap retracted is 500 ft..

FAA Approved by:


J. W. McNary
Asst. Chief Engineer
Piper Aircraft Corporation
Lock Haven, Pennsylvania
DOA No. EA-1
Approval Basis CAR 3
and Part 21 Subpart J
January 16, 1970

PIPER AIRCRAFT CORPORATION

LOCK HAVEN, PENNA.

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MODEL ..PA-30...

SUPPLEMENT NO. 12 TO PIPER MODEL PA-30 FLIGHT MANUAL

THIS DOCUMENT MUST BE ATTACHED
TO THE BASIC AIRPLANE FLIGHT
MANUAL AND KEPT IN THE AIRPLANE
WHEN THE ITEM OF EQUIPMENT
DESIGNATED BELOW IS INSTALLED.

Approval Basis CAR 3 and
Part 21 Subpart J
June 10, 1970
Piper Model PA-30
Equipped with Air Flow
Modification Kit.
Normal Category Only

FAA IDENTIFICATION NO. _____

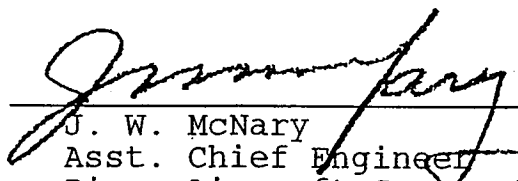
INSTALLATION OF AIR FLOW MODIFICATION KIT

The information in this document supersedes the basic Airplane Flight Manual only where covered in the items contained in this supplement. For limitations and procedures not contained in this supplement, consult the manual proper.

I. PERFORMANCE

Performance is the same as prescribed in appropriate F.A.A. Approved Airplane Flight Manual except the loss of altitude during a power-off stall is 300 feet.

FAA Approved by: _____


J. W. McNary
Asst. Chief Engineer
Piper Aircraft Corporation
Lock Haven, Pennsylvania
DOA No. EA-1
Approval Basis CAR 3
and Part 21 Subpart J
June 10, 1970

PIPER AIRCRAFT CORPORATION

LOCK HAVEN, PENNA.

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MODEL ..PA-30...

SUPPLEMENT NO. 13 TO PIPER MODEL PA-30 FLIGHT MANUAL

THIS DOCUMENT MUST BE ATTACHED
TO THE BASIC AIRPLANE FLIGHT
MANUAL AND KEPT IN THE AIRPLANE
WHEN THE ITEM OF EQUIPMENT
DESIGNATED BELOW IS INSTALLED.

Approval Basis CAR 3 and
Part 21 Subpart J
Date: July 14, 1972
Equipped with Landing Gear
Emergency Extension
Security Kit.
Normal Category Only

FAA IDENTIFICATION NO. _____

INSTALLATION OF LANDING GEAR EMERGENCY EXTENSION SECURITY
KIT (Piper Part No. 760 627).

PROCEDURES: WHEN THE EQUIPMENT LISTED ABOVE IS INSTALLED THE
LANDING GEAR EMERGENCY EXTENSION PROCEDURES PLACARD LISTED
BELOW MUST BE INSTALLED.

Note: Change the procedures in your Flight Manual
and Owner's Handbook accordingly.

PLACARD:

WARNING: BEFORE PROCEEDING WITH EMERGENCY EXTENSION:
CHECK

1. GEAR CIRCUIT BREAKERS ARE IN
2. MASTER SWITCH IS ON
3. INSTRUMENT LIGHTS ARE OFF (DAYTIME).

INSTRUCTIONS FOR EMERGENCY EXTENSION OF LANDING GEAR:

1. Reduce power - airspeed not to exceed 100 MPH.
2. Place Landing Gear Selector Switch in "GEAR DOWN
LOCKED" position.
3. Disengage motor. Raise motor release arm and push
forward thru full travel.

PIPER AIRCRAFT CORPORATION

LOCK HAVEN, PENNA.

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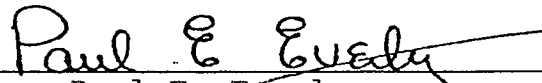
MODEL ..PA-30...

INSTRUCTIONS FOR EMERGENCY EXTENSION OF LANDING GEAR: (Cont'd)

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 secure handle. Extend handle and rotate forward until left socket is in clear position. Remove handle and place in left socket and secure. Extend handle. Rotate handle FULL forward to extend landing gear and to engage emergency safety lock.
5. Handle locked in full forward position indicates landing gear is down and emergency safety lock engaged. Gear "DOWN LOCKED" indicator light should be "ON".

NOTE

Reducing power and rocking gear extension handle will aid in manually extending the landing gear. DO NOT RETRACT WITH HANDLE IN SOCKET. DO NOT RE-ENGAGE MOTOR IN FLIGHT.


Paul E. Everly
FAA Coordinator
Piper Aircraft Corporation
Lock Haven, Pa.
D.O.A. EA-1