

PIPER AIRCRAFT CORPORATION

LOCK HAVEN, PENNA.

REPORT.....832

PAGE.....

MODEL.....PA-23

PIPER AIRCRAFT CORPORATION

LOCK HAVEN, PENNA.

REPORT NO. 832

AIRPLANE FLIGHT MANUAL FOR

THE PIPER MODEL PA-23 AIRPLANE

EQUIPPED WITH PIPER CO₂ EMERGENCY

LANDING GEAR EXTENDER

DATE: JUNE 29, 1954.

REVISED: DECEMBER 27, 1954 prepared by:

C. R. Smith
C. R. Smith

Engineering Department

Checked by:

W. B. Hilton

W. B. Hilton

Project Engineer

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<u>Revision Number</u>	<u>Page Number</u>	<u>Description</u>	<u>Date</u>
None Recorded	8	Weight and Balance	7/22/54
	4,6,8,10	Emergency Procedure	12/2/54
	6,7,8,10	Weight and Balance	
	9,10	Weight and Balance	3/26/56
	10,11, 13,14	Weight and Balance	5/27/57
A	3	Minimum RPM for Feathering	2/15/79

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THIS DOCUMENT MUST BE KEPT IN THE AIRPLANE AT ALL TIMES

Serial No. 23-
CAA Identification No.

Approval Basis CAR 3 and 410
June 29, 1954
Piper Model PA-23 Equipped With
Piper CO₂ Emergency Landing
Gear Extender
Normal Category Only

AIRPLANE FLIGHT MANUAL

1. LIMITATIONS

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

Engine	Two Lycoming Model O-320												
Engine Limits	For all operations - 2700 rpm, 150 HP <u>Do not exceed 25" of manifold pressure with 2300 rpm or less</u>												
Fuel	80/87 minimum octane aviation gasoline												
Propeller	Hartzell Model HC-82XC-2 constant speed full feathering, hub C801-4, blades 7636D Pitch settings, high 80.5°, low 10.0° at 30" station												
Power Instruments	Oil Temperature: Green Arc (Normal Operating Range) 120° to 245°F; Yellow Arc (Caution) 60° to 120°F; Red Line (max.) 245°F. Oil Pressure: Green Arc (Normal Operating Range) 65 to 85 psi; Yellow Arc (Caution) 25 to 65 psi and 85 to 100 psi; Red Line (min.) 25 psi; Red Line (max.) 100 psi Fuel Pressure: Green Arc (Normal Operating Range) .5 to 5 psi; Red Line (min.) .5 psi; Red Line (max.) 5 psi Tachometer: Green Arc (Normal Operating Range) 500 to 2700 rpm; Red Line (max. continuous) 2700 rpm												
Airspeed Limits (True Indicated airspeed)	<table><tr><td>Never Exceed (smooth air)</td><td>Normal Category 208 mph (Red Line)</td></tr><tr><td>Caution range (smooth air)</td><td>165 to 208 mph (Yellow Arc)</td></tr><tr><td>Normal Operating Range</td><td>66 to 165 mph (Green Arc)</td></tr><tr><td>Flap Extended</td><td>61 to 100 mph (White Arc)</td></tr><tr><td>Maneuvering Speed</td><td>124 mph</td></tr><tr><td>Max. structural cruising</td><td>165 mph</td></tr></table>	Never Exceed (smooth air)	Normal Category 208 mph (Red Line)	Caution range (smooth air)	165 to 208 mph (Yellow Arc)	Normal Operating Range	66 to 165 mph (Green Arc)	Flap Extended	61 to 100 mph (White Arc)	Maneuvering Speed	124 mph	Max. structural cruising	165 mph
Never Exceed (smooth air)	Normal Category 208 mph (Red Line)												
Caution range (smooth air)	165 to 208 mph (Yellow Arc)												
Normal Operating Range	66 to 165 mph (Green Arc)												
Flap Extended	61 to 100 mph (White Arc)												
Maneuvering Speed	124 mph												
Max. structural cruising	165 mph												

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Airspeed Limits (Cont'd.)

Normal Category

Max. gear extended speed	125 mph
Minimum Control Speed (single engine)	85 mph
Stalling Speed	
Gear and Flaps Up	66 mph
Gear and Flaps Down	61 mph

Flight load factors

Maximum positive 3.8g
Maximum negative No inverted maneuvers approved
All intentional acrobatic maneuvers, including spins, are prohibited. (No inverted maneuvers approved).

Maneuvers

Wing flap settings

Take-off 0° Landing 50°

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 3500 pounds. See weight and balance section for proper loading instructions.

C.G. Range

Datum is 80" ahead of wing leading edge outboard of tapered sections.

Weight Pounds	Forward Limit In. Aft of Datum	Rearward Limit In. Aft of Datum
2450 or less	88.5	100
3500	94	100

Straight line variation between the points given.

Placards

On the instrument panel in full view of the pilot:
This airplane must be operated as a normal category airplane in compliance with airplane flight manual.

On the Baggage Compartment: Maximum baggage 200 pounds. Rear seats may be removed and 340 pounds maximum additional baggage distributed on floor between front spar and baggage compartment
On firing ring cover of emergency landing gear extender under left front seat.

Emergency gear extender
Place gear selector to down position
Lift cover, pull ring

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2. PROCEDURES

Fuel System

Normal Operation

1. Take-Off and Landing

- a. Main valves "ON"
- b. Pressure cross feed "OFF"
- c. Electric fuel pumps "ON"

2. Cruise

- a. Main valves "ON"
- b. Pressure cross feed "OFF"
- c. Electric fuel pumps "OFF"

Emergency Operation

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

1. Pressure cross feed "ON"
2. Main fuel valve of inoperative engine "ON"
3. Electric fuel pump of inoperative engine "ON".
4. Main fuel valve operating engine "OFF".

When fuel from tank of inoperative engine is exhausted, return to operating engine fuel system as follows:

1. Pressure cross feed "OFF".
2. Main valve operating engine "ON".
3. Electric fuel pump inoperative engine "OFF".

Propellers

Feathering Procedure

1. Operating Engine

- a. Throttle "OPEN" to maintain altitude and airspeed.
MINIMUM CONTROLLABLE SINGLE ENGINE SPEED 85 MPH T-AS.

2. Inoperative Engine

- a. Throttle "CLOSED".
- b. Prop control "FEATHERED". PROP CANNOT BE FEATHERED UNDER 700 RPM.
- c. Mixture control "IDLE CUT-OFF."
- d. Ignition switches "OFF".
- e. Electric fuel pump (if in use) "OFF".
- f. Main valve "OFF".

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Unfeathering Procedure

1. Inoperative Engine

- a. Turn main fuel valve "ON".
- b. Advance propeller control to low pitch position
- c. Rotate engine with starter until it will windmill by itself.
- d. Decrease propeller pitch control to cruise position.
- e. Turn ignition switches "ON".
- f. Advance mixture control to full rich
- g. Allow engine to idle at 1000 to 1500 RPM with carburetor heat "ON" until oil temperature begins to rise.
- h. Resynchronize engines.

Gear and Flap Extension - Emergency

1. Gear and Flap Extension with Hydraulic Hand Pump

- 1 In case of hydraulic pump failure, landing gear and flap extension may be accomplished through the use of the emergency hand pump by placing the pertinent selector handle in the down position and operating the manual pump as follows: Pull emergency pump handle out as far as possible. Pump handle up and down until pressure is built up in system and selector handle automatically returns to neutral.

2. Gear Extension ONLY with CO₂ USE ONLY IF THE ENGINE DRIVEN OR HAND HYDRAULIC PUMP FAILS TO EXTEND THE LANDING GEAR.

In case the engine driven or emergency hand hydraulic pumps fails to lower the landing gear the emergency CO₂ system should be used as follows: Place the gear selector handle in the down position, raise firing ring cover under left front seat and pull ring up as far as possible (approximately 3 inches).

NOTE

After operating CO₂ system the landing gear (or flap) should not be operated and the selector handles should not be moved until repairs to the system are made. See operators handbook for repair procedure.

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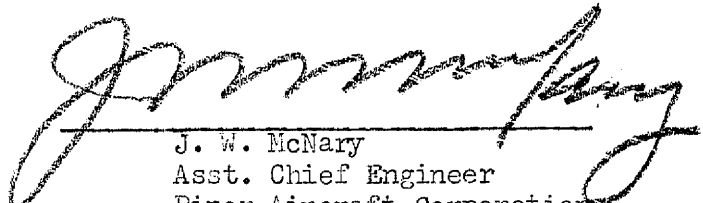
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Circuit Breakers

Circuit breakers for protection of the electrical system are located behind the door at bottom roll on instrument panel to the left side of the control pedestal.

3. PERFORMANCE

Loss of altitude during a single engine power on stall is 225 feet. Other stall configurations result in less loss of altitude.



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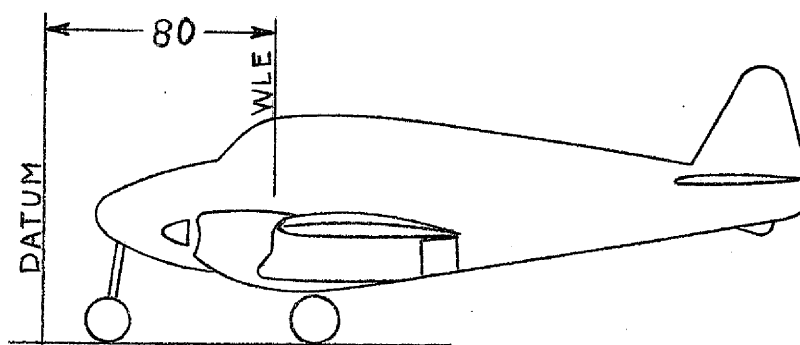
ACTUAL WEIGHT AND BALANCE

MODEL PA-23 "APACHE"

SERIAL NO. 23-

CERTIFICATE NO. N

DATE



Empty Weight As Weighed
(Includes Items Checked on Pages and).

Left Wheel

Right Wheel

Nose Wheel (N) _____

Total (T)

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Empty Weight C.G. Forward Main Wheel Centerline is:

$$A. \frac{(N)}{(T)} \times 90 = \text{inches}$$

Empty Weight C.G. Aft Wing Leading Edge is:

$$B. 34.5 - (A) = \text{inches}$$

Empty Weight C.G. Aft Datum is:

$$D. 80.0 + (B) = \text{inches}$$

MOST FORWARD C.G. (REDUCED WEIGHT)

Item	Weight	Arm	Moment
Empty Weight			
Oil (4 gal.)	30	59.0	1770
Fuel (25 gal. Main)	150	113.0	16950
Pilot	170	89.0	15130

Total

MOST FORWARD C.G. IS INCHES AFT DATUM.

MOST FORWARD ALTERNATE C.G.

Item	Weight	Arm	Moment
Empty Weight			
Oil (4 gal.)	30	59.0	1770
Fuel (72 gal. Main)	432	113.0	48816
Pilot	170	89.0	15130
Passenger (F. Seat)	170	89.0	15130

Total

MOST FORWARD ALTERNATE C.G. IS INCHES AFT DATUM

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MOST REARWARD C.G.

Item	Weight	Arm	Moment
Empty Weight			
Oil (4 Gal.)	30	59.0	1770
Fuel (72 Gal. Main)	432	113.0	48816
Fuel (36 Gal. Aux.)	216	113.0	24408
Pilot and Passenger (F. Seat)	340	89.0	30260
Passengers (1 Rear Seat)	170	126.5	21505
Baggage	—	<u>150.0</u>	—

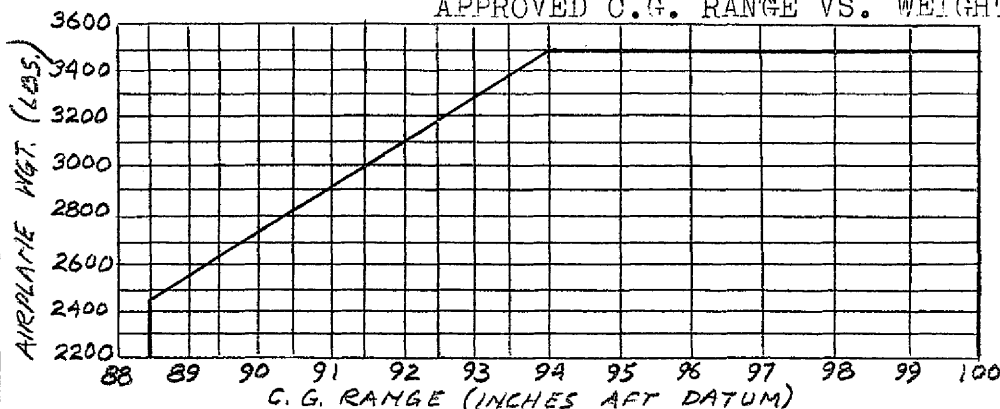
Total

MOST REARWARD C.G. IS INCHES AFT DATUM.
MOST REARWARD C.G. (ALTERNATE)

Item	Weight	Arm	Moment
Empty Weight			
Oil (4 gal.)	30	59.0	1770
Fuel (72 gal. main)	432	113.0	48816
Fuel (36 gal. aux.)	216	113.0	24408
Pilot and Passenger (Front Seat)	340	89.0	30260
Passengers (2 Rear Seat)	340	126.5	43010
Baggage	—	<u>150.0</u>	—

Total

MOST REARWARD C.G. (ALTERNATE) IS INCHES AFT DATUM.
APPROVED C.G. RANGE VS. WEIGHT



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MODEL PA-23 AIRPLANE FLIGHT MANUAL WEIGHT AND BALANCE

Loading Schedule for Optional Seat Arrangement

The schedule below is pertinent to the loading of this airplane when the optional seat is installed in the baggage compartment area.

See Appendix 9 of this manual for further information.

	1	2	3	4	5	6
Empty Weight						
Oil 4 Gal.	30	30	30	30	30	30
Fuel (Main Tanks)*432	432	432	432	432		
Fuel (Aux.Tanks)**216						
Pilot	170	170	170	170	170	170
Pass. Front Seat	170	170	170	170	170	170
Pass. Rear Seat		170	170	170	170	170
Pass. Rear Seat			170	170	170	170
Pass. 5th Seat					170	170
Baggage	200	.				
Total		3500	3500	3500	3500	3500

*Fuel in Main Tanks

432 lbs. = 72 gal. total
 _____ lbs. = _____ gal. total
 _____ lbs. = _____ gal. total

**Fuel in Auxiliary Tanks

216 lbs. = 36 gal. total
 _____ lbs. = _____ gal. total
 _____ lbs. = _____ gal. total

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ACTUAL WEIGHT AND BALANCE

MODEL PA-23 "APACHE"

EQUIPMENT LIST

Item No.	Item	Weight	Arm Aft Datum
<u>Propellers and Propeller Accessories</u>			
1.	Two, full feathering, constant speed, propeller installations		
	(a) Hartzell HC-82XG-2 Hubs with 7636D Blades	63 lbs.ea.	(+35)
	Pitch settings at 30 in.sta.: Low 10°, High 80.5° (Feathered) Diameter: Not over 76 in., Not under 74.5 in.		
	or Hartzell HC-82XG-2B hubs with 7636D-4 blades	63 lbs.ea.	(+35)
	Item 401 (j) required Pitch settings at 27 in. sta.; Low 12°, High 80° (Feathered) Diameter: Not over 72 in., Not under 72 in.		
	(b) Two Woodward hydraulic governor assemblies, 210080	3 lbs.ea.	(+68.5)
	(c) Hartzell prop. spinner dome C-888 and bulkhead adapter C-885	6 lbs.ea.	(+35)
	(d) Two Hamilton Standard hydraulic governor assemblies Model No. 1Q12 per Hartzell Modification B2	3 lbs.ea.	(68.5)

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Item No.	Item	Weight	Arm Aft Datum
<u>Engines and Engine Accessories - Fuel and Oil Systems</u>			
101.	Two fuel pumps - electric auxiliary, Bendix Model 476087 or 478360	2 lbs.ea.	(+89)
102.	Two fuel pumps - engine driven, AC type AH No. 5594068	3 lbs.ea.	(+66)
103.	Two oil radiators, Harrison Model APO7AU06-01 or APO7AU06-02 or APO7AU06-03	3 lbs.ea.	(+73)
104.	One vacuum pump (a) Pesco Model 3P-194-F, Type B-11	4 lbs.	(+65.5)
105.	Two starters, 12 volt (a) Delco-Remy Model 1109657 (Direct Drive)	17 lbs.ea.	(+48)
	(b) Delco-Remy Model 1109673 (Geared)	18 lbs.ea.	(+48)
106.	One hydraulic pump, New York Air Brake Model No. 67B025	2 lbs.	(+66)
107.	Auxiliary fuel tanks - 36 gallons (One 18 gallon tank each wing installed in accordance with Piper Dwg. 18623) Item 401 (f) or 401 (g) and NOTE 2 (e) placard required.	+18 lbs.	(+112)
108.	Auxiliary vacuum pump (a) Pesco Model 3P-194-F Type B-11 installed in accordance with Piper Dwg. 18639	+10 lbs.	(+69)
109.	Revised carburetor air heater installed per Piper Dwg. No. 18250 Revision AE	Neglect weight change	
110.	Hi-Temp Carburetor Heater Installed per Piper Dwg. No. 18250 Revision AV	Neglect weight change	

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Item No.	Item	Weight	Arm Aft Datum
<u>Landing Gear</u>			
201.	Two main wheel-brake assemblies, 6.00-6 Type III		
	(a) Goodrich Model G-14-891	10 lbs.ea.	(+114.5)
	Wheel Assembly G-3-787 or G-3-880		
	Brake Assembly G-2-622		
	(b) Cleveland	11 lbs. ea.	(+114.5)
	Wheel Assembly Model 3060		
	Brake Assembly Model 3000		
202.	Two main 6-ply rating nylon tires, 7.00-6, Type III, with regular tubes	12 lbs.ea.	(+114.5)
205.	One nose wheel, 6.00-6 Type III	5 lbs.	(+24.5)
	(a) Cleveland		
	Wheel Assembly C-38500H (Less Brake Drum)		
	Model DHB-3		
	(b) Cleveland		
	Wheel Assembly 38501	5 lbs.	(+24.5)
206.	One nose wheel 4-ply rating tire, 6.00-6, Type III, with regular tube	9 lbs.	(+24.5)

Electrical Equipment

301.	Generators		
	(a) One 35 amp. generator, Delco Remy, 12 volt, with bracket	18 lbs.	(+45)
	(b) Dual 35 amp generators, Delco Remy, 12 volt with brackets and relays (Item 401(c) or (d) required with this installation.)	+23 lbs.	(+52)
302.	Battery		
	(a) One 12 bolt, 33 amp. hour	27 lbs.	(+40.5)
303.	One landing light, G.E. Model 4509	2 lbs.	(+11.5)
304.	Grimes No. D7080 Rotating Beacon installed in accordance with Piper Dwg. No. 18714	2 lbs.	(+260)

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Item No.	Item	Weight	Arm Aft Datum
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Interior Equipment

401. (a) DMCR approved Airplane Flight Manual No. 813, dated January 29, 1954.
- (b) DMCR approved Airplane Flight Manual No. 832, dated June 29, 1954. Required when Item 602 is installed.
- (c) DMCR approved Appendix I to Airplane Flight Manual No. 813, dated September 14, 1954. Required when Item 301 (b) installed except with Item 602.
- (d) DMCR approved Appendix I to Airplane Flight Manual No. 832, dated September 14, 1954. Required when Item 301 (b) and 602 installed.
- (e) DMCR Approved Supplement, Piper Report No. 853, to Airplane Flight Manual, dated September 17, 1954. Required when item 403 (a), (b) or (c) is installed.
- (f) DMCR Approved Appendix II to Airplane Manual No. 813, dated December 27, 1954. Required when Item 107 is installed (without Item 602).
- (g) DMCR Approved Appendix II to Airplane Flight Manual No. 832, dated December 27, 1954. Required when Item 107 and 602 installed.
- (h) DMCR Approved Appendix III to Airplane Flight Manual No. 813, dated April 1, 1955. Required when Item 604 is installed (without Item 602).
- (i) DMCR Approved Appendix III to Airplane Flight Manual No. 832, dated April 1, 1955. Required when Item 604 and 602 are installed.
- (j) DMCR Approved Appendix IV to Airplane Flight Manual No. 832, dated December 27, 1954. Required when Item 1 Hartzell propellers Model HC-82XG-2B are installed.

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Item NO.	Item	Weight	Arm Aft Datum
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Interior Equipment (Cont'd.)

- (k) DMCR Approved Appendix VI to Airplane Flight Manual No. 832, dated December 27, 1954. Required when Item 108 (a) is installed.
- (l) DMCR Approved Supplement Appendix, Piper Report No. 853, to Airplane Flight Manual, dated September 17, 1954. Required when Item 403 (a), (b), or (c) and Item 108 (a) are installed.
- (m) DMCR Approved Airplane Flight Manual including Supplements 1 thru 8 dated September 1, 1955. This manual contains all information contained in Flight Manuals, Item 401(a) thru 401(l), and may be substituted for these manuals.

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Item No.	Item	Weight	Arm Aft Datum
402.	Heater, modified Stewart Warner Model 979-B-1 or 840-B-12	18 lbs.	(+33)
403.	Lear L-2B automatic pilot with following limits: Servo slip clutch torques (inch lbs. $\pm 10\%$): Elevator, 20; rudder, 75; aileron 25. Servo stall forces at pilot controls: Rudder, 30 lbs; elevator, 10 lbs.; aileron, 9 lbs.		
	(a) Lear L-2B autopilot, altitude control and 1350B approach coupler installed according to Lear Dwg. 701950 or Piper Dwg. 18759. Item 301 (b), 401(e) and NOTE 2(d) placard required.	104 lbs.	(+114)
	(b) Lear L-2B Autopilot with automatic altitude control installed according to Lear Dwg. 701950, or Piper Dwg. 18759. Items 301(b), 401(e) and Note 2 (d) placard required.	54 lbs.	(+156)
	(c) Lear L-2B Autopilot installed according to Lear Dwg. 701950 or Piper Dwg. 18759. Items 301(b), 401(e) and Note 2 (d) placard required.	51 lbs.	(+154)
404.	Mitchell automatic co-pilot Model AK046 in accordance with Mitchell Industries Bulletin No. 112 (7-55) (Mitchell Industries Inc., Box 17 Municipal Airport, Mineral Wells, Texas.)		Use Actual Weight and Arm

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Item No.	Item	Weight	Arm Aft Datum
<u>Miscellaneous Equipment</u>			
601.	Heated pitot head, Kollsman 373D-01, 12 volt	1 lb.	(+129)
602.	Emergency gear extender (CO ₂ bottle) Items 401 (b) and NOTE 2(c) placard required with this installation	2 lbs.	(+89)
603.	Emergency exit Installed in accordance with Piper Drawing SK-5566	Neglect weight change	
604.	Scott Oxygen Console Model 880 installed in accordance with Piper Dwg. 18683. NOTE 2 (f) placard required	+32 lbs.	(+122)
605.	Optional Seat Installation Installed in accordance with Piper Dwg. No. 18920 (Serial Nos. 23-1 and up Eligible)	27 lbs.	(143)
606.	Reclining Seat Installation Piper P.N. 18937 installed in accordance with Piper Dwg. Nos. 18868 and 18920 (Serial Nos. 23-1 and Up eligible)	+14 lbs.	(128)
607.	Taxi Light, Installed in accordance with Piper Dwg. No. 19170	2 lbs.	(+25)
608.	Dual Cylinder head temperature gauge installed in accordance with Piper Dwg. No. 19194	2.5 lbs.	(+80)

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Item No.	Item	Weight	Arm Aft Datum
<u>Optional Equipment</u>			
	Flare		
	Fire Extinguishers		
 <u>Radio</u>			
	Narco Omnigator and Power Supply	15.8 lbs.	(45.4)
	Narco Simplexer and Power Supply	7.2 lbs.	(42.4)
	Lear ADF 12 Power Supply and Indicator	16.0 lbs.	(39.5)
	Omni Antenna	.4 lbs.	(275)
	Whip Antenna	.6 lbs.	(200)
	ADF Loop Antenna	3.3 lbs.	(113.5)
	Marker Beacon Antenna	.5 lbs.	(52.5)
	L.F. Receiver Antenna	1.25 lbs.	(125)
	Lear LTRA-6 With Power Supply, Indicator and Top Antenna	18.2 lbs.	(47)
	Sun LF Transceiver and Power Supply	20.0 lbs.	(36.6)
	LVTR 36	28.0 lbs.	(175)
	Lear ADF14	27.5	(52.5)

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APPENDIX I

THIS DOCUMENT MUST BE ATTACHED
TO THE BASIC AIRPLANE FLIGHT MANUAL
WHEN DUAL GENERATORS ARE INSTALLED
AND MUST BE KEPT IN THE AIRPLANE
AT ALL TIMES.

Approval Basis CAR 3 and 410
September 14, 1954
Piper Model PA-23 Equipped
With Dual Generators
Normal Category Only

DUAL GENERATOR INSTALLATION

When dual generators are installed, field circuit switches are provided at the lower right side of the control pedestal. Both switches shall be "ON" at all times except to check generator operation, or in the event of malfunctioning (Indicated By Extreme Charge or Discharge on Ammeter) when the appropriate switch should be turned off.

IN ALL CASES THE MASTER SWITCH, WHEN IN THE "OFF" POSITION
WILL DISCONNECT ALL ELECTRICAL EQUIPMENT FROM THE POWER SOURCE.

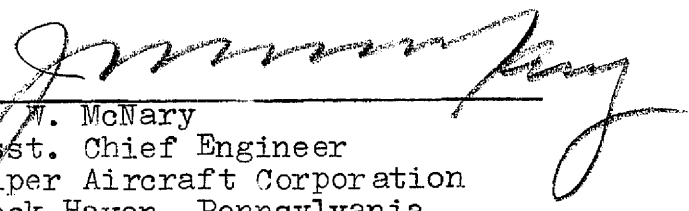
TO CHECK GENERATORS PRIOR TO TAKE-OFF

1. Left Generator Check

- a. Right Throttle Closed
- b. Right Generator Field Switch Off
- c. Left Generator Field Switch On
- d. Advance Throttle of Left Engine to 1800 RPM.
Generator, if operating, will show charge.

2. Right Generator Check

- a. Left Throttle Closed
- b. Left Generator Field Switch Off
- c. Right Generator Field Switch On
- d. Advance Throttle of Right Engine to 1800 RPM.
Generator, if operating, will show charge.


J. W. McNary
Asst. Chief Engineer
Piper Aircraft Corporation
Lock Haven, Pennsylvania
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LOCK HAVEN, PENNA.

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APPENDIX II

THIS DOCUMENT MUST BE ATTACHED
TO THE BASIC AIRPLANE FLIGHT MANUAL
WHEN AUXILIARY FUEL TANKS ARE
INSTALLED.

Approval Basis CAR 3 and 410
December 27, 1954
Piper Model PA-23 Equipped
With Auxiliary Fuel Tanks
Normal Category Only

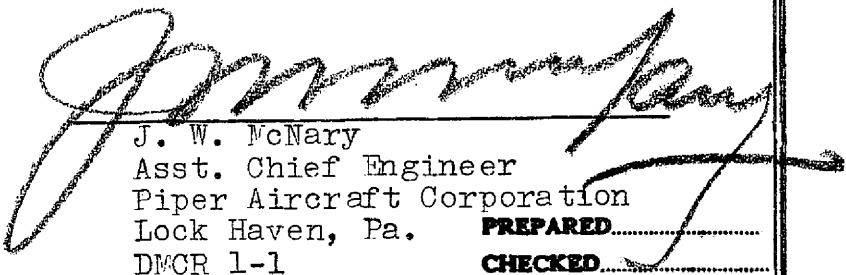
AUXILIARY FUEL TANK INSTALLATION

One fuel cell of 18 gallon capacity located in
outboard section of each wing.

Procedures

When auxiliary fuel tanks are installed the operation
of the fuel system, which is controlled from the fuel control
panel located between the front seats, shall be as follows:

1. Take-Off, Climb, Glide and Landing
 - a. Use fuel from main tanks only
2. Cruising
 - a. When cruising altitude is reached move fuel
valve control handles to auxiliary tank position.
 - b. When the fuel in each auxiliary tank is
exhausted return to Main tank operation.


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APPENDIX III

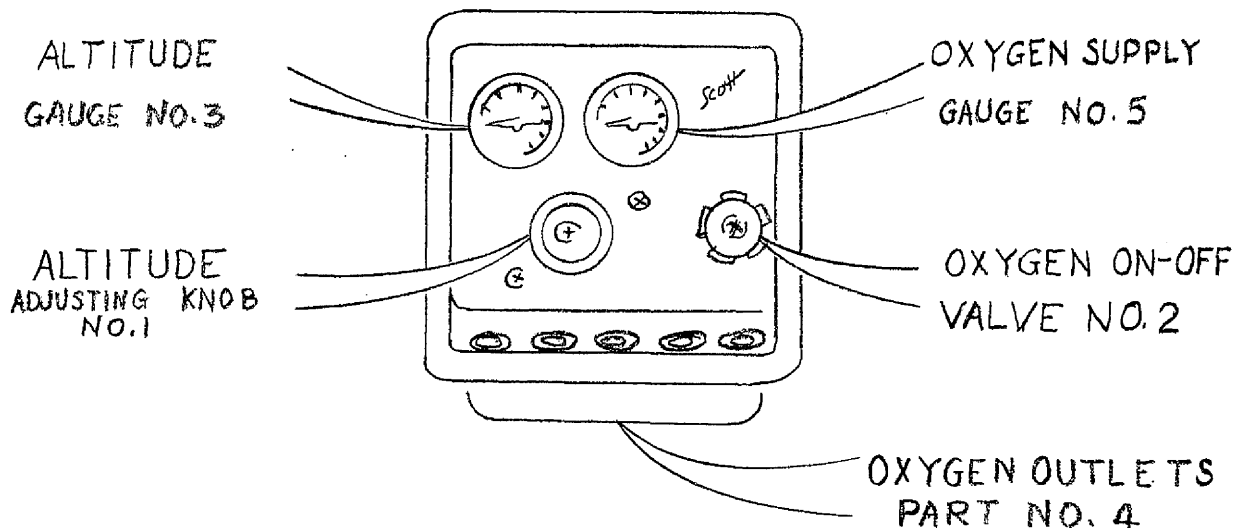
This document must be attached to the basic airplane flight manual when the oxygen system is installed and must be kept in the airplane at all times.

Approval Basis CAR 3 and 410
April 1, 1955
Piper Model PA-23 Equipped
With Scott Aviation Corpora-
tion Oxygen System (Console
Model 8800)
Normal Category Only

Placards Required

1. On the Oxygen Console on cabin wall:

"Caution, Do not Smoke While Using Oxygen"



Normal Operation

1. Before Take-Off:

Turn cylinder valve under rear seat "ON".

2. When Ready to Use:

- a. Check to be sure that altitude knob (No. 1) is "OFF" by turning "LEFT" to limit. Use caution--Do not force valves or seat seals will be damaged.
- b. Turn oxygen valve (No. 2) "ON" slowly. Approximately one-half turn to "LEFT" is all that is necessary.

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- c. Plug "IN" required number of masks to outlets (No. 4). To plug in, insert fitting, push, and turn to "RIGHT" to limit.
 - d. Observe altitude gauge (No. 3) while turning altitude adjusting knob (no. 1) to "RIGHT". Set gauge (No. 3) to correspond to flight altitude.
 - e. Don masks.
 - f. Supply pressure gauge (No. 5) shows remaining supply of oxygen in pounds per square inch.
3. To Turn System "OFF":

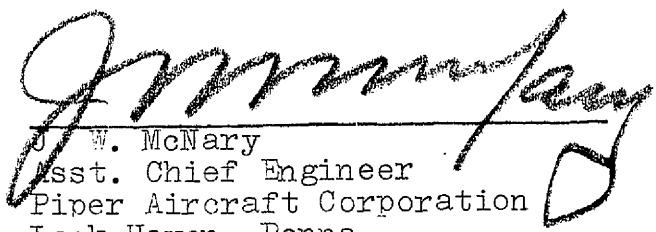
When oxygen is no longer needed turn oxygen supply valve (No. 2) "OFF". Turn altitude adjusting knob (No. 1) "LEFT" to limit. Unplug masks.

4. After Landing:

Turn cylinder valve under rear seat "OFF".

CAUTION

Do not smoke while using oxygen.
Do not allow smoking by any occupant of aircraft, either while system is on or while any other passenger or crew member is using oxygen. Do not permit open flame of any kind such as matches, cigar lighters, etc., while oxygen is in use.


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Lock Haven, Penna.
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April 1, 1955.

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APPENDIX IV

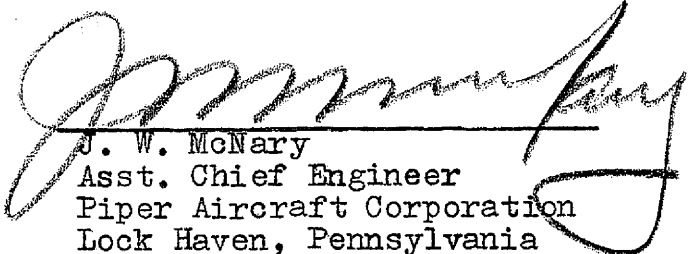
THIS DOCUMENT MUST BE ATTACHED
TO THE BASIC AIRPLANE FLIGHT MANUAL
WHEN THE ITEMS DESIGNATED BELOW
ARE INSTALLED.

APPROVAL BASIS CAR 3 AND 410
MAY 18, 1955
PIPER MODEL PA-23 EQUIPPED
WITH HARTZELL PROPELLERS MODEL
HC82XG-2B AND 7636D-4 BLADES
NORMAL CATEGORY ONLY

Hartzell 72" Diameter Propeller Installation

1. Limitations

Propeller	Hartzell Model HC82XG-2B Constant Speed Full Feathering, Hub C801-4, Blades 7636D-4. Pitch Settings, High 80° Low 12° at 30" Station.
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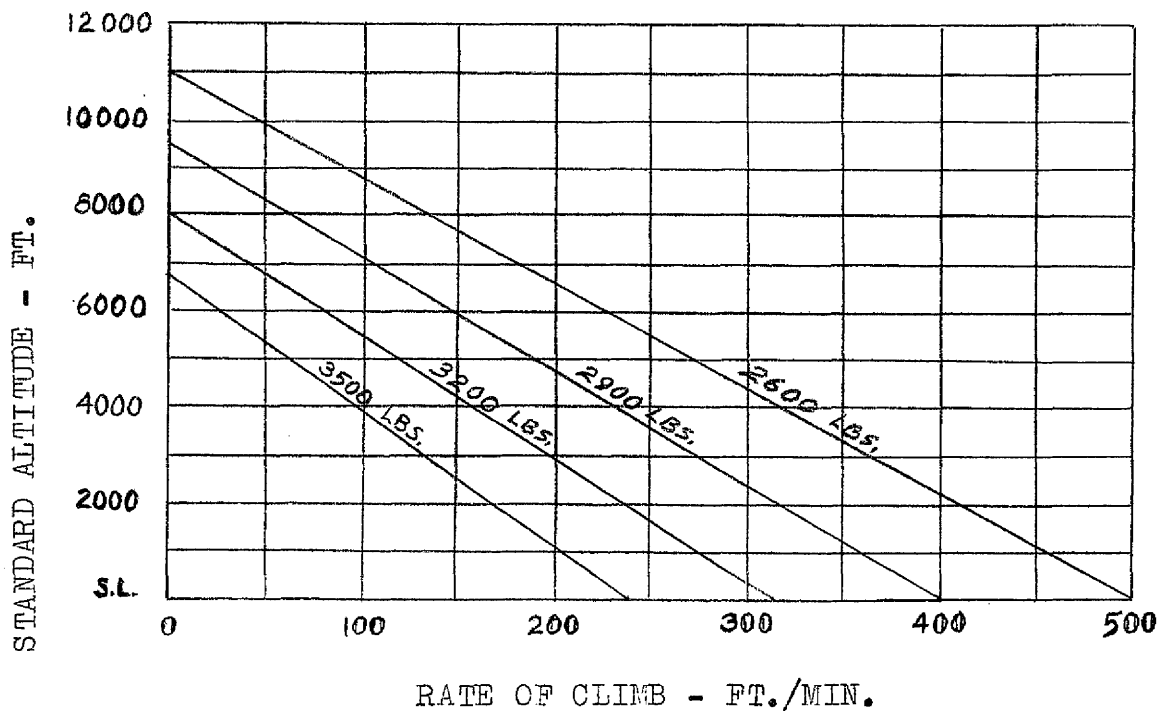
APPENDIX V

THIS DOCUMENT MUST BE ATTACHED
TO THE BASIC AIRPLANE FLIGHT
MANUAL.

APPROVAL BASIS CAR 3 AND 410
JUNE 21, 1955
PIPER MODEL PA-23
NORMAL CATEGORY ONLY

PERFORMANCE:

Critical Engine (Left) Inoperative Climb
Performance Which May Be Realized In Standard
Air Is As Follows: (Ref. CAR 42.82):



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Lock Haven, Penna.

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APPENDIX VI

THIS DOCUMENT MUST BE ATTACHED
TO THE BASIC AIRPLANE FLIGHT MANUAL
WHEN THE ITEMS DESIGNATED BELOW
ARE INSTALLED

APPROVAL BASIS CAR 3 AND 410
SEPTEMBER 16, 1955
PIPER MODEL PA-23 EQUIPPED
WITH AUXILIARY VACUUM PUMP
INSTALLATION
NORMAL CATEGORY ONLY

AUXILIARY VACUUM PUMP INSTALLATION

Placards Required:

1. On the instrument panel adjacent to vacuum selector valve:

"VACUUM CHECK"

Normal Operation:

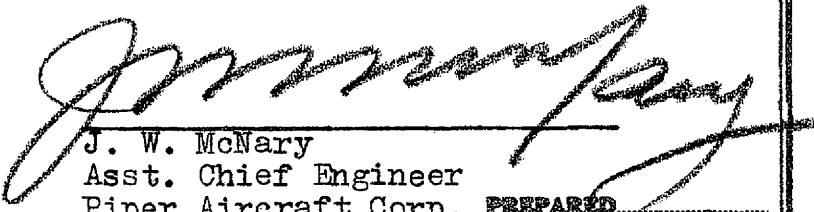
1. Before Take-Off:

With both engines operating at 2000 RPM:

- (a) Turn vacuum selector valve to left source, vacuum gauge should indicate 8" Hg to 10" Hg.
- (b) Turn vacuum selector valve to right source, vacuum gauge should indicate 8" Hg to 10" Hg.
- (c) Turn vacuum selector valve to gyro compass and gyro horizon positions - vacuum gauge should indicate not less than 4 1/4" Hg. or more than 5" Hg. at each position.

NOTE:

The vacuum pumps supply power to the instruments simultaneously. Check valves are employed to automatically select the power source in case single engine operation is required. Therefore, the selector valve on the instrument panel does not select a power source, but is merely a device to check the power being supplied by each source.


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APPENDIX IX

THIS DOCUMENT MUST BE ATTACHED
TO THE BASIC AIRPLANE FLIGHT
MANUAL WHEN THE ITEM DESIGNATED
BELOW IS INSTALLED.

APPROVAL BASIS CAR 3 AND 410
DECEMBER 5, 1955
PIPER MODEL PA-23 EQUIPPED
WITH OPTIONAL SEAT
NORMAL CATEGORY ONLY

OPTIONAL SEAT ARRANGEMENT

Placards Required:

1. Under both rear windows

"Latch seats for take-off and landing."

2. On baggage door frame

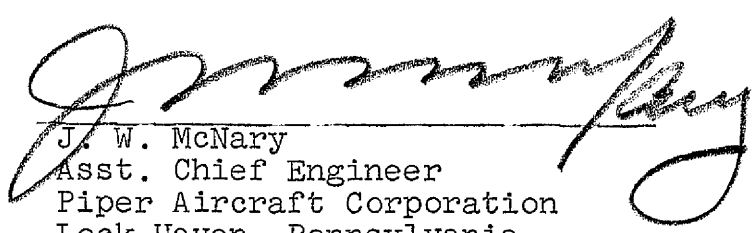
"When five seats are installed see weight and balance
for baggage capacity and loading schedule."

Procedures:

Since it is possible, with the addition of optional equipment, to exceed the gross weight of the airplane a loading schedule is submitted for the convenience of the pilot and will be found in the weight and balance section of this manual.

Any one of the loadings, which are based on the actual empty weight of the airplane, assures loading within the gross weight limits and must not be exceeded.

If any item is added to the airplane which will cause a change in its empty weight, the loading schedule must be altered accordingly.



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AIRPLANE FLIGHT MANUAL

SUPPLEMENT NO. 10

HI-TEMP CARBURETOR HEATER INSTALLATION

NORMAL OPERATION

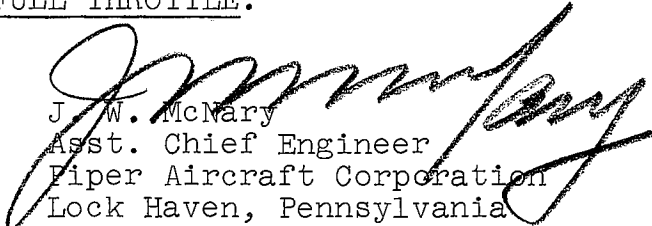
1. This carburetor heater provides very hot air; therefore it will probably never be necessary to use full heat for what is commonly known as icing conditions.

These are most likely to occur under high humidity conditions through an outside temperature range of approximately 30°F. to 70°F. and can be detected at fixed throttle settings during steady flight by a gradual decrease in manifold pressure.

2. When carburetor heat is applied the mixture is appreciably enriched. Therefore the mixture should be leaned to best operation after heat has been applied for maximum economy.

EXTREME ICING OPERATION

1. Severe icing is likely to be encountered when operating in air containing visible moisture in the form of ice crystals, snow, sleet, freezing rain or clouds. For this type of icing it is recommended full carburetor heat be applied prior to entering such conditions.
2. When operating at FULL THROTTLE and FULL carburetor heat (regardless of RPM) leaning the mixture for maximum economy should be accomplished before carburetor heat is applied.
3. Under no circumstances should further leaning be attempted following application of FULL carburetor heat when operating with FULL THROTTLE.


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Approval Basis CAR 3 and 410
April 18, 1957

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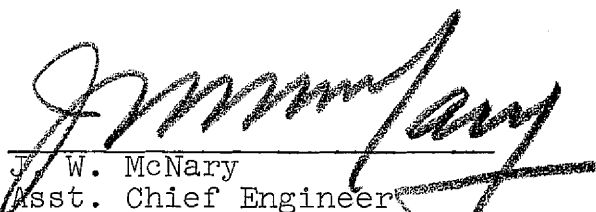
MODEL PA-23
AIRPLANE FLIGHT MANUAL
SUPPLEMENT NO. 11

THIS DOCUMENT MUST BE ATTACHED TO THE BASIC AIRPLANE FLIGHT
MANUAL WHEN NACELLE FAIRINGS ARE INSTALLED.

Nacelle Fairings Installation
Piper Part Nos. 19361 and 19361-1

This installation changes the Minimum Control Speed
(Single Engine) True Indicated from 85 MPH to 78 MPH.

Where Minimum Control Speed (Single Engine) is indicated
in the airspeed limitations section and procedures-propeller
section of the Airplane Flight Manual, note a reference to
this supplement.


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Lock Haven, Pennsylvania
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Approval Basis CAR 3 & 410
September 30, 1958

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