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AIRPLANE FLIGHT MANUAL

MODEL PA-28-150

FAA APPROVED:

H. H. Slaughter


H. H. Slaughter
Chief, Engineering & Manufacturing Branch
Region 2 -- Fort Worth, Texas

DATE:

June 2, 1961

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Log of Revisions

| REVISION NO. | PAGE | DESCRIPTION | APPROVED | DATE |
|--------------|------|---|---|---------|
| 1 | 2 | Change Placard No. 3 to read: "MAXIMUM BAGGAGE 125 LBS." |  Supervisor SC-EMD-42 | 8/29/62 |

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Piper Model PA-28-150
Normal Category Only

FAA Identification No. N5680W

Serial No. 28-931

AIRPLANE FLIGHT MANUAL

1. Limitations Section. The following limitations must be observed in the operation of this airplane:

| | |
|---------------|--|
| Engine | Lycoming O-320-E2A or O-320-A2B |
| Engine Limits | For all operations 2700 rpm, 150 hp. |
| Fuel | 80/87 Octane Aviation Fuel. |
| Propeller | Sensenich M74DM58, Maximum diameter 74 inches, minimum diameter 72-1/2 inches. |

Power Instruments Oil temperature: GREEN arc (normal operating range) 120° F. to 245° F; YELLOW arc (caution range) 60° F. to 120° F; RED line (maximum) 245° F.

Oil pressure: GREEN arc (normal operating range) 60 psi to 85 psi; YELLOW arc (caution range) 25 psi to 60 psi; RED line (minimum) 60 psi; RED line (maximum) 85 psi.

Fuel pressure: GREEN arc (normal operating range) .5 psi to 5 psi; RED line (minimum) .5 psi; RED line (maximum) 5 psi.

Tachometer: GREEN arc (normal operating range) 500 to 2700 rpm; RED line (maximum continuous power) 2700 rpm.

| | | | |
|-----------------------|-----------------------------------|-----|---------------------------------|
| Airspeed Limits | Never exceed..... | 171 | VNE |
| (Calibrated Airspeed) | Maximum structural cruise..... | 140 | VNO |
| (Miles per Hour) | Maneuvering..... | 129 | VA |
| | Flaps extended..... | 115 | VFC |
| | Maximum positive load factor..... | 3.8 | |
| | Maximum negative load factor..... | | No inverted maneuvers approved. |

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Maximum Weight 2150 lbs.

C. G. Range The datum used is 78.4 inches ahead of the wing leading edge at the intersection of the straight and tapered section.

| Weight (Pounds) | Forward Limit (In. aft of datum) | Rearward Limit (In. aft of datum) |
|--------------------|-------------------------------------|--------------------------------------|
| 2150 | 90.1 | 95.9 |
| 1710 | 85.1 | 95.9 |

Straight line variation between given points.

Note: It is the responsibility of the airplane owner and/or the pilot to insure that the airplane is properly loaded. See weight and balance section for loading information.

Maneuvers All acrobatic maneuvers including spins prohibited.

Placards

1. On the instrument panel in full view of the pilot: "THIS AIRPLANE MUST BE OPERATED IN THE NORMAL CATEGORY IN COMPLIANCE WITH THE OPERATING LIMITATIONS STATED IN THE FORM OF MARKINGS, PLACARDS AND MANUALS."

2. At the inside top rear corner of the door: "ENGAGE LATCH BEFORE FLIGHT."

3. On the inside of the baggage compartment door: "MAXIMUM BAGGAGE 125 LBS."

| | | | |
|------------------------------|-----------------|------------------------|-----------------------------------|
| Airspeed Instrument Markings | RED radial line | Never Exceed | 171 mph (148 knots) |
| | YELLOW arc | Caution Range | 140 to 171 mph (121 to 148 knots) |
| | GREEN arc | Normal Operating Range | 64 to 140 mph (56 to 121 knots) |
| | WHITE arc | Flaps down range | 55 to 115 mph (48 to 100 knots) |

2. Procedures Section
1. The stall warning system is inoperative with the master switch off.
 2. The electric fuel pump must be on for both take-off and landing.
 3. Except as noted above, all operating procedures for this airplane are normal.

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3. Performance Section. The following performance figures were determined during F. A. A. type tests with the airplane at maximum weight, which is 2150 pounds. These figures may be duplicated under the conditions stated, with the airplane and engine in good condition, and with average piloting technique.

Loss of altitude during stalls varies from 125 to 200 feet, depending on configuration and power.

Stalling speeds, in MPH, power off, versus angle of bank (Calibrated Airspeed):

| | | | | | |
|---------------|----|----|----|----|----|
| Angle of bank | 0 | 20 | 40 | 50 | 60 |
| Flaps up | 64 | 66 | 73 | 80 | 91 |
| Flaps down | 55 | -- | -- | -- | -- |

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WEIGHT AND BALANCE
DATA
MODEL PA-28-150

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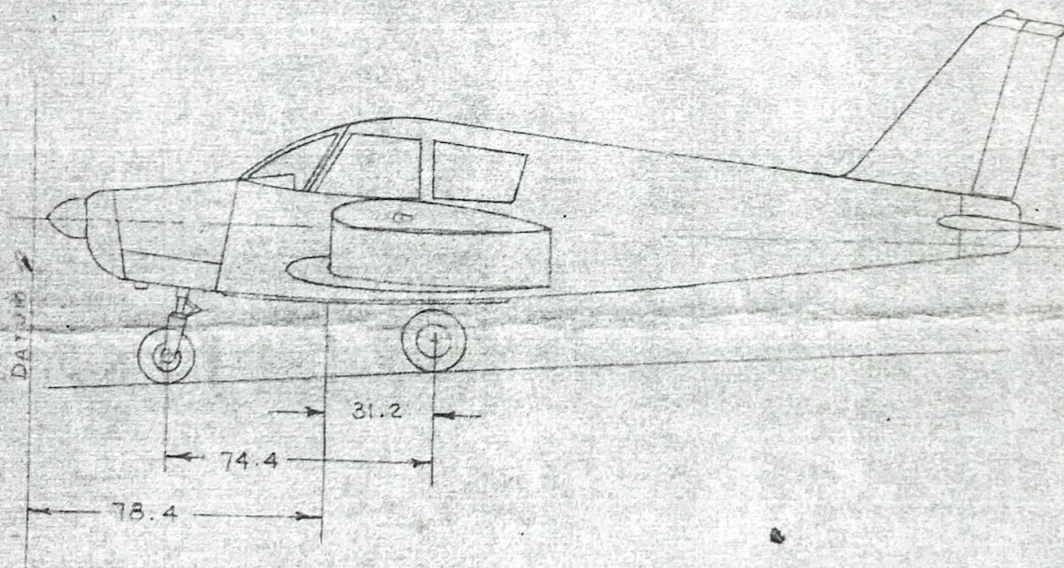
ACTUAL WEIGHT AND BALANCE

Model PA-28-150

SERIAL NUMBER 28- 931

CERTIFICATE NUMBER N5680W

DATE December 12, 1962



Actual
Empty weight as ~~shown~~ (includes items checked on Equipment List):

Left Wheel 432

Right Wheel 437

Nose Wheel 381

Total 1250

Ronald Fitcher

Ronald Fitcher
DMIR-2049

| | | |
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Empty weight C.G. forward main wheel centerline is:

$$A. \frac{(N)}{(T)} \times 74.4 = \underline{22.6} \text{ inches}$$

Empty weight C.G. aft wing leading edge (at intersection of straight and tapered sections):

$$B. 31.2 - (A) = \underline{8.6} \text{ inches}$$

Empty weight C.G. aft datum is:

$$C. 78.4 + (B) = \underline{87.0} \text{ inches}$$

MOST FORWARD C.G. (REDUCED WEIGHT)

| Item | Weight | Arm | Moment |
|---------------|--------|------|--------|
| Empty Weight | 1250 | 87.0 | 108750 |
| Oil (2 Gal.) | 15 | 31.7 | 476 |
| Fuel (8 Gal.) | 48 | 95.0 | 4560 |
| Pilot | 170 | 85.5 | 14535 |
| Total | 1483 | 86.5 | 128321 |

MOST FORWARD C.G. IS 86.5 INCHES AFT DATUM

MOST FORWARD C.G. (ALTERNATE)

| Item | Weight | Arm | Moment |
|------------------------|--------|------|--------|
| Empty Weight | 1250 | 87.0 | 108750 |
| Oil (2 Gal.) | 15 | 31.7 | 476 |
| Fuel (50 Gal.) | 300 | 95.0 | 28500 |
| Pilot | 170 | 85.5 | 14535 |
| Passenger (Front Seat) | 170 | 85.5 | 14535 |
| Total | 1905 | 87.5 | 166796 |

MOST FORWARD C.G. (ALTERNATE) IS 87.5 INCHES AFT DATUM

MOST FORWARD C.G. (GROSS WEIGHT)

| <u>Item</u> | <u>Weight</u> | <u>Arm</u> | <u>Moment</u> |
|---|---------------|------------|---------------|
| Empty Weight | 1250 | 87.0 | 108750 |
| Oil (2 Gal.) | 15 | 31.7 | 476 |
| Fuel (required to reach 2150 lbs.) 34.1 gal. | 205 | 95.0 | 19475 |
| Pilot and Passenger (Front Seat) | 340 | 88.5 | 29070 |
| Passengers (Rear Seat) | 340 | 118.1 | 40154 |
| Total | 2150 | | 197925 |

MOST FORWARD C.G. (GROSS WEIGHT) IS 92.0 INCHES AFT DATUM

MOST REARWARD C.G. (GROSS WEIGHT)

| <u>Item</u> | <u>Weight</u> | <u>Arm</u> | <u>Moment</u> |
|--------------------------------------|---------------|------------|---------------|
| Empty Weight | 1250 | 87.0 | 108750 |
| Oil (2 Gal.) | 15 | 31.7 | 476 |
| Fuel 33 (34 Gal.) | 198 | 95.0 | 18810 |
| Pilot and Passenger (Front Seat) | 340 | 85.5 | 29070 |
| Passengers (Rear Seat) | 340 | 118.1 | 40154 |
| Baggage | 7 | 142.8 | 999 |
| Total | 2150 | | 198259 |

MOST REARWARD C.G. (GROSS WEIGHT) IS 92.2 INCHES AFT DATUM

MOST REARWARD C.G. (GROSS WEIGHT ALTERNATE)

| <u>Item</u> | <u>Weight</u> | <u>Arm</u> | <u>Moment</u> |
|--------------|---------------|------------|---------------|
| Empty Weight | 1250 | 87.0 | 108750 |
| Oil (2 Gal.) | 15 | 31.7 | 476 |

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MOST REARWARD C.G. (GROSS WEIGHT ALTERNATE) -- continued

| <u>Item</u> | <u>Weight</u> | <u>Arm</u> | <u>Moment</u> |
|---|---------------|--------------|---------------|
| Fuel (required to reach 2150 lbs.) 13.3 gal. | 80 | 95.0 | 7600 |
| Pilot and Passenger (Front Seat) | 340 | 85.5 | 29070 |
| Passengers (Rear Seat) | 340 | 118.2 | 40154 |
| Baggage | <u>125</u> | <u>142.8</u> | <u>17850</u> |
| Total | 2150 | | 203900 |

MOST REARWARD C.G. (GROSS WEIGHT ALTERNATE) IS 94.8 INCHES AFT DATUM

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ACTUAL WEIGHT AND BALANCE

EQUIPMENT LIST

N5680W

MODEL PA-28-150

| Check if installed | ITEM | WEIGHT (LBS.) | ARM AFT DATUM |
|-----------------------|---|------------------|------------------|
| | <u>Engine Accessories</u> | | |
| X | Engine - Lycoming Model O-320-E2A or Engine - Lycoming Model O-320-A2B | 284.0 | 26.1 |
| X | Fuel Pump, Electric Auxiliary, Bendix Model 478360 | 1.8 | 41.8 |
| | Fuel Pump, Engine Driven A.C., Type A.II. No. 5594068 | 3.0 | 41.3 |
| X | Fuel Pump, Engine Driven, Lycoming D. g. No. 73297 or 74060, or 74082 | 1.6 | 41.3 |
| X | Oil Cooler, Piper D. g. 18622 | 2.6 | 18.1 |
| X | Filter, Fram Model CA-161PL or AC No. A48-C | .9 | 20.1 |
| | Generator, Delco-Remy Model No. 1101900 (12V. 35 amp.) | 16.6 | 19.0 |
| X | Starter, Delco-Remy Model No. 1109657 | 17.0 | 19.0 |
| X | Vacuum Pump, Airborne Mechanisms Model No. 10-113A1 or 113A5 | 3.6 | 36.3 |
| X | Magneto (2) Scintilla S4LN-20 and S4LN-21 | 10.2 | 38.1 |
| X | Alternator, 35 amp., Chrysler No. 2098615 | 12.5 | 19.0 |
| | <u>Propeller and Propeller Accessories</u> | | |
| X | Propeller, Sensenich M74DM58 | 30.0 | 10.1 |
| X | Spinner and Attachment Plates | 2.0 | 8.0 |

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| Check if Installed | ITEM | WEIGHT (LBS.) | ARM AFT DATUM | |
| | <u>Landing Gear and Brakes</u> | | | |
| X | Two Main Wheel Assemblies 6.00-16 (a) Cleveland Aircraft Products Wheel Assembly No. 40-28 Brake Assembly No. 30-18 (b) Two Main 4-Ply Rating Tires 6.00-6 With Regular Tubes | 32.0 | 109.6 | |
| X | One Nose Wheel 6.00-6 (a) Cleveland Aircraft Products Wheel Assembly No. 38501 (less brake drum) (b) One Nose Wheel 4-Ply Rating Tire 6.00x 6 With Regular Tube | 14.0 | 34.3 | |
| | <u>Electrical Equipment</u> | | | |
| | Battery 12 V., 33 A.H., Exide Model AC-66 or Reading R-33 | 27.0 | 160.9 | |
| | Forward Rotating Beacon, Grimes Model D7080 or Whelen Model WRM-12 | 2.0 | 26.7 | |
| X | Aft Rotating Beacon, Grimes Model D7080 or Whelen Model WRM-12 | 2.0 | 263.4 | |
| X | Stall Warning Device, Safe Flight Inst. Corp. No. C52207-4 | .2 | 80.2 | |
| X | Landing Light, G. E. Model 4509 | .5 | 18.1 | |
| | Voltage Regulator, Delco-Remy No. 118704 | 1.5 | 168.5 | |
| | Piper Autocontrol | 4.5 | 60.0 | |
| X | Navigation Lights (2) Grimes Model A1285 Red and Green | .4 | 106.6 | |
| X | Navigation Light (Rear) (1) Grimes Model 2764 (White) | .1 | 280.9 | |
| X | Voltage Regulator, Chrysler No. 2093613 | .5 | 57.8 | |
| X | Battery 12 V., 25 A.H., Rebat Model S-25 | 21.5 | 160.9 | |
| Y | Installed Nerco ELT-10. | 3.3 | 160.9 | |

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Weight and Balance Data
Model PA-28-150

PAGE 3 Section 1

| Check if installed | ITEM | WEIGHT (LBS.) | ARM AFT DATUM |
|--------------------|---|---------------|---------------|
| | <u>Instruments</u> | | |
| X | Compass - Airpath No. C2350-L41 | .9 | 66.6 |
| X | Airspeed Indicator, TSO-C 2a Type 1 | .6 | 67.7 |
| X | Turn and Bank, Pioneer A-5 | 1.5 | 66.4 |
| X | Tachometer, AC 1548302 | .8 | 67.7 |
| X | Suction Gauge, AN5771-11 | .4 | 68.1 |
| | Altimeter, Aero Marine No. 552 | 1.4 | 66.8 |
| X | Altimeter, AN 5760-2 (C-12 or C-13) | 1.4 | 66.8 |
| X | Rate of Climb, Pioneer C-7 | 1.4 | 66.8 |
| X | Directional Gyro, Vacuum | 2.5 | 66.6 |
| X | Artificial Horizon, Vacuum | 2.7 | 66.1 |
| X | Air Temperature Gauge, Rochester Manufacturing Co., No. 1592-C2 | .2 | 82.6 |
| X | Clock, 8-Day | .4 | 68.3 |
| | Directional Gyro, Vacuum (Autopilot) | 4.3 | 65.1 |
| | Artificial Horizon, Vacuum (Autopilot) | 4.5 | 65.3 |
| X | Engine Cluster -- Piper Dwg. #63922 | .8 | 68.8 |
| | Tru-Speed Indicator, TSO-C-2A Type 1 | .6 | 67.7 |
| | <u>Radio</u> | | |
| | Narco VHT-3 (Less Antenna) | 8.0 | 62.6 |
| | Piper PRC-3 RDF | 4.5 | 64.4 |
| X | Omni. Antenna | .4 | 266.2 |

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| | ITEM | WEIGHT (LBS.) | ARM AFT DATUM |
|----------------------|--|------------------|------------------|
| Checked Installed | <u>Radio</u> (Continued from Page 3 Section 1) | | |
| X | Translating Antenna | .6 | 89.4 |
| | L. F. Receiving Antenna | .5 | 167.0 |
| | RDF Loop | .3 | 54.5 |
| X | Piper VHF Transceiver Model PTR-1 | 5.0 | 64.8 |
| X | Piper Omni Converter Model O-1 | 2.5 | 65.3 |
| | Marker Antenna | 1.2 | 64.7 |
| | Narco Omigator VTR-2A (less Antenna) | 14.0 | 58.0 |
| | King KX 150 Director (less Antenna) | 9.1 | 62.8 |
| | <u>Miscellaneous</u> | | |
| X | Tow Bar Assembly | 1.5 | 132.0 |
| X | Coat Hooks and Assist Straps | .2 | 107.5 |
| X | Sun Visors | 1.0 | 80.7 |
| X | Arm Rests | 1.2 | 85.8 |
| X | Cabin Dome Light | 1.0 | 99.0 |
| X | Food Seat Belts | 1.0 | 86.9 |
| X | Air Seat Belts | .8 | 123.0 |
| X | Nose Wheel Fairing | 4.0 | 34.3 |
| X | Main Wheel Fairing | 8.0 | 109.6 |
| | Fire Extinguisher | 7.5 | 93.0 |
| X | Flight Manual | | |

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C.G. RANGE AND WEIGHT

