

# NTSB Investigation: ERA24LA054

Airplane Flight Manual Excerpts

Owner's Manual Excerpts

PA32-260, SN 32-1152, 1969 (N7748J)

|          |                                                                            |                                           |
|----------|----------------------------------------------------------------------------|-------------------------------------------|
| PREPARED | <b>PIPER AIRCRAFT CORP.</b><br><b>DEVELOPMENT CENTER, VERO BEACH, FLA.</b> | Airplane Flight Manual<br>Model PA-32-260 |
| CHECKED  |                                                                            |                                           |
| APPROVED |                                                                            | REPORT VB-156<br><br>PAGE <u>  i  </u>    |

REFERENCE ONLY

THIS ELECTRONIC VERSION  
OF THE AFM IS  
NOT APPROVED TO  
REPLACE ANY OPERATING  
INFORMATION REQUIRED  
BY THE REGULATIONS.

AIRPLANE FLIGHT MANUAL

MODEL PA-32-260

SERIAL NUMBER EFFECTIVITY: 32-1111 thru 32-7200045

FAA IDENTIFICATION NO. \_\_\_\_\_

SERIAL NO. \_\_\_\_\_

THIS DOCUMENT MUST BE KEPT IN AIRPLANE AT ALL TIMES.

FAA DOA SO-1  
APPROVED \_\_\_\_\_

H. M. Toomey *J*

DATE

12/17/68

FAA DOA SO-1 APPROVED

|          |                                             |  |                        |
|----------|---------------------------------------------|--|------------------------|
| PREPARED | <b>PIPER AIRCRAFT CORP.</b>                 |  | Airplane Flight Manual |
| CHECKED  | <b>DEVELOPMENT CENTER, VERO BEACH, FLA.</b> |  | Model PA-32-260        |
| APPROVED | REPORT VB-156                               |  | PAGE <u>3 of 7</u>     |

|                      |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |
|----------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Placards<br>(Cont'd) | <p>6. On the fuel selector valve cover: "ALL WEIGHT IN EXCESS OF 3112 POUNDS MUST BE FUEL WEIGHT ONLY, FILL TIP TANKS FIRST, <b>USE MAIN TANKS FIRST.</b>"</p> <p>7. On the instrument panel in full view of the pilot when the AutoFlite II is installed:<br/> "TURN AUTOFLITE ON. ADJUST TRIM KNOB FOR MINIMUM HEADING CHANGE. FOR HEADING CHANGE, PRESS DISENGAGE SWITCH ON CONTROL WHEEL, CHANGE HEADING, RELEASE SWITCH. ROTATE TURN KNOB FOR TURN COMMANDS. PUSH TURN KNOB IN TO ENGAGE TRACKER. PUSH TRIM KNOB IN FOR HI SENSITIVITY. LIMITATIONS AUTOFLITE OFF FOR TAKEOFF AND LANDING."</p> <p>8. On the instrument panel in full view of the pilot when the supplementary white strobe lights are installed:<br/> "WARNING - TURN OFF STROBE LIGHTS WHEN TAXIING IN VICINITY OF OTHER AIRCRAFT, OR DURING FLIGHT THROUGH CLOUD, FOG OR HAZE."</p> |
|----------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|

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|------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------|--------------|---------------------|------------|----------------------------------|--------------------------------------|-----------|---------------------------|------------------------------------|-----------|-----------------|------------------------------------|
| Airspeed<br>Instrument | <table border="0"> <tr> <td>RED radial line</td> <td>Never Exceed</td> <td>212 mph (184 knots)</td> </tr> <tr> <td>YELLOW arc</td> <td>Caution Range<br/>Smooth Air Only</td> <td>168 to 212 mph<br/>(146 to 184 knots)</td> </tr> <tr> <td>GREEN arc</td> <td>Normal Operating<br/>Range</td> <td>71 to 168 mph<br/>(62 to 146 knots)</td> </tr> <tr> <td>WHITE arc</td> <td>Flap Down Range</td> <td>63 to 125 mph<br/>(55 to 109 knots)</td> </tr> </table> | RED radial line                      | Never Exceed | 212 mph (184 knots) | YELLOW arc | Caution Range<br>Smooth Air Only | 168 to 212 mph<br>(146 to 184 knots) | GREEN arc | Normal Operating<br>Range | 71 to 168 mph<br>(62 to 146 knots) | WHITE arc | Flap Down Range | 63 to 125 mph<br>(55 to 109 knots) |
| RED radial line        | Never Exceed                                                                                                                                                                                                                                                                                                                                                                                                                                                   | 212 mph (184 knots)                  |              |                     |            |                                  |                                      |           |                           |                                    |           |                 |                                    |
| YELLOW arc             | Caution Range<br>Smooth Air Only                                                                                                                                                                                                                                                                                                                                                                                                                               | 168 to 212 mph<br>(146 to 184 knots) |              |                     |            |                                  |                                      |           |                           |                                    |           |                 |                                    |
| GREEN arc              | Normal Operating<br>Range                                                                                                                                                                                                                                                                                                                                                                                                                                      | 71 to 168 mph<br>(62 to 146 knots)   |              |                     |            |                                  |                                      |           |                           |                                    |           |                 |                                    |
| WHITE arc              | Flap Down Range                                                                                                                                                                                                                                                                                                                                                                                                                                                | 63 to 125 mph<br>(55 to 109 knots)   |              |                     |            |                                  |                                      |           |                           |                                    |           |                 |                                    |

FAA APPROVED 12/17/68

REVISED 11/30/78 Rev. No. 2

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# **CHEROKEE SIX B**

## **Owner's Handbook**



**Piper Aircraft Corporation, Vero Beach, Florida  
U. S. A.**

**SECTION II****DESIGN INFORMATION****ENGINE AND PROPELLER**

The Lycoming O-540-E4B5 engine installed in the Cherokee Six, PA-32-260 is rated at 260 horsepower at 2700 rpm. This engine has a compression ratio of 8.5 to 1 and requires 100/130 minimum octane fuel. The engine is equipped with a geared starter, a 60 ampere alternator, dual magnetos, vacuum pump drive, a diaphragm-type fuel pump and a float carburetor.

Exhaust gases are carried through a system constructed of heavy gauge stainless steel which incorporates two heater shrouds, one for cabin heat and the other for carburetor deicing.

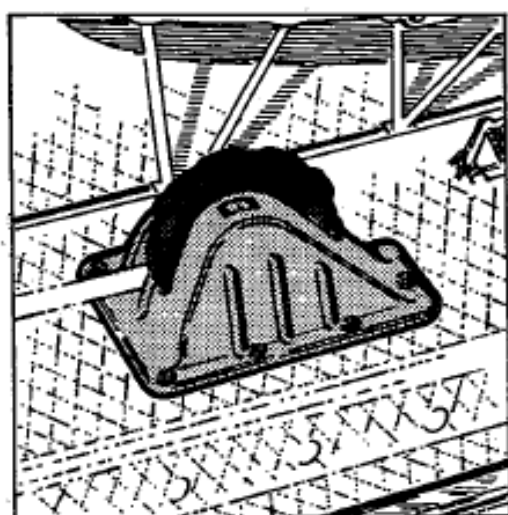
The propeller used on the PA-32-260 is either the McCauley 1P235PFA82 fixed pitch aluminum alloy unit or the Hartzell HC-C2YK-1A/8477-2 constant speed propeller.

The McCauley propeller is 82 inches in diameter, with a standard pitch of 66 inches, although propellers with a pitch from 60 inches to 66 inches may be installed for special purposes. All performance figures are based on the standard 66 inch propeller.

The Hartzell propeller is 82 inches in diameter and is controlled by a Hartzell F-4-4 governor mounted on a pad on the forward end of the crankcase. This governor supplies oil to the propeller through the engine shaft. The governor is controlled by a cable from the cockpit.

Cowling on the Cherokee Six is designed to cool the engine in all normal flight conditions, including protracted climb, without the use of cowl flaps or cooling flanges.

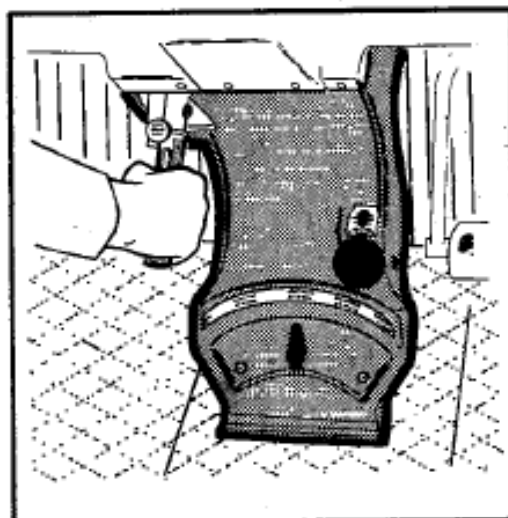
The power control quadrant is designed with the throttle mixture and, when installed, propeller control. The quadrant has

**Stabilator Trim Control**

sition, it should be completely retracted when the airplane is on the ground. The flaps have three extended positions, 10, 25, and 40 degrees.

## FUEL SYSTEM

The total fuel capacity of the Cherokee Six is 84 gallons, all of which is usable except for approximately one pint in each of

**Fuel Control Selector**

amount of coordination required in normal turns.

The flaps are manually operated, balanced for light operating forces and spring loaded to return to the up position. A past-center lock incorporated in the actuating linkage holds the flap when it is in the up position so that it may be used as a step on the right side. Since the flap will not support a step load except when in the full up po-

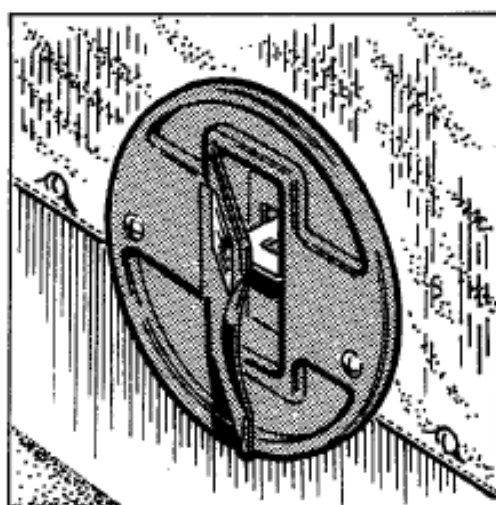
sition, it should be completely retracted when the airplane is on the ground. The flaps have three extended positions, 10, 25, and 40 degrees.

The two main inboard tanks, which hold 25 gallons each, are attached to the wing structure with screws and nut plates and can be removed easily for service or inspection. The tip tanks are constructed of resin-impregnated fiberglass and hold 17 gallons each.

The fuel selector control is located below the center of the instrument panel on the sloping face of the control

tunnel. It has five positions corresponding to each of the four tanks plus an **OFF** position. When using less than the standard 84 gallon capacity of the tanks, fuel should be distributed equally between each side and may be placed in either the inboard or tip tanks.

Each fuel tank is equipped with an individual quick drain located at the lower inboard rear corner of the tank. The



**Fuel Drain Lever**

fuel strainer and a system quick drain valve are located in the fuselage at the lowest point of the fuel system. This strainer should be drained regularly to avoid the accumulation of water or sediment. The drain valve is operated by pressing **DOWN** on the lever located on the right hand side of the cabin below the forward edge of the right center seat.

Fuel quantity gauges for each of the four tanks are located in the engine gauge cluster on the left side of the instrument panel. A fuel pressure indicator is also incorporated in the engine gauge cluster.

An electric fuel pump is provided for use in case of failure of the engine-driven pump. The electric pump operates from a single switch and should be **ON** for all take-offs and landings.

## **ELECTRICAL SYSTEM**

The electrical system includes a 12 volt 60 ampere alternator, battery, voltage regulator, overvoltage relay, and master switch relay. The battery, master switch relay, voltage regulator and overvoltage relay are located beneath the floor of the forward baggage compartment and access is obtained by removing the floor.

Lazy eights and chandelles may be performed provided a 60° angle of bank or a 30° angle of pitch is not exceeded.

## **CRUISING**

The cruising speed of the Cherokee Six is determined by many factors including power setting, altitude, temperature, loading, and equipment installed on the airplane.

The normal maximum cruising power is 75% of the rated horsepower of the engine. True airspeeds, which can be obtained at various altitudes and power settings, can be determined from the charts in Section IV of this handbook.

Use of the mixture control in cruising flight reduces fuel consumption significantly, especially at high altitudes. The mixture should always be leaned during cruising operations at 75% power or less, but during the climb only at altitudes above 5000 feet.

When selecting cruising RPM below 2300, limiting manifold pressure for continuous operation, as specified by the Lycoming Operator's Manual, should be observed.

The continuous use of carburetor heat during cruising flight decreases engine efficiency. Unless icing conditions in the carburetor are severe, do not cruise with the heat on. Apply full carburetor heat slowly and only for a few seconds at intervals determined by icing severity.

For best lateral trim during cruise, the fuel should be used from alternate tip tanks. Draw fuel from one tip tank for an hour after take-off, from the alternate tip tank until it is nearly empty, then back to the first tip tank. Alternate the fuel selector between main tanks at one hour intervals.

Avoid switching tanks at low altitude since little recovery time is available in event of an error in tank selection. To preclude making a hasty decision, and to provide continuity of flow, the selector should be changed before fuel is exhausted from the tank in use. Be sure that the fuel selector drops into a detent and is aligned with the desired tank. Turn the electric fuel pump

on before switching tanks and leave it on for a short period to establish flow.

During cruise the electric fuel pump should be off so that any malfunction of the engine driven fuel pump is immediately apparent. If signs of fuel starvation occur, suspect fuel exhaustion in the tank being used and switch to a tank with fuel.

The following listing contains a few recommended fuel operation procedures.

1. Fuel quantity should be visually checked in all fuel tanks before entering the aircraft.

2. After using the under-seat quick drain, it should be checked from outside the aircraft to make sure it has closed completely, and is not leaking.

3. Take-off should be made on the fullest main tank to assure best fuel flow, and this tank selected before or immediately after starting in order to allow fuel flow to be adequately established before take-off. The main or tip tank with the highest quantity of fuel should be selected for landing.

4. Fuel tank selection at low altitude is not recommended, since little recovery time is available in the event of an error in tank selection. When switching tanks, make sure that the selector drops into a detent, and is lined up with the desired tank.

5. The electric fuel pump should be turned on before switching tanks, and should be left on for a short period thereafter.

6. To preclude making a hasty selection, and to provide continuity of flow, it is desired that the selector be changed to another tank before fuel is exhausted from the tank in use.

7. Operation of the engine driven fuel pump should be checked while taxiing or during pretake-off engine run up by switching off the electric fuel pump and observing fuel pressure.

8. During cruise, the electric fuel pump should be in the off position so that any malfunction of the engine driven fuel pump is immediately apparent.

9. If signs of fuel starvation should occur at any time during flight, fuel exhaustion should be suspected, at which time the fuel selector should be immediately positioned to a full tank and the electric fuel pump switched to the on position.

**APPROACH AND LANDING**

Before landing check list:

1. Mixture **RICH**
2. Propeller set
3. Carburetor heat **OFF** (unless icing conditions exist)
4. Electric fuel pump **ON**
5. Fuel selector on proper tank
6. Flaps as desired (under 125 MPH)

The airplane should be trimmed to an approach speed of about 90 MPH and flaps extended. The flaps can be lowered at speeds up to 125 MPH, if desired. The propeller should be set at full RPM or at a high cruising RPM to facilitate an emergency go-around if needed. Carburetor heat should not be applied unless there is an indication of carburetor icing, since the use of carburetor heat causes a reduction in power which may be critical in case of a go-around. Full throttle operation with heat on is likely to cause detonation.

The amount of flap used during landings and the speed of the aircraft at contact with the runway should be varied according to the landing surface and conditions of wind and aircraft loading. It is generally good practice to contact the ground at the minimum possible safe speed consistent with existing conditions.

Normally, the best technique for short and slow landings is to use full flap and enough power to maintain the desired air-speed and approach flight path. Mixture should be full rich, fuel on the fullest tank, carburetor heat off, and electric fuel pump on. Reduce the speed during the flareout and contact the ground close to the stalling speed (63 to 70 MPH). After ground contact hold the nose wheel off as long as possible. As the airplane slows down, drop the nose and apply the brakes. There will be less chance of skidding the tires if the flaps are retracted before applying the brakes. Braking is most effective when back pressure is applied to the control wheel, putting most of the aircraft weight on the main wheels. In high wind conditions, particularly

