

PILOT'S OPERATING HANDBOOK AND FAA APPROVED AIRPLANE FLIGHT MANUAL

PIPER PA-24-250 COMANCHE

2800 POUNDS GROSS WEIGHT

1958 THROUGH 1960 MODEL

APPLICABLE TO AIRPLANES WITH SERIAL NUMBERS:
24-103 THROUGH 24-2298 EXCEPT 24-2003

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SECOND ISSUE

Retraction of the landing gear is accomplished by an electric motor and transmission assembly located under the floorboard, activating push-pull cables to each of the main gear, and a push-pull tube to the nose gear. Limit switches are installed in the system to cut off the gear motor when the gear is fully extended or retracted.

To guard against inadvertent movement of the landing-gear selector switch while on the ground, a mechanical guard is positioned just below the switch. On later models the switch handle must also be pulled aft before being placed in the "gear up" position. Beginning with serial number 656, a warning horn will sound if the selector switch is placed in the "gear up" position while the weight of the airplane is resting on the landing gear.

To prevent inadvertent retraction of the landing gear while the airplane is on the ground, a safety "squat" switch is installed on the left main gear to open the electric circuit to the landing-gear motor until the strut is fully extended.

If manifold pressure is reduced below approximately 12-inches, and the landing gear is not down and locked, a warning horn will sound to alert the pilot to the possibility of a gear-up landing. The landing-gear warning horn emits a continuous sound.

A green light on the instrument panel is the primary indication that the landing gear is down and locked. When the gear is fully extended, the series circuit that lights this lamp is completed through a switch located on each of the three gear. All three gear must be down and locked for the indicator to light. An amber light above the landing-gear selector switch indicates the gear is up. It is important to note that the landing-gear indication lights are automatically dimmed when the navigation lights are turned on.

A telescoping emergency handle is used to manually extend the landing gear in the event of a malfunction of the electrical system.

BRAKE SYSTEM

The brakes are activated by a hand lever located below the left center of the instrument panel. The hydraulic brake system is a self-adjusting, single-disk, double-piston assembly. The master cylinder reservoir is located in the engine compartment on the firewall.

The parking brake is connected mechanically to the master cylinder and may be set by applying the hand lever and pulling out the parking brake "T" handle. To prevent inadvertent application of the parking brake in flight, a safety lock is incorporated to eliminate the possibility of pulling out the "T" handle until pressure is applied by use of the toe brakes or hand lever. To release the parking brake, apply the brakes and push in on the parking brake "T" handle.

FUEL SYSTEM

The fuel cells on the Comanche consist of rayon-neoprene bladders which are contained in cavities in the forward sections of the wing. The cells hold a capacity of 30 gallons (28 usable) each. It is important to note that due to several factors, including aircraft attitude while refueling, many fuel cells do not hold their full rated capacity.

Fuel cells should be kept full when the aircraft is not in use to prevent accumulation of moisture through condensation and to keep the rubber from deteriorating by drying out.

Fuel cells are vented individually by vent tubes located beneath the wing. Fuel from each cell passes through a selector-shutoff valve to a sediment bowl in the lowest part of the fuel system where it is filtered, and any water or foreign particles are trapped. From there the fuel is drawn to the carburetor by an engine-driven pump. In the event of failure of the engine-driven pump, an electric auxiliary fuel pump is provided. In addition to the back-up function, this pump is normally operated when switching fuel tanks and during starting, takeoff and landing.

On the early model 250 the "gasculator" fuel-strainer unit is located under the right forward section of the fuselage and is accessible from outside the aircraft. Daily draining of the sediment bowl is accomplished by opening the hinged access door and operating the quick-drain valve for approximately five seconds with the fuel-selector valve on one cell. Change the fuel selector to the next cell and repeat the procedure. Allow enough fuel to flow to clear the lines as well as the sediment-bowl strainer. Fuel quantity is indicated by two electric gauges located in the engine instrument cluster.

An engine-priming system is provided to facilitate starting. The manually operated primer pump is located on the lower right side of the instrument panel. Be certain that the primer pump is in and locked after use.

ELECTRICAL SYSTEM

Electrical power for the Comanche is supplied by a 12-volt, direct-current, negative-ground system. The primary electrical power source is a 12-volt, 35-ampere (50-ampere optional) generator controlled by a voltage and current regulator. Beginning with serial number 2202, the 50 ampere generator became standard equipment. The electrical systems of many airplanes have been modified to operate on a 12-volt, 70-ampere alternator. Secondary power is provided by a 12-volt, 35 ampere-hour battery which supplies power for starting, and is a reserve power source in the event of generator failure.

The battery is mounted in a stainless-steel box immediately aft of the baggage compartment. The regulator is mounted in the engine compartment on the firewall. The ammeter, located in the engine gauge cluster, indicates battery discharge.

Electrical switches are located on the lower left side of the instrument panel. The master switch is positioned on the far left of these switches. Circuit breakers are mounted in a cluster below the switches.

Standard lighting on the Comanche includes navigation lights, landing lights, cabin and instrument lights. Optional equipment includes a rotating beacon and strobe lights. A combination on-off rheostat switch controls the navigation lights and the instrument and radio lights.