A Pilot's Guide

PA-28 Cherokee

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Jeremy M. Pratt

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Introduction to the PA-28 Cherokee

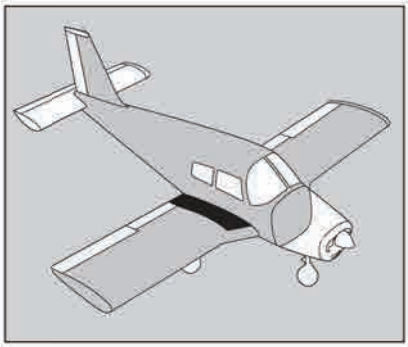
Cherokee—a Native-American tribe that dwelled in the North Carolina and Tennessee area.

The PA-28 Cherokee, first produced in 1961, continued the Piper penchant for using Native-American tribal names for their aircraft. The Cherokee was introduced to replace the high wing, fabric covered PA-22 Tri-Pacer, and also to compete with the hugely successful Cessna singles that had been introduced a few years previously.

Even the early Cherokees were available in many forms and different options. These versions and derivatives continued to spawn down the years giving a whole array of Cherokees in existence, from the fixed gear, two-place 140 HP through 150 HP, 160 HP, 180 HP and 235 HP models, to the PA-32 Cherokee Six and retractable Arrows. If you continue to follow the lineage through the Warrior models with their re-designed wing, and the Lance and Saratoga (derivatives of the original PA-32 Cherokee Six), you end up with far too many types to cover in the scope of this book. Production of the fixed gear Cherokees amounts to around 25,000 aircraft; if you include all the various derivatives you come to a figure nearer 43,000.

This publication will cover the Cherokee in its fixed gear models powered by the 150 HP and 180 HP engines, (although much of the information in this book will be relevant to the 140 HP, 160 HP and 235 HP models), from 1963 to the introduction of the new style wing beginning in 1974. The later models, still with the PA-28 designation but renamed the Warrior, are the subject of a separate publication in this series. It is generally good airmanship, but particularly with the prolific PA-28 variants, to remember that the individual airplane flight manual (as amended and updated) is the only authoritative document for the particular aircraft you intend to fly.

The Airframe



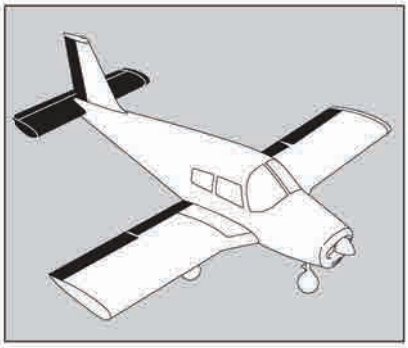
The PA-28 airframe is generally described as being of all metal construction. The primary structure is constructed of aluminum alloy, and the engine mount is made from tubular steel. Some non-structural components such as the wing tips and landing gear fairings are made from fiberglass.

The fuselage has a semi-monocoque structure; that is, the vertical bulkheads and frames are joined by horizontal longerons and stringers which run the length of the fuselage. The metal skin is riveted to the longerons and stringers. This arrangement is conventional for modern light aircraft and allows loads to be spread over the whole construction. At the rear of the fuselage the tail unit incorporates an "all-moving" horizontal stabilizer, or stabilator. Underneath the rear fuselage a triangular combined tie-down point and tail guard is fitted.

The wings are of cantilever design (unsupported by external struts or bracing), and have a positive dihedral. On the upper surface of the right wing, a black walkway is marked; this is the only area of the wing to be walked on or stood on. Underneath each wing a metal ring is fitted to be used as a tie-down point.

The wings have a positive dihedral.

The Flight Controls



Dual flight controls are installed as standard and link the cockpit controls to the control surfaces via cable linkages.

The AILERONS are of the differential type, moving upward through 30°, and downward through 15°. A balance weight is installed on a short rod at the outer end of each aileron, and this weight is visible inside the wing tip cavity.

The FLAPS are of the simple slotted type. They are manually operated from a lever between the cockpit seats, through a torque tube and push rods to the flap surfaces. Four positions can be selected, fully up (0°), 10°, 25° and 40°. The flaps lock in the full up position, and only in this position can the walkway on the right hand flap be stood upon. In any other position, the flaps will move rapidly down to 40° if any weight is placed on the flap walkway, dumping the unwary onto the ground!

Flap "No Step" warning.

The RUDDER is operated from the rudder pedals (which are also linked to the steerable nose wheel) and can move through 27° either side of the neutral position. A rudder trim tab is fitted in the cockpit below the instrument panel. This wheel can be used to trim out excessive rudder forces in flight. As the rudder is connected (via rods from the rudder pedals) to the nose wheel, the control surface cannot be moved while the aircraft is stationary without exerting considerable force—and this is not recommended.

The Cherokee has an all moving STABILATOR, which functions as a combined horizontal stabilizer and elevator, it moves up 14° from neutral and down 2° from neutral. The control functions in the natural sense, and by design provides a very powerful pitching force.

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