

Landing Gear Systems

Aircraft tires, on the other hand, actually spend very little time rotating, but when they do it can be at speeds far in excess of those that most cars will experience. Plus, the tire is subjected to going from a no-load situation to a very heavy load instantly, often with substantial impact, while spooling up from zero to often over 100 mph. Manufacturers design aircraft tires to have a deflection capability ranging from about 32 to 35%.

Main Tire Components

There are four main components to an aircraft tire, which may be seen in Figure 10-3. They are the bead, carcass (cord body), tread, and sidewall.

In the world of tires, the bead is king. It is the bead that ultimately bears the brunt of all the forces applied to the tire. Plus, the bead anchors the carcass and provides a method to mount the tire on a wheel.

A tire's carcass is composed of plies (layers) of rubber-coated nylon cord fabric. Cut on a bias into strips, the fabric's cords run at an angle roughly 45 degrees to the length of the strip, which extends across the tire and around the bead. As each ply is put on the tire, it is oriented so that its cords cross the subsequent cords at about 90 degrees, giving added strength and balance to the carcass.

The tread is the surface on the outer circumference of the tire that principally contacts the ground. Various patterns of grooves make up the tread, whose purpose is to increase

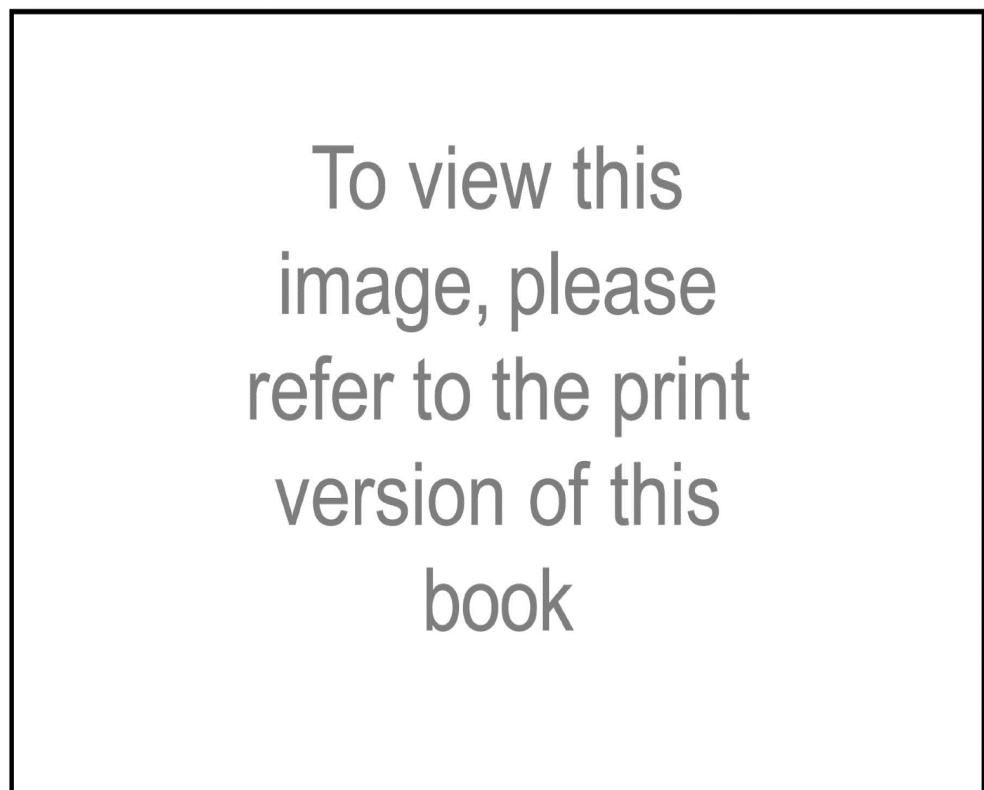


Fig. 10-3. Aircraft tire cross section.