

Tube Construction and Selection

Aircraft tire tubes are made of a natural rubber compound. They contain the inflation air with minimal leakage. Unreinforced and special reinforced heavy-duty tubes are available. The heavy-duty tubes have nylon reinforcing fabric layered into the rubber to provide strength to resist chafing and to protect against heat such as during braking.

Tubes come in a wide range of sizes. Only the tube specified for the applicable tire size must be used. Tubes that are too small stress the tube construction.

Tube Storage and Inspection

An aircraft tire tube should be kept in the original carton until put into service to avoid deterioration through exposure to environmental elements. If the original carton is not available, the tube can be wrapped in several layers of paper to protect it. Alternately, for short time periods only, a tube may be stored in the correct size tire it is made for while inflated just enough to round out the tube. Application of talc to the inside of the tire and outside of the tube prevents sticking. Remove the tube and inspect it and the tire before permanently mounting the assembly. Regardless of storage method, always store aircraft tubes in a cool, dry, dark place away from ozone producing equipment and moving air.

When handling and storing aircraft tire tubes, creases are to be avoided. These weaken the rubber and eventually cause tube failure. Creases and wrinkles also tend to be chafe points for the tube when mounted inside the tire. Never hang a tube over a nail or peg for storage.

An aircraft tube must be inspected for leaks and damage that may eventually cause a leak or failure. To check for leaks, remove the tube from the tire. Inflate the tube just enough to have it take shape but not stretch. Immerse a small tube in a container of water and look for the source of air bubbles. A

large tube may require that water be applied over the tube. Again, look for the source of bubbles. The valve core should also be wetted to inspect it for leaks.

There is no mandatory age limit for an aircraft tire tube. It should be elastic without cracks or creases in order to be consider serviceable. The valve area is prone to damage and should be inspected thoroughly. Bend the valve to ensure there are no cracks at the base where it is bonded to the tire or in the area where it passes through the hole in the wheel rim. Inspect the valve core to ensure it is tight and that it does not leak.

If an area of a tube experiences chafing to the point where the rubber is thinned, the tube should be discarded. The inside diameter of the tube should be inspected to ensure it has not been worn by contact with the toe of the tire bead. Tubes that have taken an unnatural set should be discarded. [Figure 13-152]

Tire Inspection

It is important to inspect the inside of a tube-type tire before installing a tube for service. Any protrusions or rough areas should be cause for concern, as these tend to abrade the tube and may cause early failure. Follow the tire, tube, and aircraft manufacturer's inspection criterion when inspecting aircraft tires and tubes.

Tire Mounting

A licensed technician is often called upon to mount an aircraft tire onto the wheel rim in preparation for service. In the case of a tube-type tire, the tube must also be mounted. The following section presents general procedures for these operations using tube-type and tubeless tires. Be sure to have the proper equipment and training to perform the work according to manufacturer's instructions.

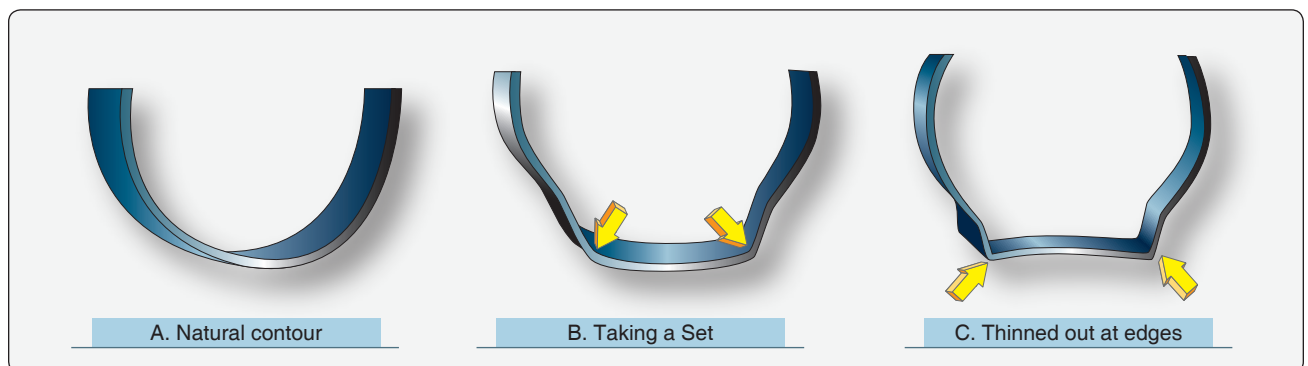


Figure 13-152. During inspection, an aircraft tire tube should retain its natural contour. Tubes with thinned areas or that have taken a set should be discarded and replaced.