Introduction

The information in this manual is designed to help aircraft owners and maintenance personnel obtain maximum service life from their bias and radial aircraft tires. The discussions contained in this part are designed not only to teach how to properly operate and maintain aircraft tires, but also to demonstrate why these techniques and procedures are necessary.

Aircraft operating conditions require a wide variety of tire sizes and constructions. The modern aircraft tire is a highly-engineered composite structure designed to carry heavy loads at high speeds in the smallest and lightest configuration practical. Despite this, tires are one of the most underrated and least understood components on the aircraft. The general consensus is that they are "round, black, and dirty," but in reality, they are a multi-component item consisting of three major materials: steel, rubber and fabric. By weight, an aircraft tire is approximately 50% rubber, 45% fabric, and 5% steel. Taking this one step further, there are different types of nylon and rubber compounds in a tire construction, each with its own special properties designed to successfully complete the task assigned.

Goodyear aircraft tire technology includes Computer Aided Design along with Finite Element Analysis, as well as the science of compounds and materials applications. Materials and finished tires are subjected to a variety of laboratory, dynamometer, and field evaluations to confirm performance objectives and obtain certification.

The manufacturing process requires the precision assembly of tight-tolerance components and a curing process under carefully controlled time, temperature and pressure conditions. Quality assurance procedures ensure that individual components and finished tires meet specifications.

The Goodyear Technical Center and all Goodyear Aviation Tire new and retread tire plants are ISO 9001:2000 certified.

NOTE: The procedures and standards included in this manual are intended to supplement the specific instructions issued by aircraft and wheel/rim manufacturers.