AIRCRAFT TIRE SERVICE BULLETIN

AIRCRAFT TIRE OPERATIONAL INFLATION PRESSURE CRITERIA
THE OBJECTIVE OF ANY OPERATOR PRESSURE MAINTENANCE PROGRAM

Purpose

This bulletin clarifies what is required when maintaining the operating inflation pressure of an aircraft tire; how these requirements are achieved must be addressed by the airframer or operator in conjunction with the tire manufacturer.

Scope

The requirements stated below are applicable to all aircraft tire/wheel fitments. These requirements are defined as the core principles to be used by engineering and maintenance personnel in the development of an effective maintenance program for implementation by the line mechanic.

Inflation Pressure Requirements

The goal of any inflation pressure maintenance program must be:

1) To operate an aircraft with tire pressures within an “acceptable operating range”, and

2) To address the “actual loss of inflation gas” from each tire/wheel assembly with the appropriate maintenance action.

To maximize the serviceability and safety of aircraft in-service, aircraft tires must be maintained to the following inflation pressure operating requirements:

1. Dispatchable Tires (See Figure 1)

There are two scenarios that must be considered when determining if a tire is in the Acceptable Operating Pressure Range (AOPR) for dispatch:

1) If the tire is “cold” (at the ambient temperature of the airport), then the Specified Service Pressure (SSP) should be used. The SSP is defined in the airplane maintenance manual (AMM) and is intended for “cold” (ambient) tires. Unless otherwise specified by the AMM, the SSP has a tolerance of plus 5%, minus 0%. In this case the SSP is equal to the AOPR.

2) If the tire is “hot” due to rolling or braking thermal effects, then the tire’s Operational Service Pressure (OSP) must be higher than the SSP based on the temperature of the tire’s contained gas relative to the local ambient temperature. The tolerance on the OSP is plus 5%, minus 5%.

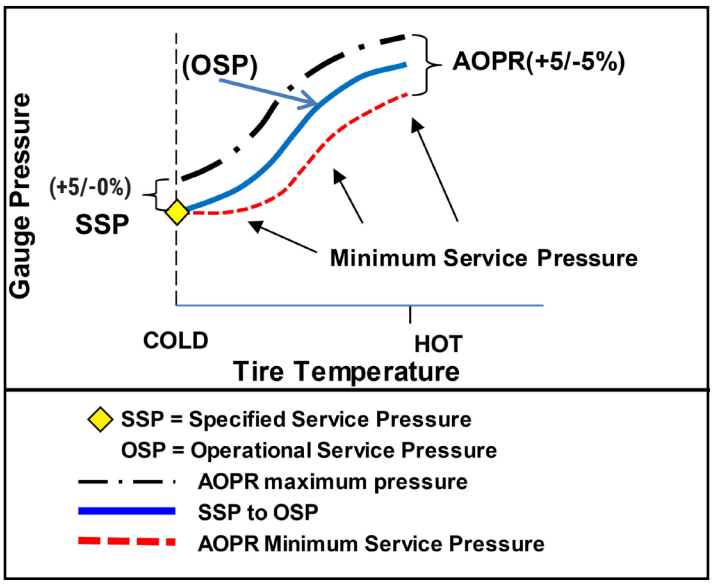

FIGURE 1: Aircraft Tire Inflation Pressure AOPR

Before allowing dispatch of the tire for flight, the AOPR must be the higher of the above two scenarios as represented by the uniform dashed line on the chart (minimum service pressure).

Tires found to have a gauge pressure reading below the minimum service pressure boundary, but not having reached the pressure limit for tire removal, must be re-inflated to the upper end of the acceptable operating pressure range before aircraft dispatch.

For tires found to be above the acceptable operating pressure range, confirm the reading accuracy, and relative thermal condition of the assembly, before adjusting the tire to the "target" level, namely, the upper end of the acceptable operating pressure range. NEVER release pressure from a "hot" tire without cause, but rather investigate the cause and then make the appropriate adjustment.

NOTE

The "cold" inflation pressure check is the reference for correct pressure.

NOTE

Tires identified as having a pressure value 5% or more below the operational service pressure (referenced from the specified service pressure) must be re-inflated at the first maintenance opportunity, and then must be measured to determine correctness of pressure during the next "cold" check.

NOTE

The "actual loss of inflation gas" (▲P), is the key pressure measurement and the basis for maintenance actions. The ▲P measure is the same whether making a "hot" or a "cold" tire inflation pressure check. (See Figure 2)

NOTE

The frequency for checking the inflation pressure level is that required to keep the inflation pressure above the AOPR minimum service pressure level. A properly calibrated pressure gauge (within ± 2% tolerance) whose scale is suited to the pressure range that is being monitored should be used.

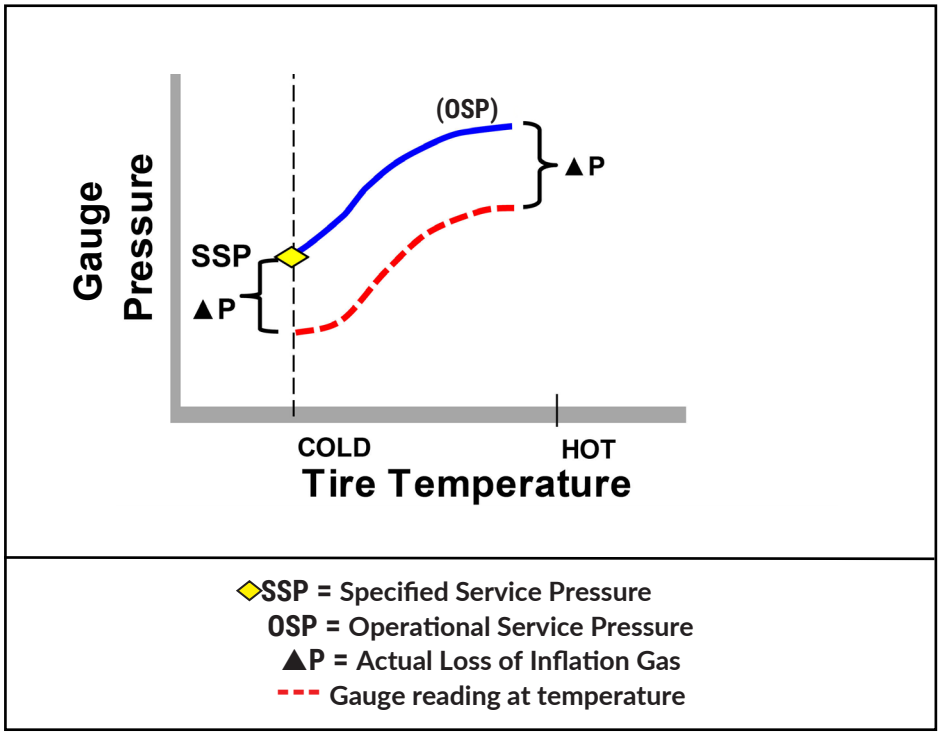

FIGURE 2: Actual Loss of Inflation Gas (▲P)

2. Non-dispatchable Tires

Below the minimum service pressure, a tire is no longer dispatchable. The following maintenance actions must be taken based on ▲P pressure levels:

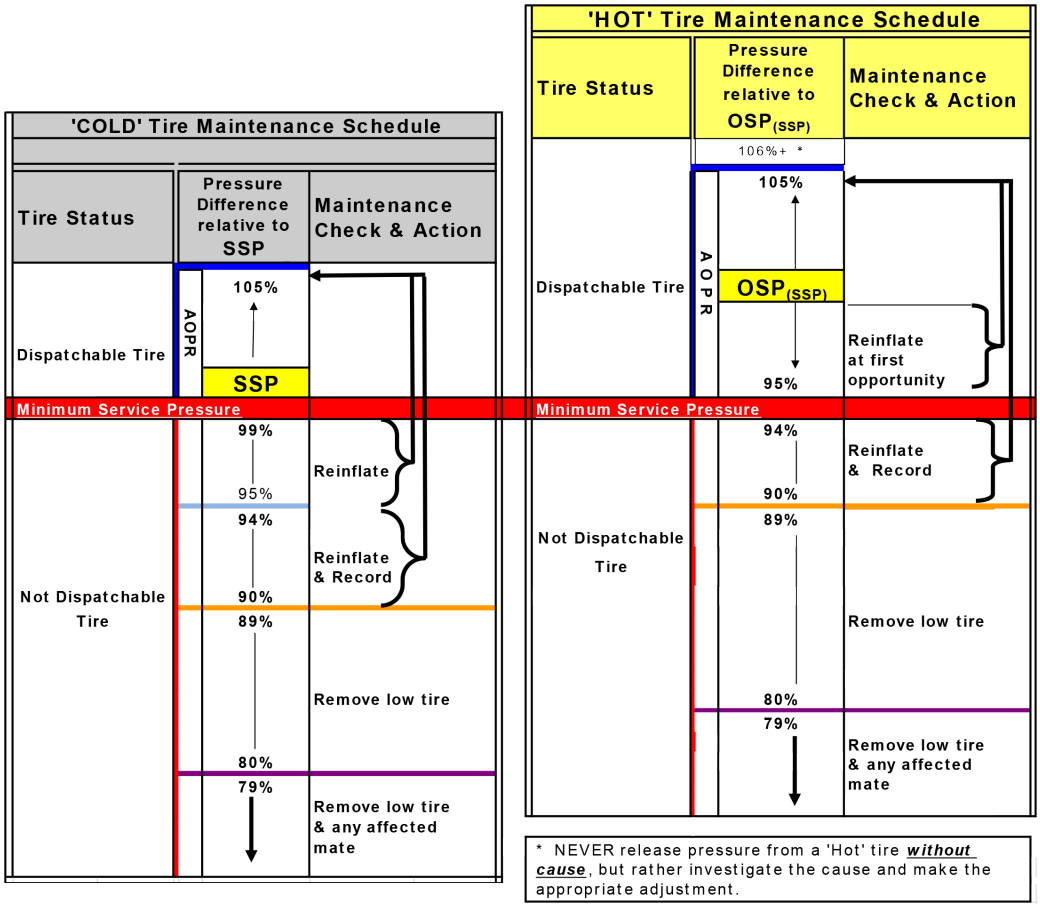

FIGURE 3: "COLD" and "HOT" Tire Maintenance Schedules

Terminology Associated with Inflation Pressure Maintenance

SSP (Specified Service Pressure) – The tire inflation pressure target defined by the airframe manufacturer, specific to an aircraft model and gross weight, as read on a pressure gauge in any ambient temperature. This is always a "cold" pressure value.

Minimum Service Pressure – The minimum gauge pressure reading for the dispatch of a tire.

OSP (Operational Service Pressure) – The expected tire inflation pressure, as read on a pressure gauge, influenced by thermal conditions (ambient or rolling effects) when referenced from the SSP.

"Hot" Tire – A tire for which the temperature of the contained gas has risen 25 degrees F or more above the ambient.

"Cold" Tire – A tire for which the temperature of the contained gas has been conditioned to the local ambient.

AOPR (Acceptable Operating Pressure Range) – The range of pressure readings relative to the SSP or its associated OSP which are acceptable for aircraft dispatch.

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