

TIRES - SERVICING

1. General

- A. Servicing the tire by maintaining correct inflation pressure is the most important job in any tire preventative maintenance program. Improper inflation pressure causes uneven tread wear.
 - (1) Under inflation, indicated by excessive wear in the shoulder area, is particularly damaging. It increases the chance of bruising sidewalls and shoulders against rim flanges. In addition, it shortens tire life by permitting excessive heat buildup.
 - (2) Over inflation is indicated by excessive wear in the center of the tire. This condition reduces traction, increases tire growth and makes treads more susceptible to cutting.
- B. Servicing the tire(s) requires maintenance personnel to handle compressed gas. Observe safety precautions.

2. Tools, Equipment and Materials

NOTE: Equivalent substitutes may be used for the following listed item:

NAME	NUMBER	MANUFACTURER	USE
Nitrogen		Available Commercially	Inflate tires.

3. Servicing

- A. Safety Precautions.
 - WARNING: Introducing relatively cooler nitrogen into a tire that is hot or when the brakes are hot may cause the tire to burst.**

(1) Allow the tire and brake to cool before attempting to service.

WARNING: The tendency of a bursting tire is to rupture along the bead. Standing in any position in front of either bead area could cause injury if the tire should burst.

(2) Stand at a 90-degree angle to the axle along the centerline of the tire during servicing.

CAUTION: Applying a tire sealant on the tire may cause wheel corrosion.

(3) Follow all local safety and technical directives while servicing tires.

- B. Procedures.

(1) Check tire pressure regularly.

- (a) Tire pressure should be checked when tire is cold (at least 2 or 3 hours after flight) with an accurate gage (preferably the more precise dial type) on a regular basis. Tire pressure should be checked prior to each flight when practicable.

NOTE: Keeping tires at correct inflation pressures is the most important factor in any preventive maintenance program. The problems caused by underinflation can be particularly severe. Underinflation produces uneven tread wear and shortens tire life because of excessive flex heating. Over-traction makes the tread more susceptible to cutting and increases stress on the wheels. It is recommended that only dry nitrogen be used for tire inflation. Nitrogen will not sustain combustion and will reduce degradation of the inner-liner material due to oxidation.

NOTE: Dry shop air may also be used for tire inflation when dry nitrogen is not available.

- (b) When checking tire pressure, examine tires for wear, cuts, and bruises. Remove oil, grease and mud from tires with soap and water.

(2) Use recommended tire pressure. Consult the table below.

NOTE: Recommended tire pressures should be maintained, especially in cold weather. Any drop in temperature of the air inside a tire causes a corresponding drop in air pressure.

NOTE: If tires freeze to parking ramp in cold weather, use hot air or water to free them before moving airplane.

NOTE: Inaccurate tire pressure gages are a major cause of improper inflation pressures.

Main Gear Tire Type:	Pressure
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6.50 x 10, 8-ply rated tire	83 PSI
8.50 x 10, 8-ply rated tire	48 to 52 PSI
8.50 x 10, 8-ply rated tire (Model 208B Passenger)	53 to 57 PSI
29 x 11-10, 10-ply rated tire	35 to 45 PSI

Main Gear Tire Type - Amphibian:

6.00 x 6, 8-ply rated tire	40 to 50 PSI
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Nose Gear Tire Type:

6.50 x 8, 8-ply rated tire	53 to 63 PSI
22 x 8.00-8, 6-ply rated tire	30 to 42 PSI

Nose Gear Tire Type - Amphibian:

5.00 x 5, 10-ply rated tire	55 to 65 PSI
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(3) Adjusting for temperature.

- (a) When tires will be subjected to ground temperature changes in excess of 50°F (possibly due to flight from one climate to another), inflation pressures should be adjusted for the worst case prior to takeoff.
 - 1 The minimum required inflation must be maintained for the cooler climate. Pressure can be adjusted in the warmer climate.
 - 2 Before returning to the cooler climate, adjust inflation pressure for the lower temperature.
- (b) An ambient temperature change of 5°F produces approximately one percent pressure change.

NOTE: Excessive inflation pressure should never be bled off from hot tires. All adjustments to inflation pressure should be performed on tires cooled to ambient temperature.

(4) Cold weather servicing.

- (a) Check tires for excessive deflation.

NOTE: Tire air pressure will decrease somewhat as the temperature drops, but excessive deflation could indicate cold weather leakage at the air valve. Avoid unnecessary pressure checks.
- (b) If it is necessary to pressure check tires in cold climates, always apply heat to air valves and surrounding areas before unseating valves.
- (c) Continue application of heat during reinflation to ensure air valve seal flexibility when valve closes.
- (d) Do not allow tires to stand in snow soaked with jet fuel, or on fuel covered ramp areas.
- (e) If tires become frozen to parking ramp, use hot air or water to melt ice bond before attempting to move airplane.

(5) Cold pressure setting. The following recommendations apply to cold inflation pressure settings:

- (a) "Minimum pressure" for safe airplane operation is the cold inflation pressure necessary to support the operational loads as determined by the formula under "Unloaded Inflation" or as specified by the airframe manufacturer.
- (b) The loaded inflation must be specified four percent higher than the unloaded inflation.
- (c) A tolerance of -0 to +5 percent of the minimum pressure is the recommended operating range.
- (d) If in-service pressure is checked and found to be less than the minimum pressure, the following table should be consulted. An in-service tire is defined as a tire installed on an operating airplane.

TIRE PRESSURE

100 to 95 percent of service pressure

95 to 85 percent of service pressure

85 percent or less

RECOMMENDED ACTION

Reinflate to specified service pressure.

Reinflate and record in log book. Remove tire if pressure loss is greater than five percent and reoccurs within 24 hours.

Remove tire from airplane (Refer to NOTE 1)

NOTE 1: Any tire removed because of low inflation pressure should be inspected to verify that the casing has not sustained internal degradation. If it has sustained internal degradation, the tire should be scrapped.

- (6) Mounted tube-type tires.
 - (a) A tube-type tire that has been freshly mounted and installed should be closely monitored during the first week of operation, ideally before every takeoff. Air trapped between the tire and the tube at the time of mounting could seep out under the bead, through sidewall vents or around the valve stem, resulting in an under-inflated assembly.
- (7) Tire stretch.
 - (a) The initial stretch or growth of a tire results in a pressure drop after mounting. Consequently, tires should not be placed in service until they have been inflated a minimum of 12 hours, pressures rechecked, and tires reinflated if necessary.