

TIRE INFORMATION SERVICE BULLETIN

USING NITROGEN TO INFLATE PASSENGER AND LIGHT TRUCK TIRES

Introduction And Purpose

Nitrogen may be offered as an alternative to air for tire inflation. The purpose of this bulletin is to provide general information about inflating tires with nitrogen. For information on storing and handling nitrogen, follow the manufacturer's and/or the supplier's safety guidelines.

Tires are designed and built to provide many thousands of miles of excellent service but must be maintained properly. One key element of tire maintenance is maintaining the proper inflation pressure. The proper inflation pressure is recommended by the vehicle manufacturer, which can be found on the vehicle's tire placard or in the owner's manual. It is recommended to check tire inflation pressure at least every month and before every long trip.

Using Nitrogen in Tires

Nitrogen is an inert (non-flammable) gas—basically, nothing more than dry air with oxygen removed (air contains about 78% nitrogen). Because of its inert properties, nitrogen is often used in highly specialized service applications and/or demanding environments. For instance, aircraft, commercial/heavy applications and mining utilize nitrogen to help reduce the risk of internal combustion (fire) if the brake/rim/wheel components overheat. Also, dry nitrogen is used in professional racing to help reduce variation in inflation pressures (caused by moisture) where even small differences in pressure can affect vehicle handling at the extreme limits of performance.

For normal tire service applications, nitrogen inflation is not necessary. However, nitrogen inflation is permissible as its properties may contribute to minor reductions in inflation pressure loss. Nevertheless, several other sources of pressure leaks, including but not limited to punctures, tire/rim interface (bead), valve, valve/rim interface, and the wheel, may negate the benefit of nitrogen. If the tire inflation pressure is below the pressure specified on the vehicle tire placard, certification label or owner's manual, the tire must be re-inflated—whether with air or nitrogen—to the proper inflation pressure. Do not operate tires underinflated and/or overloaded.

WARNING

Under inflation and/or over loading of a tire causes excessive heat build-up and internal structural damage. This may cause a tire failure, including tread/belt separation, even at a later date, which can lead to an accident and serious personal injury or death.

Consult the vehicle tire placard, certification label and owner's manual for the recommended vehicle load limits and tire inflation pressures.

Depending on nitrogen alone to reduce the requirements for inflation maintenance may lead to underinflated operation, which may result in premature tire failure. With proper inflation pressure, the vehicle and tires will achieve their optimum performance. In addition to tire safety, this means your tires will maintain optimal wear performance and energy efficiency.

Nitrogen and air can be mixed in any and all proportions. Nitrogen filled tires can and should have air added whenever nitrogen is not readily available, to maintain proper inflation as specified by the vehicle manufacturer.

Whether inflated by air or nitrogen, regular inflation pressure maintenance remains critical and necessary. Use of nitrogen alone is not a replacement for regular inflation pressure maintenance. For further information, see the USTMA "Care and Service Manual for Passenger and Light Truck Tires" manual.

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