

# Meritor Tire Inflation System (MTIS) with ThermALERT™ Technical Guide

## System Overview

### Meritor Tire Inflation System (MTIS)

The Meritor Tire Inflation System (MTIS) uses compressed air from the trailer to inflate any tire that falls below the system air pressure setting during operation.

Air from the existing trailer air supply is routed to a control box, then into each axle. The axles act as conduits to distribute air through rotary union assemblies at the spindle ends, which then distribute air to each tire as needed. If a tire is leaking, check valves in the tire delivery lines prevent loss of pressure in the remaining tires.

The MTIS indicator light on the front of the trailer will come ON to alert you if there is an excessive amount of air flow through the system, which can be caused by a leaking tire or a loose connection, or both. If the indicator light comes ON during operation, immediately find a safe place to bring the tractor and trailer to a complete stop. You must repair components that caused the air leak before returning the vehicle to service.

MTIS does not eliminate the need to perform wheel-end maintenance at regularly-scheduled intervals.

### ThermALERT™

ThermALERT™ detects when air is escaping from the axle's thermal plug and out through the hubcap tee vent, which occurs if a wheel end is operating at an abnormally high temperature. The MTIS indicator light will come ON to alert you to immediately find a safe place to bring the tractor and trailer to a complete stop.

Air escaping from the tee vent produces an audible noise, which helps you to identify the wheel end that is overheated. Do not operate the trailer until the components are replaced.

ThermALERT™ does not eliminate the need to perform wheel-end maintenance at regularly-scheduled intervals.

### If the MTIS Indicator Light Comes ON When the Air System is Charging

When you start a vehicle, the MTIS indicator light initially may come ON while the air system is charging. However, if the indicator light stays ON for more than 10 minutes, a tire may be damaged and losing air pressure. Inspect the tires for damage and air leaks. Repair damaged or leaking tires before returning the vehicle to service.

## If the MTIS Indicator Light Comes ON During Operation

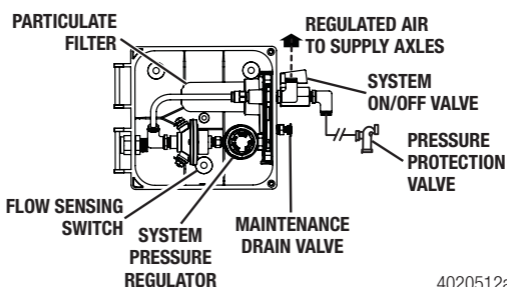
### **WARNING**

If ThermALERT™ activates during vehicle operation, you must repair or replace components that caused the wheel end to overheat before returning the vehicle to service. You also must install a new thermal screw, which is not reusable. Otherwise, the indicator light will continue to remain ON during vehicle operation, even though the wheel end has been repaired. If you ignore the indicator light, and another wheel end overheats during operation, serious personal injury and damage to components can result.

MTIS with ThermALERT™ detects when air is escaping from the axle's thermal plug and out through the hubcap tee vent, which occurs if a wheel end is operating at an abnormally high temperature. The MTIS indicator light will come ON to alert you that air flow through the system is excessive.

1. Immediately find a safe place to bring the tractor and trailer to a complete stop.
2. Inspect the trailer hubs for air leaks.
3. Listen for ThermALERT's audible sound at the wheel end. If you hear the sound, the wheel end is overheated. Do not operate the trailer until the wheel-end components are repaired. If a wheel end overheats during operation, it can separate from the vehicle. Serious personal injury and damage to components can result.
4. If you do not hear the audible sound at the wheel end, inspect the tires for damage. Repair damaged or leaking tires before returning the vehicle to service.
5. Refer to Meritor's Maintenance Manual 14P for service instructions. Notify your dispatcher or service department, or contact the Meritor OnTrac™ Customer Call Center at 866-668-7221 for assistance.

## Controls



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### System On/Off Valve

The system on/off valve allows air delivery to the system and also stops air delivery to the system.

### Particulate Filter

The particulate filter removes contaminants from the air system.

### Maintenance Drain Valve

The maintenance drain valve is used to manually exhaust pressure from the tire inflation system. This enables you to perform maintenance on either the trailer axle components or the tire inflation system.

## Pressure Protection Valve (PPV)

The pressure protection valve (PPV) ensures that air is available for other trailer functions. Air will not be delivered to the tire inflation system until the trailer air system is charged to at least 80 psi (551 kPa). The PPV also maintains air tank pressure if a tire or a tire inflation system component is damaged.

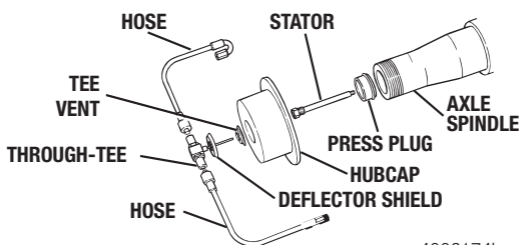
## System Pressure Regulator

The system pressure regulator adjusts system air pressure. Adjust system air pressure to the required tire pressure.

## Flow Sensing Switch

The flow sensing switch illuminates the indicator light when the system delivers an excessive amount of air to either a leaking tire, a leaking tire inflation system component; or with the ThermALERT™ system, a wheel end operating at an abnormally high temperature.

## Wheel-End Assembly



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## Hoses

A hose is a flexible valve stem extension, which mechanically opens the tire valve stem and allows air to pass into a tire. There are three sizes of tire inflation system hoses: short, for 17- and 19-inch wheels; long, for 22.5- and 24.5-inch wheels; and a 16-inch for 10-hole, 22.5-inch aluminum wheel applications.

A check valve located at the knurled end of a hose allows air to flow in only one direction — to a tire. This protects each tire from loss of air pressure if the tire inflation system, or any tire, loses air pressure during operation.

## Stator and Through-Tee

The stator is located inside the axle spindle and the through-tee is attached to the hubcap. Pressurized air passes from the axle interior to the rotating hub through a tube extending from the through-tee into the stator. A dynamic seal, located in the through-tee, allows rotation without loss of air pressure.

## Tee Vent

The tee vent ensures that there is no pressure buildup in the wheel end and allows air to escape past this vent from the ThermALERT thermal plug to produce an audible sound which indicates that the wheel end is operating at an abnormally high temperature.

## Deflector Shield

The deflector shield helps keep contaminants such as dirt and water from entering the wheel end.

## Hubcaps

### CAUTION

Meritor Tire Inflation System (MTIS) with ThermALERT™ uses hubcaps with six vents. These hubcaps are not interchangeable with the three-vent hubcaps. Damage to components can result if you install the incorrect hubcaps.

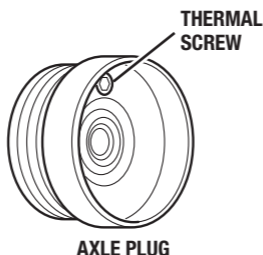
Hubcaps for MTIS with ThermALERT™ use vents to prevent pressure buildup in the wheel end, as well as a deflector shield to help prevent contaminants from entering the wheel end.

Hubcaps for oil-lubricated wheel ends typically have a fill plug for adding lubricant.

## Press Plug

The press plug is used in axles with hollow spindles to seal off the pressurized axle interior from the wheel end and provide a means of holding and securing the stator.

### MTIS with ThermALERT™

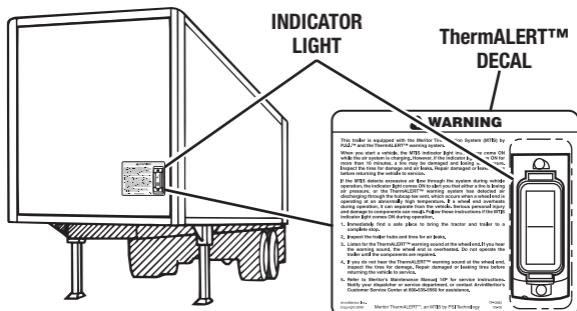


## Indicator Light

An indicator light mounted on the front of the trailer comes ON when the system delivers an excessive amount of air due to a leaking tire, tire inflation system component and a wheel end operating at an abnormally high temperature.

MTIS with ThermALERT™ will also have a decal installed at the indicator light on the trailer.

### MTIS with ThermALERT™



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## Pre-Service Check

### **WARNING**

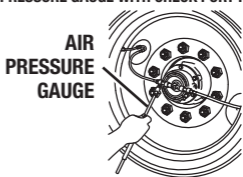
To prevent eye injury, always wear eye protection when performing vehicle maintenance or service.

After receiving a trailer and before placing it in service, check the tire inflation system to ensure it operates correctly.

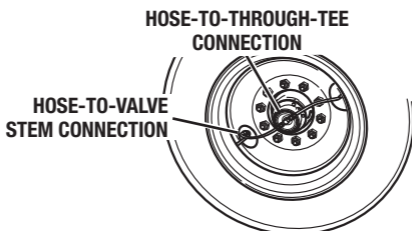
1. Check that the trailer has the correct air supply (120-130 psi [827.4-896.3 kPa]) and the system is connected to a 12-volt power source.
2. Check that the system on/off valve is ON. When the system on/off valve is ON, the knob aligns with the valve body. Check that the maintenance drain valve is closed by turning it CLOCKWISE.
3. Check the indicator light by opening the maintenance drain valve at the control box. The light will come ON to indicate that it's operating correctly.
4. Use an accurate air pressure gauge to check tire pressure at the system hose.
  - **If tire pressure is not correct:** Refer to Adjust the MTIS Tire Pressure Setting in this guide.



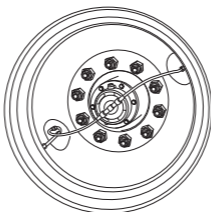
AIR PRESSURE GAUGE WITH CHECK PORT HOSE



5. Use a soap-and-water solution to check the hose-to-valve stem connections, hose-to-through-tee connections and hubcap vents for leaks. Repair or replace parts as required. Refer to Maintenance Manual 14P.

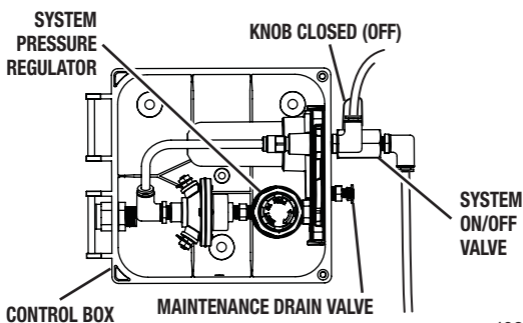


6. Check the wheel ends to verify that hoses do not contact the wheels.
  - **If a hose contacts a wheel:** Use a wrench to slightly rotate the through-tee to reposition the hose. Ensure that the through-tee is still tightened to the hubcap at 45-55 lb-in (5.08-6.21 Nm).



## Adjust the MTIS Tire Pressure Setting

1. Check that the control box system on/off valve is in the ON position and that available air pressure is at 120 psi.
2. Remove all of the hoses from the through-tees, which are mounted in the center of the hubcaps.
3. **Test a tire:** Select one tire for this test. Use the valve core located in the hose that you removed in Step 2 to reduce tire pressure approximately 5 to 10 psi below the fleet's specifications.
4. Reconnect the hose on the test tire to the through-tee fitting.
5. Allow sufficient time for the pressure to equalize. Disconnect the hose from the through-tee. Use a pressure gauge to check the tire pressure. Tire pressure should equal system pressure.
6. Reconnect the hose to the through-tee.
  - **To increase tire pressure:** Pull the system pressure regulator out, then turn the system pressure regulator in the control box **CLOCKWISE** in small increments. Repeat Step 5.
  - **To decrease tire pressure:** Pull the system pressure regulator out, then turn the system pressure regulator in the control box **COUNTER-CLOCKWISE** in small increments. Repeat Steps 3, 4 and 5.
7. When the tire pressure is correct, lock the system pressure regulator by pushing inward and reconnect the remaining hoses to the through-tees.



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## Turn OFF the System Before Performing Maintenance

### **WARNING**

The tire inflation system uses compressed air. Turn the system OFF and drain the system at the maintenance drain valve before you perform maintenance or service to avoid serious personal injury and damage to components.

1. Turn the system on/off valve OFF to stop air delivery to the system. When the system on/off valve is OFF, the knob is perpendicular to the valve body.
2. Open the maintenance drain valve and drain air from the system.

## Install a Hose



### WARNING

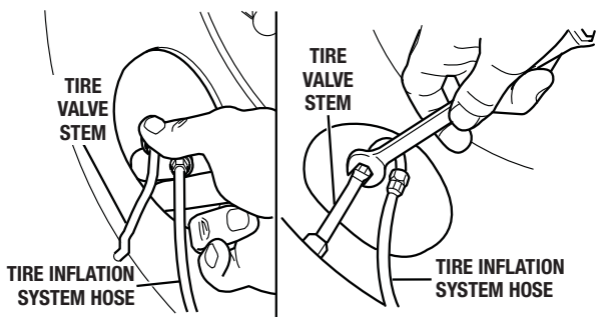
To prevent eye injury, always wear eye protection when performing vehicle maintenance or service.



### CAUTION

During installation, hand-tighten the tire inflation system hoses to the tire valve stems, then use a wrench to tighten the hoses to the correct specification. Do not overtighten the connection, which can damage the hose seal and cause a tire to deflate when the trailer is parked. Damage to components can result.

1. Hand-tighten the tire inflation system hoses to the tire valve stems.
2. Use a 7/16-inch wrench to tighten the connections an additional half turn. Do not overtighten the connection, which can damage the hose seal and cause a tire to deflate when the trailer is parked.
3. Hand-tighten the tire inflation system hoses to the through-tee. Do not use pliers.
4. Use soapy water to test the connections for leaks.



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## If the Connection Leaks After Following the Previous Instructions

1. Remove the hose from the tire valve stem.
2. Follow Steps 1-4 to install and test the hose.
  - **If the connection still leaks:** Replace the hose seal or the entire hose.

## For Complete Maintenance and Service Instructions for MTIS with ThermalERT™

Refer to Installation and Maintenance Manual 14P, Meritor Tire Inflation System (MTIS). Call the Meritor OnTrac™ Customer Call Center at 866-668-7221 to obtain this publication or visit Literature on Demand at [meritor.com](http://meritor.com).



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