

# INSTALLATION GUIDELINES

## Meritor® Tire Inflation System (MTIS™)

### For MTIS ThermALERT™ Systems on Trailers with Hollow Spindle Axles

#### SETUP AND PRECAUTIONS

**WARNING** — Park the vehicle on a level surface. Block the wheels to prevent the vehicle from moving. Support the vehicle with safety stands. Do not work under a vehicle supported only by jacks. Jacks can slip and fall over. Serious personal injury and damage to components can result.

Refer to Maintenance Manual 14P and observe all safety precautions for installing and servicing the MTIS on trailers.

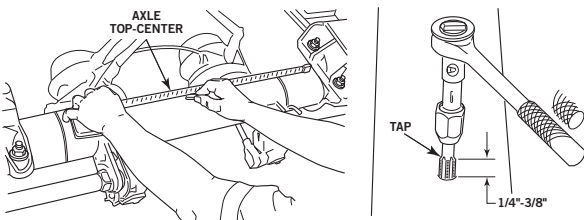
**NOTE:** ThermALERT™ became a standard feature in all Meritor MTIS kits starting October 1, 2017.

#### 1 - AXLE AIR FITTING

On Meritor axles, locate the top-center of the axle, which is the preferred location for the axle air fitting. For other axle manufacturers, this location may vary.

**NOTE:** If the axle manufacturer has installed a top-center hole in the axle, use this hole as a pilot when you drill for the air fitting.

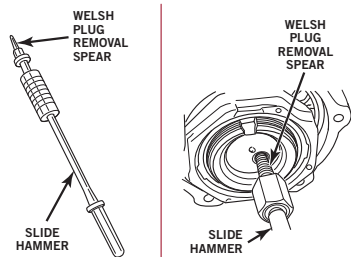
1. Drill an 11/32-inch diameter hole and thread using a 1/8-27-inch NPT tap. Leave 1/4- to 3/8-inch of the tap threads exposed.
2. Hand-tighten the axle air fitting into the tapped hole and using a wrench, tighten the fitting 2-1/2 additional turns.



#### 2 - AXLE PREPARATION

##### Welsh Plug Removal

1. Remove hubcap and gasket at each end of the axle to drain oil.
2. Cover wheel ends of axle with a clean towel.
3. Using a slide hammer fitted with a plug removal spear, remove the spindle welsh plugs from both ends of axle.



**CAUTION** — Remove all old adhesive from the spindle bore before you apply retaining compound to install the axle press plug.

4. Polish the spindle bore to remove all adhesive residue left from the old spindle plug and any metal burrs or sharp edges from the spindle bore surface.
5. Use a cleaning wand and high-volume air to clean debris from the axle interior. Repeat the cleaning procedure as necessary to make sure that all debris is removed.
6. Clean the exposed O-ring surfaces and outside diameter surfaces of the axle press plug bores. Use cleaning towelettes provided with installation kit.

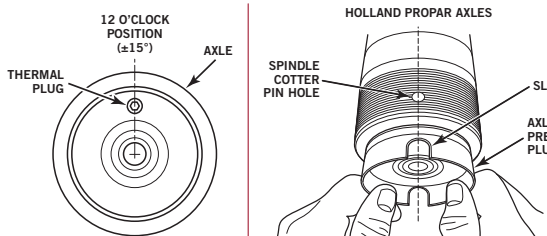
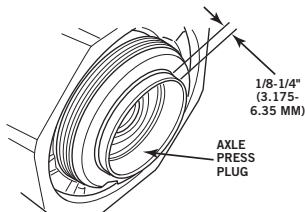
##### Axle Press Plug Installation

**CAUTION** — Use the retaining compound supplied in the installation kit, or an approved equivalent, when you install the axle press plug. Loctite® 620, 3M RT20 and PermaBond HH 0040 are all approved retaining compounds.

Do not apply compound to the inside diameter of the spindle bore, axle press plug stator threads or axle spindle threads.

**NOTE:** The axle press plug must be installed within 10 minutes of applying the retaining compound to ensure that the compound hardens correctly.

1. Apply retaining compound evenly to the OUTSIDE diameter of the axle press plugs.
2. Insert the axle press plug into the spindle bore by hand until the plug stops in the bore.
  - The axle press plug should protrude 1/8-1/4-inch (3.175-6.35 mm) from the end of the spindle. If it protrudes beyond this acceptable range, contact the Meritor OnTrac™ Customer Call Center at 866-OnTrac1 (668-7221) before proceeding.
  - Ensure that the thermal plug is located UP at the 12 o'clock (± 15 degrees) position when the axle is installed in its correct operating position.
  - For Holland Propar axles, the axle press plug slots must align with the spindle cotter pin holes.



**CAUTION** — The installed axle press plug must be seated square to the end of the spindle and inset at or below any chamfer in the axle spindle bore. If the press plug is flush with the end of the spindle it is not seated correctly. Damage to components can result.

3. Using a correct press plug drive adapter and a four-pound brass or synthetic mallet, drive the axle press plug into the spindle bore until the drive adapter bottoms out squarely on the end of the spindle.
  - To install the axle press plug, use drive handle 51011-10 with driver 51011-02 (for Meritor TN/TQ, TR, Hendrickson HN and Dana/Eaton D22 hollow spindle axles) or 51011-06 (for Meritor TP and Hendrickson HP axles). For TN MTec6 axles, use driver 51011-20. For TP MTec6 axles, use driver 51011-19.
4. Wipe all retaining compound residue from the spindle and axle press plug drive adapter.

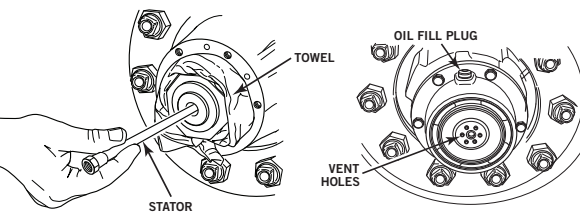
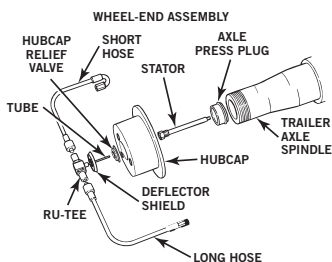
**NOTE:** The tire inflation system can be pressurized 30 minutes after installation of the axle press plug.

#### 3 - WHEEL-END COMPONENTS

##### Stator Installation

**NOTE:** Current production stators may have sealant pre-applied to the threads. If not, apply thread sealant to the stator thread before installing.

1. Hand-tighten the stator into the spindle hole.
2. Then, use a 5/8-inch socket to tighten the stator approximately 2-1/2 additional turns or 23-28 lb-ft (31.18-37.96 N•m), to obtain an airtight seal.



##### Hubcap Installation

**NOTE:** Hubcaps are available in bolt-on or screw-on models.

**WARNING** — Verify that the vent tube holes in a greased wheel end are not blocked with grease. Blocked vent tube holes will prevent system air from venting from the wheel end. Serious personal injury and damage to components can result.

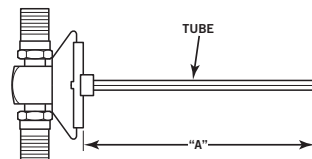
Follow the axle manufacturer's instructions to install the hubcap. Dual wheel valve stems must be positioned 180 degrees opposite each other to install the tire inflation system.

**NOTE:** If necessary, bolt-on hubcaps or wheels may be "clocked" to align the thru-tee with the tire valve stems. Screw-on hubcaps may be rotated for this alignment, as long as the hubcap tightening specification is within the hubcap manufacturer's recommended guidelines.

##### MTIS Thru-Tee Tube Installation

The MTIS thru-tee assembly consists of the tube, tee relief valve, deflector shield and tee.

Ensure the correct length tube is assembled to the thru-tee for the axle/spindle type. Refer to the following table.



THRU-TEE TUBE LENGTH

Axle/Spindle Type	Hub Type	Thru-Tee Tube Length "A"
TN/TQ, HN	Ductile Iron	3.5" (88.9 mm)
TN/TQ, HN	Aluminum	4" (101.6 mm)
TP, WP, HP (2.75" [69.85 mm] Bore)	Ductile Iron	4" (101.6 mm)
TP, WP, HP (2.75" [69.85 mm] Bore)	Aluminum	5" (127 mm)
TN/TQ, TP	PreSet or PreSet Plus	5" (127 mm)

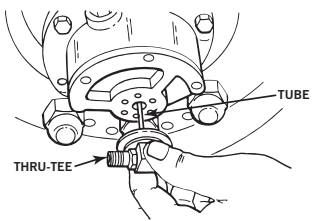
1. Check that there is no debris on the thru-tee tube.
2. Carefully align and insert the thru-tee assembly STRAIGHT into the hubcap.

**NOTE:** When inserting the tube into the stator, it's normal to feel some resistance when the tube contacts the stator seal.

3. Hand-tighten the thru-tee assembly. Tighten the tee with a torque wrench set at 45 lb-in (5 N•m). Make sure the torque wrench is set to lb-in, not lb-ft. Check alignment of the tee air fittings to the tire valve stems. If not aligned, retighten the tee using a torque wrench set to 55 lb-in (6 N•m) and tighten until aligned. Do not exceed 55 lb-in (6 N•m). If still not aligned, repeat the thru-tee installation.

**CAUTION** — Ensure that the tire inflation system valve stems and hoses do not contact the wheels or brake drums. Damage to components can result.

4. Hand-tighten the tire inflation system hoses to the tire valve stems. Then use a 7/16-inch wrench to tighten the connections an additional half-turn.



#### 4 - CONTROL BOX

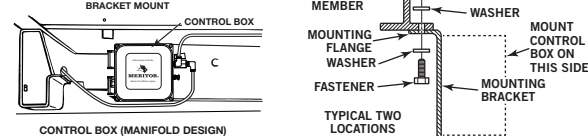
The preferable location to install the control box is on the roadside rear of the subframe facing the rear of the trailer. The location must be accessible, free of hazards and positioned so the control box door can be opened.

Mount the control box either to the supplied mounting bracket or directly to the trailer subframe.

##### Mounting Bracket Installation (If Required)

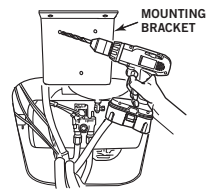
1. Place the mounting bracket in position on the subframe.
  - With the bracket in place, weld the bracket to the subframe.
  - Or, using the mounting bracket as a template, drill two 5/16-inch (0.80 cm) holes into the subframe and attach the bracket with the supplied fasteners, washers and locknuts.
2. Attach the control box to the mounting bracket on the side opposite the mounting flange. Use the supplied 1/4-inch (6.36 mm) fasteners, washers and locknuts.

**NOTE:** The bracket mounting flange must make complete contact with the surface area to which it is mounted.



##### Direct Mounting On Subframe

1. Using the mounting bracket as a template, drill three 1/4-inch (6.36 mm) holes into the subframe mounting surface.
2. Discard the mounting bracket and use the supplied 1/4-inch (6.36 mm) fasteners, washers and locknuts to attach the control box directly to the subframe.



#### 5 - AIR SYSTEM COMPONENTS

##### Pressure Protection Valve (PPV) Installation

Current production components may have sealant pre-applied to the threads. If not, apply thread sealant prior to reinstallation.

1. Drain the air from the trailer air system service tank.
2. Hand-tighten the installation nipple into a spare port in the air tank (preferably in the top half of the tank). Then use an 11/16-inch wrench to tighten the nipple approximately two additional turns to obtain an airtight seal.
3. Hand-tighten the PPV into the installation nipple. Use a wrench to tighten the PPV approximately two additional turns to obtain an airtight seal.

**NOTE:** When correctly installed, the slotted screw in the PPV should face DOWN.

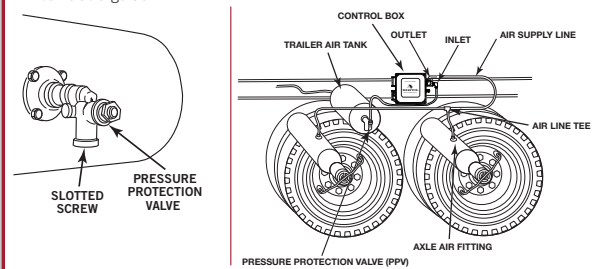
#### 5 - AIR SYSTEM COMPONENTS (cont.)

##### Air Line Connections

**NOTE:** When routing the MTIS air lines, use grommets to protect them from contacting sharp edges at hole locations. Use tie wraps to secure them to the existing trailer brake air lines.

Route air lines between the following components. Hand-tighten the air line fittings and then use a 9/16-inch wrench to tighten them approximately one additional turn to obtain an airtight seal.

1. Route an air line from the PPV to the control box inlet port.
2. Route an air line from the control box outlet port to the air line tee. Suspend the tee AWAY from the trailer brake lines to protect these lines from damage.
3. Route the air lines from the tee to the axle air fittings. Provide sufficient slack in the lines to allow for suspension movement. Slack in the existing trailer brake lines can serve as a guide.



#### 6 - ELECTRICAL SYSTEM

##### Indicator Light Mounting

1. Disconnect the trailer's electric system from the tractor.
2. Connect the warning light to the wiring harness.
3. Mount the warning light vertically onto the roadside front of the trailer, approximately 30-inches (76 cm) from the bottom of the coupler and as close as possible to the outside of the trailer. The driver should be able to see the warning light from the roadside rear view mirror.

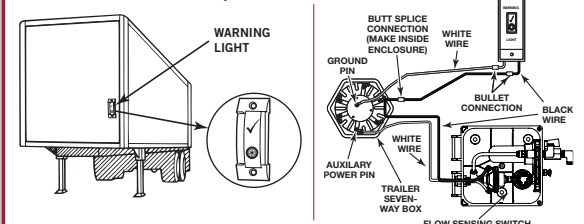
##### Electrical Connections

**NOTE:** When routing the harness, use grommets to protect it from contacting sharp edges and use tie wraps to secure the harness in place.

**NOTE:** If the trailer is equipped with a sliding subframe, provide sufficient slack in the harness to allow for suspension movement. Use the slack in the existing trailer brake lines and electrical lines as a guide.

Route the MTIS wiring harness between the following components and make connections as illustrated.

- Warning light to the trailer seven-way box. (Secure the harness to the front of the trailer using the supplied P-clamps.)
- Control box to the flow sensing switch.
- Control box to the seven-way box.

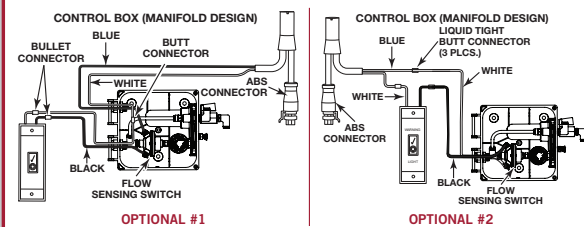


##### Optional Installation 1 — ABS Connection Inside Box

1. Route the electrical cable from the warning light to the control box.
2. Route the ABS connector electrical cable to the control box.
3. Connect the blue wire from the ABS connector to the flow sensing switch. Connect the black wire from the warning light to the flow sensing switch. Connect the white wire from the warning light to the white wire from the ABS connector.

##### Optional Installation 2 — ABS Connection Outside Box

1. Route a length of electrical cable from the warning light to the ABS connector.
2. Route the electrical cable from the control box to the ABS connector. Connect the electrical cable to the electrical contacts of the flow sensing switch.
3. At the ABS connector, connect the white wire from the control box to the blue wire from the ABS connector. Connect the black wire from the control box to the white wire from the warning light. Connect the white wire from the warning light to the white wire from the ABS connector. Use a liquid-tight connector at all connections.

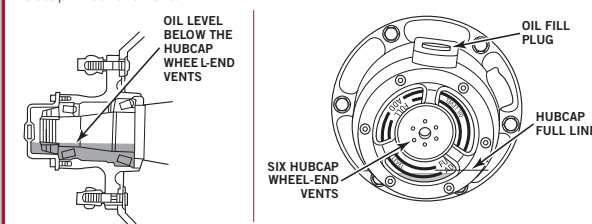


#### 7 - WHEEL END OIL

**CAUTION** — Do not overfill the wheel end with oil or damage to components may result.

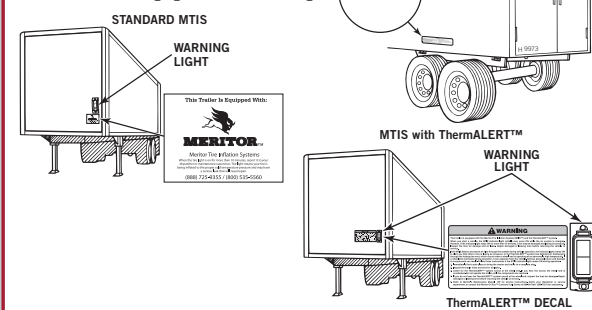
Refer to the trailer axle manufacturer literature for service instructions. For Meritor trailer axles, refer to Maintenance Manual 14, Trailer Axles.

If the wheel end is oil-lubricated, add oil through the hub or hubcap fill plug to the manufacturer's recommended level. The oil level must be below the level of the six hubcap wheel-end vents.



#### 8 - SYSTEM DECALS

1. Install identification and hose installation decal on each side of the trailer above the suspension.
2. Install the warning light decal near the light.



#### 9 - SYSTEM OPERATION CHECK

Check the tire inflation system for correct operation. Refer to the Maintenance Manual 14P, Meritor Tire Inflation Systems (MTIS™) for procedure.

