Installation: Gauge Install Tips

INTERIOR

2003-2009 Dodge Turbo Diesel Truck

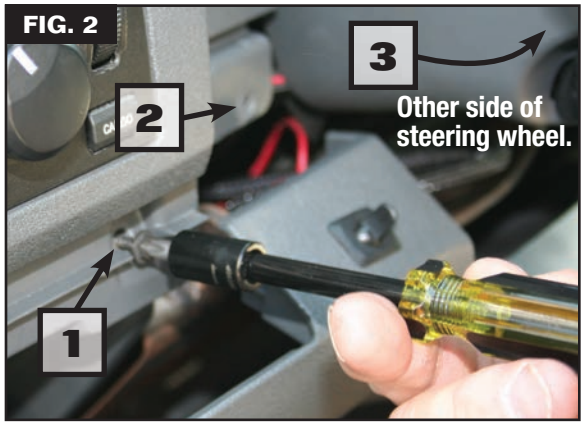
Gauge Wiring:
The cigarette lighter power wires are a good source of "ignition on" power for gauges. You can use these also for the gauge lights, but the dimmer circuit is easy to get to as well. The pictorials below ('06-'09 and '03-'05) will take you through the steps.

'06-'09 Trucks

FIG. 1

Drop the knee bolster panel by grabbing under the steering column and pulling out and down. As you can see, the top of the bolster is held in place with expansion clips.

FIG. 2



Remove the three philips screws that hold the dimmer switch and gauge facia in place. You will find these distributed along the dash on both sides of the steering wheel.

FIG. 3

Pull dimmer switch panel back for access to the wiring harness.

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'03-'05 Trucks

The light dimmer switch is easy to access as the cover and switch assembly are held in place with expansion clamps. Start at the corner next to the steering column, then pulloutward.

For power to your light, tap into the dimmer switch.

The light dimmer switch is easy to access as the cover and switch assembly are held in place with expansion clips. Start at the corner next to the steering column, then pull outward. (FIG. 1)

Wiring for '03-'09 Trucks

Orange wire with the white stripe for 2003 models only (pin #3 on the headlamp switch).

Orange wire with brown stripe for 2004 and 2005 models (pin #2).

Orange wire with brown stripe for 2006 and 2009 models (pin #4).

For ground, we used a close-by Phillips-head screw and a D-ring attached to the light's wire.

Gauge Installation for '03-'09 Trucks

We like to install gauges on top of the dash. Four reasons:

- On top of the dash the gauges do not obstruct your view.
- The gauges will be in your line of sight.
- The eye naturally reads horizontal.
- With the top dash panel removed, the gauges can be installed on the panel in the warmth of your garage/workshop.

The top of the dash is easy to remove (FIG. 3). The dash is held in place with vertical spring clips on the edge closest to the driver, and horizontal spring clips on the edge that touches the windshield. With a plastic wedge tool, pop up the driver's edge of the dash (10 clips). Then pull at a 45° angle outward to remove the top dash panel.

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Gauge Installation Tip

In the kit provided by the gauge manufacturer you will have lots of hardware and brackets to keep the gauge securely in its pod. Throw the hardware away. That's right, throw it away.

We know that the gauge will eventually need a replacement light. If you use the hardware, you'll have to remove the entire gauge pod (and wiring?) to remove the hardware, to remove the gauge, to get to the light.

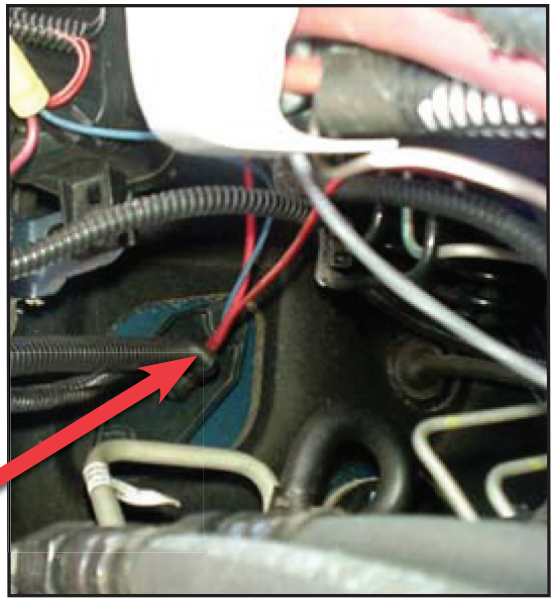
Save yourself the trouble. If you install the gauge using a light interference fit between the gauge and the pod, the gauge can be removed from the front of the pod. This greatly simplifies after-the-fact maintenance.

If the fit is too tight, lightly sand the area from the pod. If the fit is too loose, add some dimension to the gauge with a revolution or two of electrical tape.

Firewall Pass Through Tip

On the automatic transmission equipped trucks, the pass-through is easy. Remove the plate that covers where the clutch pedal and hydraulic cylinder would have been. Drill the hole through the plate and reinstall.

For the manual transmission equipped trucks, we suggest using the outside corner of truck's existing rubber boot that encases the steering column.



The "clutch plate".

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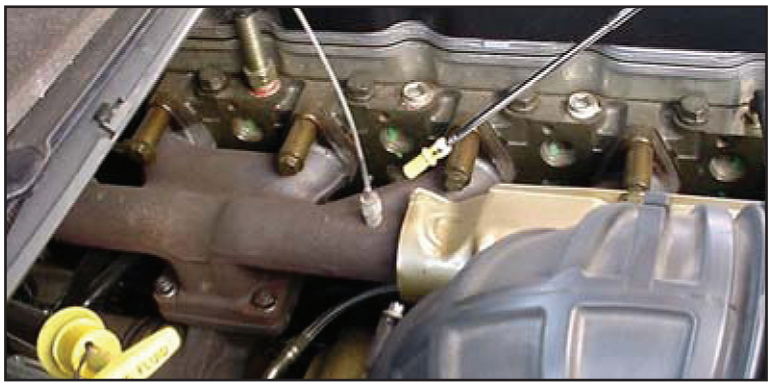
Pyrometer Installation ('03-'07, 5.9-Liter Engine)

We chose the easy to access location at engine cylinder three to drill and tap for the EGT sensor.



If you are using a 1/4 NPT probe, drill a 7/16" diameter hole straight down through one wall. If you have a 1/8 NPT probe, drill a 5/16" diameter hole. Putting axle grease on the drill and tap will help prevent shavings from falling into the manifold. Tap threads using 1/4 NPT pipe tap or the 1/8 NPT pipe tap.

Use a small mechanic's magnet that will pass through the tapped hole to the bottom wall of the manifold to retrieve drill and tap shavings. Clean shavings from magnet, then search for more shavings. Repeat until the magnet comes back clean. Don't worry, the balance of any metal shavings will blow past the turbo exhaust wheel at initial start up and should not be a concern.

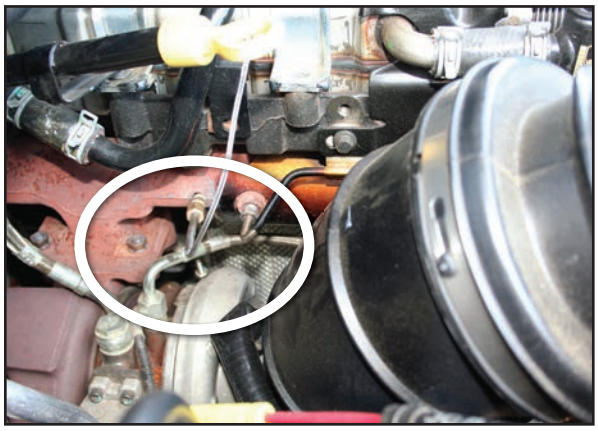
We suggest locating the probe prior to the turbocharger in the exhaust manifold as described above. The manifold readings are very quick. Since the turbocharger uses heat energy, exhaust readings after the turbocharger in the exhaust system are slower to reach their maximum number.

Alternatively, if you have an exhaust brake (specifically, Pacbrake or BD brake), their brake housing/elbow is already drilled, tapped and plugged at 1/4 NPT. Remove the plug, and simply install the 1/4 NPT EGT sensor.

Upon assembly in either location, the sensor should be half-in/half-out of the mounting/compression fitting.

Pyrometer Installation ('07.5-'09, 6.7-Liter Engine)

Unlike the probe location for the 5.9 engine, (a vertical drill/tap location), we have had great success drilling/tapping further towards the front of the engine in the horizontal plane. In this location any scrap metal will fall on the bottom of the round exhaust manifold and can be retrieved with a magnet. As you come close to drilling into the manifold, pause to blow away the metal shavings. Put grease on the drill bit to catch the shavings as you drill through. Ditto the 1/8 NPT tap.



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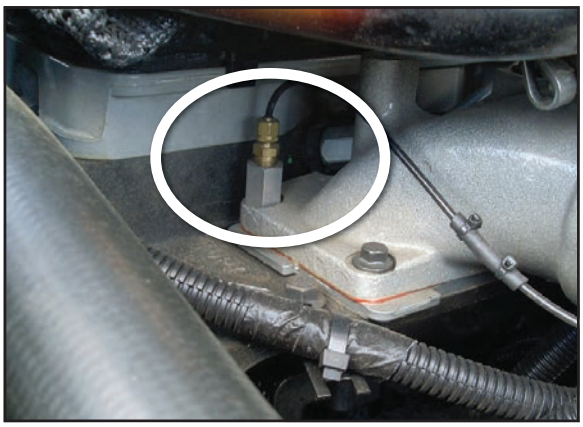
As mentioned in the 5.9 instructions, use a small mechanic's magnet that will pass through the tapped hole to the bottom wall of the manifold to retrieve drill and tap shavings. Clean shavings from the magnet, then search for more shavings. Repeat until the magnet comes back clean. Repeat again. The balance of any metal shavings will blow past the turbo exhaust wheel at initial start up and should not be a concern.

Boost Connection

We picked a location close to the firewall to install the boost bolt. Any of the inner row bolts (closest to valve cover) will do. On the gauge side, if the line is rubber instead of plastic with compression fittings, use a small tie wrap to ensure that the boost line does not pop off of the gauge.

The pointer shows the boost bolt and boost line installed in a 5.9-liter engine.



This photo shows the boost-bolt and boost line installed in a 6.7-liter engine.

Transmission Temperature

We highly recommend installing the temperature sending unit directly in the transmission drain pan. This provides consistent readings and gives a good idea of overall temperature of the fluid. Install the sending unit in any flat side of the pan. The right (passenger's side) side has a small flat section near the middle that will not interfere with the fluid pickup and will not block the bolts that fasten the pan in place. If you opted for the B&M drain plug to assist in mounting, drop the pan, drain, and drill the ½" hole in the side of the pan and install the plug.

A no-leak tip: use epoxy (JB Weld) around the internal edges of the plug to prevent fluid leakage. Install the 1/8 NPT sensor with Teflon tape.

Gauge Testing/Tips

Boost – Be advised that upon initial start up, you will not register a boost "number." It takes engine load to make exhaust flow; thus intake boost pressure. Take the truck for a test drive. You will find the boost pressure will parallel the position of your accelerator pedal. A typical 60 mph, half-throttle boost number is 8–10 psi. Rule of thumb: every psi of boost equals 10 horsepower (i.e. 10 psi means you're using 100 horsepower to motor down the road). Full throttle equals full boost, which should be around 24–25 psi for the '03 to '04 and almost 30 for the '04.5 to '07 trucks.

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Pyrometer, 5.9-Liter Engine Guidelines

As a guideline, do not exceed 1000˚ – 1050˚F with the pyrometer in a post turbo location such as the exhaust elbow or exhaust brake elbow. If you installed the pyrometer pre-turbo, in the exhaust manifold, do not exceed 1250˚ – 1300˚F.

You will find the EGTs will parallel the position of your accelerator pedal. A typical 60 mph, half-throttle EGT number is 600˚ – 700˚F if the probe location is prior to the turbocharger. Readings are usually lower if the probe is located after the turbocharger.

Pyrometer, 6.7-Liter Engine Guidelines

We have found that the 6.7-liter engine's exhaust is hotter than we've ever seen. Seldom do we see the temperature below 500°. For example, at cruise speed the 5.9-liter was 600°; now with the 6.7-liter engine 900° is the norm. We've seen the regeneration cycle keep the EGT at 1200° (with the previous 5.9-liter a 1200° reading would go hand-in-hand with lots of boost), with 0psi boost. So, hot is the way the 6.7 operates.

Be advised that the registered temperature reading will only be 250˚ – 350˚F (ambient air temperature and location of the sensor are the reasons for the variance) at initial start-up and idle. It takes engine load to make the EGT escalate.

Transmission Temperature

The lower you can keep the temperature, the longer your transmission is likely to last. Maximum oil temperature in the pan should not exceed 250˚F. If the temperature rises above this point, pull over and fast idle the engine in neutral for a few minutes to cool the transmission fluid.