

# **PennTex** **INDUSTRIES, INC.**

[www.penntexusa.com](http://www.penntexusa.com)

**Corporate Office**  
202 Plaza Drive, Manchester, PA 17345-1340  
voice: (717) 266-8762 fax: (717) 266-7803  
e-mail: [penntexusa@verizon.net](mailto:penntexusa@verizon.net)

**Manufacturing Facility**  
7620 Flagstone Drive, Fort Worth, TX 76118  
voice: (817) 590-2818 fax: (817) 590-0505  
e-mail: [info@penntexusa.com](mailto:info@penntexusa.com)

## **SERVICE BULLETIN**

RE: Ford 6.8L E-series cutaway bus chassis with PennTex charging systems.

Bulletin date: Sept. 3, 2010

Service Issue:

Ford E-series Throttle Body replacements that include a new Throttle Position Sensor may cure a drivability problem, but on vehicles with a PennTex heavy-duty high amperage alternator already installed a new problem may occur that makes the throttle body change seem ineffective.

### **Background:**

There are two styles of throttle position sensors: Potentiometer and Hall-effect. Ford has been using a potentiometer style TPS sensor in the E-series until recently when they changed to a Hall-effect style, which determines throttle plate angle by sensing the rotary angle of a small internal permanent magnet.

The old style potentiometer TPS is immune to magnetic fields. A Hall-effect TPS can be affected by external magnetic fields unless it is properly shielded. Alternators always produce magnetic fields when energized and if a heavy-duty high amperage alternator like a PennTex is mounted close to a Hall-effect TPS, the sensor will pick up the magnetic field the alternator is producing.

This interference problem is initially started occurring in 2010 Ford E-series Super Duty van chassis with the 6.8L gas engine and a new PennTex alternator install. However, it will also occur on an earlier model year Ford 6.8L gas engine chassis that has had a recent throttle-body replacement. The new throttle-body comes with a newer style Hall-effect TPS and the older potentiometer TPS is replaced. A vehicle drivability problem in the older vehicle that was corrected by replacing the throttle-body is now changed to a "dies at idle" or when "decelerating to a stop" type problem because of the TPS / alternator magnetic interference.

### **Diagnosis:**

If a new vehicle with a Penntex charging system (*or an older vehicle with a new sensor replacement*) is stalling out at idle or when decelerating to a stop, disable the PennTex alternator from charging by disconnecting the regulator harness plug from the regulator. If the vehicle will run properly after disabling the charging system, this can confirm that the magnetic interference is causing the problem. (*This assumes that no other drivability problems exist at the time of the test.*)

### **Solution:**

TPS sensors on new 2010-11 vehicles will need a magnetic shield applied. PennTex has a TPS Sensor Shield available that covers the Hall-effect style TPS and protects it from the alternators magnetic field: **Part Number PX-7010**. Older vehicles can either use an older potentiometer style TPS sensor or also use the PX-7010 TPS Sensor Shield.

*Note: Ford had discontinued sales of the older style TPS sensor, but as a result of this issue, they are now making a service replacement for the older vehicles: **Part No. 6L2Z-9B989-C**. Several auto part stores may still carry the older style TPS sensor but several chains have also discontinued it and substituted the new style instead. You will need to verify your aftermarket purchases.*

*Revised: Jan. 14, 2011*



## **SVE BULLETIN**

**SPECIAL VEHICLE ENGINEERING – BODY BUILDERS ADVISORY SERVICE**

E-Mail via website: [www.fleet.ford.com/truckbbas](http://www.fleet.ford.com/truckbbas) (click "Contact Us")

Toll-free: (877) 840-4338

QVM Bulletin: Q-194R1

Date: 13 September 2010

### **OEM or Aftermarket Alternator Relocation (or Other High Current Line/Sources over 10 Amps) on 6.8L Gas Engine FEAD (Proximity to Throttle Body/ Throttle Position Sensor)**

**To:**

Builders completing or altering E-Series vehicles

**Models Affected:**

2010 MY to Present E-Series E350/450 Cutaways with 6.8L Gas Engine

**Background:**

2010 MY E-Series (with a production date on or after March 8, 2010) began using a non-contacting (Hall Effect technology) type throttle body, throttle position sensor (TPS) which replaced a contacting type sensor.

**Alternator Relocation/Addition of High Current Line/Sources Guidelines:**

Body upfitters/alterers who are performing FEAD upfits (adding second A/C compressors or relocating the alternator from the OEM position, or adding high current sources over 10 amps) must maintain a minimum distance of 150mm from any point on the alternator assembly/high current source to any point on the TPS sensor.

**Upfitter Requirement if 150mm Alternator to TPS Clearance is not Achievable:**

If a builder is unable to re-package the alternator (or the high current line/source >10 amps) and maintain the 150mm minimum clearance to the TPS sensor, the TPS sensor shipped with the vehicle must be removed and replaced with the prior level contacting sensor. The Ford Service Part number of the required contacting type TPS kit (sensor, fastener and instruction sheet) is 6L2Z-9B989-C (refer to TSB # 072-2010-1719R1). Also, all 2005- present E-Series models with 6.8L gas engine and an alternator upfit seen on Transit /School Buses must receive the 6L2Z-9B989-C TPS sensor if a service replacement is required, to avoid potential drivability concerns.

If you have any questions, please contact the Ford Truck Body Builders Advisory Service as shown in the header of this bulletin.

# FORD THROTTLE POSITION SENSOR STYLES



Earlier Potentiometer-style TPS

- \* Triangle Shaped
- \* Spring-loaded
- \* Not affected by magnetic interference



Later Magnetic-style TPS

- \* Rectangle Shaped
- \* Not Spring-loaded

The PennTex PX-7010 Shield is only designed to fit the later magnetic-style sensor

SCALE: NONE

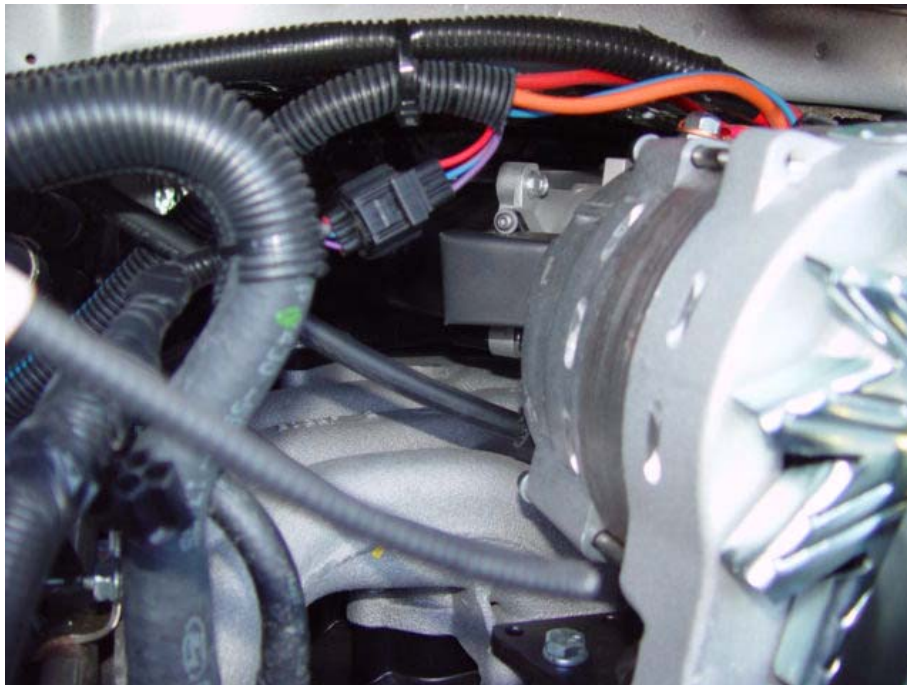
- \*Both sensors have the same mounting pattern and connector.
- \* Ford recommends heating the attaching screws before removal to loosen the LockTite on the screws. They can be broken off in the throttle body if this isn't done.

PennTex Industries  
TPS Shield (PX-7010) Installation on Ford 6.8L V-10 E-Series

1. Disconnect ALL battery grounds. This is to insure TPS Sensor recalibration and as a safety precaution.
2. Remove the following components as required to gain access to the Throttle Position Sensor (TPS Sensor) which is mounted on the front of the throttle body behind the alternator: Air Cleaner Inlet Tube, Air Cleaner Cover/Filter Assy., Alternator (Note: complete disconnect and removal may not be required)
3. **DO NOT REMOVE THE TPS SENSOR.** Locate the TPS Sensor and verify that the TPS Shield will fit over the sensor properly. The side tabs should hold it in place snugly. Adjust by bending tabs slightly as needed.
4. Remove the TPS shield. Clean both the underside of the TPS shield and the adjacent mating surface on the TPS Sensor (top cover with numbers) to remove any dirt and oil films. **NOTE:** Apply cleaning fluid (solvent) to a paper towel and wipe surfaces. Do Not apply solvent or cleaning fluids to TPS Sensor directly.
5. Apply a small blob (3/8") of sensor-safe silicone or similar suitable adhesive (**NOT INCLUDED**) to the underside of the TPS shield as shown in the picture below.



6. Install the TPS Shield onto the TPS Sensor and verify the position as shown below.



7. Reinstall the components in reverse order. Note with some bracket kits it is advisable that the TPS Sensor's Harness should be secured away from the rear of the alternator in order to gain physical clearance. Some installers have successfully used cable ties to attach it to the air intake duct.
8. Allow time for the adhesive to cure. Reconnect battery grounds. Restart engine and verify drivability.

# **IMPORTANT!**

**PLEASE READ THESE DIRECTIONS FIRST.**

**THE PENNTEX PX-7010 TPS SENSOR SHIELD MUST BE  
INSTALLED PRIOR TO THE INSTALLATION OF THE  
ALTERNATOR ON ALL 2010 AND UP FORD 6.8L V-10  
E-SERIES CHASSIS.**

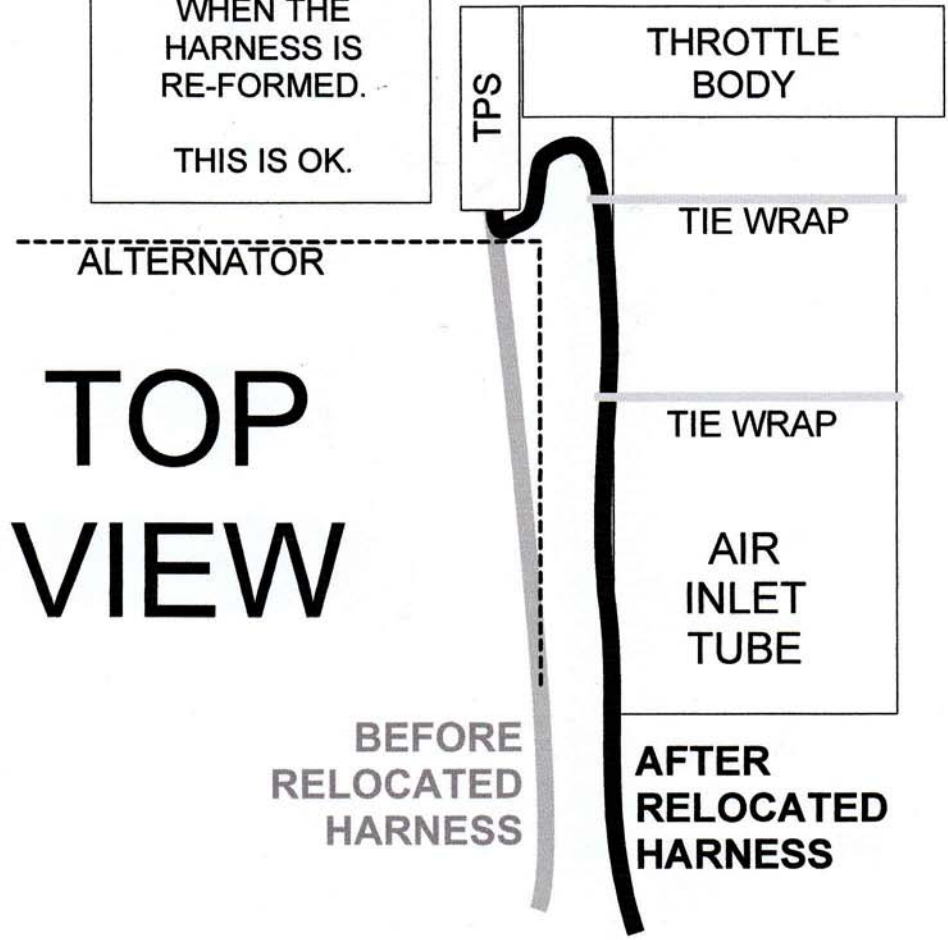
# **IMPORTANT!**

**PLEASE READ THESE DIRECTIONS FIRST.**

**THE PENNTEX PX-7010 TPS SENSOR SHIELD MUST BE  
INSTALLED PRIOR TO THE INSTALLATION OF THE  
ALTERNATOR ON ALL 2010 AND UP FORD 6.8L V-10  
E-SERIES CHASSIS.**

# ROUGH DRAWING OF TPS HARNESS ROUTING TO CLEAR PENNTEK ALTERNATOR

A WIRE SUPPORT  
FOR THE HARNESS  
AT THE TPS  
CONNECTION  
WILL BREAK OFF  
WHEN THE  
HARNESS IS  
RE-FORMED.  
  
THIS IS OK.



## TOP VIEW