



## FORD MOTOR COMPANY TRUCKS 1996 AND LATER

### NO TORQUE CONVERTER CLUTCH APPLICATION AT LESS THAN 30 PERCENT THROTTLE

**COMPLAINT:** Some Ford Motor Company Trucks, 1996 and later, may exhibit a no Torque Converter Clutch application at less than 30 percent throttle. No Trouble Codes present.

**CAUSE NO. 1:** One cause for this condition may be that one or more of the vehicle brake light bulbs, including the High Mount brake light may be burned out, or have a damaged filament (See Figure 1). When this condition is present, the PCM will detect an open in the brake lamp circuit, and due to a pull-up resistor in the PCM, will output voltage from PCM terminal 92 to the brake on-off switch (See Figure 2). As a result, the Torque Converter Clutch will not be applied at less than 30 percent throttle.

**CAUSE NO. 2:** Recently there has been an increase in the popularity of replacing the stock incandescent brake lamp bulbs, with aftermarket LED lamp assemblies. Refer to Figures 3 and 4. The main advantages of switching to LED lamp assemblies is that there are no fragile filaments to burn out or break, which means that the LED lamp assemblies may possibly last for the entire life of the vehicle, and LED lamps consume much less energy than the stock incandescent bulbs. Due to the low power consumption, the PCM *may* view this reduced current draw as being a burned out bulb, resulting in a no Torque Converter Clutch apply at less than 30 percent throttle.

#### **CORRECTION NO. 1:**

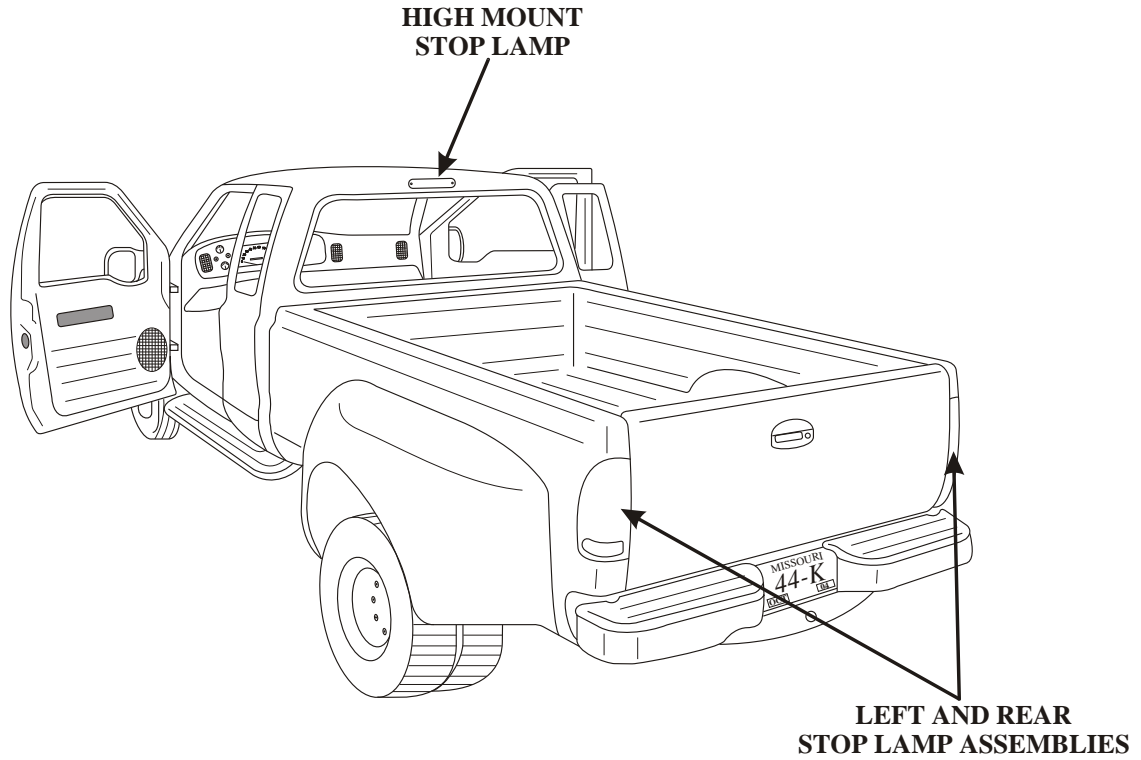
Prior to any part replacement or modifications, it would be recommended to check for a 5 to 8 volt DC signal coming out of the PCM at terminal 92 using a volt meter set to read DC voltage. Voltage may also be checked at the Light Green wire located at the back of the Brake On-Off Switch. **Note:** *The example given is for a 1996 F-Series 7.3 Diesel.* This test will help to confirm that a circuit fault has been detected by the PCM. Refer to Figure 2. **Normal operation will be 0 volts DC, brake off, and 12 volts DC, brake on.**

Replace any burned out brake lamp bulbs, including the High Mount brake lamp bulb, as shown in Figure 1. It is also important to note, that a bad ground for the rear lamp assembly, has also been known to cause the identical symptom. Refer to Figure 5 for the rear lamp assemblies ground location.

#### **CORRECTION NO. 2:**

For those vehicles that have had the stock incandescent bulbs replaced with aftermarket LED bulb assemblies, it *may* be necessary to install a 6 ohm- 50 watt Load Resistor across the brake light power wire to simulate the load of the regular stock incandescent bulb (See Figure 6). **Note:** *One resistor is required for use on each LED bulb assembly.*

The 6 ohm, 50 watt Load Resistors are available from the suppliers of the LED bulb assemblies. Two examples are "superbrightleds.com" and "digikey.com". Cost of the resistor is approximately five dollars U.S.

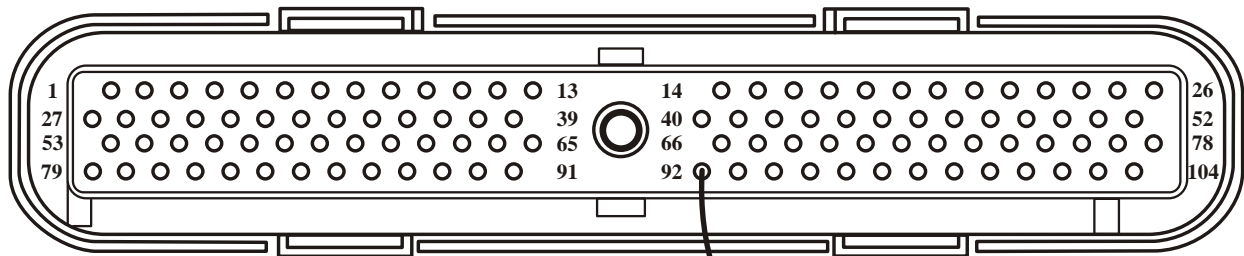


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Figure 1

*Note: Example given is for  
a 1996 F Series 7.3 Diesel*

## Ford EEC 5 PCM Terminal Identification



*Light Green Wire*

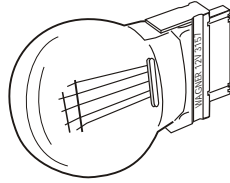
**Malfunction:** Check for 5 to 8 volts DC at PCM pin 92  
or at the Light Green wire at the Brake On-Off Switch

**Normal Operation:** 0 volts DC brake off  
12 volts DC brake on

**BRAKE ON-OFF SWITCH**

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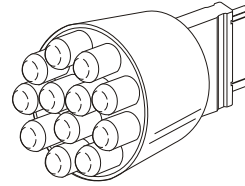
Figure 2



**FACTORY STYLE  
INCANDESCENT BULB**

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Figure 3

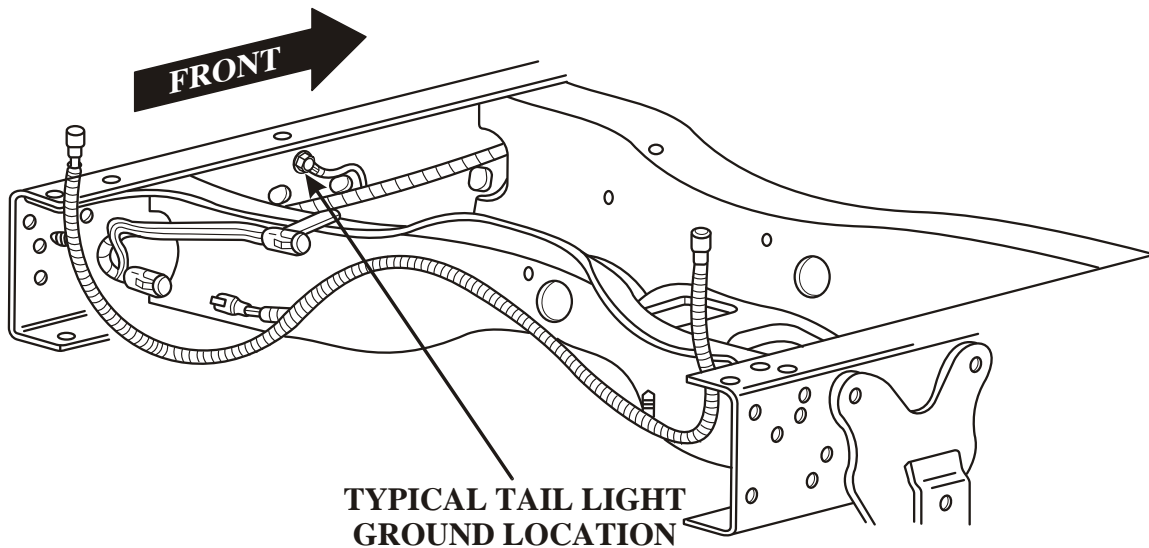


**AFTERMARKET  
LED BULB**

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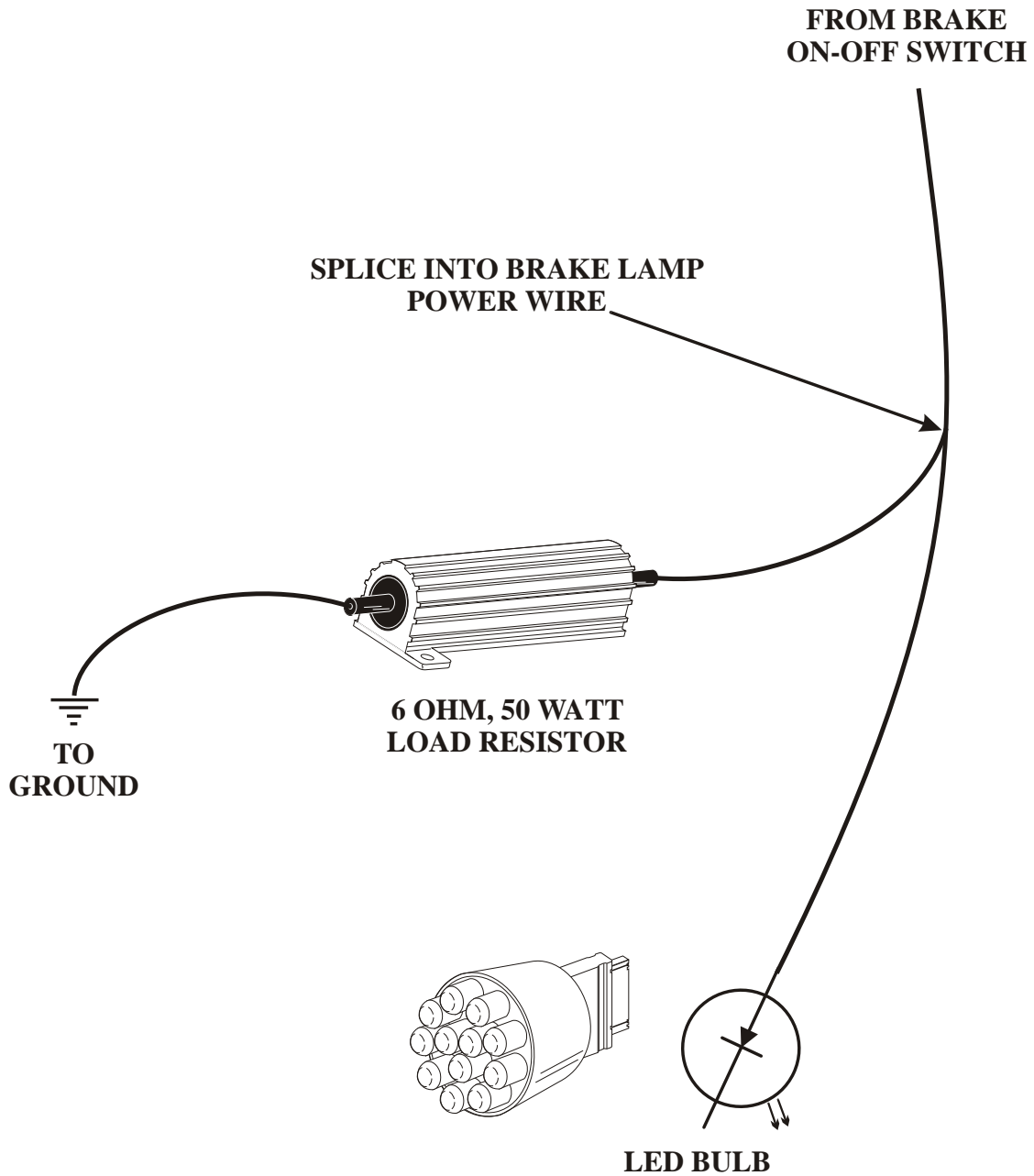
Figure 4

## GROUND LOCATION



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Figure 5

**LOAD RESISTOR INSTALLATION**

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Figure 6