guzzle's 2002 Ford Powerstroke Diesel Torque Converter Lockup Modification

Installation of a manual switch that could lock up the torque converter on demand was one of the first modifications that I did to my 2002 Powerstorke. My first attempt was to simply install a switch to ground out the lockup solenoid signal but this caused the OD light on the shift column to begin blinking whenever the ECM wanted to unlock the torque converter. The constant blinking was more than I could stand so I set out to find a cure to allow the manual override to function and to get rid of the blinking!

Parts that I used

Radio Shack Parts:
Switch: 275-371 (no longer available)
NOTE: I just picked up an identical switch at the auto parts store
It is a CALTERM rocker switch #40393 and is identical to the old Radio Shack part.

Relay: 275-218
Red LED light: 276-084
resistor: 271-1128 - 22K ohm
small project box: 270-283
(On 3-1-08, I checked on RadioShack.com and these parts are still available but the project box was shown as out-of stock)
Digikey has a similar box but is quite a bit more expensive.
The solution actually turned out to be rather a simple one. All I had to do was to fool the ECM into believing that it still had control of the torque converter solenoid by feeding it 12 volts through a resistive load. It is necessary to use a resistor as a load because when the ECM attempts to ground the solenoid, a direct 12 volt feed from the battery would fry the ECM. For this reason, if you try to build this device yourself, be careful to follow the schematic closely. All of the components were mounted on the breadboard that came with the project box with exception to the relay which was mounted in the box with double sided tape. I also used two Molex connectors from Radio Shack so I would be able to easily unplug the box if I needed to modify or work on it.

NOTE -- There are extra components shown in the picture that were used during experimentation but were not included in the final circuit. Please disregard the extra resistor and diode in this picture.
Mounting Under the Dash

The small project box easily fit inside the fuse access panel and is held in place with a single screw that is hidden by the access cover.
Lighted Dash switch

The SPST lighted switch controls locking the torque converter on demand. The LED light in the switch only indicates when the override is turned on, not when the torque converter is locked. There is a separate LED shown in the schematic that will indicate whenever the torque converter is locked (light on) or unlocked (light off) whether by the ECM or the TC Lockup switch. This LED can be mounted anywhere on the dash. I mounted mine on the A-pillar gauge pod.

The Schematic

Here is the schematic drawing of my final design to eliminate the flashing OD light whenever using the Torque Converter on Demand switch.

If the LED is too bright for night driving, you can insert a resistor between Switch 1 and the LED. Values can be from 1 megohm to 100 ohms, you may have to play with different values to get the brightness you desire.
RadioShack parts:
Switch 1 - 275-371
Relay 1 - 275-218 - DPDT
Red LED - 276-084 - 12 volt
Project Box - 270-283
Resistor 1 - 271-1128 - 22,000 ohm

The Red LED can be mounted anywhere on the dash or gauge pod.
Where's the wire?

If you look under the master brake cylinder, sitting on top of the wheel well, there are 3 16-pin connectors (at least there are 3 on my 2002); two black and one grey. The grey one is the one on the 2002. You may have to do some searching to find the correct connector on your truck.

The color of wire you are looking for is a Violet w/yellow stripe. Wire pinouts and color coded wires are the same for the first two rows on the 99-03 PSDs. You are looking for pin 6.

First row across the top at the connector lock

<table>
<thead>
<tr>
<th>Pin</th>
<th>Color or Code</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>GY/RD</td>
</tr>
<tr>
<td>2</td>
<td>DG/WH</td>
</tr>
<tr>
<td>3</td>
<td>DB/YE</td>
</tr>
<tr>
<td>4</td>
<td>OG/BK</td>
</tr>
</tbody>
</table>

Second row

<table>
<thead>
<tr>
<th>Pin</th>
<th>Color or Code</th>
</tr>
</thead>
<tbody>
<tr>
<td>5</td>
<td>BN/OG</td>
</tr>
<tr>
<td>6</td>
<td>VT/YE (this is the one you want)</td>
</tr>
<tr>
<td>7</td>
<td>OG/YE</td>
</tr>
<tr>
<td>8</td>
<td>VT/OG</td>
</tr>
</tbody>
</table>

You will need to cut this wire to use my schematic to get rid of the flashing OD light. Before cutting, you can test your TC lockup to make sure it is the correct wire by simply tapping the VT/YE wire and running the wire into the cab. Put the truck in gear and step firmly on the brake. Short the wire to any ground point in the cab and the TC will lock and kill the engine (like dumping the clutch on a manual while stopped).

99 PSD connector:
02 PSD connector:

**C1010**

Diagram 1:

- 1: 970 (DG/WH)
- 2: 359 (GY/RD)
- 3: 480 (VT/YE)
- 4: 924 (BN/OG)
- 5: 925 (WH/YE)
- 6: 391 (RD/YE)
- 7: 1093 (TN/RD)
- 8: 1144 (YE/BK)
- 9: 136 (DB/YE)
- 10: 923 (OG/BK)
- 11: 237 (OG/YE)
- 12: 315 (VT/OG)
- 13: 33 (WH/PK)
- 14: 199 (LB/YE)
- 15: 1143 (WH/BK)
- 16: 1145 (LB/BK)

**15525**

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Diagram 2:

- 1: 970 (DG/WH)
- 2: 359 (GY/RD)
- 3: 480 (VT/YE)
- 4: 924 (BN/OG)
- 5: 925 (WH/YE)
- 6: 391 (RD/YE)
- 7: 1093 (TN/RD)
- 8: 1144 (YE/BK)
- 9: 136 (DB/YE)
- 10: 923 (OG/BK)
- 11: 237 (OG/YE)
- 12: 315 (VT/OG)
- 13: 33 (WH/PK)
- 14: 199 (LB/YE)
- 15: 1143 (WH/BK)
- 16: 1145 (LB/BK)