

**OWNERS MANUAL**

**...with installation instructions**

# **Banks SmartLock™**

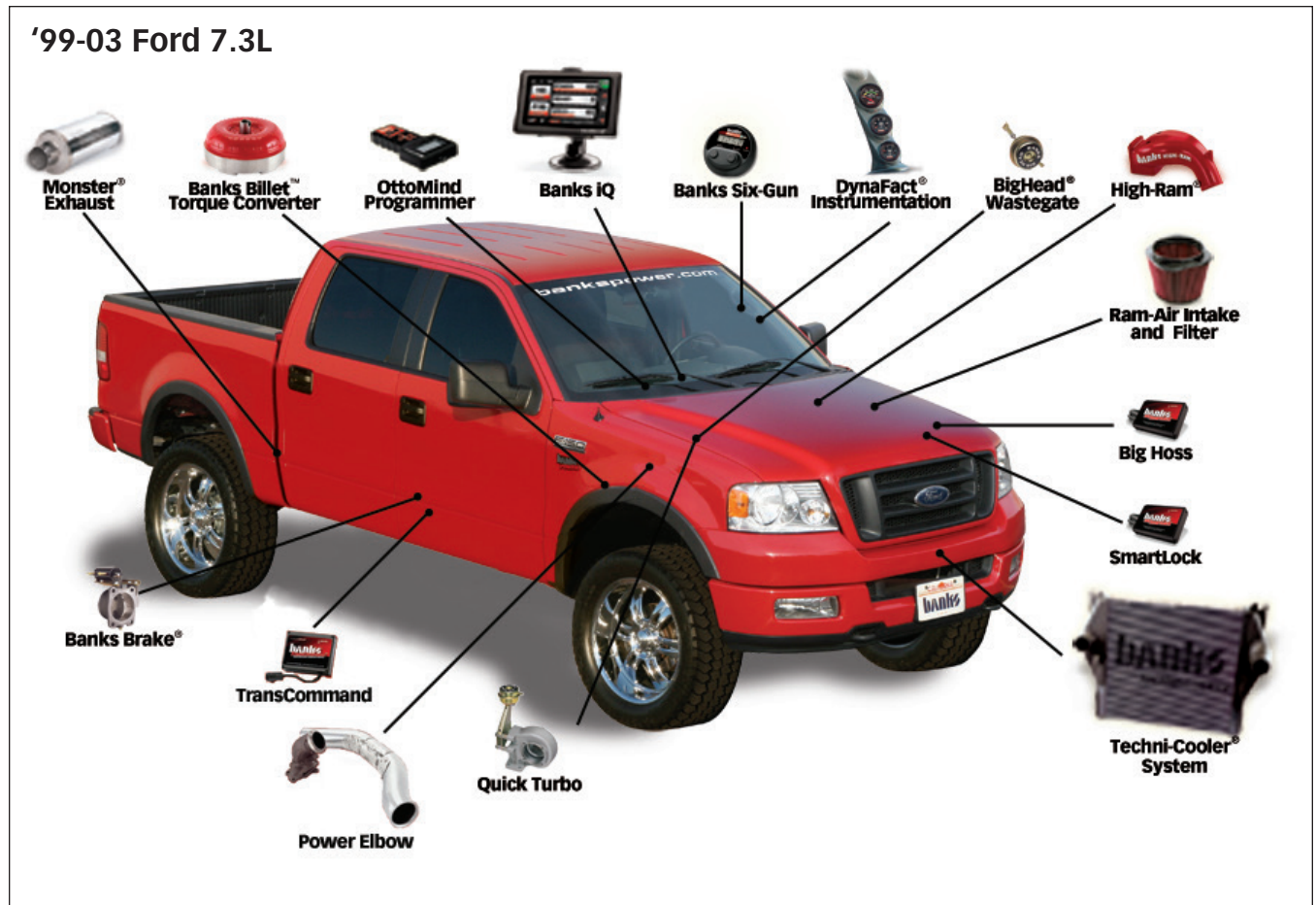
**TRANS BRAKE**

**1994-2003 Ford 7.3L Power  
Stroke  
Turbo-Diesel Pickups**

THIS MANUAL IS FOR USE WITH SYSTEM 55255 &  
55266

**BANKS**

# Also Available from Banks Power for '99-03 Ford 7.3L



**Banks Power Elbow**  
(P/N 48651-48652, 48661-48663)  
- Reduces stock outlet and pipe backpressure

**Banks Monster® Exhaust System Sport** (P/N 48789)  
**Single and Dual** (P/N 48653-48660, 47391-47399)  
- Increases exhaust flow, cuts backpressure, lowers exhaust gas temperatures (EGTs) and increases power.

**Banks Ram-Air Intake System** (P/N 96885)  
- Increases your airflow over stock.  
- Adds power, improves fuel economy, lowers EGTs and reduces smoke.

**Banks Techni-Cooler® System** (P/N 25971-25973)  
- Provides increased air flow to the engine by increasing air density for more increased power, lower EGTs and improved fuel economy.

**Banks Brake** (P/N 55202-55207)  
- Increases the stopping power of your truck and extends the service life of your brakes

**Banks SmartLock** (P/N 55266)  
- Reduces wear on transmission  
- Locks Torque Converter and raises trans-line pressure  
- Works with Banks Exhaust Brake

**Banks TransCommand** (P/N 62570)  
- Produces smooth, firm, light-throttle shifts and solid, decisive heavy-load shifts.  
- Eliminates excessive clutch slippage

**Banks Billet Torque Converter** (P/N 72521)  
- Higher torque capacity over stock  
- Lockup clutch is slip-resistant so transmission fluids stay cooler and transmission life is prolonged.

**Banks Diesel Tuner Six-Gun** (P/N 66513-66515)  
**Big Hoss** (P/N 66505)  
- Adds power safely to your vehicle  
- Engine and transmission safeguards  
- Change power levels on-the-fly

**Thermocouple**  
- Add a temperature limiting function to your Diesel Tuner

**Banks QuickTurbo** (P/N 24456-24457)  
- More boost through the powerband  
- Does not over-boost  
- Turbo-diesel efficiency

**OttoMind Programmer** (P/N 66064)  
- Contains Banks tunes that boost your vehicles HP, Torque and MPG.  
- Displays a host of critical engine functions  
- Provides "service technician" diagnostic capabilities  
- Has upgradeable functionality, so it will never be out of date

**Banks Git-Kit Systems  
(P/N 47401, 47511-47514)**

**Contains:**

- Monster Exhaust
- Big Hoss Module

**Banks Stinger Systems**

**Contains:**

- Ram-Air IntakeFilter
- Monster Exhaust
- Big Hoss Module
- Big Head Wastegate Actuator

**Banks PowerPack Systems**

**Contains:**

- Ram-Air Intake Filter
- Monster Exhaust
- Quick-Turbo
- TransCommand
- Techni-Cooler System
- Big Head Wastegate Actuator

**Banks Six-Gun Bundle  
(P/N 46594-46613)**

**Contains:**

- Ram-Air Intake Filter
- Monster Exhaust
- Six-Gun Tuner
- TransCommand
- Big Head Wastegate Actuator

**Banks Big Hoss Bundle  
(P/N 46623-46643)**

**Contains:**

- Ram-Air Intake Filter
- Monster Exhaust
- Six-Gun Tuner
- TransCommand
- Big Head Wastegate Actuator
- Techni-Cooler System
- Big Hoss Module
- Power Elbow

**Banks Power Combo 1**

**Contains:**

- Big Hoss Module
- TransCommand
- Big Head Wastegate Actuator

**Banks Power Combo 2**

**Contains:**

- Six-Gun Tuner
- TransCommand
- Big Head Wastegate Actuator

**Banks Power Combo 3**

**Contains:**

- Big Hoss Module
- Monster Exhaust

**Banks Power Combo 4**

**Contains:**

- Big Hoss Module
- TransCommand
- Big Head Wastegate Actuator
- Six-Gun Tuner

# General Installation Practices

**1.** For ease of installation of your SmartLock Trans Brake, please read this 14-page Owner's Manual before starting any work. Become thoroughly familiar with all components and phases of the installation before beginning any work.

**2.** Inspect all components supplied for any foreign material that may have entered during shipping and handling.

**3.** The installation should be performed at a time when the vehicle has been allowed to completely cool. This installation requires the installer to work near surfaces that may remain hot after the vehicle has been run. Failure to allow the vehicle to cool may result in personal injury.

**4.** Pay particular attention to the routing of wires. Keep them away from exhaust heat, moving parts and sharp edges that may cause damage. Route or

tie away from critical areas as required. Keep all wires a minimum of 6" from hot exhaust parts, 8" or more is recommended whenever possible.

**Warning! Never work under any vehicle supported only by a jack of any kind. DO NOT USE concrete blocks or other masonry items that may collapse under the vehicle weight.**

## **SYSTEM INCLUDES:**

- SmartLock Trans Brake
- Wiring Harness
- SmartLock Connector
- Bypass Connector
- Red T-Tap (1)
- Owner's Manual
- Warranty Statement
- Cable Ties (13)

# SmartLock Trans Brake Installation

**CAUTION:** Installation of the SmartLock trans brake is NOT complete until Functional Testing, described on Page 12 of this manual, has been successfully completed.

**NOTE:** The following instructions assume that a Banks Exhaust Brake system has been previously installed on the vehicle.

**NOTE:** If the vehicle is equipped with a Banks TransCommand Transmission Command Module, the installation instructions for the SmartLock do not change. The SmartLock is designed to work in conjunction with the TransCommand.

1. As a precaution, disconnect the ground of the battery (if there is more than one battery, disconnect both).
2. Remove fuse panel cover (panel below steering column) by loosening the four (4) retaining fasteners with a coin.
3. Locate the block-off plate on the firewall (see **Figure 1** or **1A**).
4. Using a 1" hole-saw, Drill a hole in the center of the

Figure 1- ('99-02 models)-Block-Off Plate on Firewall

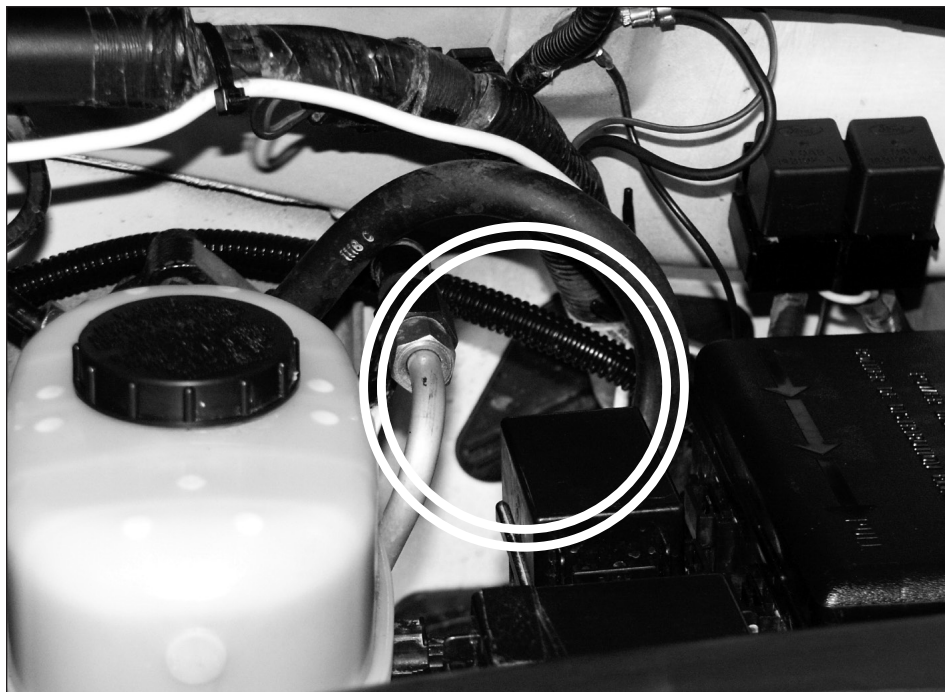


Figure 1A- ('94-97 models)-Block-Off Plate on Firewall



block-off plate. Be sure to de-burr both sides of the hole in order to prevent damage to the wiring harness. On the 1999-2003 models it may be easier to drill the hole after

removing the block off-plate from the vehicle. Re-install the plate after drilling. The 1994-1997 model block-off plate can be drilled while it is installed in the vehicle.



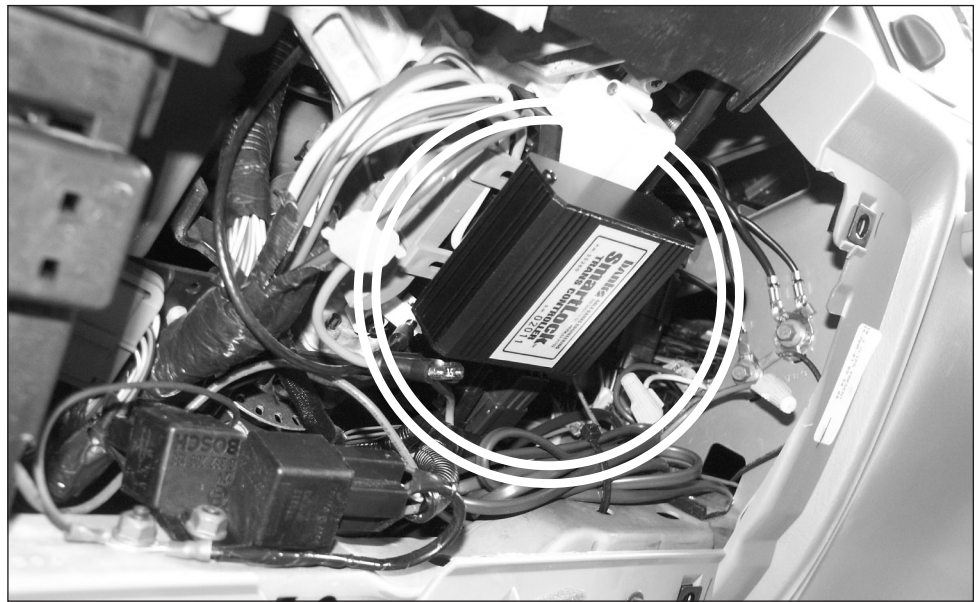
**5.** Starting with the 10-pin (white) connector on the SmartLock wiring harness, feed the wires through the 1" hole from the engine compartment towards the interior of the vehicle. Continue to feed the wires through the hole until the first harness junction is reached (approx. 2 feet).

**6.** Locate the white electrical junction block on the bottom side of the steering column. Ensure that the surface of the junction block is clean and free of oil, grease, dirt. Clean and dry as required using a cloth dampened with rubbing alcohol or similar cleaning solution.

**CAUTION: Do not spray fluid directly onto electrical junction block or damage to the electrical system may result.**

**7.** Peel the protective backing from the foam tape on the SmartLock Trans Brake. The SmartLock Trans Brake should be oriented so that the electrical connector is facing towards the front of the vehicle. See **Figure 2**. Attach the SmartLock Trans Brake to the bottom side of the white electrical junction box. Apply light pressure to the trans brake box by hand for approximately 60 seconds to seat the foam tape and create a strong bond.

**Figure 2- Positioning of SmartLock Trans Brake**



**8.** Locate the end of wire harness with white 10-pin connector. Plug this connector into SmartLock Trans Brake.

**9.** Secure the wire harness as necessary using two (2) of the supplied cable ties.

**10.** Re-install previously removed fuse panel cover.

**11.** On 1999-2001 models, locate electrical connector (C1049M) below and slightly towards the driver side of the brake master cylinder, on the firewall (See **Figure 3**). The electrical connector is the topmost of a group of three similarly shaped connectors. Peel wire harness tape back to reveal the wires within the loom.

**CAUTION: Be careful not to damage the insulation on the wires within the loom when removing the tape.**

Locate the white wire with pink stripe (Pin 9 of C1049M). **CAUTION: There is also a white wire with a red stripe in this harness. Do not T-Tap that wire.**

Install the red T-Tap connector on the white wire with pink stripe.

On 2002-2003 vehicles, locate the PCM electrical connector (C175) on the driver's side of the firewall (see **Figure 3A**). Remove PCM connector by loosening center bolt on connector. Remove the black plastic cover from PCM connector. Locate the brown wire with orange stripe (Pin 95). Install the red T-tap connector onto the brown wire with the orange stripe (Pin 95). Plug the PCM connector into the firewall connector. Reinstall the black plastic cover and tighten center retaining bolt.

Figure 3- ('99-01 models)-Connector C1049M



Figure 3A- (2002-2003 models)-Connector C175

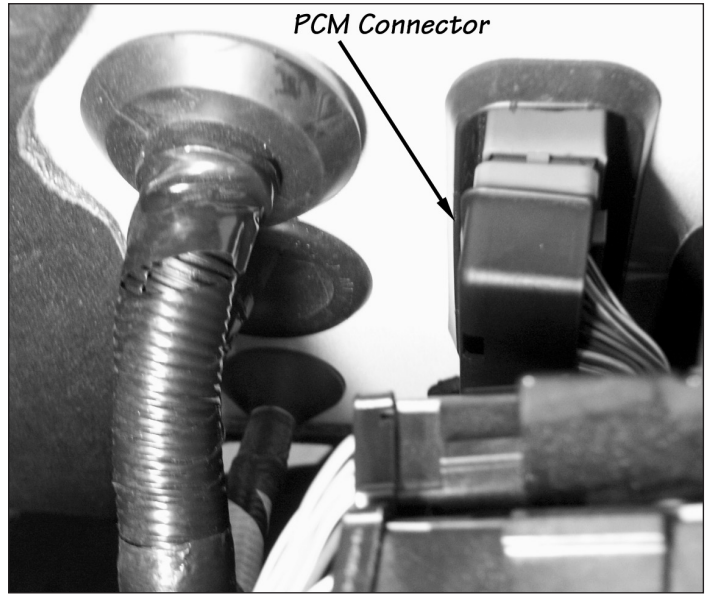
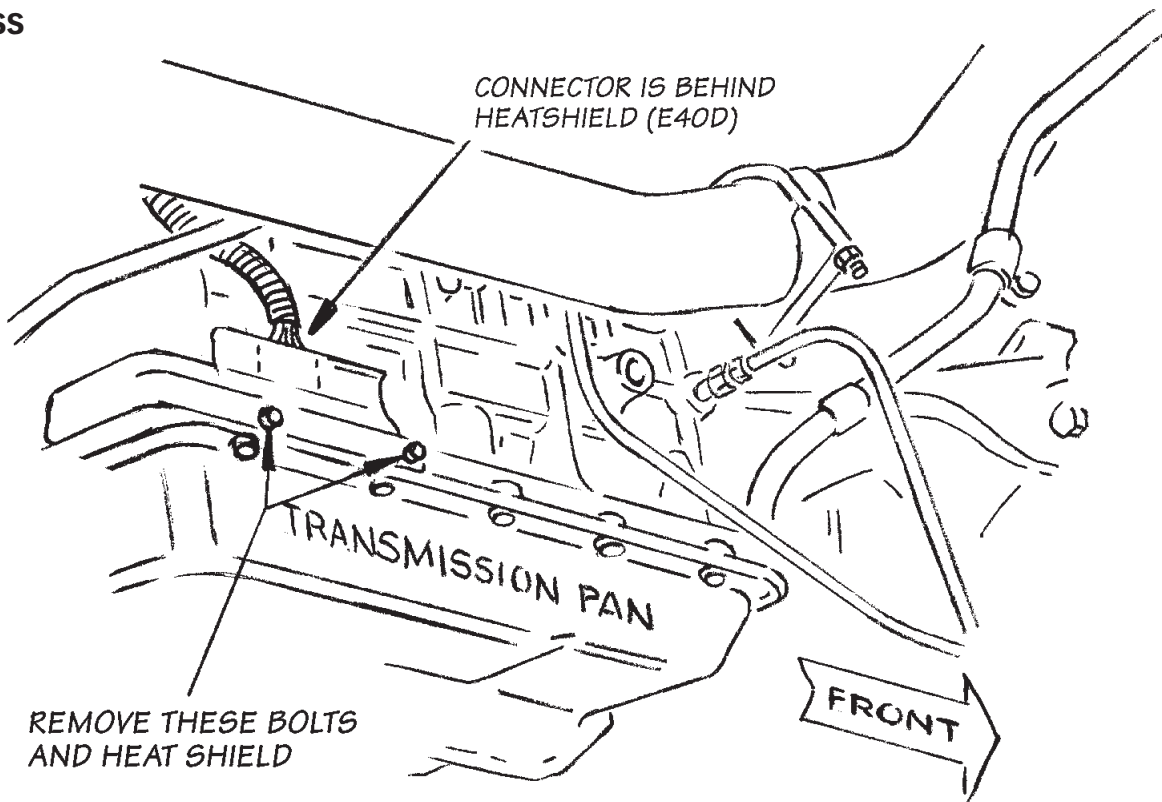


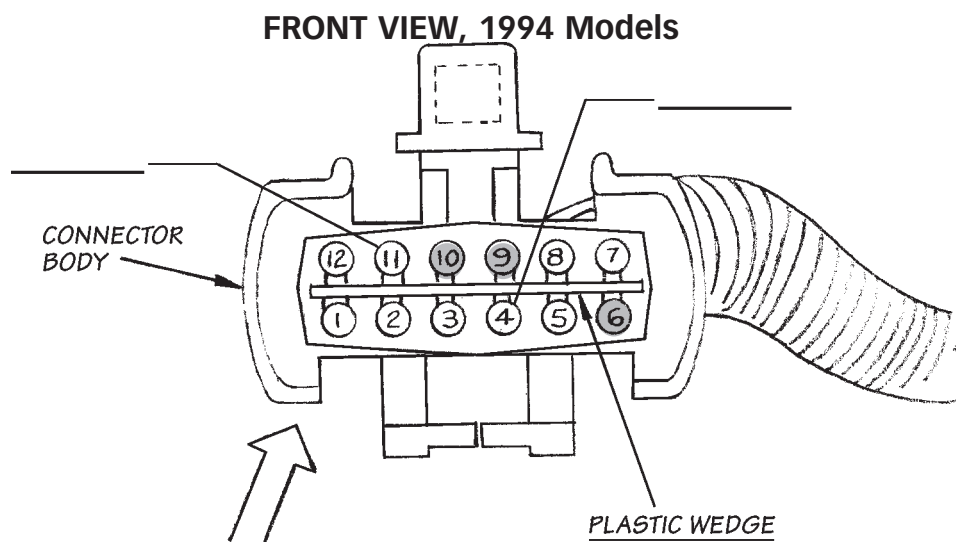
Figure 3B- ('94-97 models)-Connector C1027



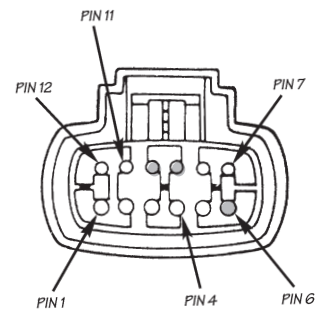
**Figure 4- Identify Factory Transmission Control Wiring Harness**



**Figure 5- Identifying/Removal of Pins**



**FRONT VIEW, 1995-2003 Models**



**IMPORTANT!**  
MAKE A NOTE OF THE WIRE COLORS FOR PINS 4 and 11 ON EITHER STYLE OF CONNECTOR BEFORE REMOVING WIRES FROM CONNECTOR BODY

REMOVE BY PRYING WITH A SMALL SCREWDRIVER, OR PULL OUT WITH A STIFF PIECE OF WIRE WITH A SMALL HOOK ON THE END

**NOTE:**  
Pins 1-6 are closest to transmission.  
Pins 6, 9 & 10 are empty.



On 1994-1997 models, locate the PCM electrical connector (C1027) on the driver's side of the firewall (see **Figure 3B**). Remove the center retaining bolt and remove the black plastic cover from the backside of the connector. Locate the Brown wire with the Orange stripe (pin 95). Install the red T-Tap connector on the Brown wire with the Orange stripe. Reinstall the black plastic cover and center retaining bolt.

**12.** Locate Purple wire in SmartLock wiring harness. Plug Purple wire into T-Tap installed in previous step.

**NOTE: Be sure that the tab on the purple wire is properly seated in the slot of the T-Tap connector or the SmartLock will fail to function properly.**

**13.** Route the end of the SmartLock wiring harness with the 4-pin connector along the factory wiring harness that runs down along the driver's side of the transmission tunnel.

**14.** Connect the supplied wire extension (P/N 55164) to the red wire on the SmartLock harness. Route the red wire lead of the SmartLock harness to the Banks Brake Solenoid Valve location.

**15.** Disconnect the green wire from the Solenoid Valve and plug it into the mating connector on the SmartLock Harness. Plug the remaining connector on the SmartLock harness into the previously disconnected lead on the Banks Brake Solenoid Valve.

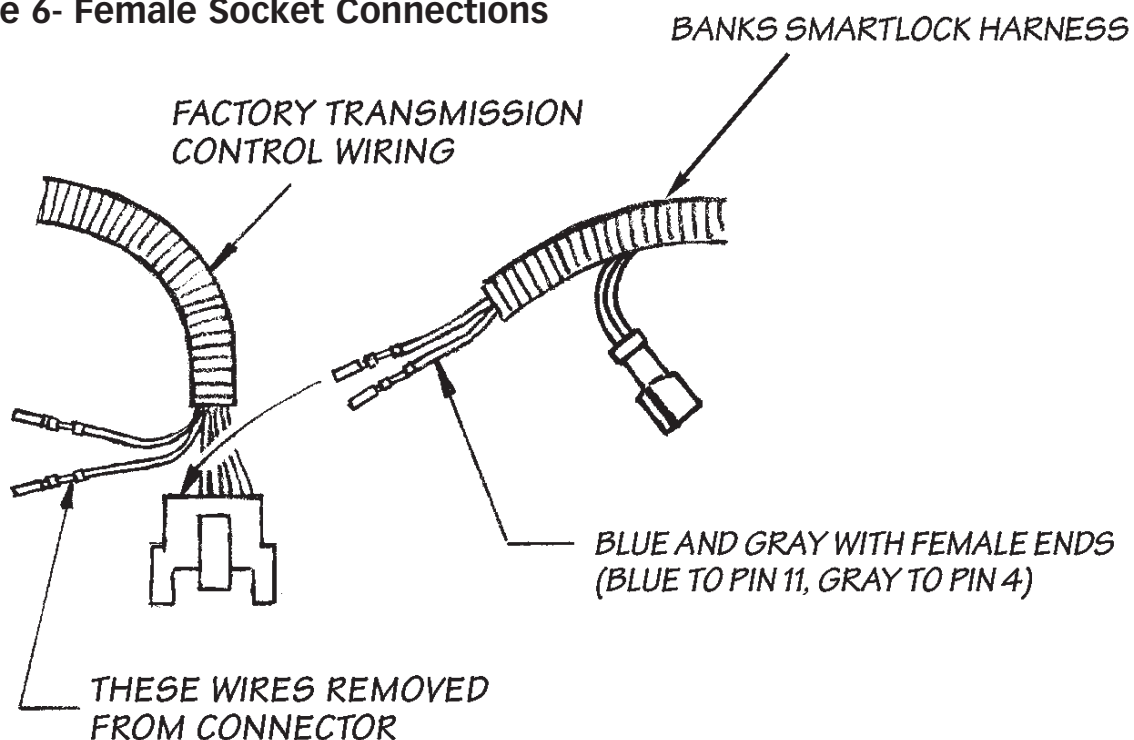
**16.** Secure the wiring harness to the existing factory wiring

using the supplied cable ties.

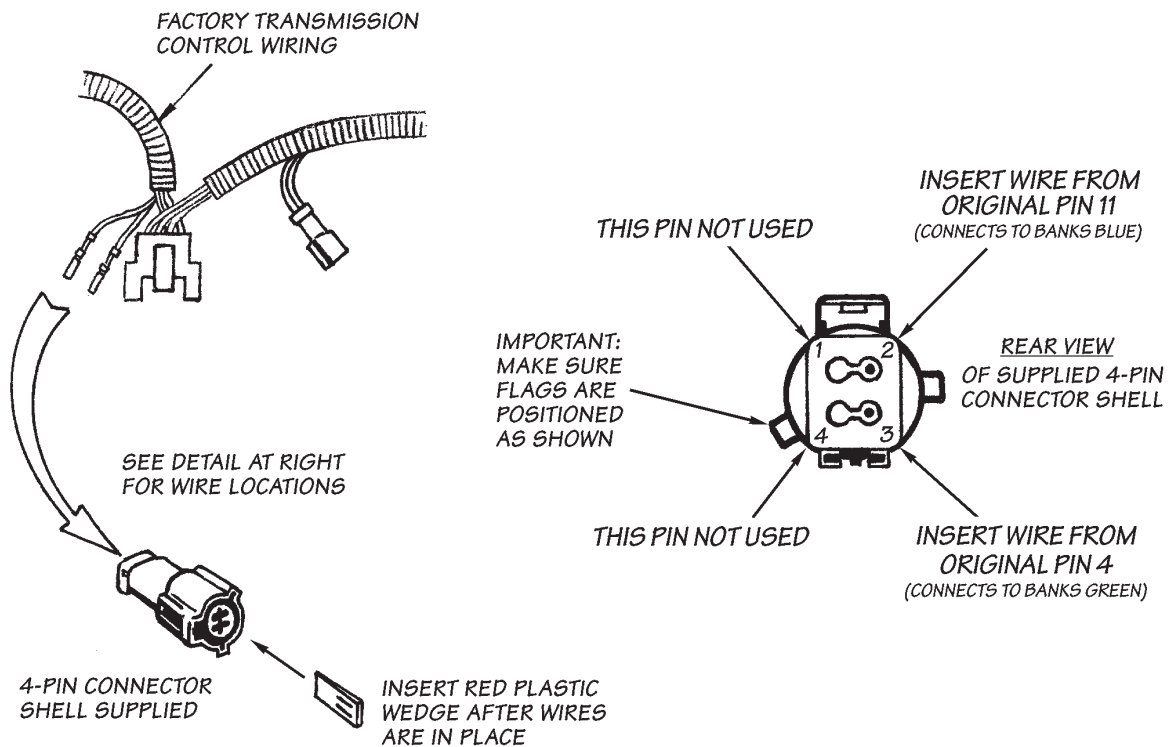
**Warning! Never work under any vehicle supported only by a jack of any kind. DO NOT USE concrete blocks or other masonry items that may collapse under the vehicle weight.**

**17.** Raise the front of the vehicle and support it with properly weight rated safety stands, ramps or a commercial hoist. Follow the manufacturer's safety precautions. Take care to balance the vehicle to prevent it from slipping or falling. When using ramps, be sure the front wheels are centered squarely on the topsides; place the transmission in park; set the parking brake and place blocks behind the rear wheels.

**Figure 6- Female Socket Connections**



**Figure 7- Wire Attachment on Connector Shell**



**CAUTION: Do not work under any vehicle supported only by a jack. Severe injury may result.**

**18.** Route the SmartLock wiring harness along the factory transmission wiring on the driver's side of the transmission tunnel, along the transmission cross member and over the top of the transmission.

**19.** Identify the factory transmission control wiring harness on the right (passenger) side of the transmission (see **Figure 4**). Disconnect this wiring harness by pressing on the retaining tab on the outside of the connector near the top and pulling the connector upward.

**NOTE: On vehicles equipped with an E4OD, this plug is located behind the small metal shield. Using an 8mm wrench, unbolt this shield to reveal the plug.**

**20.** On 1994 models, remove the red plastic wedge from between the two rows of pin sockets in the transmission control wiring harness connector using a small screwdriver. On 1995 thru 2003, the pins are held in place with a red retainer. Remove the retainer by placing a small screwdriver tip between the connector shell and the retainer and prying the retainer out (see **Figure 5**).

**21.** Using **Figure 5** as a guide, identify pins #4 and #11. Note the wire colors and record them on **Figure 5**.

**NOTE: If a Banks TransCommand is being installed or has been previously installed, the Banks wire that is installed into pin #11 (brown) should be removed per these instructions as if it were the factory wire.**

**22.** Reach through the front of the connector with a small screwdriver or sharp scribe; gently move the locking tang away from pin #4 and remove the wire and pin socket from the back side of the connector body. Repeat for pin socket #11.

**23.** Using **Figures 5 and 6** as a guide, insert the two female socket/wire ends from the SmartLock harness into the factory transmission control wiring connector body as follows:

**A.** Insert the gray wire with the female socket into pin #4 location of the connector. The pin should click into place when it is fully seated.

**B.** Insert the blue wire with the female socket into pin #11 location. This pin should also click into place when it is fully seated.

**24.** Reinstall the red plastic wedge or retainer (removed in Step 19) between the two rows of socket pins in the connector body.

**25.** Locate the supplied round 4-pin connector shell pictured in **Figure 7**. Remove the red wedge from the front of the connector. Using **Figures 5 and 7** as a guide, insert the two wires that were removed from the transmission connector in

Steps 19 thru 22 into the back of the connector shell. Be sure to refer to the wire colors that were noted on **Figure 5**.

**A.** Insert the wire that was removed from pin #4 into the #3 hole of the connector shell shown in **Figure 7**. Be sure that the pin clicks into place.

**B.** Insert the wire that was removed from pin #11 into the #2 hole of the connector shell. Be sure that the pin clicks into place. *NOTE: Holes #1 and #4 are not used.*

**26.** Insert the thin end of the supplied red plastic wedge into the front of the connector.

**27.** Inspect the new connector assembly by double checking the wire colors and pulling (lightly) on the wires from the rear of the connector to be sure that they are fully seated.

**28.** Plug the new connector into its mate on the SmartLock harness and connect the ground wire to a transmission case bolt.

**29.** Reconnect the transmission control wiring connector to the transmission.

*NOTE: If the connector doesn't "snap" into position easily, it is possible that the rubber seal that is supposed to be around the Ford wire loom connector has come off the plug and is down inside the transmission socket. If this happened, remove the seal with a small pick and slide it over the red retainer and try again.*

**30.** Re-install heat shield if it was previously removed.

**31.** Secure entire wiring harness using supplied cable ties. Ensure that wiring is routed away from all heat sources and sharp edges.

**32.** The Banks SmartLock installation is now complete. Lower the vehicle.

## Functional Testing

Once the installation is complete a test drive should be performed to ensure that the SmartLock Trans Brake is functioning properly. The following procedure should be used to verify that the Torque Converter is locked when the brake is active and that it disengages at the proper engine speed.

- 1.** Obtain a vehicle speed of 45 mph in 3rd gear (engine speed should not exceed 2200 rpm, adjust speed as required). NOTE: This test should be performed on a stretch of road where it is safe to allow the vehicle to slow to approximately 20 mph.
- 2.** While maintaining 45 mph, turn the power switch for the Banks Brake to the "ON" position. Release the accelerator pedal to activate the exhaust brake.

- 3.** Downshift to 2nd gear.
- 4.** Once the exhaust brake is activated the torque converter will lock. Allow the vehicle to slow until the rpm drops below 1600 rpm.
- 5.** At an engine speed of 1600 rpm the SmartLock Trans Brake will return the control of the torque converter to the factory computer and it will unlock. When the torque converter unlocks, the engine speed will drop rapidly and this is an indication that the SmartLock Trans Brake is functioning properly.
- 6.** Once this functional testing has been successfully performed, the SmartLock is ready for years of reliable service.

## Trouble-Shooting

If the converter does not lock when engine speed is above 1600 rpm, the purple wire that was T-tapped onto the white/pink (or brown/orange) wire may have a faulty connection. Verify that the purple wire is installed correctly and the T-tap is on the correct wire.

If the "Service Engine Soon" light becomes illuminated, the wire connections at the transmission are suspect and their installation should be double-checked. The "Service Engine Soon" light will go out when the wiring problem is corrected. An internal code will remain present in the vehicle's computer until the code is cleared using a scan tool or by disconnecting the vehicle's batteries for approximately 20 minutes.



## Operating Instructions

The SmartLock Trans Brake is a fully automated device, which integrates seamlessly with the Banks Brake and the vehicle computer. There are no switches or buttons to press to operate the SmartLock. It will become operational whenever the exhaust brake is active (power "ON" and no throttle applied) and the engine speed is above 1600 rpm.

If the SmartLock Trans Brake should ever need to be temporarily removed from the vehicle, the system includes a by-pass plug that must be connected to the white 10-pin connector in place of the SmartLock Trans Brake. Failure to utilize the by-pass plug will result in a "Service Engine Soon" light on the dash and a Diagnostic Trouble Code being stored in the factory computer.

**NOTE: The SmartLock is designed to compliment the function of the Banks Brake. It is not designed or intended for use under acceleration as a means to hold the torque converter locked or raise transmission pressure. This device does not increase the torque capacity of the vehicle's transmission under acceleration. The Banks TransCommand transmission control module is available for use under acceleration/power conditions.**