



Ford 6.0L AutoLoc

For use with 2003-2006 Ford 6.0L E-Series Vans

Installation Instructions

Part# 1031301

PLEASE READ ALL INSTRUCTIONS BEFORE INSTALLATION.

Cautionary Note:

Please read the disclaimer before proceeding to install this unit.

Installation Manual P/N# I1031301

Printed in Canada

BD Engine Brake Inc.

Plant Address: 33541 MacLure Rd. Abbotsford, BC, Canada V2S 7W2

U.S. Shipping Address: 88-446 Harrison St, Sumas, WA 98295 U.S. Mailing Address: P.O. Box 231, Sumas, WA 98295

Phone: 604-853-6096 | Fax: 604-853-8749 | Internet: www.bd-power.com

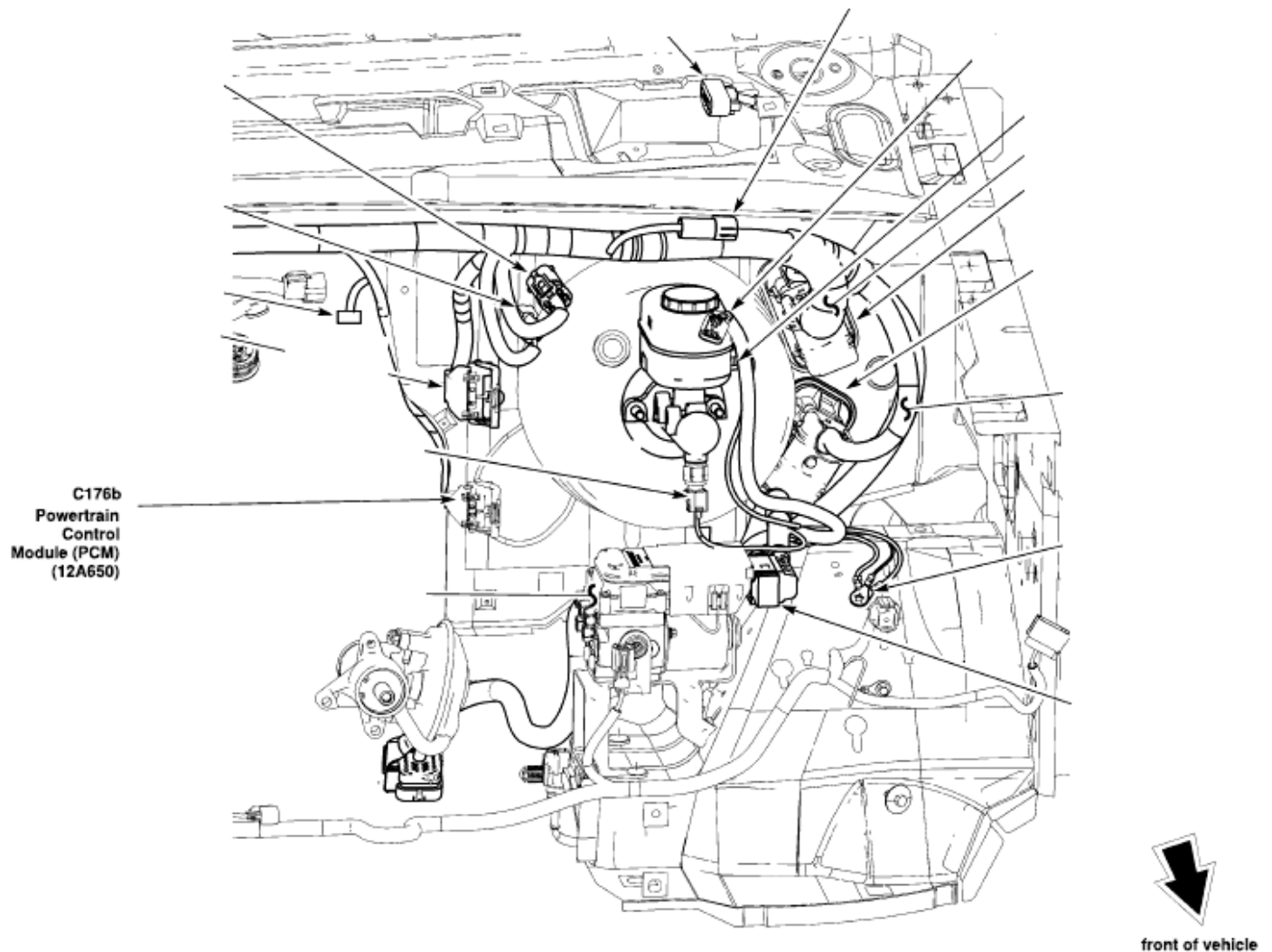
Welcome

The new 6.0L AutoLoc is a revolutionary new product from BD Engine Brake. Not only does it have the ability to control torque converter clutch lockup while decelerating, but it also has the ability to increase main line pressure in the Torqshift transmission. All these functions complement the use of the BD Exhaust Brake and your Ford Powerstroke.

For this installation, you will need a transmission pressure gauge capable of displaying up to 300psi.

Installation

1. Disconnect both battery cables on both batteries (ground first). The batteries are located on the passenger side of the vehicle down by the frame rail.



2. You will need to disconnect the air intake hoses to gain access the vehicle's PCM located in the middle of the engine compartment, just to the right of the engine.

BD Engine Brake Inc.

Plant Address: 33541 MacLure Rd. Abbotsford, BC, Canada V2S 7W2

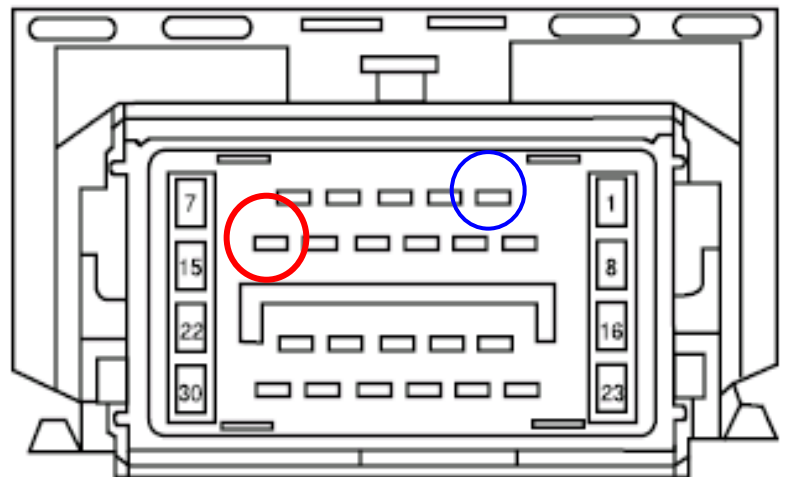
U.S. Shipping Address: 88-446 Harrison St, Sumas, WA 98295 U.S. Mailing Address: P.O. Box 231, Sumas, WA 98295

Phone: 604-853-6096 | Fax: 604-853-8749 | Internet: www.bd-power.com

3. Disconnect both the lowest connector c176b (30-pin connector block) and the middle c176c connector (46-pin connector block) of the PCM. It is suggested that you work them free to allow yourself some room for better access.
4. On the lower connector 176b (30-pin connector block), locate the **PCS pressure control** solenoid wire (see table and diagram). You will need to cut this wire and attach a blue Posi-Lock connector.
5. Still on the lower (176b, 30-pin connector block) connector, locate the **TCC control wire** (see table and diagram). Also cut this wire and attach a blue Posi-Lock.

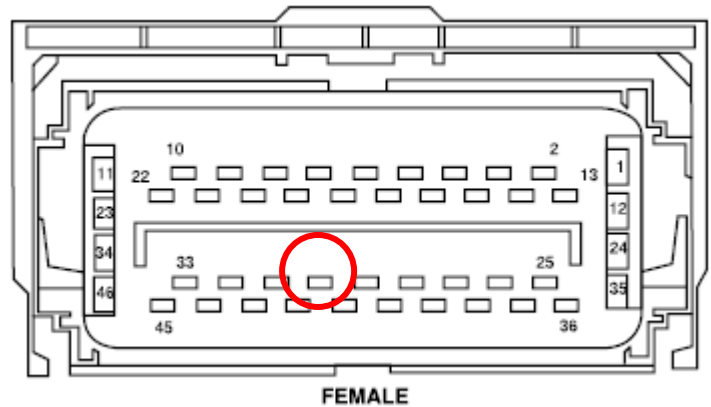
C176b	Ford PCM Pin	Wire Color
PCS	2	Violet/Yellow
TCC	14	Brown/Orange

6. Connect the **PCS** wires to the AutoLoc wiring harness. The cut **PCS** wire on the PCM side should be connected to **tan** wire in the AutoLoc harness. This tan wire will be connected to pin 5 of the AutoLoc at the factory. These connections should be made using the supplied blue Posi-Lock connectors.



7. The other side of the cut **PCS** wire (leading to the transmission) should then be connected to the **blue** wire of the AutoLoc harness. This blue wire will be connected to pin 8 of the AutoLoc at the factory.
8. Connect the cut **TCC** wires to the AutoLoc. The cut **TCC** wire closest to the PCM should be connected using the supplied blue Posi-Lock connector to the **green** wire of the AutoLoc. This green wire will be connected to the AutoLoc connector at the factory to pin 6.
9. Connect the other side of the TCC wire (leading to the transmission) to the violet wire of the AutoLoc harness. This **violet** wire will be connected to pin 7 of the AutoLoc at the harness.

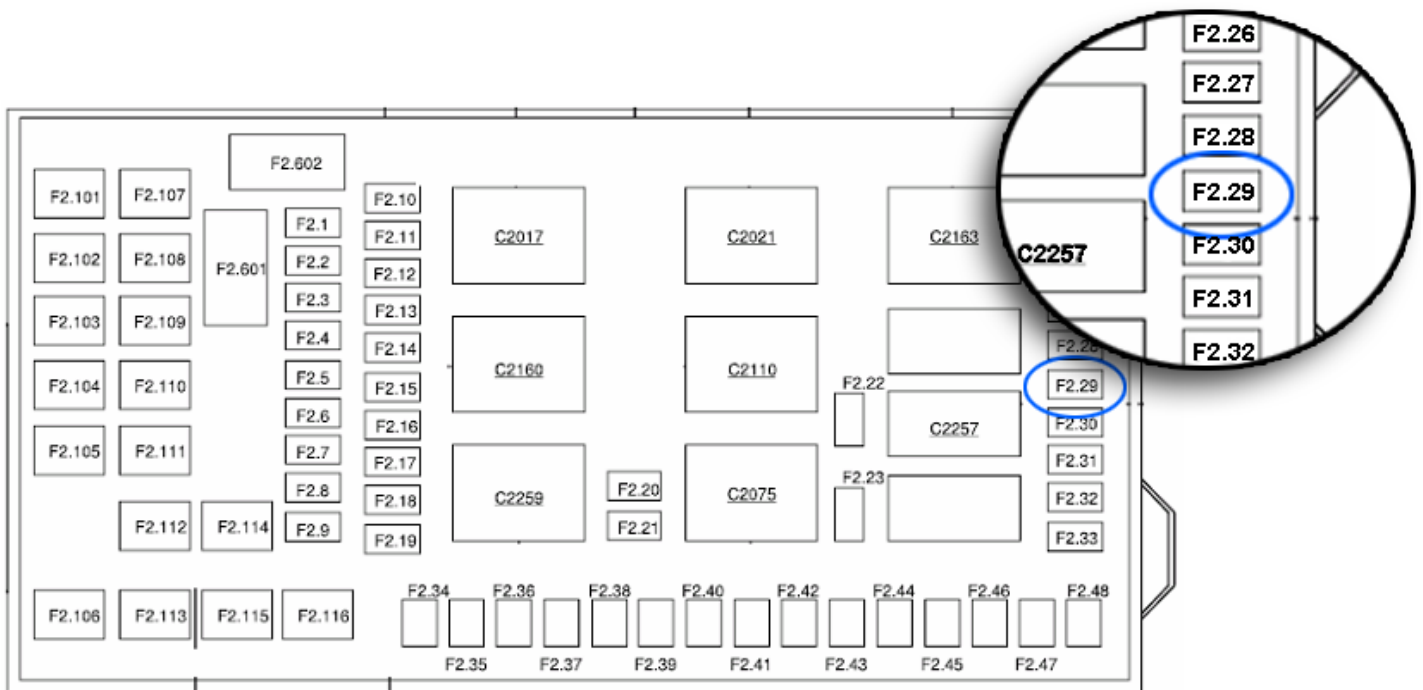
10. Re-connect the first factory PCM plug to the Ford PCM.
11. On the middle PCM plug (C176c, 46-pin connect block) you will need to locate the crankshaft sensor output wire.



C176c	Ford PCM Pin	Wire Color
Crankshaft Sensor	30	Dark Blue

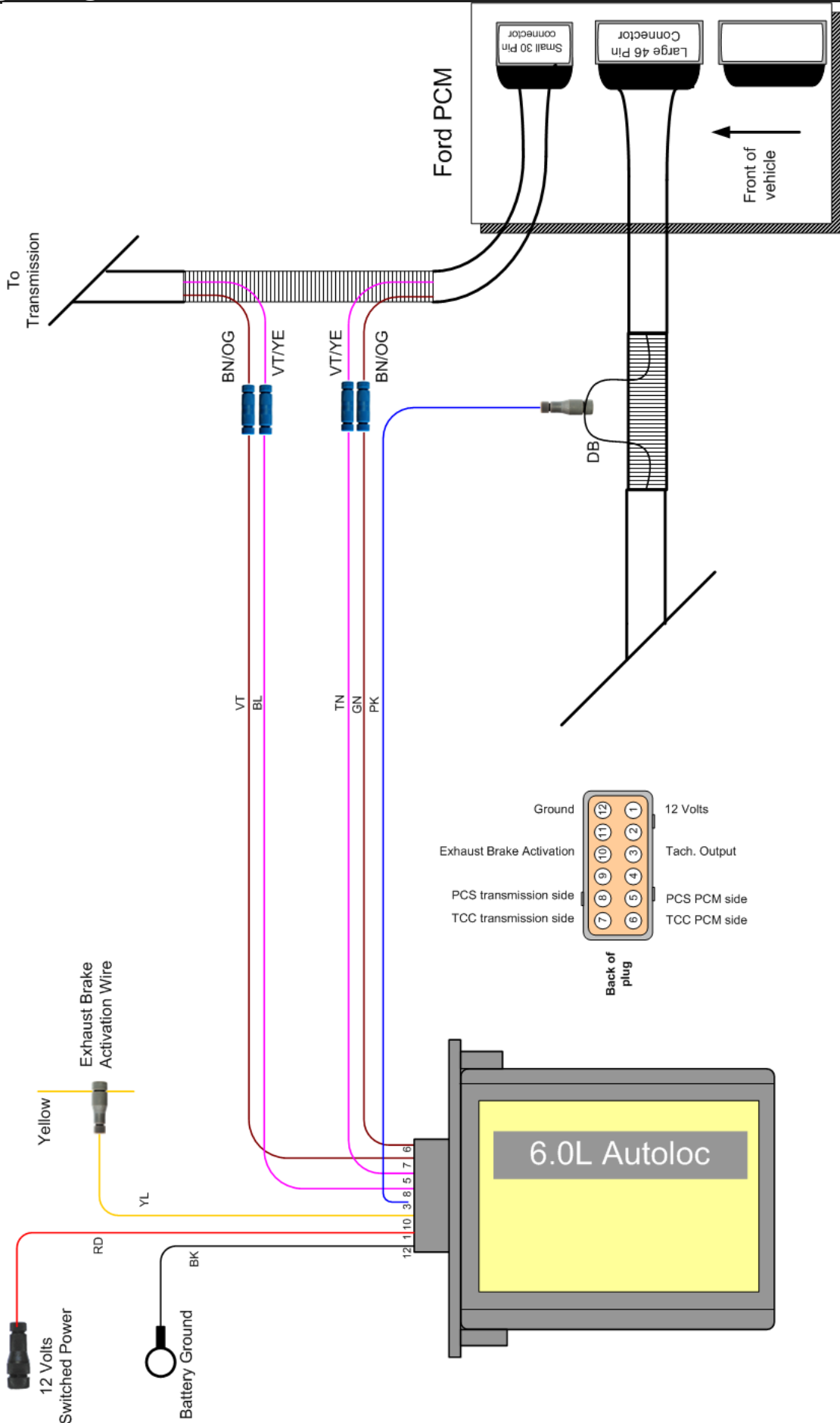
12. Install the supplied gray Posi-Tap connector to the crankshaft sensor wire. You will need to connect the pink wire of the AutoLoc harness to this Posi-Tap. The pink wire should be connected to pin #3 of the AutoLoc.
13. Re-connect the all the PCM connectors to the Ford PCM.
14. You will now need to connect the yellow wire from the AutoLoc harness to the brake activation circuit. This circuit is what activates the exhaust brake on and off. (12V – 0V) You can locate this from the output of the 6.0L Exhaust brake controller as it travels across the firewall over to the passenger side of the vehicle. This wire should be also yellow in color. Apply the supplied Posi-Tap connector to connect the two wires together. This wire should be connected to pin # 10 of the AutoLoc.
15. Connect the black ground O-Ring connection to a ground that is not on the firewall of the engine compartment.
16. You will now need to connect the red power wire to a 12 volt switched power source. You can locate this power source in the fuse panel directly under the steering wheel. You will need to route this red power wire through the firewall into cab to the fuse box. Locate fuse number F2.29 (10A). The left side is the fused side. Use the supplied fuse tapper and female blade connector to make this connection.

You can reference to the wiring diagram located on page 6 for the wiring described above.



17. Connect the AutoLoc wiring harness to the AutoLoc unit and install it in the driver's side front corner away from any heat. Zip ties and Velcro have been included in the kit to mount the unit.
18. You may now reconnect all the battery connections and prepare for a test drive.

Wiring Diagram



BD Engine Brake Inc.

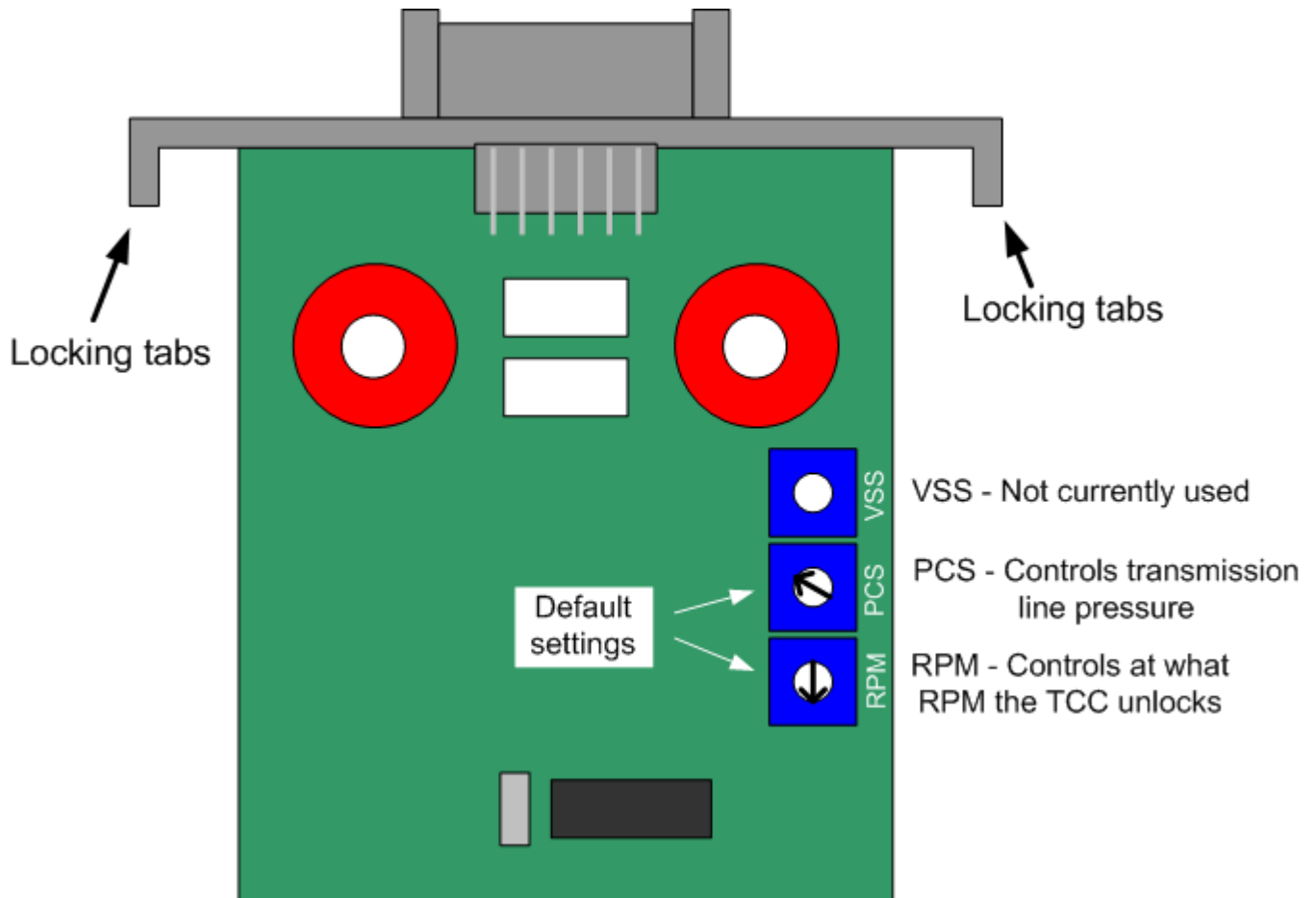
Plant Address: 33541 MacLure Rd. Abbotsford, BC, Canada V2S 7W2

U.S. Shipping Address: 88-446 Harrison St, Sumas, WA 98295 U.S. Mailing Address: P.O. Box 231, Sumas, WA 98295

Phone: 604-853-6096 | Fax: 604-853-8749 | Internet: www.bd-power.com

AutoLoc Adjustments

19. You will need to recheck the default settings in the AutoLoc unit before driving. To do this you will need to use a flat screwdriver to unlock the unit from the locking tabs. There are two locking tabs located on the side of the enclosure.
20. Once the unit is open you will notice the three potentiometers on the right hand side of the AutoLoc board. Disregard the VSS labeled potentiometer. Note the default potentiometer settings, as they may need to be adjusted slightly.



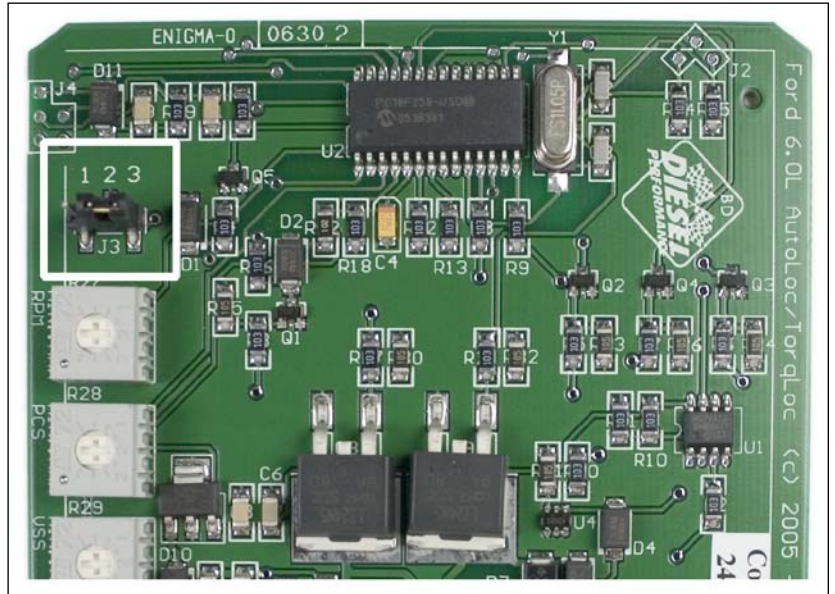
BD Engine Brake Inc.

Plant Address: 33541 MacLure Rd. Abbotsford, BC, Canada V2S 7W2

U.S. Shipping Address: 88-446 Harrison St, Sumas, WA 98295 U.S. Mailing Address: P.O. Box 231, Sumas, WA 98295

Phone: 604-853-6096 | Fax: 604-853-8749 | Internet: www.bd-power.com

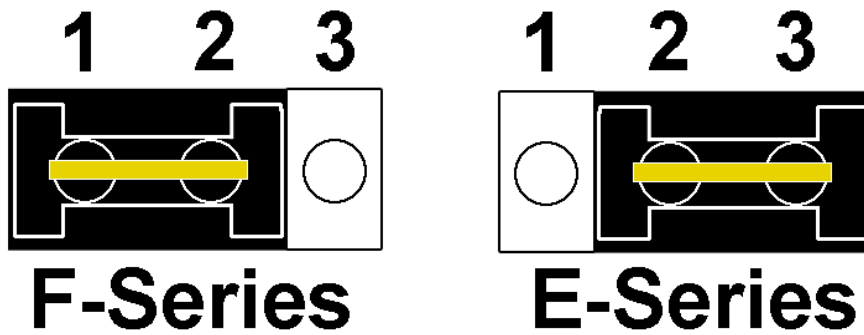
21. Starting with **version 2** AutoLoc modules, there is a jumper on the circuit board (see picture to the right). This setting is to tell the AutoLoc module whether an E-Series or an F-Series vehicle is being used, and will adjust the programming settings accordingly.



The settings are as follows:

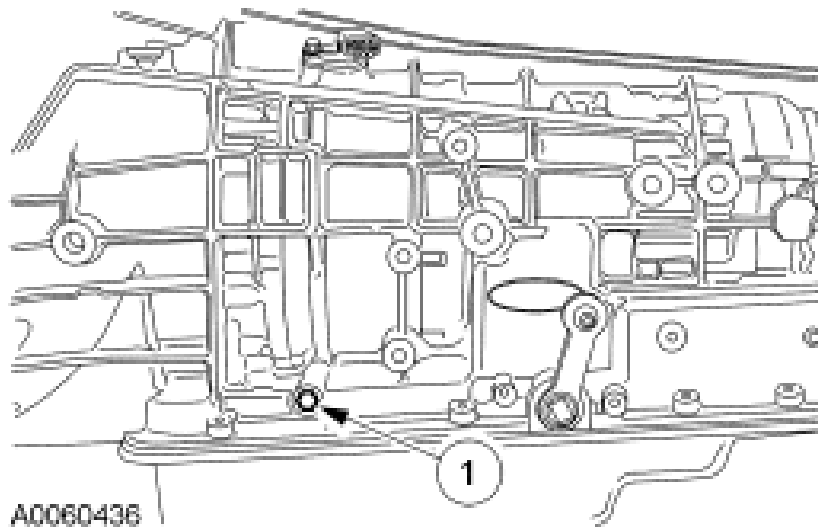
F-Series	Jumpers 1 -2
E-Series	Jumpers 2 -3

You may want to double-check that the jumper settings are correct for your application while you have your enclosure off.



- 22. Once the default settings are correctly adjusted you can slide the AutoLoc enclosure back together.
- 23. Before going on a test drive you will need to connect a transmission oil pressure gauge to the transmission to ensure proper operating pressures. The pressure port is located on the driver's side of the vehicle.

On some E-Series vehicles, the pressure port is not accessible. In this case, make sure that the PCS setting is no lower than the default.



24. Once the pressure gauge is installed, take the vehicle for a test drive. With the exhaust brake on, drive until the torque converter clutch is commanded ON by the truck then let off of the accelerator pedal. The torque converter should still be engage while the exhaust brake is on.

The desired settings of the AutoLoc are to disengage at 1250 RPM in lockup and the transmission pressure while decelerating in lockup should be 180-210 psi. If these settings have not been reached, you can re-open the AutoLoc enclosure and adjust the potentiometers. Turn clock wise for more pressure or higher RPM.

Lockup pressure while decelerating with the exhaust brake on	180-210psi
Lockup disengagement	1250 RPM

Continue the test drive and adjustments until everything is functioning correctly. Remember the AutoLoc functions only when the exhaust brake is on.

Once everything is operating correctly you can remove the transmission gauge and re-install the battery cover.

Troubleshooting

Problem	Symptom	Resolution
Vehicle starts in limp mode	High idle or harsh engagement	Double check wiring, and ensure connectors crimped properly. Use a voltmeter to check for voltages.
Unusual operation	Odd shifting or error code	Check wiring and/or potentiometer settings.
Harsh down shift	Harsh 1 st or 2 nd gear down shift	Increase the RPM cutout speed.
Soft/Hard Torque Converter Clutch engagement	Soft/Hard clutch engagement	Adjust the line pressure using the PCS potentiometer.
Does not activate	Does not hold lockup or increase line pressure	<p>Make sure exhaust brake is on and functioning.</p> <p>Check connection to exhaust brake activation wire.</p> <p>Check power (fuse) and ground.</p>

For ease of troubleshooting, if power is removed from the unit all factory signals will take precedence. For example, to diagnose an up-shifting problem, remove the power from the AutoLoc to properly diagnose the problem. With power removed from the AutoLoc, the factory transmission signals will not be altered, they will simply pass right through the unit and out. If the problem still occurs, you can connect the TCC and PCS wiring back together. Remember, the first step is to always check the wiring connections visibly and then with a voltmeter.

BD Engine Brake Inc.

Plant Address: 3354¹/₂ MacLure Rd. Abbotsford, BC, Canada V2S 7W2

U.S. Shipping Address: 88-446 Harrison St, Sumas, WA 98295 U.S. Mailing Address: P.O. Box 231, Sumas, WA 98295

Phone: 604-853-6096 | Fax: 604-853-8749 | Internet: www.bd-power.com