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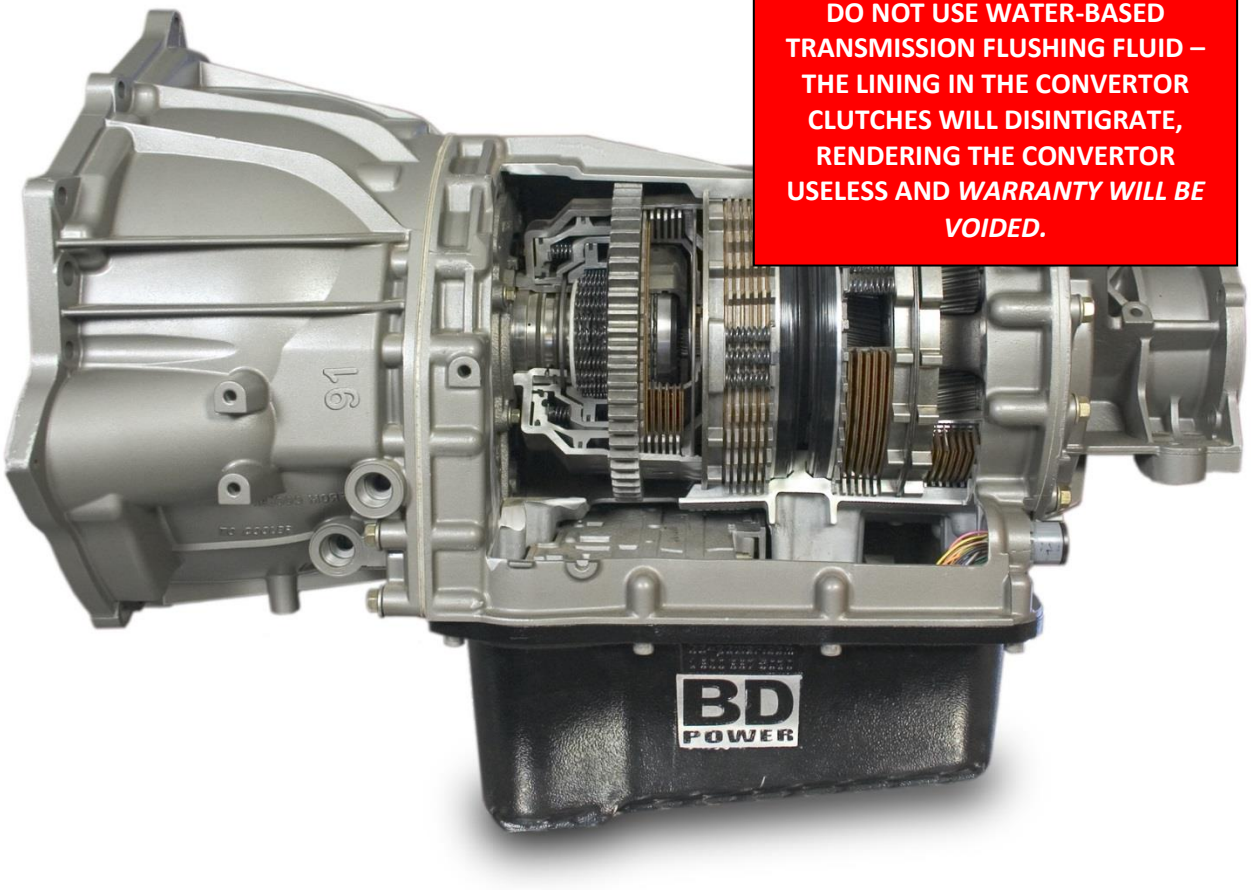
DO NOT USE WATER-BASED TRANSMISSION FLUSHING FLUID – THE LINING IN THE CONVERTOR CLUTCHES WILL DISINTIGRATE, RENDERING THE CONVERTOR USELESS AND *WARRANTY WILL BE VOIDED.*



BD Performance Transmission

Allison 1000

Installation Instructions

1064754	2011-2016 LML Duramax

PLEASE READ ALL INSTRUCTIONS BEFORE INSTALLATION

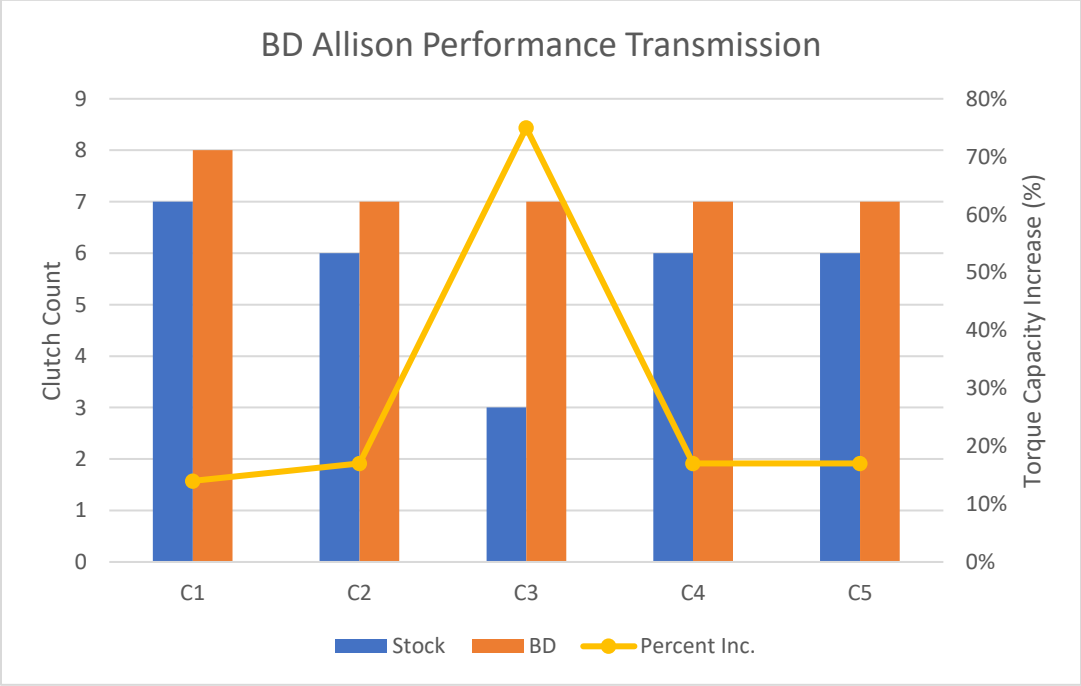
CONTENTS

SPECIALTY TOOLS

- GM tool #J 21366 Converter Holding Strap
- GM tool # J 44257 Connector Removal Tool

INTRODUCTION

The BD Allison transmission offers significant performance increase over the stock transmission. Using custom machined components, we have dramatically increased the holding power of the Allison 1000.



The main failure in Allison Transmissions is the C3 clutch, in which BD has increased the clutch count by 4, increasing the torque capacity by 75%. The chart above shows the increase and improvements in each of the clutch packs in the BD Allison Transmission over the stock.

MAINTENANCE

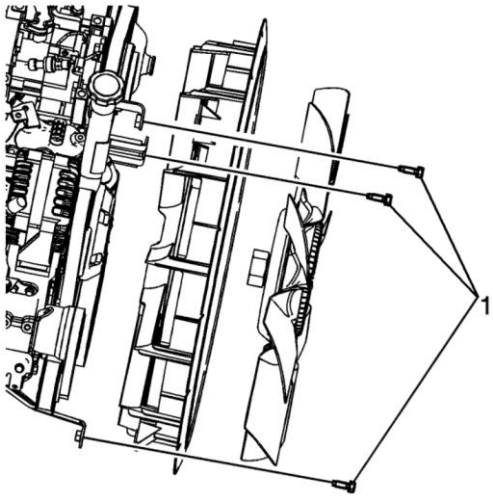
BD recommends the first transmission oil and filter change to occur at the 3 month or 5000miles/8000km interval. This quick interval will not only give you piece of mind, but will also rid the transmission of any prior debris. After this OE service intervals are acceptable.

See page 14 for approximate fill capacities.

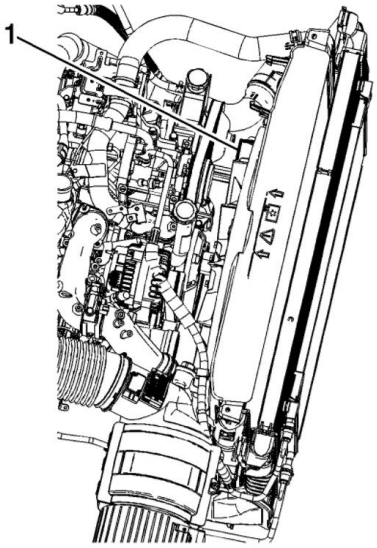
REMOVAL

VEHICLE SHOULD BE SAFELY SECURED BEFORE INSTALLATION.

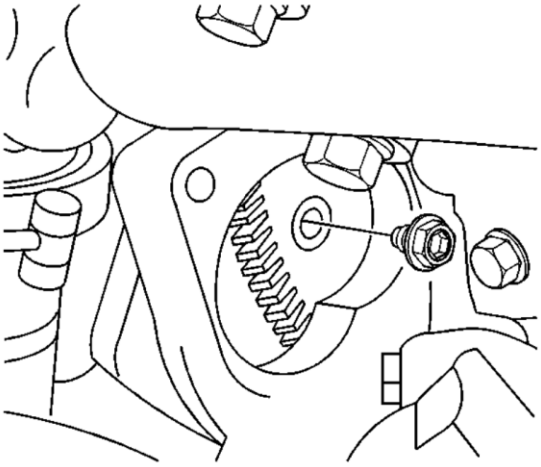
1. Disconnect both negative battery terminals.
2. Remove the upper fan shroud.
3. Remove the 3 engine cooling fan shroud bolts.



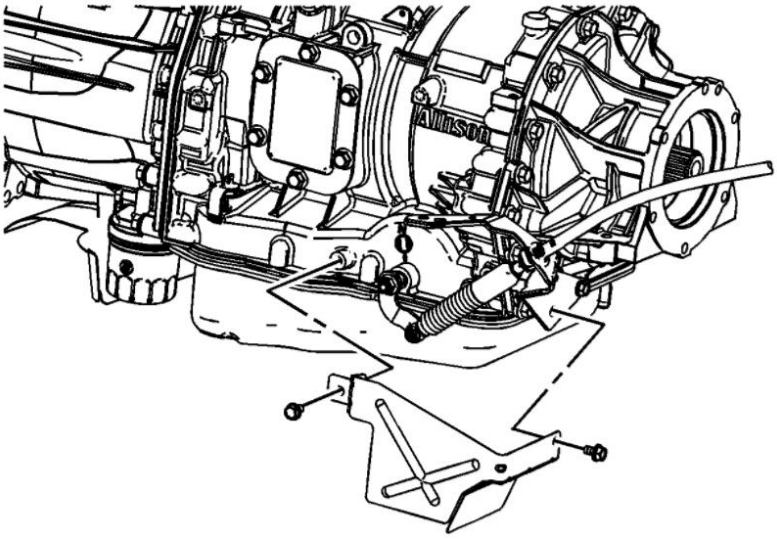
4. Position the engine cooling fan shroud forward to the radiator.
5. Remove the transmission fluid level indicator.
6. Remove the starter motor.



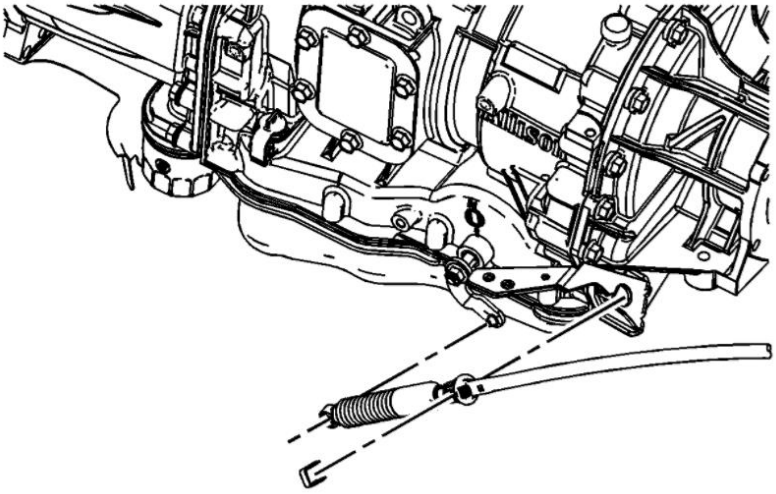
7. Rotate the engine clockwise, using the crankshaft bolt in order to access the torque convertor bolts through the starter opening.
8. Remove the torque convertor bolts.
9. Drain the transmission fluids.



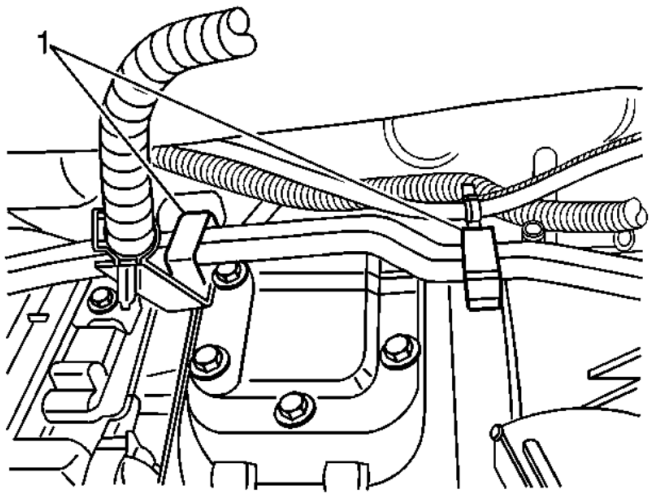
10. Remove the range selector cable heat shield bolts.
11. Remove the range selector cable heat shield.



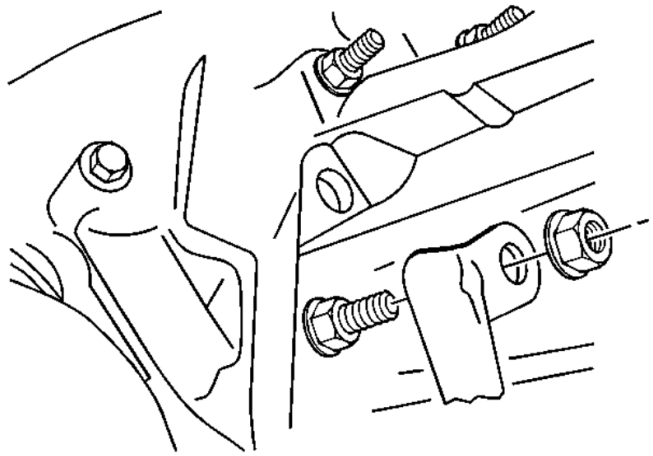
12. Remove the range selector cable end from the transmission range selector lever stud.
13. Disconnect the shift cable and lines from the rear bracket on the transmission.
14. Position the bracket with the cable attached out of the way.



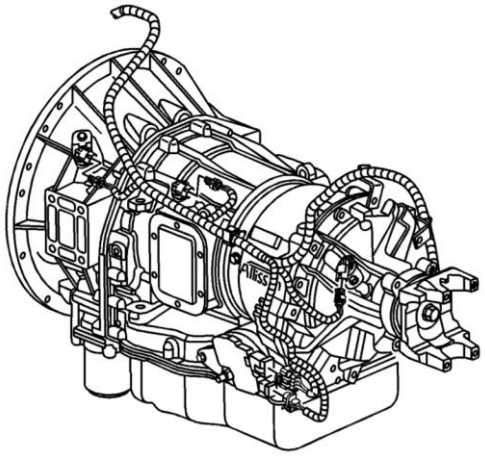
15. Remove the fuel line retainer bolts on the left side of the transmission.



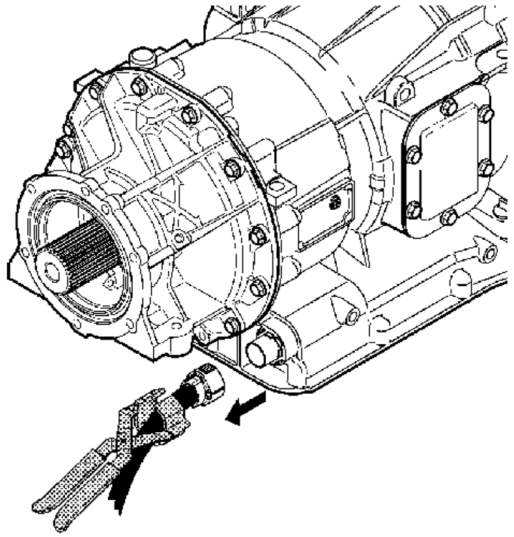
16. Remove the fuel line bracket nut from the converter housing stud.



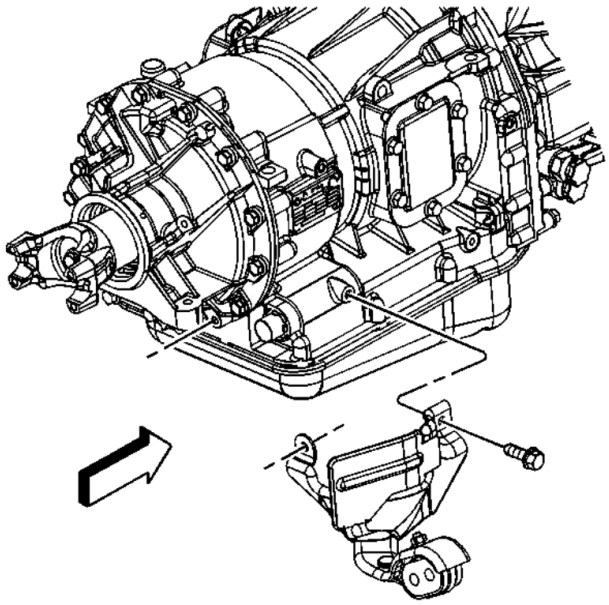
17. Disconnect the electrical connectors on the transmission and transfer case.



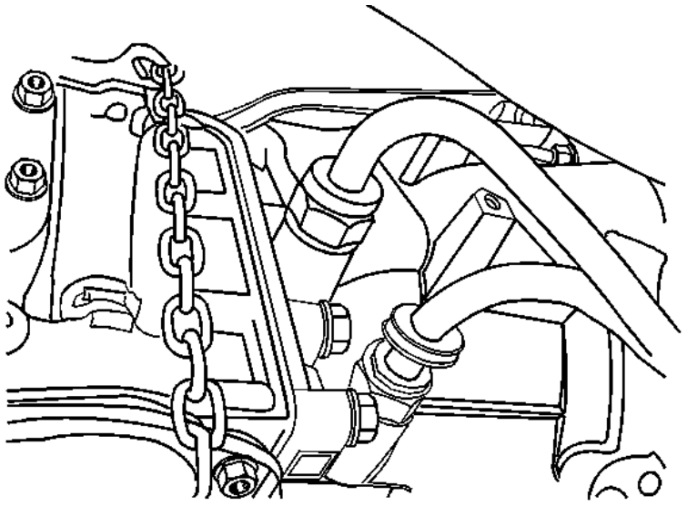
18. Disconnect the transmission main electrical connector. J 44257 tool may be used for ease.
19. Remove the transmission heat shield.



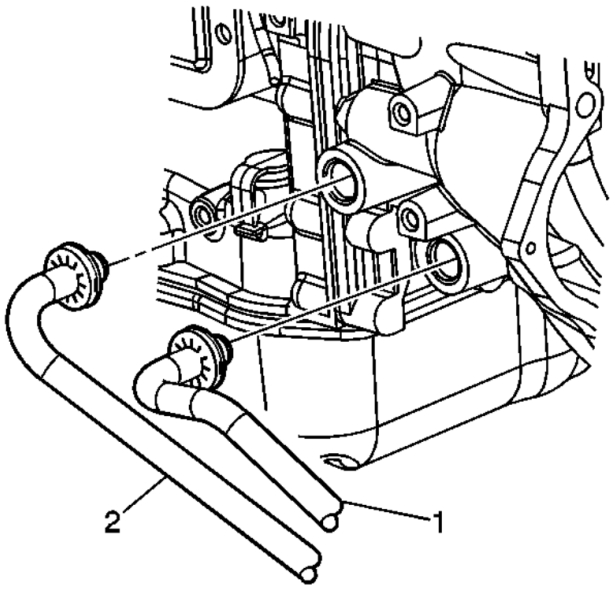
20. Remove the exhaust hanger bolts and reposition the hanger.
21. Support the transmission jack.
22. Remove the transfer case.
23. Reposition any wiring harness branches out of the way.



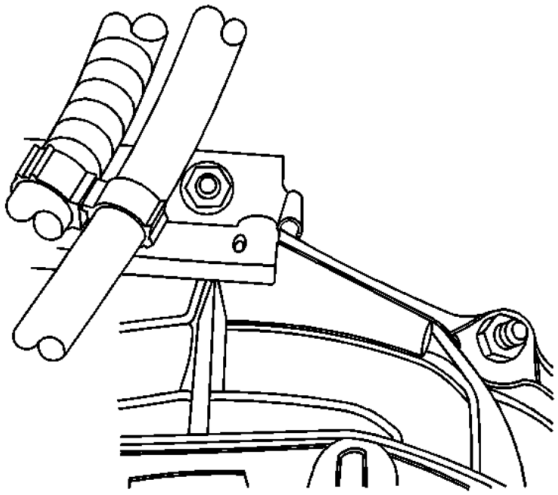
24. Secure a safety chain around the transmission. Use care not to overlap any wiring, fuel lines, or other related components.



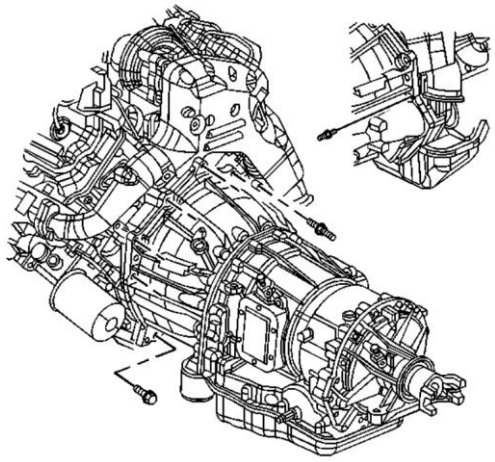
25. Disconnect the transmission oil cooler lines from the transmission.
26. Plug the transmission oil cooler line fittings in the transmission case if necessary.
27. If the vehicle is equipped with a PTO unit, disconnect and/or remove any necessary components to facilitate transmission removal.
28. Remove the transmission fill tube but from the converter housing stud.

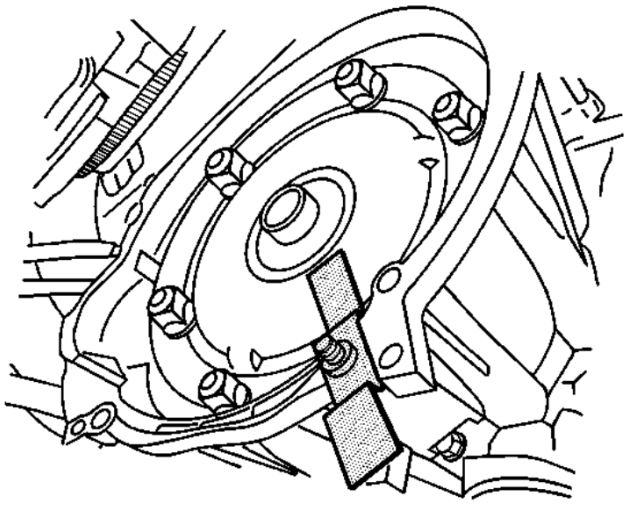
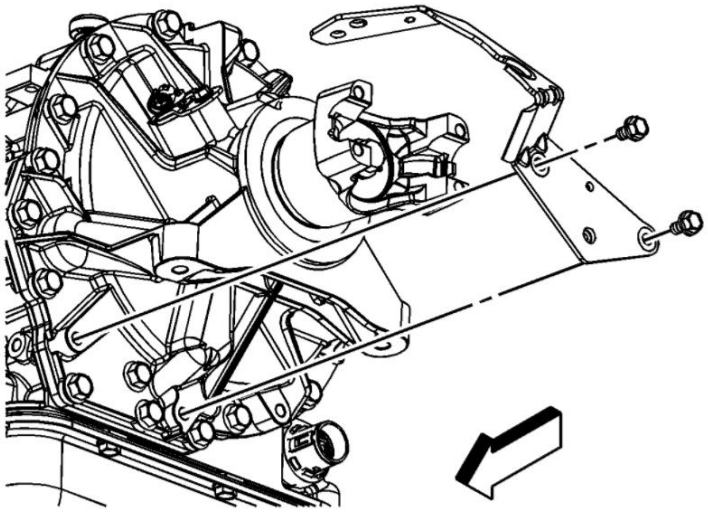


29. Remove the wire harness/vent tube bracket nut from the converter housing stud and reposition the bracket.



30. Remove the remaining converter housing bolts and studs.
31. Separate the transmission from the engine.

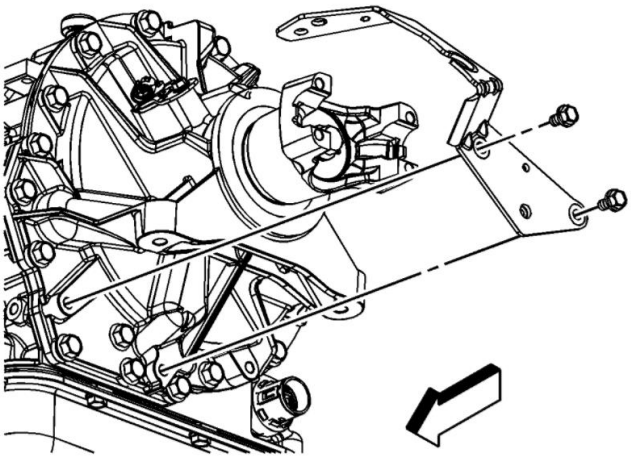


32. Install J 21366 strap to the convertor housing in order to keep the torque converter from sliding off the turbine shaft. 33. Carefully lower the transmission from the vehicle while simultaneously remove the fill tube. 34. Remove the J 21366 strap.	
35. Remove the shift cable bracket and bolts to the transmission. 36. Flush and flow test the transmission oil cooler and lines.	

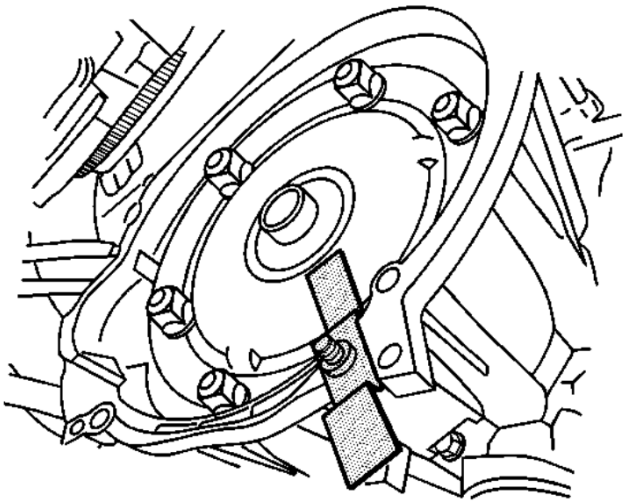
INSTALLATION

VEHICLE SHOULD BE SAFELY SECURED BEFORE INSTALLATION.

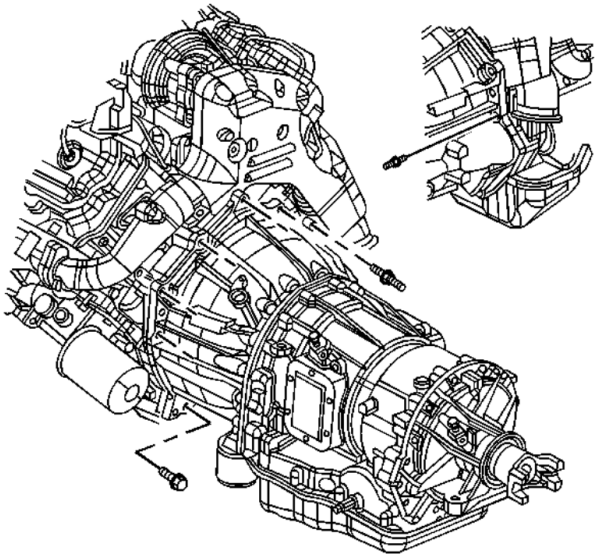
1. Install the shift cable bracket and bolts to the transmission and tighten to 25Nm (18ftlb).



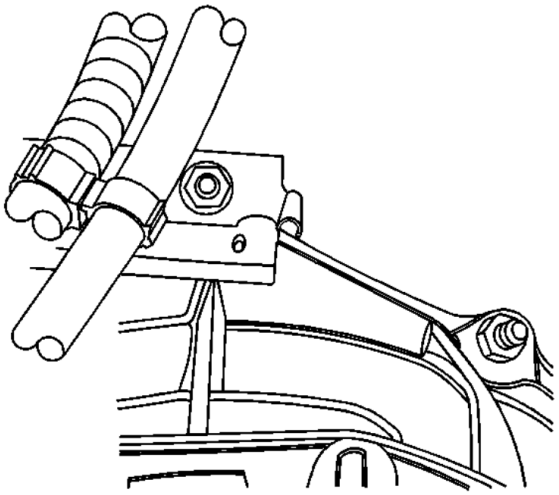
2. Install the J 21366 strap to the converter housing in order to keep torque converter from sliding off the turbine shaft.
3. Raise the transmission into place while simultaneously installing the transmission fill tube.
4. Remove the J 21366 strap.



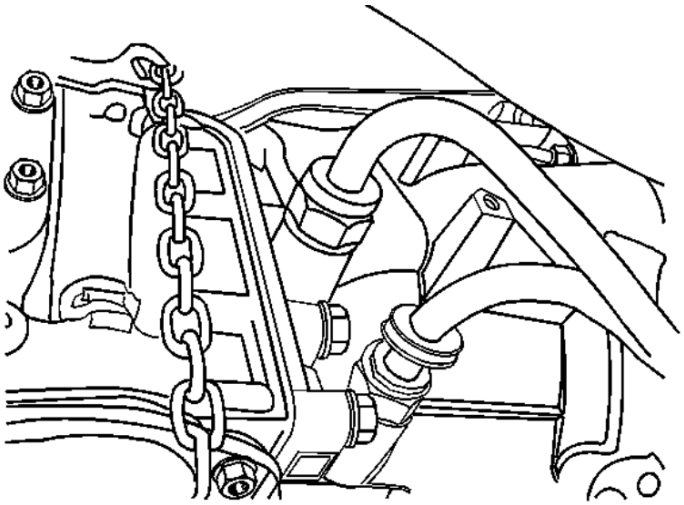
5. Align the transmission with the engine using the alignment dowels located at the rear of the engine.
6. Install the converter housing bolts and studs. Tighten the bolts/studs to 50Nm (37ftlb).



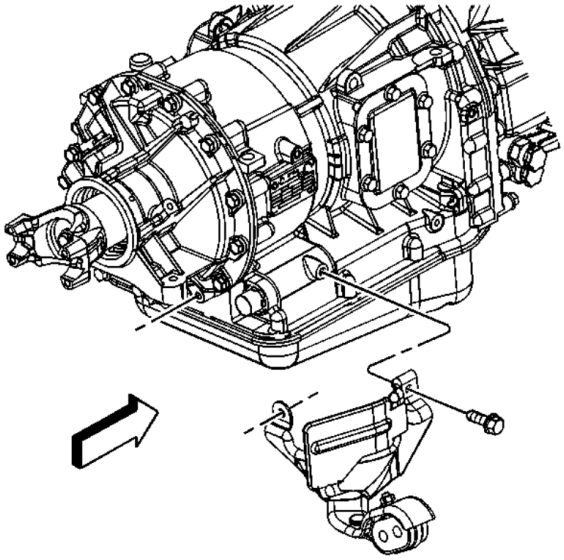
7. Install the wire harness/vent tube bracket and nut to the converter housing stud. Tighten the nut to 18Nm (13ftlb).
8. Install the transmission fill tube and nut to the converter housing stud. Tighten the nuts to 18Nm (13ftlb)
9. If the vehicle was equipped with a PTO unit, connect and/or install the components at this time.

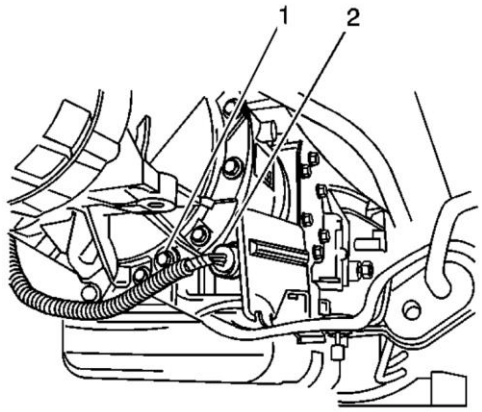
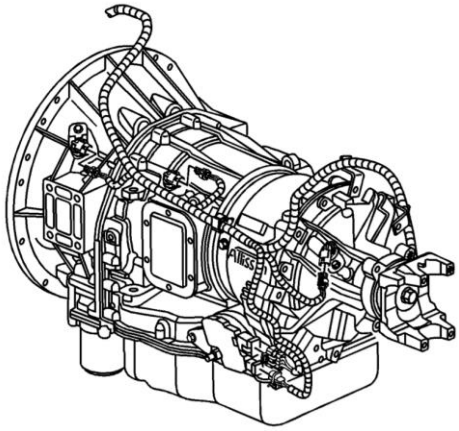
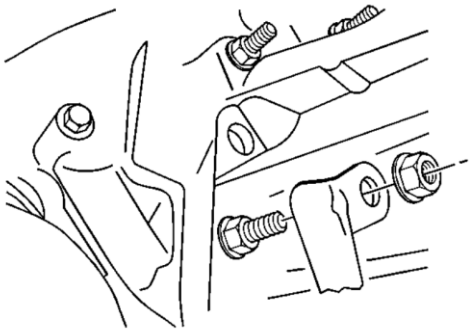
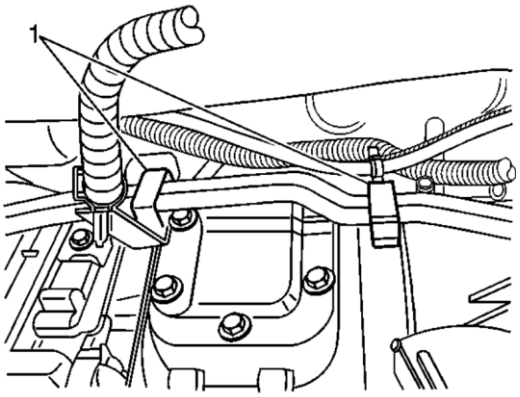


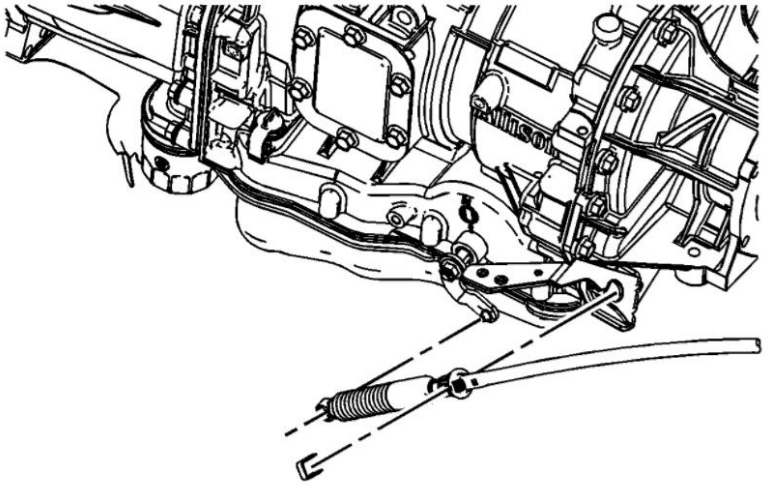
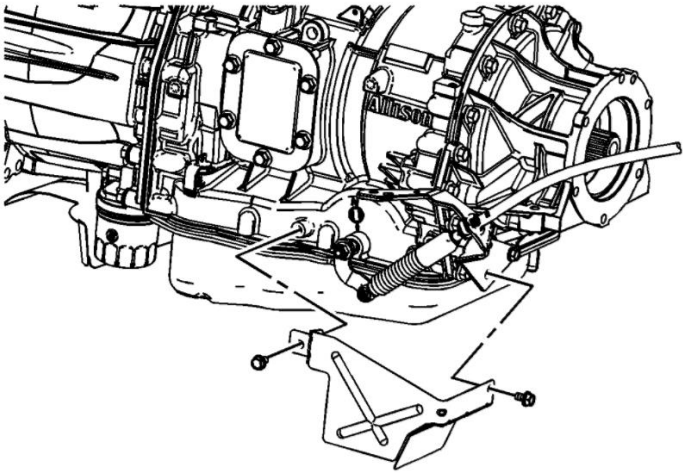
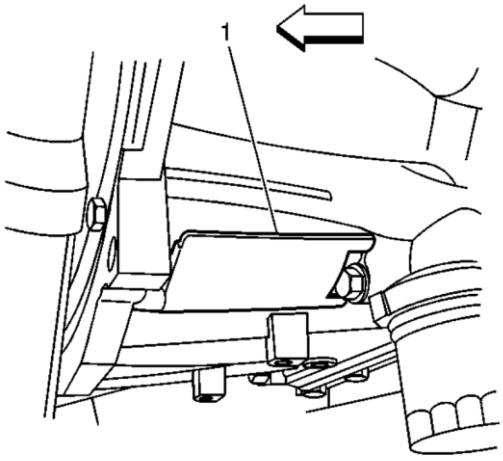
10. Remove the safety chain from around the transmission.
11. Install the transfer case, transmission support and propeller shafts.



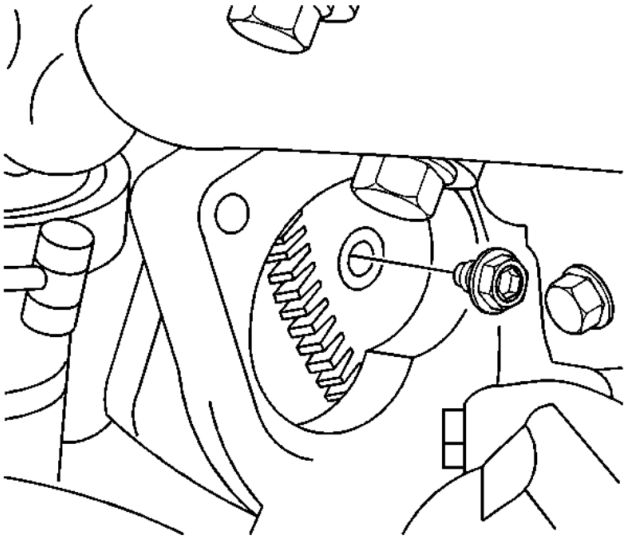
12. Position exhaust hanger and install the bolts and tighten to 12Nm (106 lb-in).
13. Install the transmission heat shield.
14. Position the wiring harness branches.



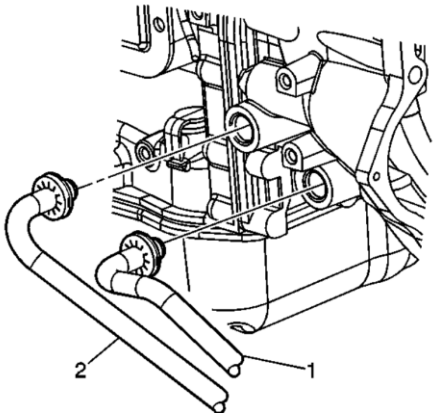
15. Connect the transmission main electrical connector.	
16. Connect the electrical connects on the transmission and transfer case.	
17. Install the fuel line bracket and nut to the transmission converter housing stud. Tighten the nut to 18Nm (13ftlb).	
18. Install the fuel line retainer and bolts to the left side of the transmission and tighten to 2.2Nm (22 lb-in). 19. Connect the shift cable and lines to the rear bracket on the transmission.	

20. Install the range selector cable end to the transmission range selector lever stud.	
21. Install the range selector cable heat shield. 22. Install the range selector cable shield bolts. Tighten bolts to 17Nm (13ftlb).	
23. Remove the access hole cover on the converter housing in order to rotate the converter and align the first torque converter bolt.	

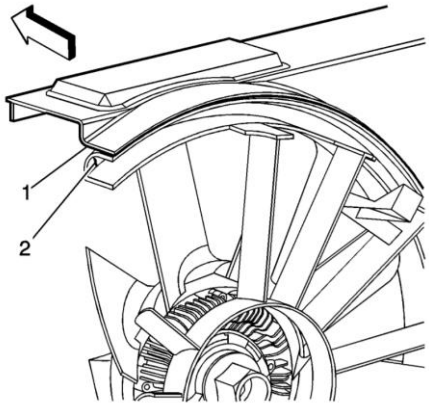
24. If reusing torque converter bolts, clean the bolt threads and apply LOCTITE 242 or equivalent to the threads prior to installation.
25. Install the torque converter bolts and tighten to 60Nm (44ftlb).
26. Install the converter housing access hole cover.
27. Install the starter motor.



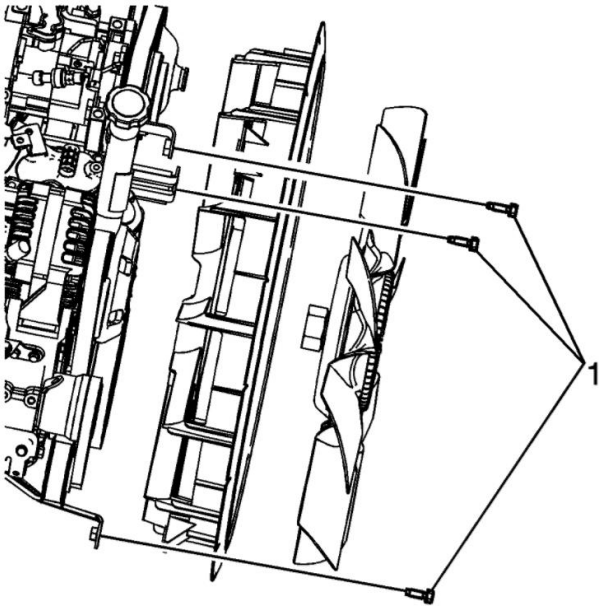
28. Remove the plugs from the transmission oil cooler line fittings in the transmission case, if necessary.
29. Connect the transmission oil cooler lines to the transmission.
30. Lower vehicle.



31. Make sure the orientation of the cooling fan shroud and rubber seal are installed correctly.



32. Fully tighten the 3 engine cooling fan shroud bolts and tighten to 8Nm (7 lb-in).
33. Install the upper fan shroud.
34. Connect both negative battery cables.
35. Fill the transmission with new transmission fluid. Use TES-668 Approved Fluids **only**.
36. Install the transmission fluid level indicator.
37. Perform the “Fast Learn” procedure using a scan tool.



FLUID FILL CAPACITY

THE BD Allison 1000 Transmission holds 3.5 quarts more transmission fluid than the stock Allison 1000 Transmission.

NOTE: Allison **only** recommends TES-668 Approved Fluids.

NOTE: Fill capacities listed only as a guide. **Correct fluid level should always be determined by marks on dipstick. Go slow and check with a dipstick often.**

Application	First Fill Quarts (Liters)	Secondary Fill Quarts (Liters) (Includes TC Preload)	Total Capacity (Liters)
2011-2016	**10 (9.5)**	**Approx 6.2 (5.8)**	**Approx 16.2 (15.3)**

Application	***Maintenance Fill Quarts (Liters)***
2011-2016	Approx. 10.9 (10.3)

Once transmission fluid is filled, start truck but **do not** drive it yet. Allow the transmission to pump fluid into the converter, coolers etc. Re-check fluid level.

SPECIAL NOTES

- BD recommends using only a back flow capable transmission flushing machine using only oil-based cleaners. DO NOT use “Transmission flush in a Can”.
- Do not use water-based transmission flushing fluid. The lining in the converter clutches will disintegrate, rendering the converter useless and warranty will be voided.
- Transmission/Converter failures require that the remote filter be returned for inspection before any claim is considered, as well you will be required to submit the cooler flow rate in GPM measured at the outlet of the Oil/Air transmission cooler.

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Allison Pressure Controller

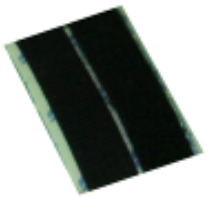
Transmission Line Pressure Booster Module

1031315	2011-2016 Duramax 6.6 LML

This kit fits both the 2011-2015.5 and 2015.5-2016 transmission controller types.

BD Engine Brake Inc.
1-800-887-5030 | https://www.bddiesel.com

Kit Contents

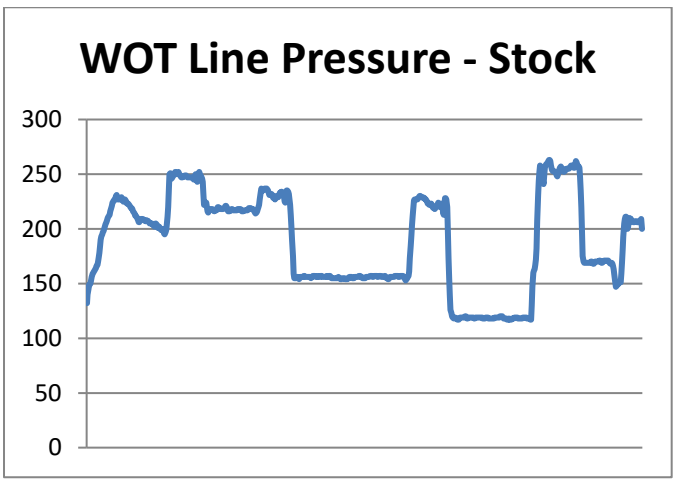
1607271	1607272	FT-10910-03116	1300131
			
Control Module	Wire Harness	Velcro	Tie Wrap
Qty: 1	**Qty: 1**	**Qty: 2 pcs**	**Qty: 6**

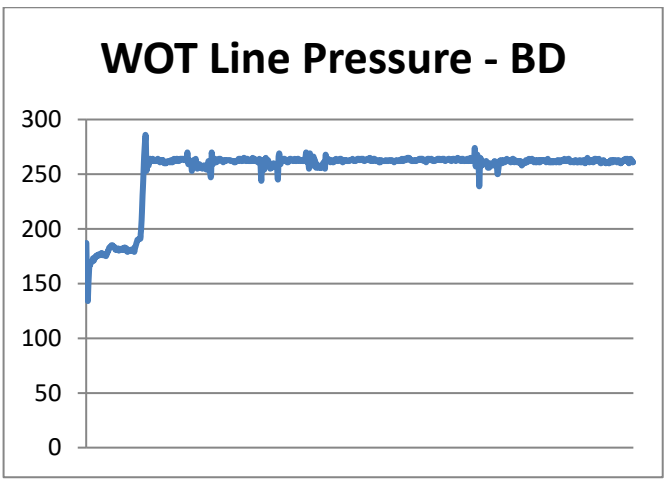
Introduction

2011-2016 Allison transmissions utilize variable line pressure that adjusts to different engine load to improve fuel economy. The problem with this is that it drops line pressure after a shift, causing clutch slippage and failure in higher powered trucks. The BD pressure controller module boosts line pressure up to 275psi when the engine is over 15psi boost and runs stock pressure under normal conditions to prevent harsh shifting.

The kit is fully plug-and-play. It plugs into factory connectors and requires no special setup.

At wide open throttle, the stock strategy raises line pressure only for shifts, dropping line pressure to different levels for each gear. First – 200psi, Second 220psi, Third 160psi, **Fourth – 130psi**, Fifth – 175psi, Sixth – 180psi. The BD pressure box keeps line pressure at 250+psi when you are at full throttle to protect your transmission.





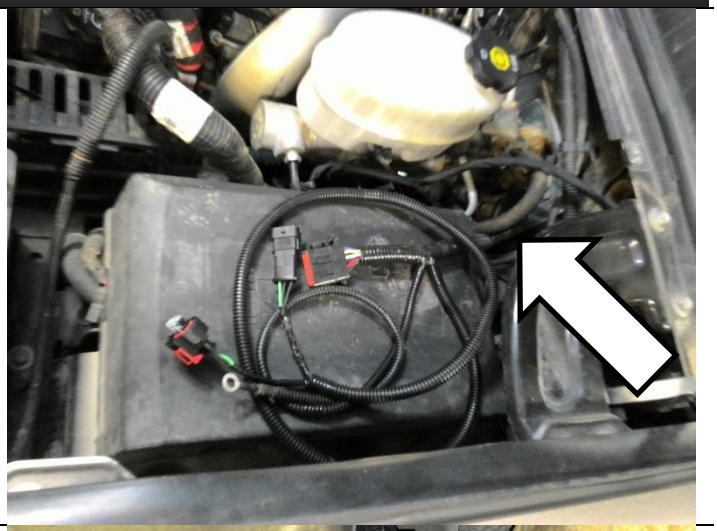
Tools Required for Installation

- 10mm wrench or ratchet
- Side cutters
- Long needle nose or Allison transmission connector tool.

Installation

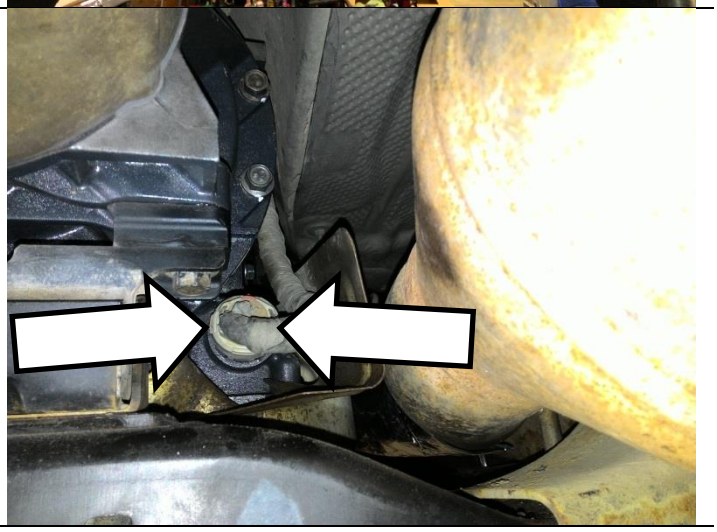
Open the hood, fish the wire harness supplied in this kit down the firewall behind the fuse box to below the vehicle to be connected to the transmission.

The transmission portion of the harness is the round 20 pin plugs. Leave the remainder in the engine bay as shown.



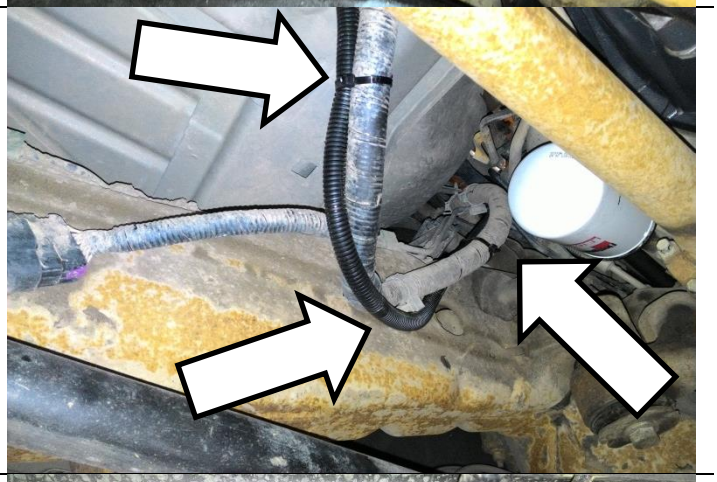
Feed the 20 pin round connector of the BD harness up over the transmission and down the back side by the main transmission connector.

Disconnect the transmission 20 way round electrical connector by squeezing on both sides and wiggling it off. You may either use the special Allison tool for this, long needlenose pliars or remove the heat shield to get your fingers on the connector.

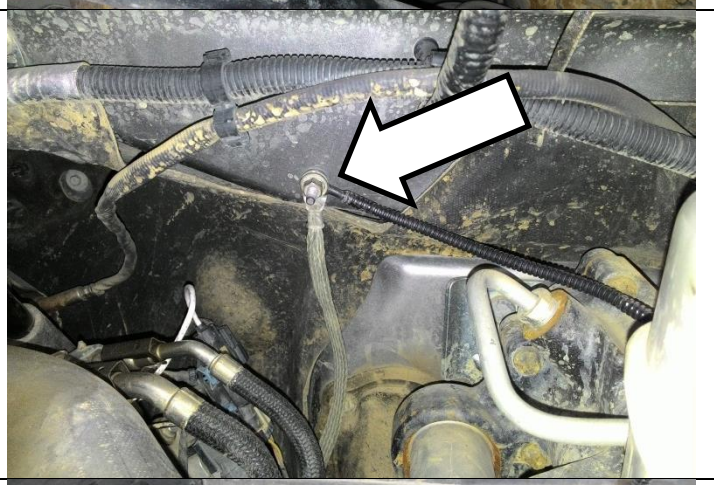


Connect the BD harness inline and carefully zip tie the harnesses so that they stay away from the exhaust pipe.

Zip tie the new harness to the existing vehicle harnesses, out of the way of the front drive shaft and other moving parts on its route to the engine bay.



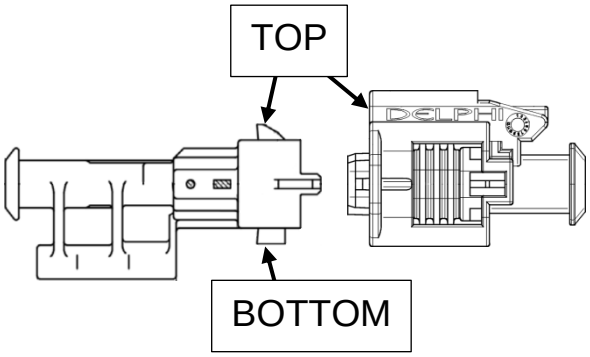
Back up in the engine bay; attach the ground terminal to the body. This is the single black wire with ring terminal. The suggested ground location is the large stud on the firewall. Use a 10mm wrench to remove and reinstall the nut over the ring terminal.



Locate the engine MAP sensor and plug the BD harness inline. Zip tie the wiring to keep it away from moving or hot parts.

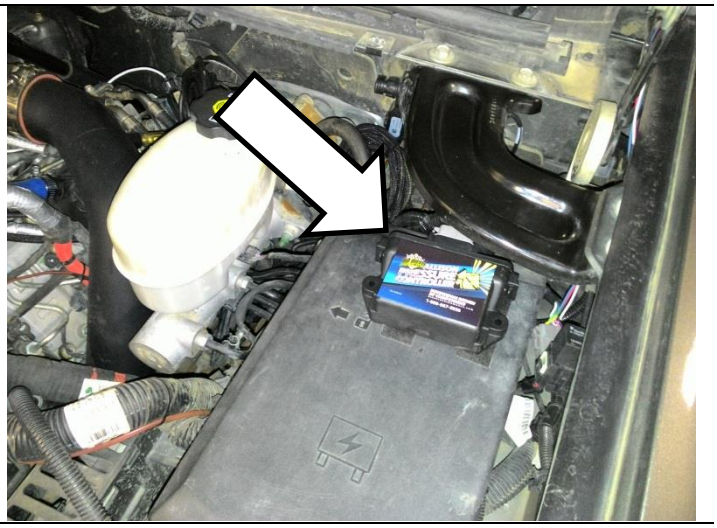
NOTE It may be possible to connect this plug upside-down. Refer to the pictures below for correct orientation.

LML Map Plug Orientation

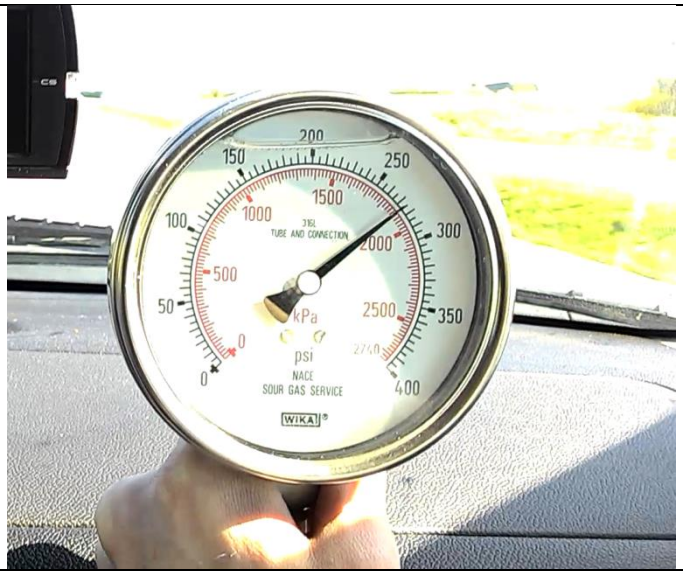


Connect the module to the gray plug from the transmission/engine wiring harness.

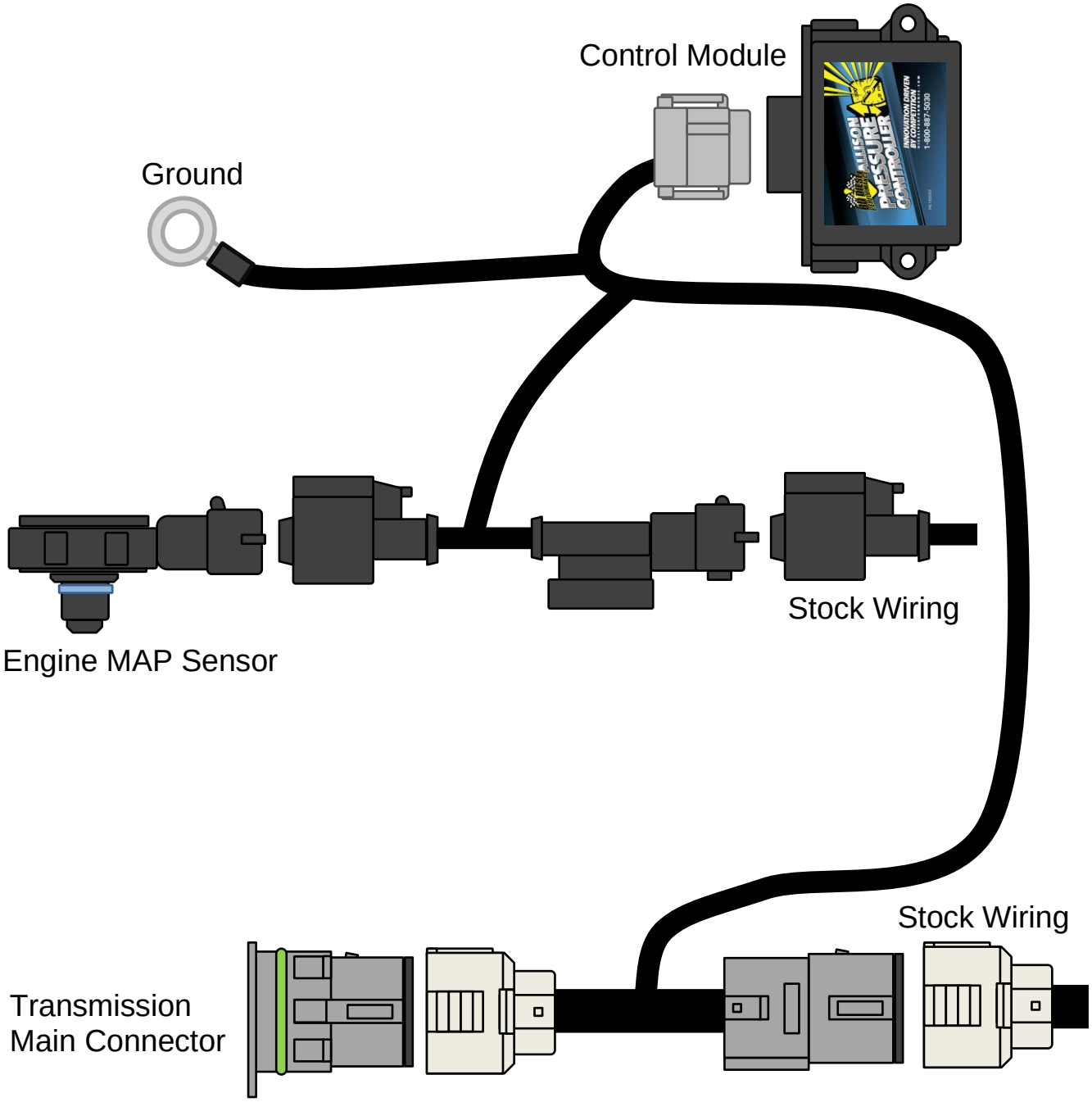
The module may now be zip tied to existing wiring at the firewall or mounted to the fuse box with Velcro.



To check operation of the pressure controller, attach a mechanical pressure gauge to the Allison transmission test port. Whenever the truck is over 15 psi of boost the line pressure should go to maximum (250-275psi).



Wiring Diagram



Pressure Indicator LED

An indicator LED (not supplied) can also be added to show when line pressure boosting is active. This will light up whenever the PCS solenoid is being controlled.

Gray Plug
10 – 12V for Pressure Light
11 – Ground for Pressure Light

General Policy
All core returns must be,

- like for like, no mixed models
- drained of all fluids ($50 Charge)
- be returned in the original packaging
- Part Disassembled
- No junkyard cores (core must have been removed from vehicle)
- No fire damage
- Free of excessive Rust or Water Damage

Returned cores that fail to follow the above conditions will be disallowed and scrapped or returned at the customer's expense. Freight and removal damage are not covered. BD Diesel reserves the right to adjudicate cores as it sees fit and may deviate from its policy.

BD FUEL INJECTION CORE ACCEPTANCE POLICY

Model	Deduction	No Credit
P7100 Injection Pump	• AFC Housing Damaged (25% Deduction) • Governor Housing Damaged Front or Back (25% Deduction)	• Contaminated/Bio Diesel • Damaged Camshaft on 911/913 pumps. • Main Body Damaged
Bosch VE Pump	• AFC Housing Damaged (25% Deduction) • Cold Advanced Housing Damaged (50% Deduction) • Governor housing damaged front or back (25% deduction) • Main Body Damaged (50% Deduction)	• Contaminated/Bio Diesel • Seized Head (Does not turn)
CP3		• Contaminated/Bio Diesel • Seized (Does not turn) • Catastrophic Shaft Failure (Frost Plugs Damaged or Missing) • Front Cover Damaged
VP44	• Damaged Electronics (50% Deduction)	• Contaminated/Bio Diesel • Seized Head (Does not turn)
Common Rail Injectors	• Solenoid melted or destroyed, stretched terminals (25% Deduction) • 5.9/6.7 Broken Solenoid Terminal Divider (No Deduction)	• Contaminated/Bio Diesel • Damaged Body
Mechanical Injectors		• Contaminated/Bio Diesel • Damaged Body

BD TURBOCHARGER CORE ACCEPTANCE POLICY

Turbo Model/ Application	Deduction	No Credit
Cummins ISX VGT Air or Electronic Actuated	• Damaged Electronics (50% Deduction) • Missing Clamps (25% Deduction) • Missing Parts or Actuators (50% Deduction) • Turbine Wheel Separation (50% Deduction)	• Knock Off Models (Not Genuine) • Part Disassembled
Caterpillar (Ball Bearing) Models		• Knock Off Models (Not Genuine) • Wheel Separation
Caterpillar (Standard Turbocharger) 704604-9007, 704604-9011		• Knock Off Models (Not Genuine) • Turbo with 3 support Webs

Detroit Diesel VGT	• Damaged Electronics (50% Deduction)	• Knock Off Models (Not Genuine) • Wheel Separation
Ford 6.4 Powerstroke	• Missing Parts or Actuators (50% Deduction)	• Knock Off Models (Not Genuine) • Part disassembled • Wheel Separation
Ford 6.7 Powerstroke	• Missing Parts or Actuators (50% Deduction)	• Wheel Separation
GM 6.6 L5P	• L5D Version (due to incorrect compressor cover) (25% Deduction) • Missing Parts or Actuators (50% Deduction)	• Knock Off Models (Not Genuine) • Wheel Separation
Dodge Cummins 6.7 HE351VG/HE300VG	• Missing Parts or Actuators (50% Deduction)	• Knock Off Models (Not Genuine)
Standard Turbochargers (All Models, Non VGT)	• Damaged Electronics (50% Deduction) • Missing Clamps (25% Deduction) • Missing Parts or Actuators (50% Deduction)	• Knock Off Models (Not Genuine) • Wheel Separation

The above criteria apply to customer core returns. The following criteria will apply for core purchases.

Deduction	No Credit
• Cracked or Damaged due to freight • Damaged Electronics • Missing Parts or Actuators • Heavily Damaged Wheels and/or Shaft • Missing Clamps • Turbine Wheel Separation • Heavily Modified Turbochargers	• Knock Off Models (Not Genuine)

BD TRANSMISSION/TORQUE CONVERTOR CORE ACCEPTANCE POLICY

Model	Deduction	No Credit
Transmissions	• Cracked Overdrive housings ($100 Deduction) • 68rfe Cracked Case (25% Deduction) • Part disassembled (50% Deduction) • Missing Transmission Shipping Crate ($200 Deduction) • Missing TC/Transmission bracket ($50 Deduction)	• Cracked Case (Except 68rfe)
Torque Convertors	• Hub and Impeller damaged. (50% Deduction)	• Excessive corrosion • Part disassembled
Valve Bodies	• Missing electronics (25% Deduction)	• Excessive corrosion • Part disassembled

GENERAL CORE ACCEPTANCE POLICY

Model	Deduction	No Credit
EGR Cooler		• Brackets broken

Please note that all cores have a time eligibility restriction. Please see BD Terms & Conditions for further details. https://cdn.bddiesel.com/downloads/bd_terms_general.pdf