



# Auxiliary Transmission Filter Kit Dodge 94-07 (I-00224)















## ***Auxiliary Transmission Filter Kit***

Part #	Vehicle	Application
1064017	Dodge	1994-2007

The BD Transmission Filter Kit will provide added security for your performance transmission. Oil normally flowing from the torque converter through the cooler and back to the pan will be filtered thru the LFP5570/ transmission filter that is rated at 98% efficient at 25 micron for extra protection and allow for easy filter replacements.

**READ ALL INSTRUCTIONS CAREFULLY BEFORE INSTALLATION**

## Kit Contents

<b>1604120</b> Filter Head	<b>1604125</b> Filter Head Mounting Bracket	<b>1604008</b> Oil Filter	<b>1604046</b> ½" NPT x #8 ORB 90° Fitting
			
<b>Qty: 1</b>	<b>Qty: 1</b>	<b>Qty: 1</b>	<b>Qty: 2</b>
<b>1604048M</b> #8 JIC x ¼" NPT Straight Fitting	<b>1604049</b> #8 JIC-F x ½" Barb – 45°	<b>1604038</b> #8 Versaflore Tube Ferrule	<b>1604039</b> #8 Versaflore Tube Nut
			
<b>Qty: 1</b>	<b>Qty: 1</b>	<b>Qty: 1</b>	<b>Qty: 1</b>
<b>1604041</b> #8 JIC Adapter Union	<b>1452821</b> Hose Clamp	<b>1604124</b> Filter Head Bolt	<b>1300130</b> Long Tie Wrap
			
<b>Qty: 1</b>	<b>Qty: 4</b>	<b>Qty: 2</b>	<b>Qty: 2</b>
<b>1100111</b> ¼" Flat Washer	<b>1100112</b> ¼" Lock Washer	<b>1604047</b> #8 JIC x ½" Hose	<b>1604054</b> 1/2" Transmission Hose
			
<b>Qty: 2</b>	<b>Qty: 2</b>	<b>Qty: 3</b>	<b>Qty: 1 x 74"</b>
<b>1500359</b> 3/8" Thread Cutting Bolt	<b>1200105</b> Flat Washer	<b>1120031</b> 3/8" Lock Washer	<b>1120033</b> 3/8" Nut
			
<b>Qty: 2</b>	<b>Qty: 2</b>	<b>Qty: 2</b>	<b>Qty: 2</b>

## ***Tools Required***

- Set of combination wrenches
- Power drill with 1/8", 1/4" & 3/8" bits
- Hammer
- Center punch
- Drain pan
- Pipe cutter
- Thread sealant (liquid, paste or tape)

## ***Oil Filter Cross Reference***

<b>HASTINGS</b>	<b>BALDWIN</b>	<b>DONALDSON</b>	<b>FLEETGUARD</b>	<b>FRAM</b>	<b>LUBER-FINER</b>	<b>WIX</b>
LF364	BT230	P555570	LF3342	PH3519	LFP5570	51268

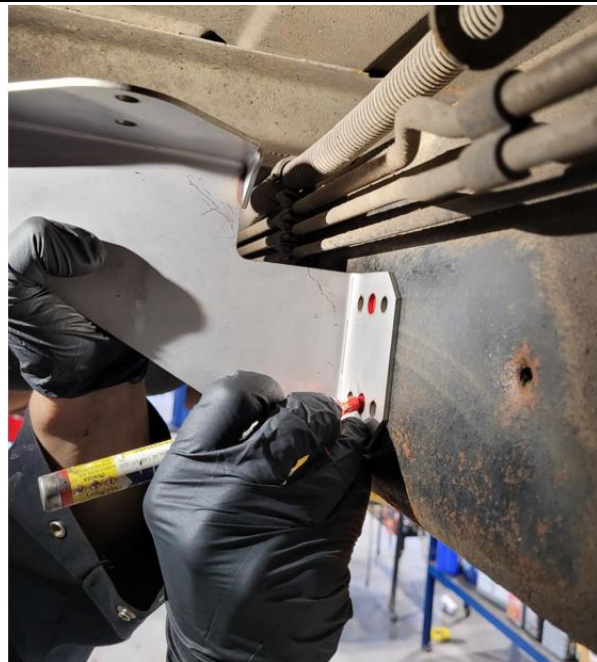
## ***Installation***

Raise the vehicle on a hoist or safety stands to gain access to the driver's side of the transmission area.

Locate and clean a spot to mount the filter housing along the left hand (driver side) frame rail.



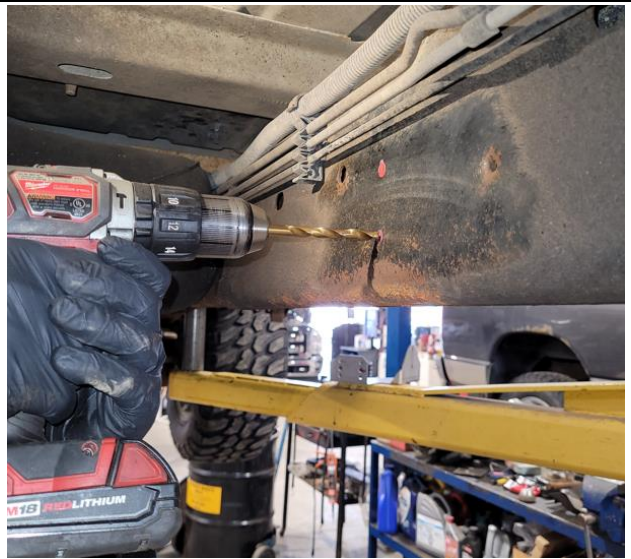
Using the filter mounting bracket as a guide, mark the 2 spots for the mounting bolts. The bracket will be positioned so that the filter will be pointing downward when installed as shown.



To allow for easier drilling, center-punch the two marked spots for the mounting bolts.



Using a 5/16" drill bit, drill pilot holes for thread cutting mounting bolts.



Make pilot thread using supplied thread cutting bolt on the two holes as shown.



Place the trans filter bracket and tighten the two bolts using breaker bar as shown

Nuts and lock washers are supplied for applications where access to the back of the bolts is available.



Install the two **90° ORB fittings** (1604046) into the filter head (do not use pipe sealant). When installed, the fittings need to point toward the front of the vehicle. For ease of installation, we recommend assembling the fittings on the filter head on a workbench before installing it onto the vehicle as shown.

Twist the fitting in until the O-ring gets as close as possible to the filter head, then by holding the fitting, tighten the jam nut as shown.



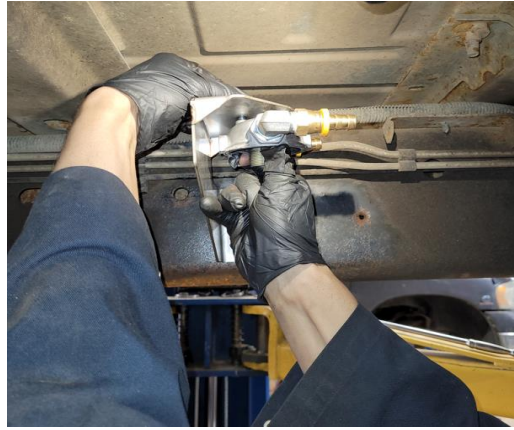
Install the **#8 JIC female fitting x 1/2" hose barbed fitting (1604047)** into the **90° ORB fitting (1604046)** as shown.



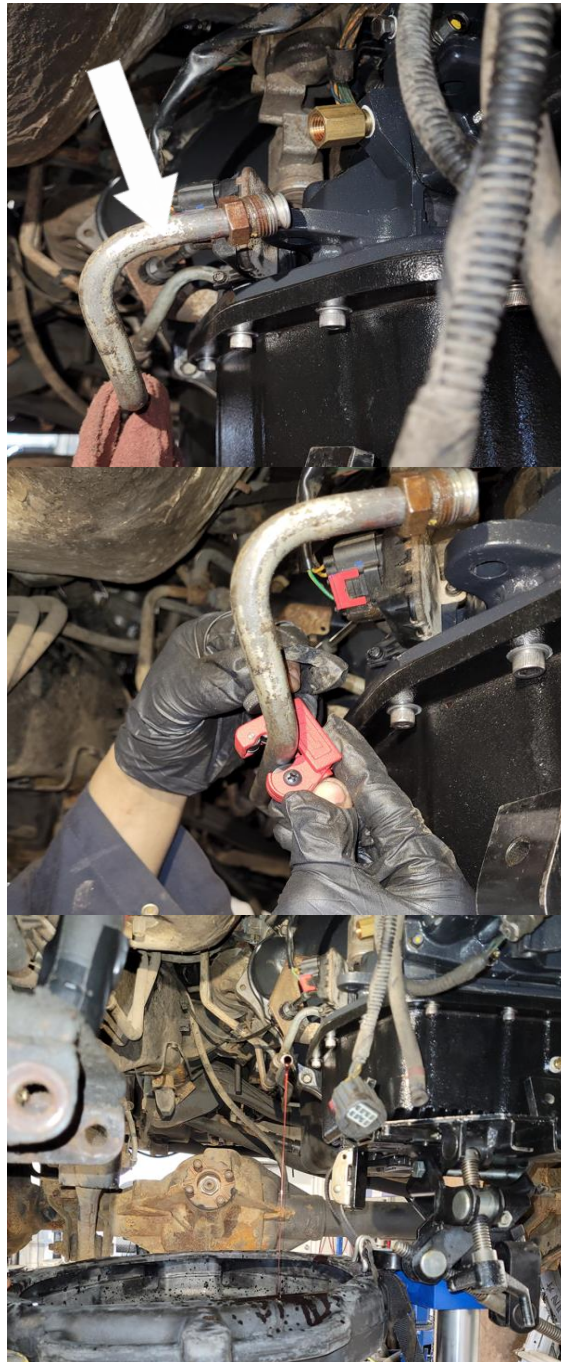
After assembling the fittings on the inlet and outlet ports of the filter head, it is ready to mount on the filter mounting bracket.



Position the filter head on the filter mounting bracket and install the 2 bolts using the flat washers supplied.



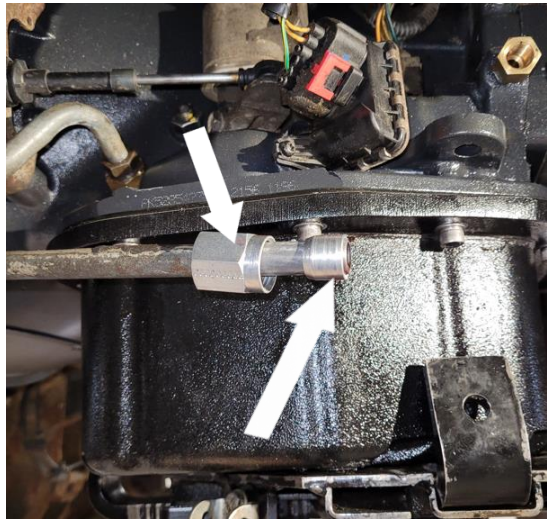
Locate the oil cooler line towards the rear of the transmission.  
Using a small pipe cutter, cut the line approximately 6" from the bend.  
NOTE: You may want to use the drain pan to capture any spilled fluid as shown.



Clean the ends of the cut pipe and then discard the short portion and fitting from the transmission side.

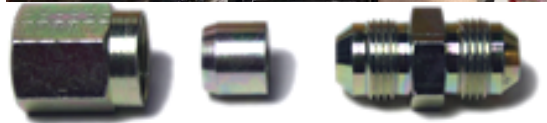


Insert the supplied fitting components as shown



Insert the compression nut, compression ferrule and the JIC fitting (1604041) over the forward portion of the transmission line and tighten.

**These are pressure fittings so do not over-tighten.**





Install the straight 1/4NPT-JIC (1604048M) fitting into the open port on the transmission using pipe sealant on the threads. Thread the fitting in finger tight, and then turn once more with a wrench. Do not over torque as you will damage the case.



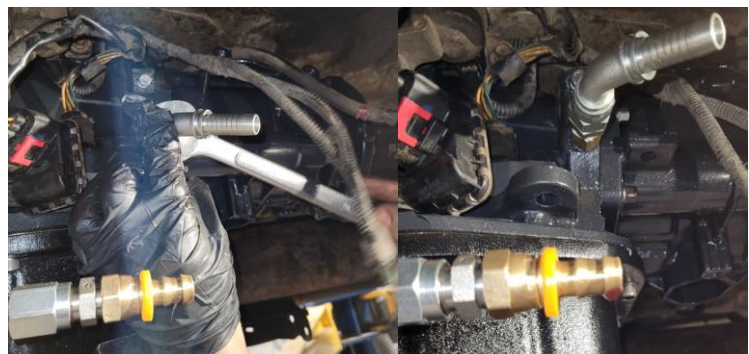
Thread the strait JICF to 1/2 Hose barb fitting (1604047) on strait JICM in place. Use a second wrench to hold the JIC fitting as shown.

**Thread sealant is not needed.**

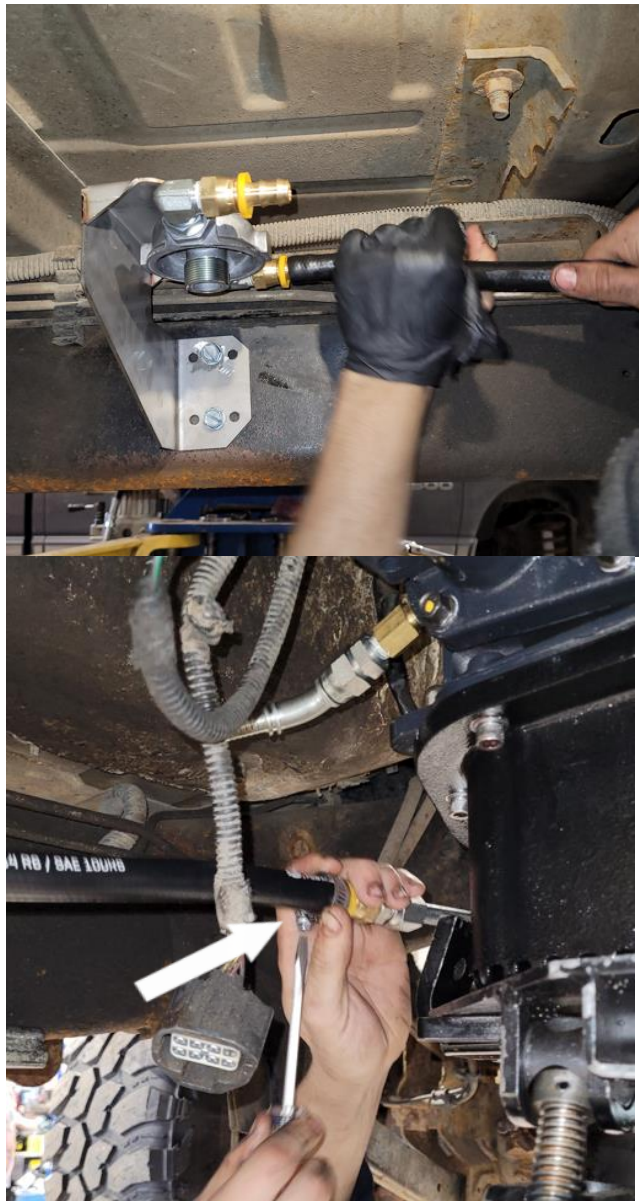


Thread the 45° JICF to 1/2 Hose barb fitting (1604049) in place. Align the hose inlet correctly and tighten with a wrench, use a second wrench to hold the NPT(1604048M) fitting.

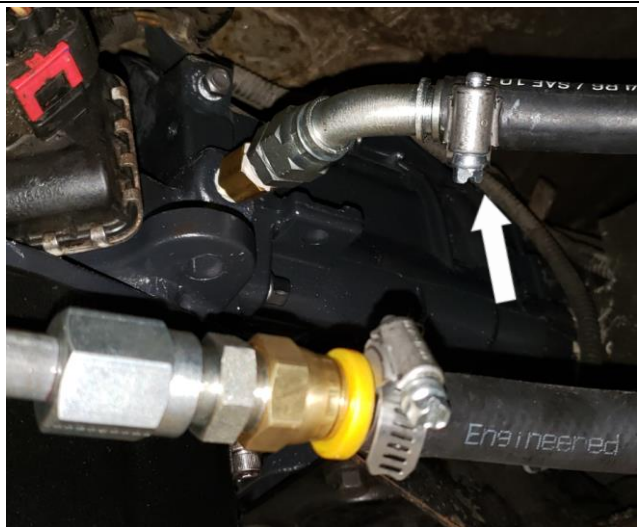
**Thread sealant is not needed.**



Measure and cut a section of the transmission filter hose supplied and install onto the barb fitting at the “IN” port of the filter head and secure it tightly with hose clamps. Install the other end of the hose onto the barb fitting attached to the return line from the cooler and secure tightly with hose clamps as shown.



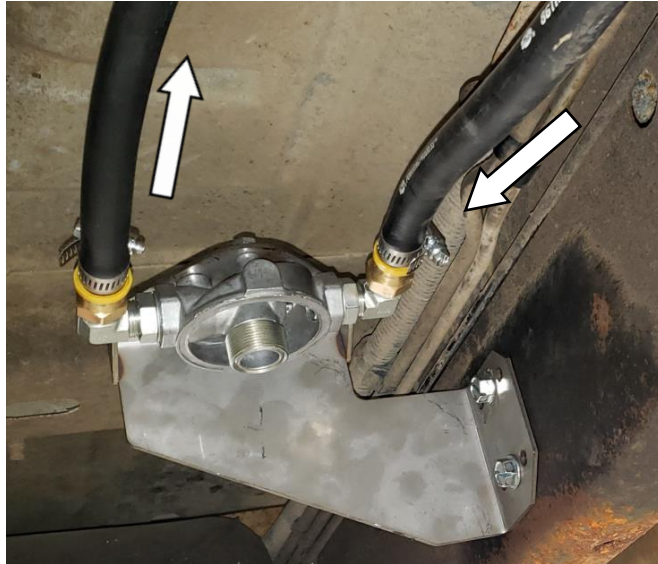
Measure and cut a section of the transmission filter hose supplied and install onto the barb fitting at the “Outlet” port of the filter head and secure it tightly with hose clamps. Install the other end of the hose onto the 45° barb fitting placed on the transmission secure tightly with hose clamps as shown.



Flow direction from cooler to the filter and from the filter to the transmission case.

**Note:**

When routing hoses, make sure that they are not rubbing against anything that will cause them to wear. Secure the hoses using tie wraps, but leave enough slack for flex movement.



Add fresh transmission fluid into the oil filter (check with transmission specifications for proper fluid type or confirm with vehicle owner as which fluid he may be using) and lubricate the oil filter seal with some fresh transmission fluid.

Screw the filter onto the threads of the filter head and once the rubber seal has contacted the mating surface of the filter head, tighten the oil filter an additional  $\frac{1}{4}$  to  $\frac{1}{2}$  turn.

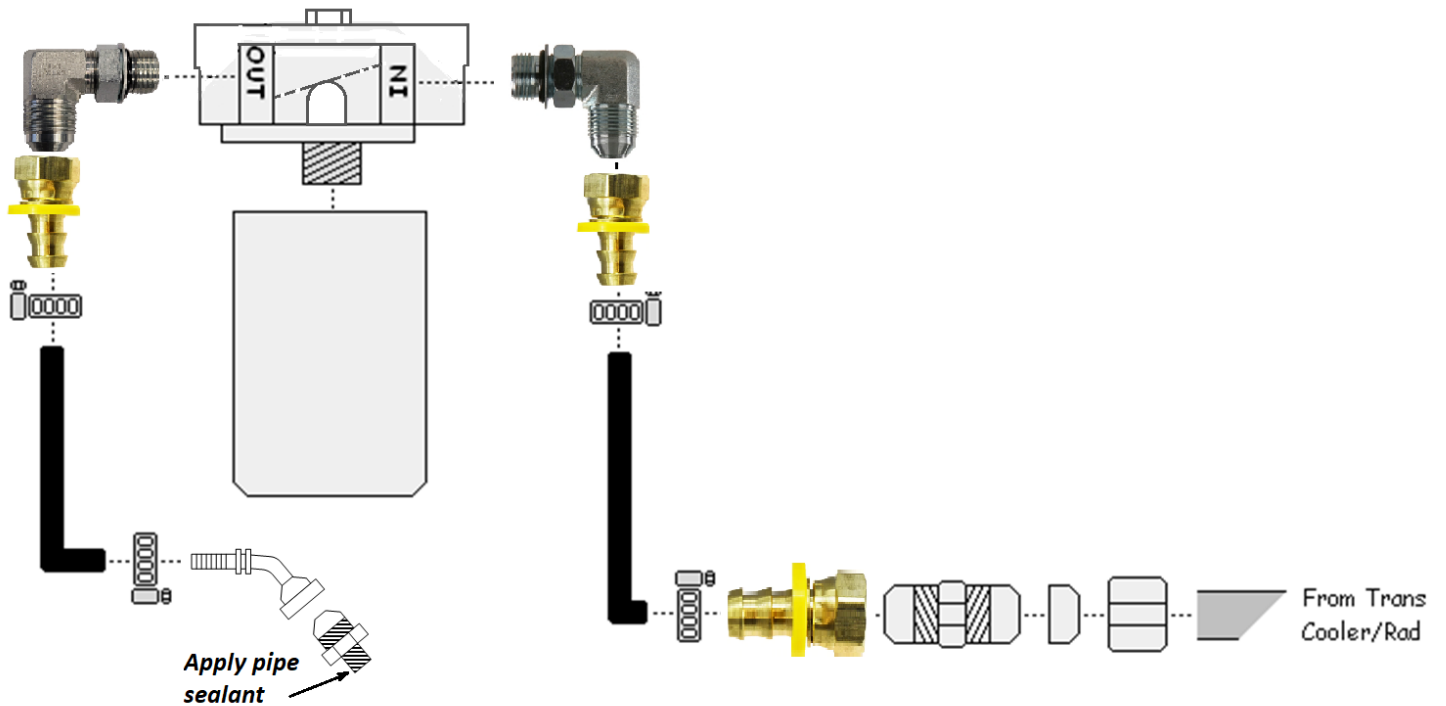
**Note:**

**Do not use a filter wrench to tighten the filter element and do not over tighten the filter.**



After installation is completed, take the vehicle on a short road test, check for any leaks and top up the fluid level.

## Filter Flow Layout



If you experience any problems or difficulties with the installation of this kit, please contact the BD Technical Department at (800) 887-5030 or fax at 1-604-853-8749, between 8:00am and 4:30pm Pacific Standard Time.





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**DO NOT USE WATER-BASED  
TRANSMISSION FLUSHING  
FLUID – THE CONVERTER  
LOCKUP CLUTCH LINING  
WILL DISINTEGRATE, AND  
WARRANTY WILL BE VOIDED.**



**Dodge 47/48RE**



# Torque Converter

## Installation Instructions

<b>1060210X</b>	<b>518/618 Non L/U</b>	<b>1988-1993</b>
<b>* 1070247X, -LX, -X-HS</b>		
<b>+1071217X, -LX</b>	<b>47RH &amp; 47/48RE</b>	<b>1994-2007</b>
<b>^1071218X, -LX</b>		

PART NUMBERS WITH "X" FEATURE ENHANCED STALL, "LX" LOW STALL, AND "X-HS" HIGH STALL

\* Features single lock-up clutch

† Features triple lock-up clutches

^ Features triple lock-up clutches and BigShaft turbine hub

**PLEASE READ ALL INSTRUCTIONS BEFORE INSTALLING THIS PRODUCT.**

## ***Important Tips Before You Start***

Always service the transmission when installing a torque converter. This will ensure that both the torque converter and transmission will be operating with fresh clean transmission fluid.

Please be aware that engine horsepower increase modifications may require an increase in transmission mainline pressure, to prevent transmission or converter clutches from slipping. Contact a BD service representative for more vehicle-specific details.

## ***Preparing the Crankshaft and Converter for Installation***

- Always check crankshaft pilot for burrs and out-of-round.
- Remove any rust with fine emery paper, and lightly grease pocket receiving torque converter pilot hub.
- Remove any paint from torque converter's crank pilot hub with fine emery paper.
- Before installation, pre-fit torque converter to flex plate, and into back of the crankshaft. It should be a snug, even fit (neither loose nor binding).
- Slowly pour two quarts of automatic transmission fluid into converter.
- Check flex plate for cracks or worn teeth.
- If replacing the torque converter only, replace the transmission front seal.

## ***Converter Installation***

Support and rotate torque converter back and forth while installing it into transmission. You will feel it seat 3 times for the input shaft, stator support, and oil pump notches. Use care to not damage the front seal. Make sure that the converter is fully installed— do not assume that it is in place when you receive the transmission. After you are sure it is in place, always keep the tail end of the transmission low so that it cannot slip out.

## ***Checking Converter-to-Flex Plate Alignment***

- Bolt the transmission to the engine with two bell housing bolts (hand tight), and check the converter for free movement.
- After the bell housing bolts are tightened, the converter should have 1/16"-1/8" of clearance between the pads on the converter and the flex plate. If there is not enough clearance, remove the transmission and double-check if the converter is seated properly in the front of the transmission.
- Add Loctite® to the torque converter nuts and/or bolts before installation.
- Draw the converter bolts up evenly, so as not to bind the converter, which can cause vibration and pump bushing failure.
- If there is a vibration after installation, you could try marking the converter to the flex plate, then rotating it one bolt at a time.

**NOTE:** The #1 cause of vibration is the failure to prepare the crankshaft for installation. Each time the converter is installed without polishing off the crankshaft rust, removing the paint from the converter pilot, and adding a little grease, the converter may be drawn up crooked with the first bolt. This condition may cause converter run-out and will usually ruin the pump bushing. The second most common complaint on converters is a whine after installation. This usually means that there is too much clearance between the converter pads and the flex plate. This draws the converter hub too far out of the pump drive gear, causing the gear to "rock".

## **Reusing Converter When Replacing the Transmission**

We strongly recommend replacing the converter with every rebuilt transmission because of the difficulty of thoroughly cleaning it on the inside. If you choose not to replace it, the converter must be removed and thoroughly flushed. Make the following inspections: internal thrust washers and bearings for misalignment, condition of the inner sprag, inner turbine hub splines, inner lockup seal (on lockup converters), hub condition for wear/scoring, the drain plug, pilot and mounting devices to ensure proper alignment and overall good condition.

## **Cooler & Cooler Lines**

The cooler and cooler lines **MUST** be flushed to remove all metal particles and oil. **DO NOT BLOW THEM OUT WITH AIR.** Use a solvent that will flush out old oil and metal particles. This is particularly important if the transmission you have removed has metal in the fluid. **DO NOT USE WATER BASED TRANSMISSION FLUSHING FLUID!**

## **Flex Plate Inspection**

Inspect for cracks where the plate bolts to the engine, and out of round holes where the converter bolts to the flex plate. Check for warping. Inspect the ring gear teeth for excessive wear or missing teeth.

## **Manual Control Linkage (if applicable)**

The manual control linkage must be re-adjusted according to the repair manual, to assure proper setting for the unit being installed. Adjust the linkage with the vehicle in actual road operation.

## **Shift Linkage**

Excessive shift linkage wear (including slop at the steering column) may cause shifting malfunctions such as improper throw, dragging into or out of gears, or jumping out of gear.

## **Motor & Transmission Mounts**

The condition of the motor mounts & transmission mounts can affect linkage adjustments. Worn mounts can create in-vehicle noises, and can cause excessive wear to internal transmission parts. Broken or oil-soaked mounts must be replaced.

## **U-Joints and Driveshaft Yoke**

Tight or worn U-Joints may cause vibration in the driveline, as well as premature failure of bushings and seals in the tail casting. A tight or worn (tapered) front yoke will quickly damage the rear seal and bushings, causing loss of lubricant, which in turn can lead to transmission failure.

## **Important Engine/Transmission Notes**

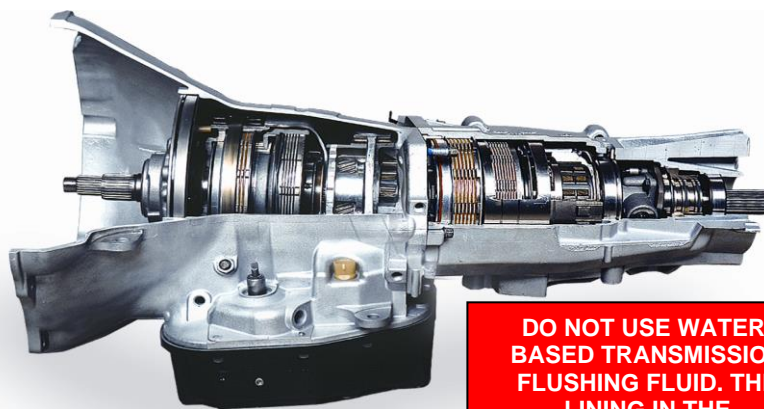
Before operating an electronic transmission after re-installing it, connect a scan tool to record and clear any transmission trouble codes. The TPS and temperature sensor play a critical role in the operation of electronic transmissions. The converter clutch will not operate until the transmission reaches a certain temperature. Be sure these sensors are working properly, and replace faulty units. Fill the transmission with the correct amount of the specified transmission fluid. Test drive the vehicle to check transmission operation, and to complete any relearn procedures. Refer to the service manual for the detailed relearn procedure.

**\*DO NOT:** Check the operation of the transmission with the drive wheels off the ground.

**\*DO NOT:** Re-use old oil. Dirty oil causes valves to stick and may clog the lines if contaminated. Both may lead to premature failure of the transmission or torque converter!



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**DO NOT USE WATER-BASED TRANSMISSION FLUSHING FLUID. THE LINING IN THE CONVERTOR CLUTCHES WILL DISINTIGRATE.**

# BD Dodge 4-Speed Transmission

## Installation Instructions

	Year	Model	2WD	4WD
<b>TORQUEMASTER</b> <i>TRANSMISSION (500HP)</i>	94-95	47RH	1064152B	1064154B
	96-98	47RE	1064162B	1064164B
	98-99	47RE	1064172B	1064174B
	00-02	47RE	1064182B	1064184B
	03-04	48RE	1064192B	1064194B
	04.5-07	48RE	1064232B	1064234B
<b>TOWMASTER</b> <i>TRANSMISSION (400HP)</i>	91-93	518	1030310	1030311
	94-95	47RH	1064152	1064154
	96-98	47RE	1064162	1064164
	98-99	47RE	1064172	1064174
	00-02	47RE	1064182	1064184
	03-04	48RE	1064192	1064194
<b>ROADMASTER</b> <i>TRANSMISSION (350HP)</i>	03-04	48RE	1064142	1064144
	04.5-07	48RE	1064202	1064204

\*Transmission packages with converters are also available\*

**BD Engine Brake Inc.**

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US Shipping: #88 – 446 Harrison St., Sumas, WA, USA 98295 | US Mailing Address: P.O. Box 231, Sumas, WA, USA, 98295

Phone#: (604) 853-6096 | Fax: (604) 853-8749 | Web: [www.bddiesel.com](http://www.bddiesel.com)

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## ***Introduction***

BD's RoadMaster transmission is a stock clutch count transmission. It comes with a BD Valve Body for increased line pressures and improved shifting, a BD Deep Sump Pan for increased fluid capacity, and a billet band strut.

BD's TowMaster transmission adds to the RoadMaster by increasing transmission clutch count in critical areas. The TowMaster also replaces all thrust washers with Torrington roller bearings and adds a billet band lever.

BD's TorqueMaster transmission boasts the same increased clutch count and pressure increase as in the TowMaster transmission but also includes a billet input shaft. The TorqueMaster transmission is designed to withstand rapid acceleration and high torque is the perfect combination for the 3-disc ProForce 3D converter.

## ***Pre-Installation (TowMaster & TorqueMaster Only)***

Ensure the vehicle has a BD Filter Kit (PN # 1064017) for the BD Transmission you are about to install. A replacement filter can be ordered through BD using part number 1604008. A cross-reference table has been provided below.

HASTINGS	BALDWIN	DONALDSON	FLEETGUARD	FRAM	LUBER-FINER	WIX
LF364	BT230	P555570	LF3342	PH3519	LFP5570	51268

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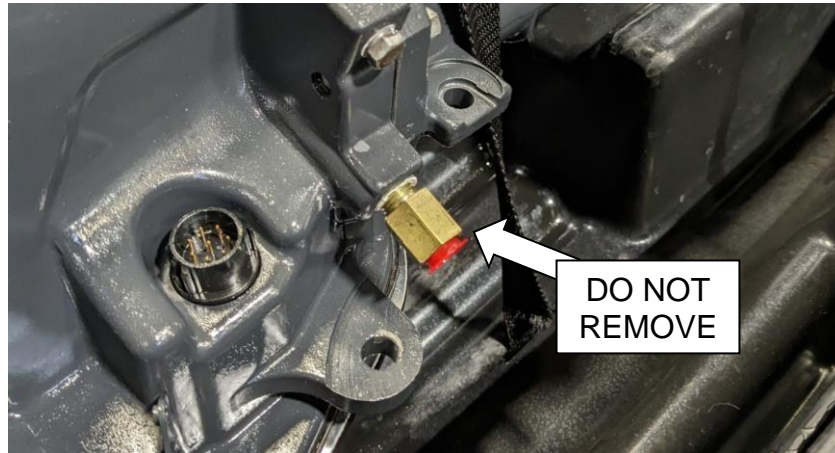
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### **Important Note – Case Saver**

Your transmission will be equipped with a coolant line adapter known as a case saver. The case saver prevents the coolant line from overtightening and causing a case fracture. **DO NOT REMOVE** this adapter. Instead, screw the OE coolant line fitting directly into the case saver.



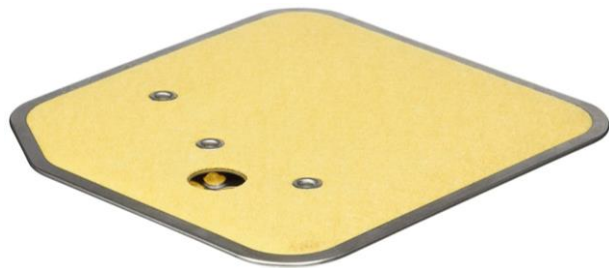
### **Maintenance**

BD recommends the first transmission oil and filter change to occur at the 3-month or 5,000 miles/8,000 km interval. This quick interval will not only give you peace of mind but will also rid the transmission of any prior debris. After this OE service intervals are acceptable.

On all Dodge 47/48 transmissions, you will need to do a band adjustment at each service interval. The first interval is the most important. The procedure is located at the end of this manual.

### **WARNING**

It is imperative that the internal BD filter be replaced with the same type. The proper filter is dependent on the year & model of the transmission as seen in the table below. The correct filter will ensure the modified valve body does not leak past the filter seal.



**CHRYSLER OEM# 3515996**  
**'91-'98 518/47RH/47RE**



**CHRYSLER OEM# 52118789**  
**'98-'07 47RE/48RE**

**BD Engine Brake Inc.**

## ***Transmission Removal***

1. Disconnect the negative battery cable(s).
2. Remove the torque converter access cover and inspection plate.
3. Remove the transmission pan, drain the fluid, and re-install the pan.
4. Remove the fill tube bracket bolt and pull the tube out of the transmission. Retain the fill tube seal. On 4WD models, it will also be necessary to remove the bolt attached to the transfer case vent tube to the converter housing.
5. Rotate the crankshaft with a pry bar from under the vehicle until the converter bolts are accessible.
6. Mark the drive shaft and pinion yokes for assembly alignment. Disconnect and remove the drive shaft. On 4WD models, remove both drive shafts.
7. Disconnect the electrical wiring from the park/neutral position switch, transmission solenoid, and speed sensor.
8. Disconnect the gearshift rod and shifter shaft assembly from the transmission.
9. Disconnect the TV (throttle valve) cable from the transmission bracket.
10. On 4WD models, disconnect the shifter rod from the transfer case shift lever. For 04.5-07 48RE transmissions, the TTVA motor will need to be removed.
11. Raise the transmission slightly by using a service jack to relieve the load on the cross-member and supports.
12. Remove the bolts securing the rear support and cushion to the transmission and cross-member.
13. Disconnect the vacuum lines and remove the steel line from the cross-member and frame.
14. Remove the bolts attaching the cross-member to the frame. Spread the frame with a Port-A-Power to remove the cross-member.

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15. On 4WD models, remove the transfer case with a transmission jack or with the aid of a helper.
16. Disconnect the fluid cooler lines at the transmission.
17. Remove all bell housing bolts.
18. Carefully work the transmission and torque converter assembly rearward off the engine block dowels.
19. Lower the transmission and remove the assembly from under the vehicle.
20. Carefully slide the torque converter out of the transmission.

## ***Transmission Cooler Flush***

Before installing the transmission, the transmission cooler must be flushed and the filter be changed. After flushing, check the transmission cooler flow at engine idle. This can be accomplished by running the transmission cooler outlet into a bucket. There should be a minimum of 1 GPM of flow.

**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.**

Also, if the transmission being replaced failed or there was excessive debris in the pan, the transmission cooler and check valve assembly will need to be replaced. Failure to follow these procedures may void your warranty.

***Upon installation ensure the plug is in the torque converter and preload the torque converter with 2 quarts of Mopar ATF +4 or aftermarket ATF +4.***

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## ***Transmission Installation***

1. \*\*\*NOTE: If new bolts are supplied with the converter, be sure to remove the bolts before installing the transmission.
2. Lubricate the converter drive hub and oil pump seal lip with petroleum jelly.
3. Lubricate the converter pilot hub with transmission fluid.
4. Align and install the torque converter into the oil pump.
5. Carefully insert the converter into the oil pump. Rotate the converter back and forth until it's fully seated in the pump gears. Two loud "clunks" should be heard to ensure it is seated properly.
6. Position the transmission on a service jack and secure it with chains.
7. Check the condition of the converter drive plate. If the plate is cracked, distorted, or damaged, it must be replaced before installation can continue. **Also, be sure the transmission dowel pins are seated in the engine block and protrude far enough to hold the transmission in alignment.**
8. Raise the transmission and align the torque converter with the drive plate, and the bell housing with the engine block.
9. Move the transmission forward. Raise, lower, or tilt the transmission to align the bell housing with the engine block dowels.
10. Carefully work the transmission forward and over the engine block dowels until the converter hub is seated in the crankshaft.
11. Install the bolts attaching the bell housing to the engine.
12. Tighten the bolts and check the torque converter rotation.
13. Install the rear support. Lower the transmission onto the cross-member and install the bolts attaching the transmission mount to the cross-member.
14. Reconnect the vacuum lines and re-install the steel line to the cross-member and frame.
15. Reconnect the shift linkages.

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16. Connect the gearshift and throttle cable to the transmission.
  - a. For 2004.5 –2007 48RE transmissions reinstall the TTVA motor.
17. Connect the electrical wires to the park/neutral position switch and transmission solenoid(s). Be sure the transmission harnesses are properly routed.

**CAUTION: It is essential that correct length bolts be used to attach the converter to the drive plate. Bolts that are too long will damage the clutch surface inside the converter.**

18. Install the torque converter to drive plate bolts using Loctite. On models with a 12.2" converter, tighten bolts to 47 Nm (35 ft. lbs.).
19. Install the torque converter housing access covers.
20. Install the cooler line bracket.
21. Connect the cooler lines to the transmission.
22. Install the transmission fill tube. Install a new seal on the tube before installation.
23. Align and connect the drive shaft.
24. Adjust the gearshift linkage and throttle valve cable if necessary.
25. Lower the vehicle.
26. Reconnect the negative ground cable(s) to your battery(s).
27. Fill the transmission with vehicle manufacturer's suggested fluid.
  - a. **NOTE: Fill capacities listed only as a guide. Correct fluid level should always be determined by marks on the dipstick. Capacities listed are total system capacity including torque converter and BD pan.**

<u>Application</u>	<u>First Fill Quarts (Liters)</u>	<u>Secondary Fill Quarts (Liters)</u> <u>(Includes TC Preload)</u>	<u>Total Capacity</u> <u>(Liters)</u>
1988-2007	10 (9.5)	Approx 7 (6.6)	Approx 17 (16.1)

### **Mainline Pressures**

	<b>At Idle</b>	<b>Wide Open Throttle</b>	<b>In Reverse (Idle)</b>	<b>In Reverse (WOT)</b>
Dodge 47RH	90-100 psi	170-180 psi	250 psi	350 psi
Dodge 47RE	90-100 psi	170-180 psi	250 psi	350 psi
Dodge 48RE	90-100 psi	170-180 psi	250 psi	350 psi

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## ***Kick-down Cable Adjustment***

Kick-down cable adjustment is one of the most critical adjustments that affect the operation of the transmission.

The BD Performance Valve Body is a performance product and not stock, therefore the factory specifications for this adjustment are used only as a guide.

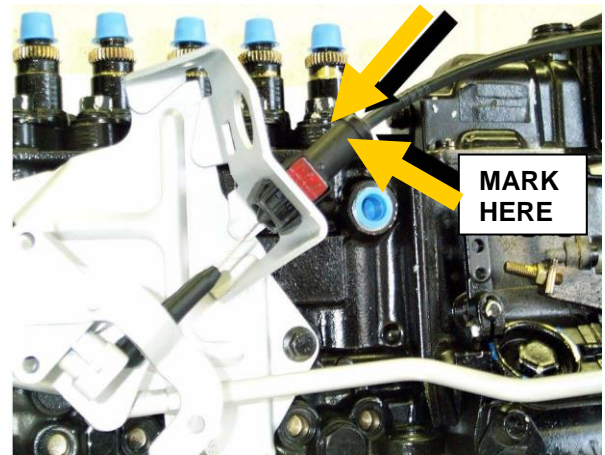
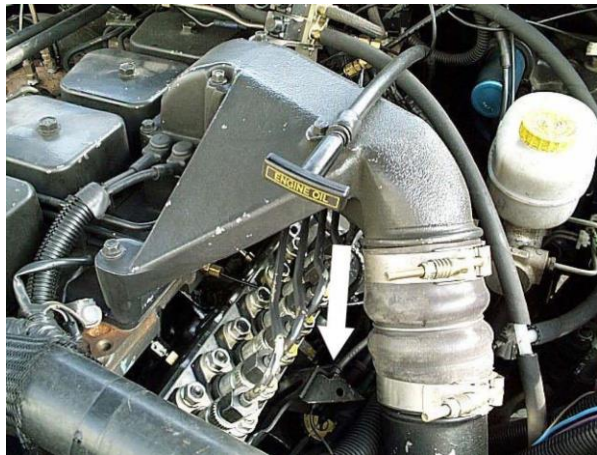
***Your drivability and performance demands will determine your shift points and pressure adjustments.***

Kick-down cable adjustments are for full-throttle shift points & passing gear only. Light Throttle shift points should be adjusted on the valve body throttle valve stop.

### **12 VALVE ADJUSTMENTS**

On trucks equipped with the **12-valve 5.9 6BTA**, full throttle shift between second and third should occur between 2400 – 2500RPM (OEM) with the transmission at operating temperature.

**IMPORTANT** - Locate the kick-down cable and **MARK THE CABLE** at the original setting before any adjustments are made.



**NOTE:** Disconnecting the cable from the support bracket and the throttle lever is a difficult task; it may be easier to adjust without removing the cable.

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## **24 VALVE ADJUSTMENTS**

On trucks equipped with Cummins ISB engines, full throttle shift between second and third should occur between 2800 – 3000 rpm (OEM) with transmission at operating temp. The kick-down cable will be located underneath the plastic cover as indicated below.



The plastic cover is held in place by 2 plastic Phillips head screws, only light pressure is required to remove them. Do not lose the screws or washers when you remove them. Remove the cable from the throttle linkage and support bracket.



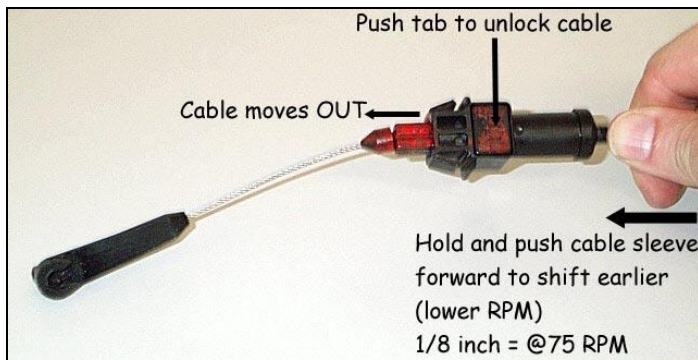
**\*\*IMPORTANT: MARK THE CABLE** at the original setting before any adjustments are made.

Remove the white-colored locking clip from the cable.

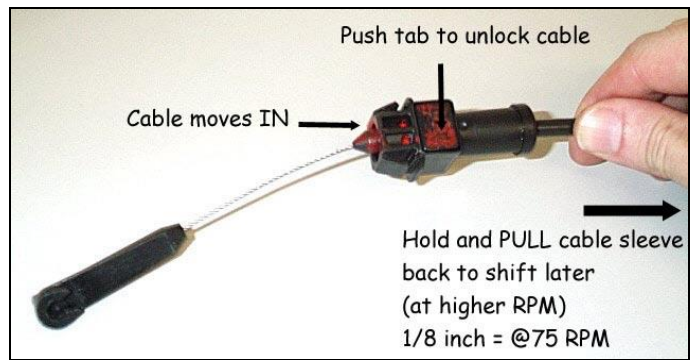
Press the lock tab (this will take considerable force) to release the locking mechanism.

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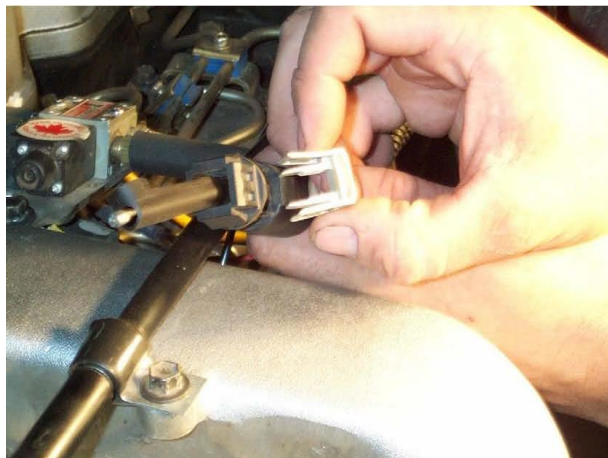
*Adjusting the cable forward, towards the radiator, will make the transmission shift sooner.*



*Adjusting the cable rearward, towards the firewall, will make the transmission shift later.*

**\*\*CAUTION\*\* DO NOT USE A SCREWDRIVER TO REMOVE THE CLIP, IF THE CLIP BREAKS THE CABLE WILL HAVE TO BE REPLACED!**

**(Adjustment spec - 1/8 inch movement = ~75 rpm)**



Install the white locking clip and then re-install the cable through the support bracket and then onto the throttle lever. Install plastic cover when the job is complete.

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## ***Gearshift Cable Adjustment – 48RE***

**Do not take this adjustment lightly -- it is very important. Failure to perform the adjustment can void your warranty.**

Check adjustment by starting the engine in PARK and NEUTRAL. Adjustment is CORRECT if the engine starts only in these positions. Adjustment is INCORRECT if the engine starts in one but not both positions. If the engine starts in any position other than PARK or NEUTRAL, or if the engine will not start at all, the transmission range sensor may be faulty.

Procedure:

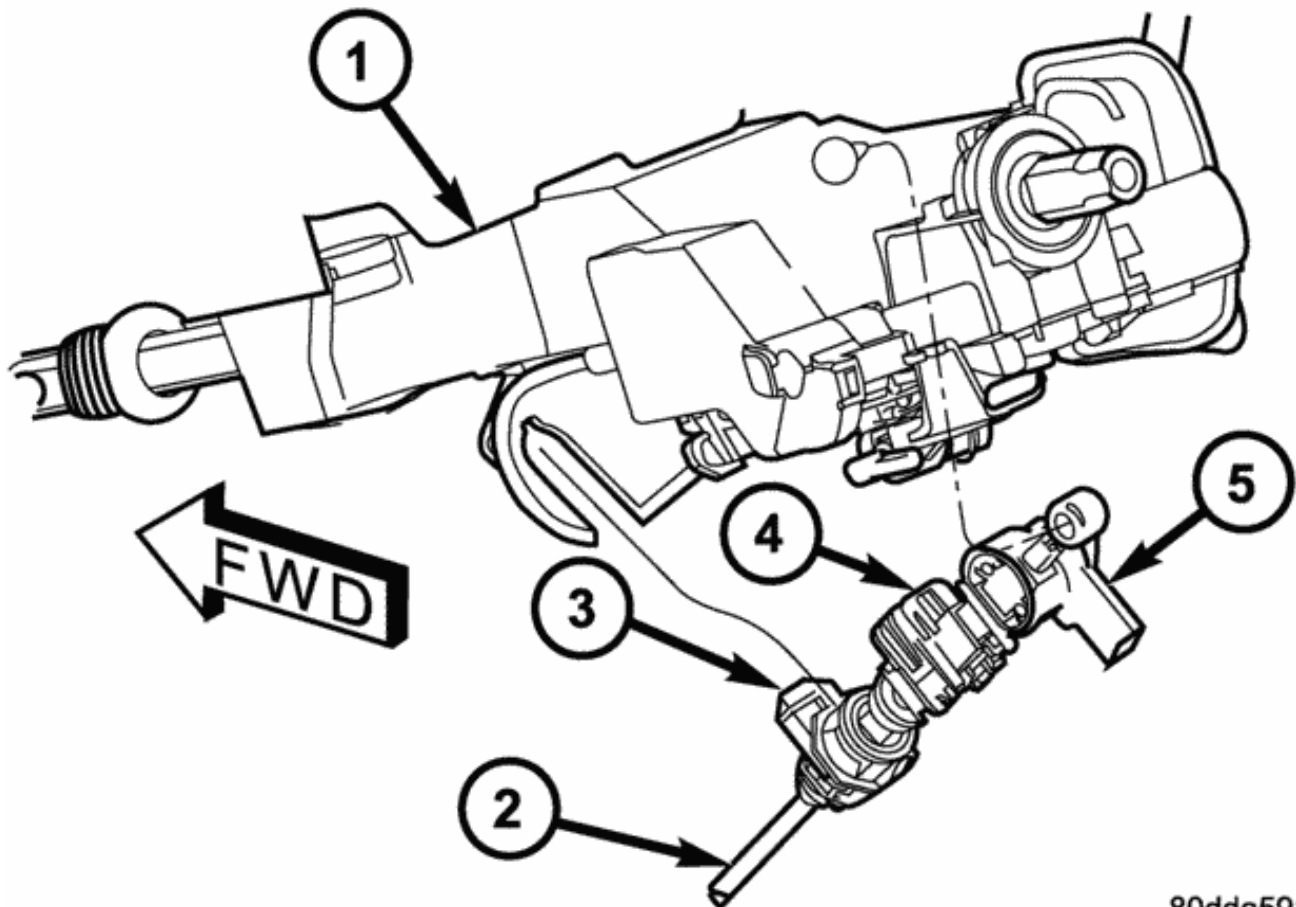
1. Shift the transmission into PARK.
2. Release the cable adjuster lock tab (3) (underneath the steering column) to unlock the cable.
3. Raise vehicle.
4. Disengage the cable eyelet from the transmission manual shift lever.
5. Verify transmission shift lever is in PARK detent by moving the lever fully rearward. Last rearward detent is PARK position.
6. Verify positive engagement of the transmission park lock by attempting to rotate the propeller shaft. The shaft will not rotate when the park lock is engaged.
7. Snap the cable eyelet onto the transmission manual shift lever.
8. Lower vehicle.
9. Lock the shift cable by pressing the cable adjuster lock tab (3) downward until it snaps into place.
10. Check engine starting. The engine should start only in PARK and NEUTRAL.

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**\*NOTICE\***

The Transmission Throttle Valve Actuator (TTVA) does not require any mechanical adjustments. All changes in throttle valve position are controlled by the Engine Control Module (ECM). The TTVA does require an initialization period after the actuator has been removed or replaced. After the actuator has been removed or replaced, move the ignition to the ON position for thirty (30) seconds. This will allow the ECM sufficient time to perform the internal calibration procedures to learn the TTVA's current "zero" position. Once this is done, check the ECM for diagnostic trouble codes (DTCs). If no DTCs are set relating to the TTVA, the TTVA is fully calibrated and ready for use.



80dda591

1 - STEERING COLUMN
2 - GEARSHIFT CABLE
3 - GEARSHIFT CABLE LOCK TAB
4 - BTSI SOLENOID LOCK TAB
5 - BTSI CONNECTOR

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## **Transmission Tuning**

Once the installation is completed you can now check the main line pressure. This is accomplished by inserting a fitting and hose assembly with a good quality gauge into the center 1/8" port on the passenger side of the transmission.

### **47RE Transmissions**

<b>Transmission Line Pressure</b>	<b>OEM Pressure</b>	<b>BD Pressure</b>	<b>Test #1</b>	<b>Test #2</b>
Transmission in DRIVE w/Engine at idle	55-65psi	90-110psi		
Transmission in DRIVE w/Convertor Locked up @ WOT	110-120psi	170-180psi		

### **48RE Transmissions**

<b>Transmission Line Pressure</b>	<b>OEM Pressure</b>	<b>BD Pressure</b>	<b>Test #1</b>	<b>Test #2</b>
Transmission in DRIVE w/Engine at idle	55-65psi	90-110psi		
Transmission in DRIVE w/Convertor Locked up @ WOT	110-120psi	170-200psi		

### **Transmission Shift Points**

<b>Transmission Shift Point (RPM)</b>	<b>Before</b>	<b>After</b>
2 <sup>nd</sup> – 3 <sup>rd</sup> Shift point (Normal Driving)		
2 <sup>nd</sup> – 3 <sup>rd</sup> Shift point (Wide Open Throttle)		

**IMPORTANT** – IF PRESSURES AND/OR SHIFT POINTS ARE NOT TO SPECS, THE TRANSMISSION MUST BE REPAIRED OR SERVICED BEFORE MODIFICATIONS.

**CAUTION** – PRESSURE SETTINGS THAT ARE TOO HIGH CAN RESULT IN SEVERE SHIFTS, LIMP MODE, or 2<sup>ND</sup> OR 3<sup>RD</sup> GEAR STARTS.

***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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## ***Before you call BD Tech Support***

Please ensure you have the following information completed for your specific transmission issue, as the results may be required during the tech call.

### **2-3 STACK SHIFT / 2nd & 3rd GEAR STARTS**

- TTVA relearn procedure completed?
- Governor Pressure @ 0 MPH = \_\_\_\_\_
- Governor PSI @ idle? \_\_\_\_\_
- Governor PSI @ 10 MPH? \_\_\_\_\_
- Transmission Governor pressure = Mainline pressure after 2-3 shift? \_\_\_\_\_
- Mainline Pressure = \_\_\_\_\_
- Checked to see if transmission has power? \_\_\_\_\_

### **LAZY SHIFT**

- Line Pressure @ IDLE = \_\_\_\_\_
- Band adjustment checked? \_\_\_\_\_
- Band adjustment nut turns @ 72 in/lbs = \_\_\_\_\_ (# of turns)

## ***Questions?***

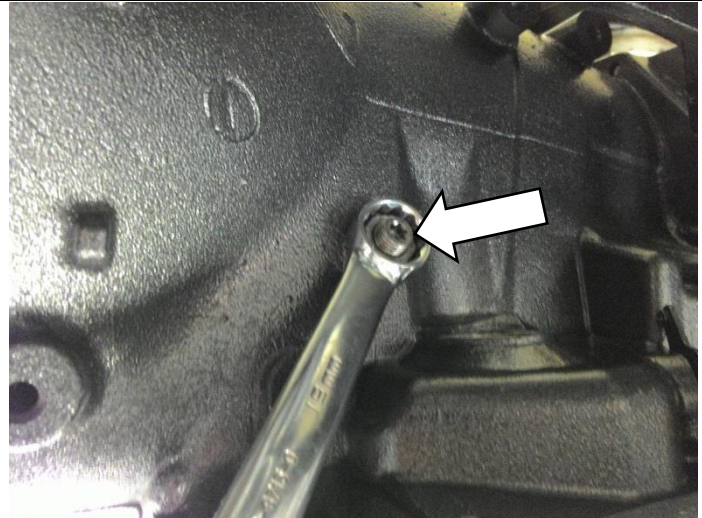
If you require assistance with this kit, please call our Transmission Technical Support Line at (800) 887-5030, Monday to Friday from 7:00-3:30pm Pacific Standard Time (PST).

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## Band Adjustments

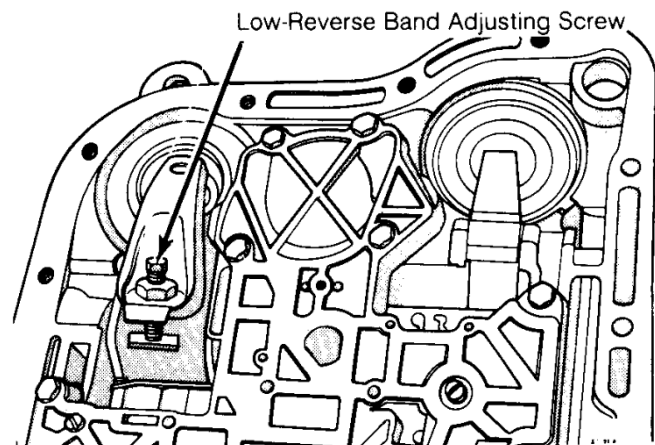
Set the 2<sup>nd</sup> gear band adjustment. Torque the T40 band adjuster screw to 72in-lb, then back out 2-1/4 turns. Tighten the lock nut while keeping the adjuster screw from turning.



To confirm adjustment, pull the servo lever outwards. The air gap should measure 5/16". The flattened end of the supplied E-clip installer can be used as a feeler for this measurement.



Set the low reverse gear band adjustment. Loosen the nut with a 14mm wrench then back off the adjuster screw 5 turns. Next, tighten the adjuster screw to 72in-lb, then back screw off 3 turns and tighten the jam nut.



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**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.

<b>BD FUEL INJECTION CORE ACCEPTANCE POLICY</b>		
<b>Model</b>	<b>Deduction</b>	<b>No Credit</b>
P7100 Injection Pump	<ul style="list-style-type: none"> <li>• AFC Housing Damaged (25% Deduction)</li> <li>• Governor Housing Damaged Front or Back (25% Deduction)</li> </ul>	<ul style="list-style-type: none"> <li>• Contaminated/Bio Diesel</li> <li>• Damaged Camshaft on 911/913 pumps.</li> <li>• Main Body Damaged</li> </ul>
Bosch VE Pump	<ul style="list-style-type: none"> <li>• AFC Housing Damaged (25% Deduction)</li> <li>• Cold Advanced Housing Damaged (50% Deduction)</li> <li>• Governor housing damaged front or back (25% deduction)</li> <li>• Main Body Damaged (50% Deduction)</li> </ul>	<ul style="list-style-type: none"> <li>• Contaminated/Bio Diesel</li> <li>• Seized Head (Does not turn)</li> </ul>
CP3		<ul style="list-style-type: none"> <li>• Contaminated/Bio Diesel</li> <li>• Seized (Does not turn)</li> <li>• Catastrophic Shaft Failure (Frost Plugs Damaged or Missing)</li> <li>• Front Cover Damaged</li> </ul>
VP44	<ul style="list-style-type: none"> <li>• Damaged Electronics (50% Deduction)</li> </ul>	<ul style="list-style-type: none"> <li>• Contaminated/Bio Diesel</li> <li>• Seized Head (Does not turn)</li> </ul>
Common Rail Injectors	<ul style="list-style-type: none"> <li>• Solenoid melted or destroyed, stretched terminals (25% Deduction)</li> <li>• 5.9/6.7 Broken Solenoid Terminal Divider (No Deduction)</li> </ul>	<ul style="list-style-type: none"> <li>• Contaminated/Bio Diesel</li> <li>• Damaged Body</li> </ul>
Mechanical Injectors		<ul style="list-style-type: none"> <li>• Contaminated/Bio Diesel</li> <li>• Damaged Body</li> </ul>

<b>BD TURBOCHARGER CORE ACCEPTANCE POLICY</b>		
<b>Turbo Model/ Application</b>	<b>Deduction</b>	<b>No Credit</b>
Cummins ISX VGT Air or Electronic Actuated	<ul style="list-style-type: none"> <li>• Damaged Electronics (50% Deduction)</li> <li>• Missing Clamps (25% Deduction)</li> <li>• Missing Parts or Actuators (50% Deduction)</li> <li>• Turbine Wheel Separation (50% Deduction)</li> </ul>	<ul style="list-style-type: none"> <li>• Knock Off Models (Not Genuine)</li> <li>• Part Disassembled</li> </ul>
Caterpillar (Ball Bearing) Models		<ul style="list-style-type: none"> <li>• Knock Off Models (Not Genuine)</li> <li>• Wheel Separation</li> </ul>
Caterpillar (Standard Turbocharger) 704604-9007, 704604-9011		<ul style="list-style-type: none"> <li>• Knock Off Models (Not Genuine)</li> <li>• Turbo with 3 support Webs</li> </ul>

Detroit Diesel VGT	<ul style="list-style-type: none"> <li>• Damaged Electronics (50% Deduction)</li> </ul>	<ul style="list-style-type: none"> <li>• Knock Off Models (Not Genuine)</li> <li>• Wheel Separation</li> </ul>
Ford 6.4 Powerstroke	<ul style="list-style-type: none"> <li>• Missing Parts or Actuators (50% Deduction)</li> </ul>	<ul style="list-style-type: none"> <li>• Knock Off Models (Not Genuine)</li> <li>• Part disassembled</li> <li>• Wheel Separation</li> </ul>
Ford 6.7 Powerstroke	<ul style="list-style-type: none"> <li>• Missing Parts or Actuators (50% Deduction)</li> </ul>	<ul style="list-style-type: none"> <li>• Wheel Separation</li> </ul>
GM 6.6 L5P	<ul style="list-style-type: none"> <li>• L5D Version (due to incorrect compressor cover) (25% Deduction)</li> <li>• Missing Parts or Actuators (50% Deduction)</li> </ul>	<ul style="list-style-type: none"> <li>• Knock Off Models (Not Genuine)</li> <li>• Wheel Separation</li> </ul>
Dodge Cummins 6.7 HE351VG/HE300VG	<ul style="list-style-type: none"> <li>• Missing Parts or Actuators (50% Deduction)</li> </ul>	<ul style="list-style-type: none"> <li>• Knock Off Models (Not Genuine)</li> </ul>
Standard Turbochargers (All Models, Non VGT)	<ul style="list-style-type: none"> <li>• Damaged Electronics (50% Deduction)</li> <li>• Missing Clamps (25% Deduction)</li> <li>• Missing Parts or Actuators (50% Deduction)</li> </ul>	<ul style="list-style-type: none"> <li>• Knock Off Models (Not Genuine)</li> <li>• Wheel Separation</li> </ul>

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

Deduction	No Credit
<ul style="list-style-type: none"> <li>• Cracked or Damaged due to freight</li> <li>• Damaged Electronics</li> <li>• Missing Parts or Actuators</li> <li>• Heavily Damaged Wheels and/or Shaft</li> <li>• Missing Clamps</li> <li>• Turbine Wheel Separation</li> <li>• Heavily Modified Turbochargers</li> </ul>	<ul style="list-style-type: none"> <li>• Knock Off Models (Not Genuine)</li> </ul>

## BD TRANSMISSION/TORQUE CONVERTOR CORE ACCEPTANCE POLICY

Model	Deduction	No Credit
Transmissions	<ul style="list-style-type: none"> <li>• Cracked Overdrive housings (\$100 Deduction)</li> <li>• 68rfe Cracked Case (25% Deduction)</li> <li>• Part disassembled (50% Deduction)</li> <li>• Missing Transmission Shipping Crate (\$200 Deduction)</li> <li>• Missing TC/Transmission bracket (\$50 Deduction)</li> </ul>	<ul style="list-style-type: none"> <li>• Cracked Case (Except 68rfe)</li> </ul>
Torque Convertors	<ul style="list-style-type: none"> <li>• Hub and Impeller damaged. (50% Deduction)</li> </ul>	<ul style="list-style-type: none"> <li>• Excessive corrosion</li> <li>• Part disassembled</li> </ul>
Valve Bodies	<ul style="list-style-type: none"> <li>• Missing electronics (25% Deduction)</li> </ul>	<ul style="list-style-type: none"> <li>• Excessive corrosion</li> <li>• Part disassembled</li> </ul>

## GENERAL CORE ACCEPTANCE POLICY

Model	Deduction	No Credit
EGR Cooler		<ul style="list-style-type: none"> <li>• Brackets broken</li> </ul>

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](https://cdn.bddiesel.com/downloads/bd_terms_general.pdf)