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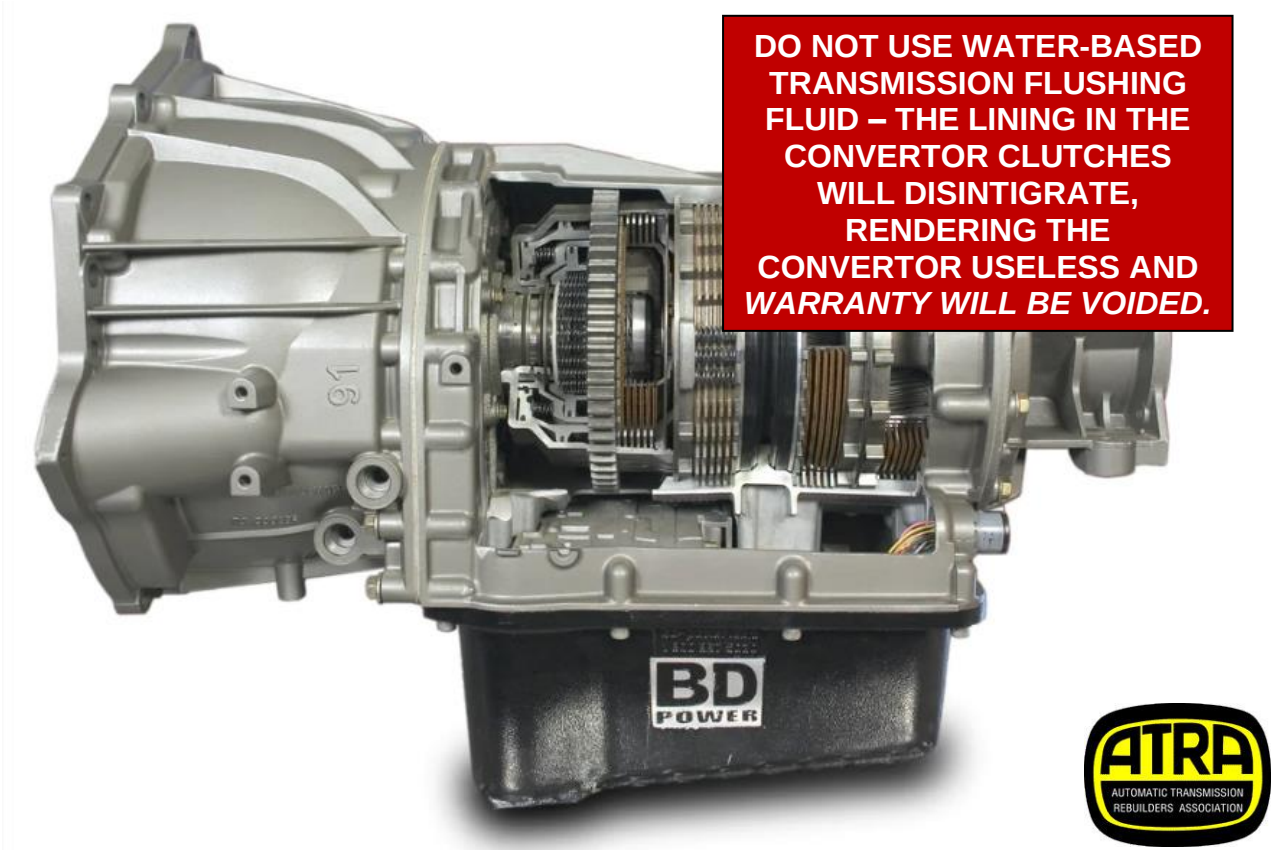

DO NOT USE WATER-BASED TRANSMISSION FLUSHING FLUID – THE LINING IN THE CONVERTOR CLUTCHES WILL DISINTIGRATE, RENDERING THE CONVERTOR USELESS AND *WARRANTY WILL BE VOIDED.*

BD PERFORMANCE TRANSMISSION
Allison Installation Instructions

2WD Transmissions		
1064702	2000-2003 **LB7**	1000
1064722	2004-2005 **LLY**	1000
1064732	2006-2007 **LBZ**	1000

4WD Transmissions		
1064704	2000-2003 **LB7**	1000
1064724	2004-2005 **LLY**	1000
1064734	2006-2007 **LBZ**	1000

Please read the instructions and disclaimer before beginning installation. On 2001-2004 trucks, check for the correct fittings before installing. See Install procedure for additional notes.

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 piece of mind, but will also rid the transmission of any prior debris. After this OE service intervals are acceptable.

REMOVAL:

1) Park the vehicle, apply the park brake, and open the hood.

2) Record your sound system and clock preset settings (if desired) and disconnect both negative cables on the batteries.

3) Remove the transmission dipstick.

4) With the vehicle safely supported on an overhead hoist, remove the transmission pan drain plug and drain the fluid.

5) Remove both front skid plates for easy access to components.

6) Remove both bolts (15mm hex socket or wrench) holding the starter in place and with rope or wire, secure the starter up and out of the way on the frame. This allows for access to the torque converter/flex plate bolts through the starter opening. NOTE: The starter wires do not have to be disconnected to perform this operation.

7) **Torque Converter (TC) removal procedure:**
   a. Locate the transmission/bell housing window at the lower left corner.
   b. View the converter and flex drive plate through this window.
   c. Use a 1 ½" box end wrench on the crankshaft front damper bolt to turn the crankshaft until the flex plate holes come into view as seen through the window from below. This indicates a removal point.
   d. Shine a flashlight through the right side frame and suspension members to locate the converter mounting bolts through the starter mounting opening.
   e. As each mounting bolt is lined up, apply a small paint pen dot to the front damper, and one dot to an adjacent stationary surface. This allows for easy re-assembly as the dots may be lined up while turning the crank from the front.
   f. Remove each of the six mounting bolts (15mm hex head bolts with 5/16" allen head socket as well) using an extra long extension and ratchet extending clear through to the front of the engine. **NOTE:** A magnet may be required to extract the bolts once they are removed because of their location within the recess of the ring gear plate.
   g. The converter should now be unbolted from the flex plate within the bell housing enclosure.
   h. During re-assembly, using the same long extension but using a 5/16" Allen head socket may better control the converter mounting bolts

8) Remove both front and rear drive shafts and tape some plastic over the transfer case rear boot to keep fluid from leaking during its removal.

9) Remove all fuel lines, wiring harnesses, and shift linkages with their respective hold down devices and swing them carefully to the left of the transmission and strap them temporarily to the frame.

10) Position a suitable transmission jack under the flat area of the pan, ensuring the transmission is secured to the jack. Be careful, as the transmission weights over 300lbs.

11) Locate the two oil cooler tube fittings on the right side of the transmission, then pop the ring back on the fitting and pull the snap/lock ring from its slot. Use a catch tray when unseating the pipes to collect draining fluid and use cap plugs on pipes and fittings to keep dirt from entering.

12) Lift the transmission slightly and remove the rear cross-member.

13) Remove the nuts (15mm) holding the transfer case to the transmission and slide the transfer case off its mounting studs. Rotate it counterclockwise within the frame and front suspension torsion bar beam until it clears and can be removed by lowering it.

NOTE: This allows the torsion beam, torsion bars, and accompanying components to be left undisturbed.

14) Remove all transmission-to-engine bell housing fasteners, taking note of their locations and type as some are 15mm hex head cap screws and others are 15mm “stud” bolts. Ensure all fasteners are removed, especially the one at the 12 o’clock position at the top of the unit.

15) Roll the transmission assembly backwards, then lower and remove the assembly from under the vehicle.

16) Using two of the 15mm “stud” bolts at opposite sides (180° apart) of the torque converter, gently pull the converter out of the transmission while holding the studs for control with a drain pan beneath to catch any fluid. The converter may be placed face down to further drain fluid if desired.

17) Remove transmission speed sensors, PRNDL sensor and cooler line fittings from the old transmission as they will need to be installed on the new transmission prior to installation.

INSTALLATION:

Installation is the reverse of the removal procedure. Refer to the next page for proper tightening specifications.

The transmission controller must be relearned whenever the transmission solenoids, valve body or entire transmission are replaced. Before proceeding, verify transmission fluid level and allow transmission to come up to normal operating temperature.

If a Tech II factory scan tool is available, reset all of the adaptive learned values (TAPS). Then proceed to do a fast learn. In this procedure, the transmission controller will shift through all of the gears to learn the clutch apply rates. This will significantly reduce the drive learning time required. If a Tech II scan tool is not available, many aftermarket tuners are capable of resetting the transmission learned values (TAPS). These devices are not capable of doing a fast learn and it will take longer to achieve the desired shift quality.

Once the adaptive values have been reset, drive the vehicle at light throttle through all gear shifts three times, or until the shifts are not objectionable. Repeat with increased throttle until transmission shifts normally. Transmission relearn is now complete and shifts quality will continue to improve as the vehicle is driven.

Upon installation ensure the plug is in the torque converter and preload the torque converter with 2 quarts, fluid type see below.

Application	Oil Type
GM Allison (1000)	TES-668 Approved Fluid

Be sure to flush the transmission cooler and lines before re-installing transmission. BD only recommends a back flow capable transmission flushing machine using only oil-based cleaners. DO NOT USE “TRANSMISSION FLUSH IN A CAN”.

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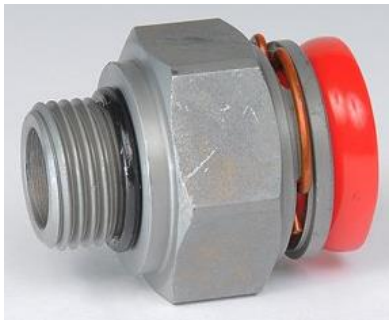
NOTE: *Fill capacities listed only as a guide.* ***Correct fluid level should always be determined by marks on dipstick****. Capacities listed are total system capacity including torque converter* and BD pan.

Application	First Fill Quarts (Liters)	Secondary Fill Quarts (Liters) (Includes TC Preload)	Total Capacity (Liters)
2001-2010	**10 (9.5)**	**Approx 6.2 (5.8)**	**Approx 16.2 (15.3)**

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.

Transmission Oil Cooler Fittings

2001-2004 trucks may require adaptive fittings depending on which bellhousing and cooling lines are used. Below shows the required part number if alternate fittings are needed.

		Transmission Bellhousing	
		2001-2003 Early Allison Bellhousing 3/4” Threads	**2003.5-2004 Late Allison Bellhousing 7/8” Threads**
Oil Cooler Lines	**2001-2003 7/8” Flare 5/8” Tip**		
		GM# 29540501	GM# 88996640
	2003.5-2004 13/16” Flare 7/8” Tip		
		GM# 29541729	GM# 88996645

Mainline Pressures

Mainline Pressures		
	Drive @ 2100 RPM	**Reverse @ 2100 RPM**
Allison 1000 (TCC OFF)	220-250 psi	220-260 psi
Allison 1000 (TCC ON)	145-170 psi	220-260 psi

Fastener Tightening Specifications

Application	Specification	
	Metric	**Imperial**
Control Module Cover to Radiator Shroud Bolts	9 N·m	80 lb in
Control Valve Assembly to Main Housing Bolts	12 N·m	108 lb in
Converter Housing to Front Support Assembly Bolts	56 N·m	41 lb ft
Detent Lever Retaining Nut	29 N·m	21 lb ft
Detent Spring Assembly to Main Valve Body Bolts	12 N·m	108 lb in
Filler Tube Bracket to Transmission Nuts	18 N·m	13 lb ft
Fuel Line Bracket to Transmission Nut	18 N·m	13 lb ft
Fuel Line Retainer to Transmission Bolts	2.5 N·m	22 lb in
Heat Shield to Transmission Bolts	17 N·m	13 lb ft
Heat Shield to Transmission Nut	25 N·m	18 lb ft
Hydraulic Connector Assembly	25 N·m	18 lb ft
Input Speed Sensor to Torque Converter Housing Bolt	12 N·m	108 lb in
Main Pressure Tap Plug	12 N·m	108 lb in
Oil Cooler Line Clip to Oil Pan Nut	9 N·m	80 lb in
Oil Cooler to Radiator Brace Bolts	12 N·m	106 lb in
Oil Pan Drain Plug	35 N·m	26 lb ft
Oil Pan to Main Housing Bolts	27 N·m	20 lb ft
Output Speed Sensor to Rear Cover Bolt	12 N·m	108 lb in
PNP Switch to Main Housing Bolts	27 N·m	20 lb ft
Pressure Switch Assembly to Main Valve Body Bolts	12 N·m	108 lb in
PTO Cover(s) to Main Housing Bolts	43 N·m	32 lb ft
Shift Cable Bracket to Transmission Bolts	25 N·m	18 lb ft
Shift Cable Support to Steering Column Brace Bolt	10 N·m	89 lb in
Shift Lever to Shift Selector Shaft Nut	24 N·m	18 lb ft
Shipping Bracket to Torque Converter Housing Bolts	27 N·m	20 lb ft
Shipping Bracket to Torque Converter Lug Bolts	27 N·m	20 lb ft
Starter Motor to Transmission Bolts	78 N·m	58 lb ft
Torque Converter to Flywheel Bolts	60 N·m	44 lb ft
Torque Converter Housing Inspection Cover to Transmission Bolts	10 N·m	89 lb in
Transmission Mount to Adapter Bolts (4WD)	47 N·m	35 lb ft
Transmission Mount to Transmission Bolts (2WD)	50 N·m	37 lb ft
Transmission Mount to Transmission Support Nuts	40 N·m	30 lb ft
Transmission Support to Frame Nuts and Bolts	70 N·m	52 lb ft
Turbine Speed Sensor to Main Housing Bolt	12 N·m	108 lb in
Wire Harness/Vent Tube Bracket to Transmission Nut	18 N·m	13 lb ft
Yoke Assembly to Output Shaft Bolt	123 N·m	91 lb ft

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