DOWNLOAD COLOUR INSTALL MANUALS AT www.bddiesel.com

Auxiliary Transmission Filter Kit

Designed For 7.3L Ford Powerstroke Trucks

Part #	Vehicle	Application	Type
1064013	Ford	1999-2003	4R100

The BD Remote Filter Kit will provide added security for your performance transmission. Oil normally flowing from the Torque Converter directly to the lube circuit 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

Trucks with dual alternators

This kit does not fit trucks with dual alternators. The filter must be relocated on these models to another location that does not interfere with the secondary alternator. Additional 3/8” transmission oil cooler hose may be required for this.

4R100 Transmission Filter Kit Contents

1604121	1604026	1604008	1604019
Filter Head	Filter Head Mounting Bracket	Oil Filter	3/8” NPT x #8 ORB 90° Fitting
			
Qty: 1	**Qty: 1**	**Qty: 1**	**Qty: 2**

1604053	1400120	1600034	1600035
3/8” Transmission Hose	3/8” NPT x 3/8” PO Fitting	Bypass Tube Eliminator (Frt)	Bypass Tube Eliminator (Rear)
			
Qty: 15” (inches)	**Qty: 2**	**Qty: 1**	**Qty: 1**

1604124	1100111	1100112	1030099
Filter Head Adapter Screw	¼” Flat Washer	¼” Lock Washer	8mm x 1.25mm x 25mm Bolt
			
Qty: 2	**Qty: 2**	**Qty: 2**	**Qty: 1**

1505001	1300131
Hose Clamp	Medium Tie Wrap
	
Qty: 3	**Qty: 3**

Required Tools

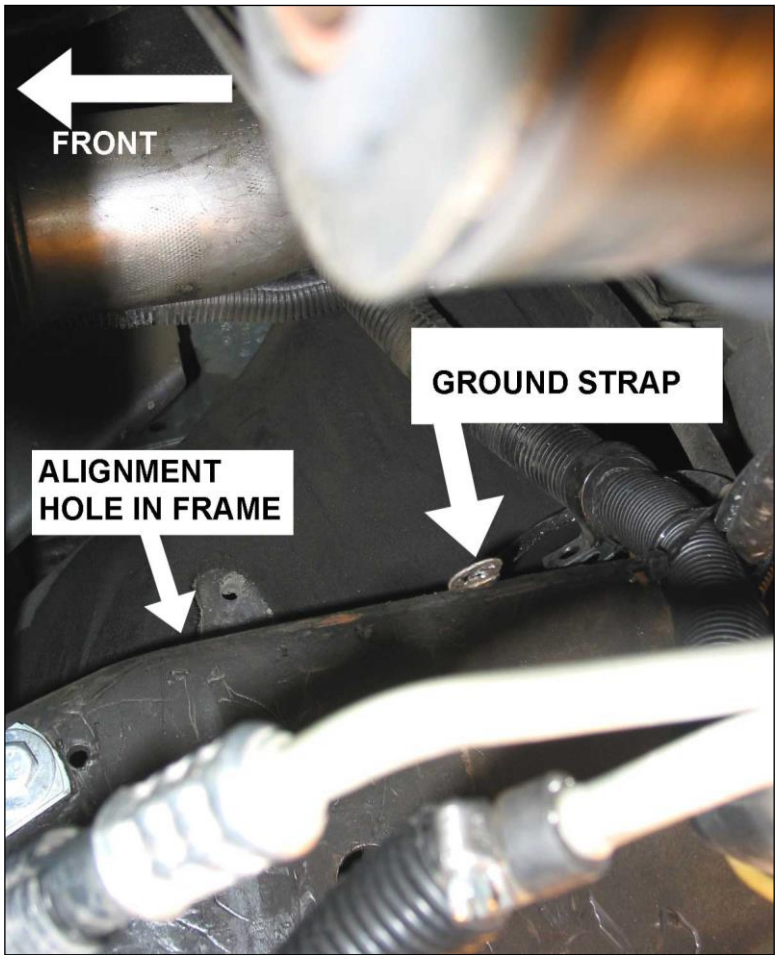
- Set of combination wrenches
- Various screw drivers and Pliers
- Pipe cutter
- Drain pan

Filter Cross Reference

Company		Crossover P/N#
HASTINGS PREMIUM FILTERS®	Hastings	**LF364**
BALDWIN FILTERS®	Baldwin	**BT230**
Donaldson. Filtration Solutions	Donaldson	**P555570**
Fleetguard®	Fleetguard	**LF3342**
FRAM®	Fram	**PH3519**
Luber-finer	Luber-Finer	**LFP5570**
WIX FILTERS	WIX	**51268**

Installation

FILTER HEAD INSTALLATION

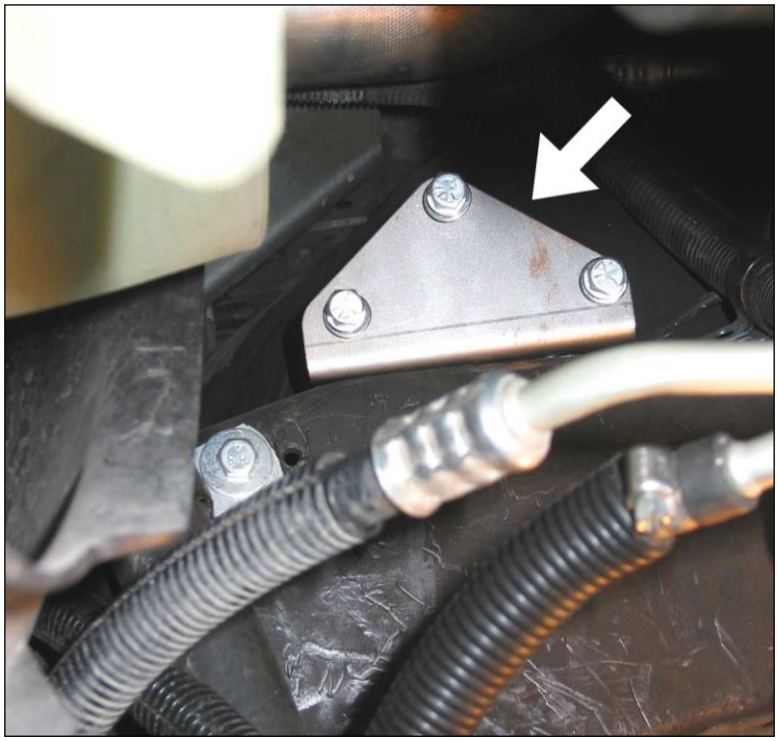


Raise the vehicle on a hoist or safety stands to gain access to the passenger side of the engine area.

Locate the ground strap located on top of the right hand frame rail just behind the radiator.

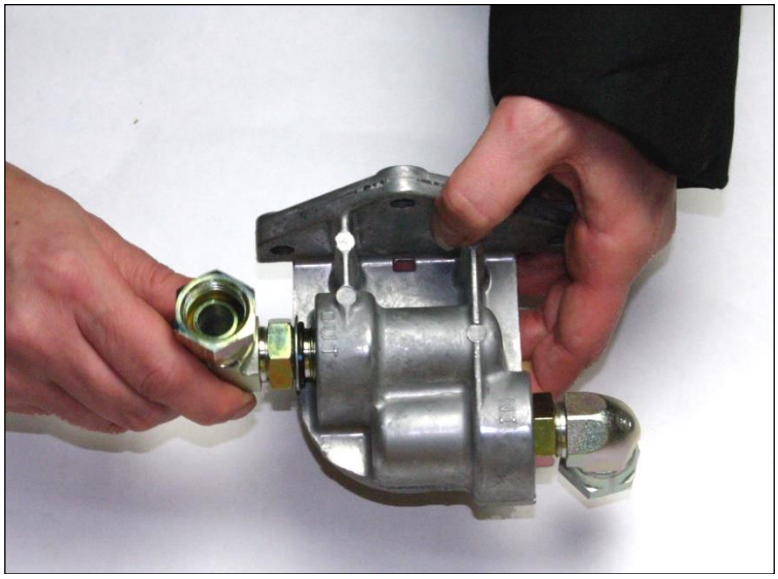
Remove the mounting bolt holding the ground strap to the frame.

You can see from above that there is a pre-drilled hole just in front of this mounting hole.



Position the filter mount by placing the tab of the mount into this hole then insert the ground strap bolt and ground strap in the mounting hole of the filter mount and tighten the bolt.

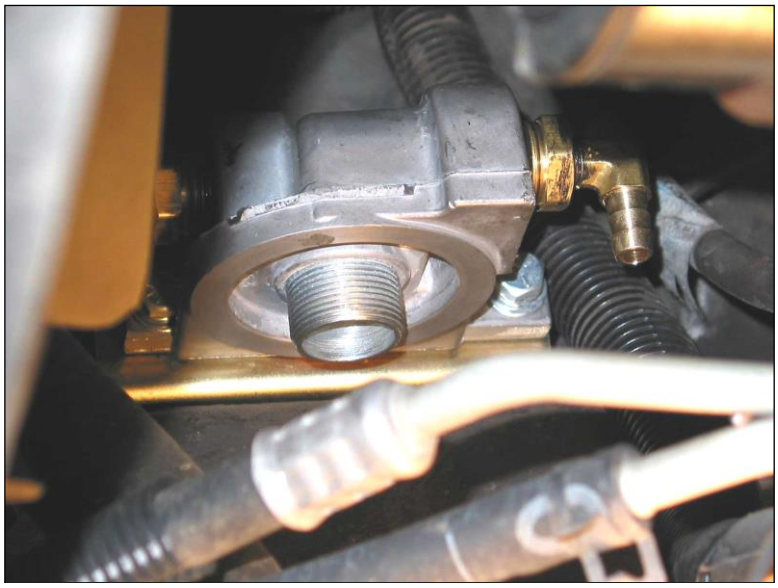
NOTE: The mount will have a small amount of play to aid in alignment of the mount hole.



Install the two **90° ORB fittings** into the filter head (do not use pipe sealant). When installed, the fittings need to point in a downwards direction, towards the filter. For ease of installation, we recommend assembling the fittings on the filter head on a work bench before installing it onto the vehicle.

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.

Install the supplied transmission hose onto the barb fitting of the **outlet** and secure it with a hose clamp.



Position the filter head on the filter mount and secure using the 3 mounting bolts and washers supplied. Leave the filter off at this point as it will be installed later.

COOLER LINE INSTALLATION

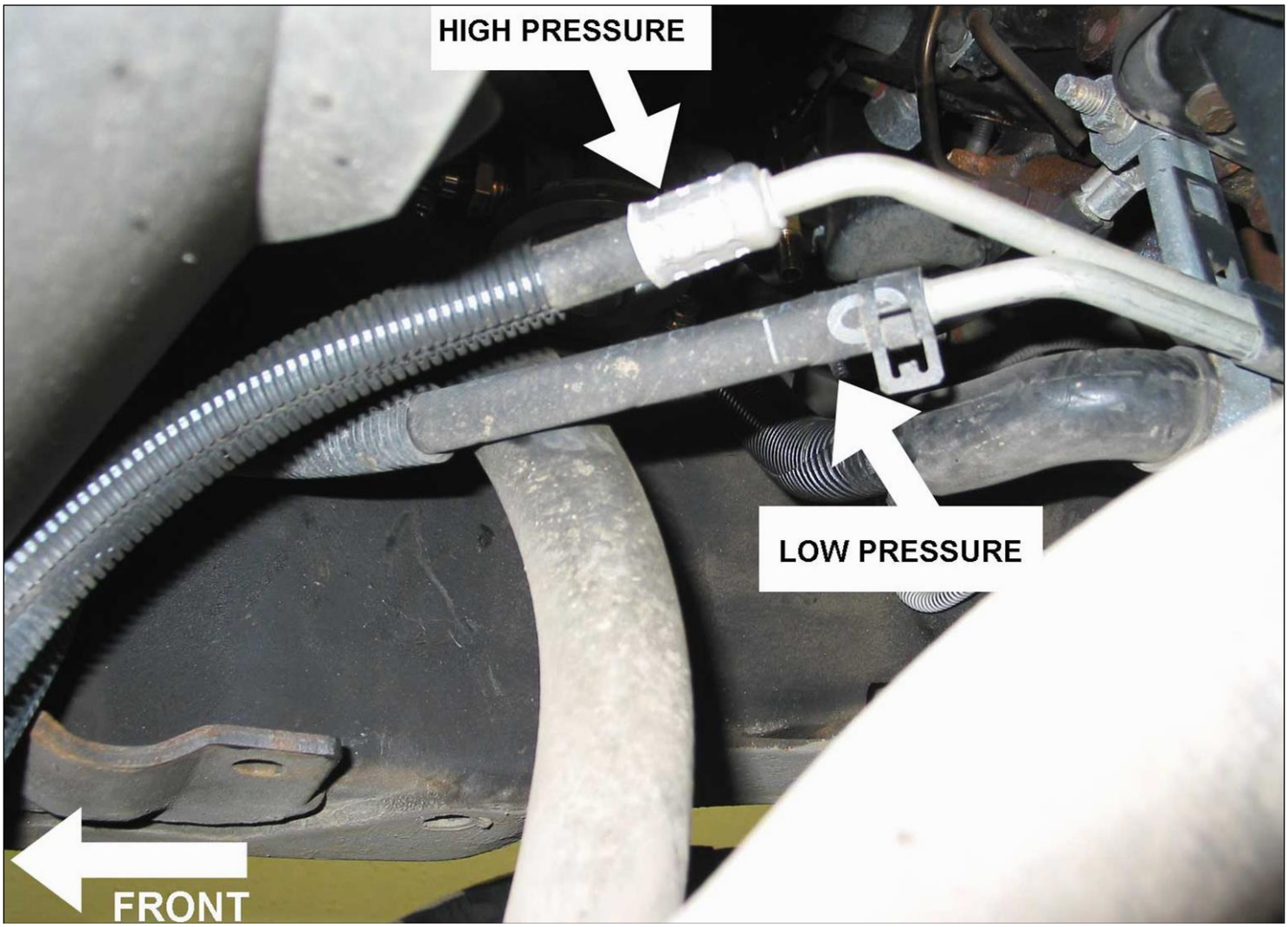
Locate and identify the oil cooler lines coming from the transmission and cooler / radiator.

Positions a drain pan under these lines and, with a pair of pliers, loosen the spring clamp and remove the hose from the low pressure (return) line.

Remove the spring clamp from the hose and install the supplied worm screw style hose clamp.

Insert the low pressure (return) hose onto the barbed elbow fitting of the inlet side of the filter housing. NOTE: The rubber hose may have to be cut to remove any excess.

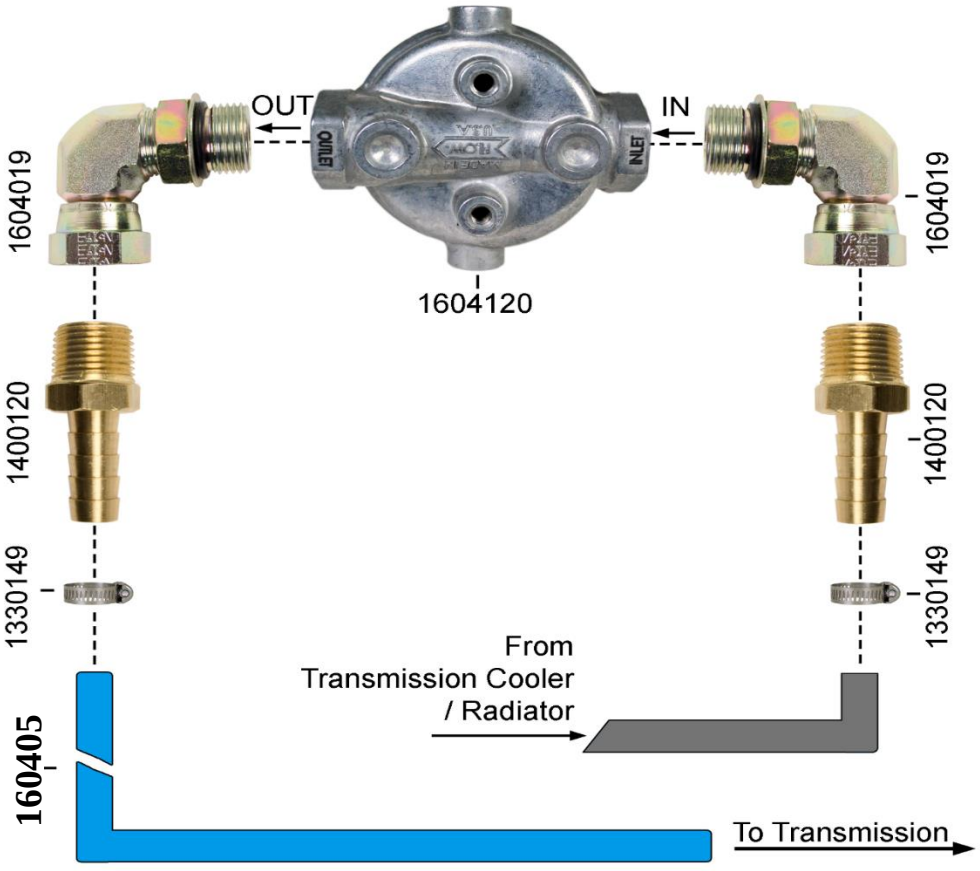
Tighten the hose clamp to secure.



Push a hose clamp over the outlet hose from the filter and attach the hose to the straight fitting just installed on the steel line, cutting any excess hose. Tighten the hose clamp.

NOTE: *Ensure that any hoses and tubes are positioned clear of moving parts and secure them with tie straps and/or securing clamps provided.*

COOLER HOOK-UP DIAGRAM



FILTER ELEMENT INSTALLATION

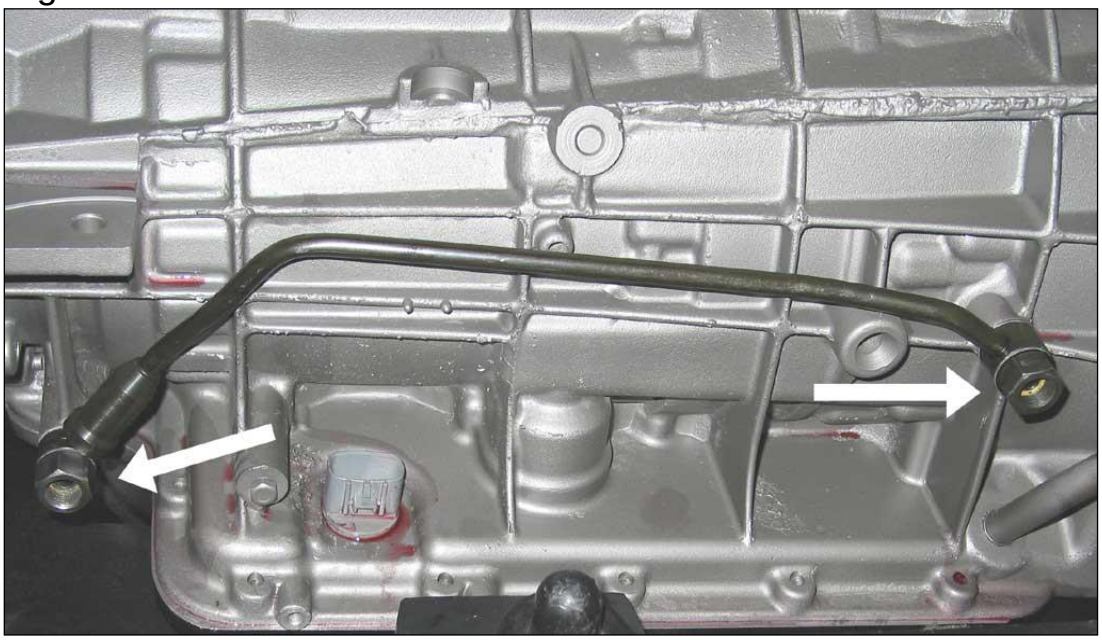
Lubricate the oil filter seal with some fresh transmission fluid and install the oil filter onto the filter head.

Once the rubber seal has contacted the mating surface of the filter head, tighten the oil filter an additional ¼ to ½ turn.

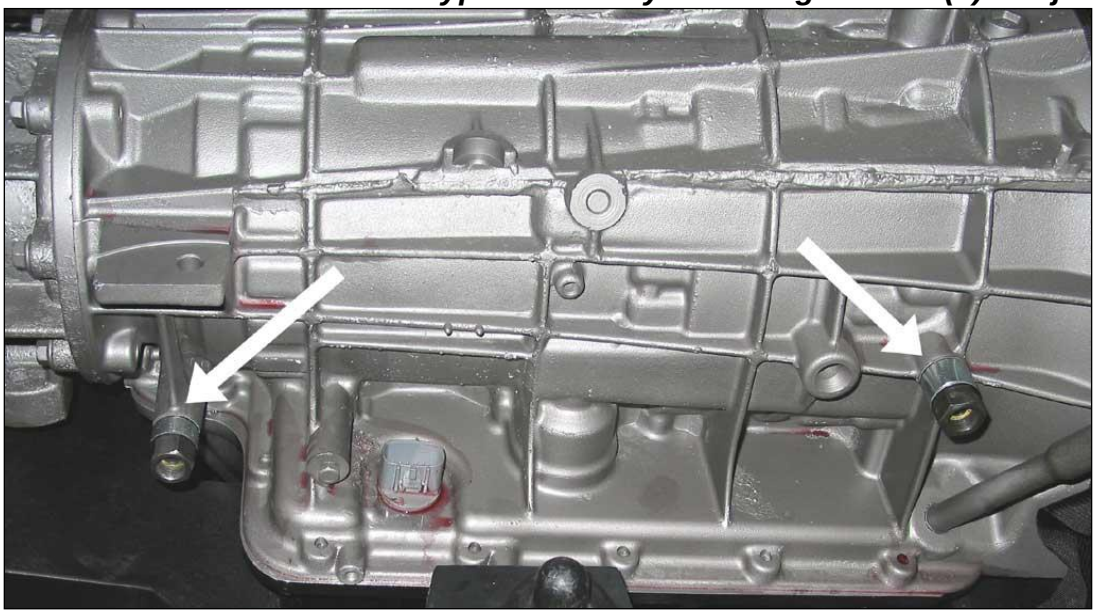
**** DO NOT USE A FILTER WRENCH TO TIGHTEN FILTER ELEMENT. DO NOT OVER-TIGHTEN FILTER. ****

COOLER BY-PASS ELIMINATOR INSTALLATION

Disconnect the transmission oil cooler lines from the oil cooler by-pass Banjo fittings, located on the passenger side of the transmission.



Remove the transmission cooler bypass hose by removing the two (2) Banjo bolts.



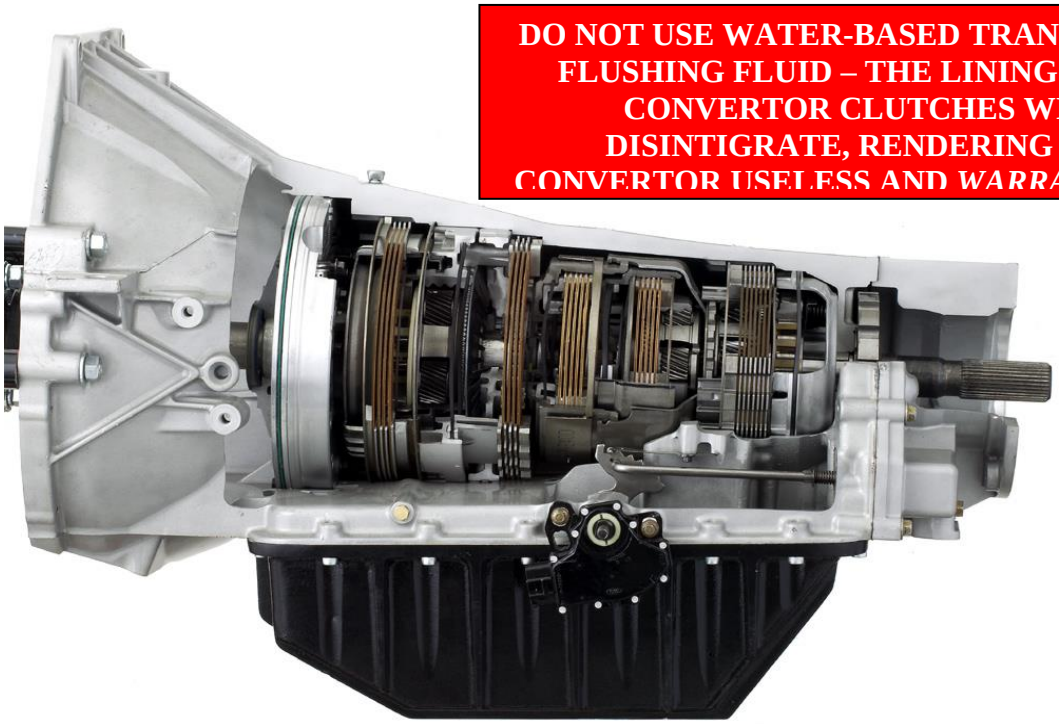
Install by-pass flanges in place of by-pass tube with new Banjo washers. Re-connect the transmission cooler lines to the Banjo Fittings.

FLUID LEVEL

Lower the vehicle and start the engine. Check for fluid leaks and proceed with a check of the transmission fluid level. Top up as necessary.

DOWNLOAD COLOUR INSTALL MANUALS AT www.bddiesel.com

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



Ford E4OD/4R100/5R110

Transmission Installation Instructions

2WD Transmissions		
1064402	1990-1994	E4OD
1064422	1995-1997	E4OD
1064432	1999-2003 Roadmaster	4R100
1064442	1999-2003	4R100
1064442PTO	1999-2003 (w/ Power Take Off)	4R100
1064342	1999-2003 V10 Truck & M/H	4R100
1064462	2003-2004	5R110
1064482	2005-2007	5R110

4WD Transmissions		
1064404	1990-1994	E4OD
1064424	1995-1997	E4OD
1064434	1999-2003 Roadmaster	4R100
1064444	1999-2003	4R100
1064444PTO	1999-2003 (w/ Power Take Off)	4R100
1064344	1999-2003 V10 Truck & M/H	4R100
1064464	2003-2004	5R110
1064464PTO	2003-2004 w/PTO	5R110
1064484	2005-2007	5R110
1064484PTO	2005-2007 w/PTO	5R110

Ford Excursion requires the use of a factory style transmission pan. BD deep pan will interfere with factory cross member.

Please read the instructions and disclaimer before beginning installation.

MAINTNEANCE:

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.

ATTENTION: FOR 5R110 please note that if you are installing this transmission into a high-performance application (ie additional horsepower over stock), you are required to adjust the shift timing and apply rates. This is very commonly done automatically through performance PCM tuners/programmer. Without this modification a shift flare may develop and could affect the life of the transmission and subsequently the warranty.

If you have stock engine power levels you do not need to be concerned and is not relevant.

REMOVAL:

1) Disconnect the negative battery cable(s).
2) Place the transmission into the Neutral (N) position.
3) Raise the vehicle on a hoist.
4) Mark the drive shaft and pinion yokes for assembly alignment. On 4WD models, remove the skid plate.
5) Remove the transmission oil filter tube nut and filler tube.
6) Position a drain pan & disconnect the transmission fluid cooler tubes at the cooler bypass valve.
7) Remove the drive shaft. On 4WD models, remove the front drive shaft & transfer case assembly. On SuperDuty/Motorhome models, remove the transmission mounted parking brake assembly.
8) **NOTE:** If the vehicle is equipped with a PTO (Power Take-Off) unit, all or part of the PTO will need to be removed.
9) Disconnect the shift cable from the transmission and manual lever.
10) Disconnect the cable housing from the bracket.
11) Disconnect the digital transmission range (TR) sensor connector.
12) Remove the transmission heat shield.
13) Disconnect the solenoid body connector.
14) On 4WD models, remove the four-wheel drive switch connector from the transfer case.
15) If equipped, disconnect the turbine shaft speed (TSS) sensor & the output shaft speed (OSS) sensor.

16) Remove the inspection cover.

17) Rotate the crankshaft with a pry bar from under the vehicle until the converter bolts are accessible.

18) Raise the transmission slightly with a service jack to relieve the load on the cross-member and supports.

CAUTION: Make sure any securing straps or the transmission jack adapter DO NOT TOUCH the cooler bypass valve (CBV). Do not use the CBV as a handle. Damage to the CBV may cause a leak and/or failure to the transmission assembly.

19) Remove the exhaust and cross-member.

20) Remove the transmission mounting bolts.

21) Carefully work the transmission and torque converter assembly rearward off the engine block dowels.

22) Lower the transmission and remove the assembly from under the vehicle.

23) Carefully slide the torque converter out of the transmission.

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

Application	*Oil Type*
Ford E40D	Mercon V or Dexron III with Mercon
Ford 4r100	Mercon V
Ford Torqshift 5r110	Mercon SP

INSTALLATION:

1) Pre-clean all the cooler lines and cooler bypass valve.

2) If the transmission is being overhauled or exchanged due to failure, then the transmission oil to air cooler will need to be replaced. Also, the system must be flushed to remove any debris. Any failure to do this will result in the warranty being void. DO NOT USE "TRANSMISSION FLUSH IN A CAN", the system must be flushed with back flow compatible dedicated transmission flushing machine using only oil.

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

3) Inspect the wiring harness & connectors for damage, corrosion, seal integrity, and terminal condition. Repair or replace as required.

4) Lubricate the converter drive hub and oil pump seal lip with petroleum jelly.

5) Lubricate the converter pilot hub with transmission fluid.

6) Align and carefully install the torque converter into the oil pump. Rotate the converter back and forth until it is fully seated in the pump gears. The converter will be fully seated when you hear two loud "clunks".

7) If the vehicle is a 4WD model, install the transfer case assembly and supplied transfer case gasket.

8) If removed, install the output shaft drive sprocket speed sensor and bolt.

9) Position the transmission on a jack and secure it with chains.

10) Check the condition of the converter drive plate. Replace the plate if it is cracked, distorted or damaged.

11) Raise the transmission and align the converter with the drive plate, and the bell housing with the engine block.

12) Move the transmission forward. Raise, lower or tilt the transmission to align the bell housing with the engine block dowels.

13) Carefully work the transmission forward and over the engine block dowels until the converter hub is seated into the crankshaft.

14) Install the bolts attaching the bell housing to the engine.

15) Install the torque converter to drive plate bolts using Loctite. On 7.3L diesel models, tighten the bolts to 53-72Nm (39-53 ft. lbs.), then check torque converter rotation.

16) Install the exhaust and cross-member.

17) Install the inspection cover.
18) Connect the solenoid pack electrical connector.

19) Connect the digital transmission (TR) sensor.

20) Install the transmission heat shield.
21) Reconnect the shift cable, cable housing and bracket.

22) If equipped, reconnect the transmission mounted parking brake assembly.

23) If equipped, install the four-wheel drive connector.

24) Align and connect the drive shaft(s).

25) Install the transmission fluid cooler tubes to the cooler bypass valve.

26) Install the transmission fluid filler tube and bolt.

27) Install transmission mainline pressure gauge.

28) Lower the vehicle.

29) Connect the battery ground cable(s).

30) Fill the transmission with vehicle manufacturers suggested fluid.
(See table below for suggested amounts).

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)
1989 - 2010	12 (11.4)	11.5 (10.8)	23.5 (22.2)

31) Test Drive vehicle, verify pressures and record.

Mainline Pressures			
	At Idle	**Wide Open Throttle**	**In Reverse**
E40D	100 psi	220-250 psi	200-350 psi
4R100	100 psi	220-250 psi	200-350 psi
5R100	70 psi	250-270 psi	320 psi

32) Remove gauge, recheck fluid top up if necessary.

5r110 TRANSMISSIONS

Early model 5r110 transmission use a low efficiency filter in the transmission pan, and a high efficiency bypass filter inline to the transmission cooler. Later model year 5r110 transmissions remove the inline bypass filter and use a high efficiency pan filter. This pan has been designed to use the high efficiency pan filter for all 5r110 applications. If you have an early model year 5r110, you can continue to use the inline bypass filter or you can disable it by removing the cartridge on this inside.
High efficiency pan filter part# **8C3Z-7AO98-D**

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