(I-00300)

BD Engine Brake LIMITED WARRANTY STATEMENT

BD Engine Brake (the "Seller") warrants the following product(s):

All products manufactured or rebuilt by the Seller are to be free from defects in material or workmanship, which includes but is not limited to Turbochargers, Exhaust and Intake manifolds, Exhaust brakes, Intercoolers, Flex Plates, Transmissions, Torque Converters, Oil pans, Fuel pumps and systems, Electronic monitors and control systems. The Seller warrants to the original buyer of the product (the "Buyer") that it will repair or replace, free of charge, any product which has a defect in material or workmanship within the warranty period described below. Copy of original invoice is required to qualify for warranty.

A defect is defined as a condition within the product that would render the product inoperable under normal conditions of use and service. The Seller's responsibility under this Warranty is limited to the repair or replacement, at the Seller's option, of any warrantable product returned prepaid with complete service history and proof of purchase. A valid proof of purchase is a dated bill of sale or receipt.

A Return Material Authorization (RMA) number, obtained in advance from a customer service representative of the Seller and the dated bill of sale or receipt, must accompany any product returned by the Buyer for warranty determination. The Seller will be the final authority on the approval of all warranty claims hereunder. The issuance of a RMA number does not represent an approval of a warranty claim. BD reserves the right to return or replace Warranty Approved items freight Prepaid. While warranty denied or rejected, claims will be returned freight collect. Accepted warranty products, which have been replaced, will become the sole property of BD.

Until the Seller has approved a warranty claim, the Buyer will be responsible for all costs. Replacement parts and the labor costs incurred by the removal and replacement of the product while performing warranty work will be the responsibility of the Buyer. In no case does the obligation of the Seller exceed the original purchase price of the product as indicated on the original bill of sale or receipt. Under no circumstances will the Seller be liable for any travel time incurred in diagnosis for defects, or any other contingent expenses.

Only once the claim is approved, and depending on if the warrantable product is eligible, labor costs will be considered for the removal and replacement if an eligible part at an hourly rate of $100.00 per hour. The end user may be responsible for the difference between the BD warranty labor rate and the authorized service dealer's labor rate. BD recommends the end user negotiate these conditions before the service is performed. As well the end user may be responsible for additional freight charges from FOB Abbotsford, BC / Washington.

To the extent permitted by law, the Buyer hereby waives all rights other than those expressly set out herein and acknowledges that this warranty sets out the Buyer's exclusive remedies with respect to products covered by it. This warranty shall not be extended, amended or varied except by written instrument signed by the Seller and the Buyer. If the buyer replaces the product from the Seller with another from another manufacturer, the Buyer-Seller warranty contract is void and the RMA Claim will be terminated. Any claim for remuneration will be rejected.

The Seller will administer warranty requests on products sold by the Seller and not manufactured by the Seller by forwarding claims made by a Buyer under the manufacturer's warranty to the manufacturer. The final disposition of such claims will be made by the manufacturer and ruled by the laws of British Columbia, Canada.

Customer assumes risk in purchasing product with in 30 days may return the product for exchange of other BD products or services only. No cash refunds are available.

The installation of BD aftermarket parts may void the OE warranty. BD is not responsible for OE warranties or how they are administered. Residents of the U.S.A. can reference the Magnuson-Moss warranty act that protects the consumer on the installation of aftermarket parts, please research this act to base your decisions accordingly.

In the case the warranty is denied, BD at its discretion, may offer to refurbish (where applicable) the product at discounted rate for the end user.

Please refer to Warranty time limitation per product.

NOT COVERED UNDER THIS WARRANTY

This warranty is limited to the original purchaser of the product and is not transferable to subsequent owners. Specifically excluded from this warranty are failures of products caused by misuse, misapplication, negligence of the Buyer, accidents, modification, abuse, improper storage, installation, repair or operation, use of unauthorized parts or other mistreatment of the Buyer or his agent. Any competitive use, sled pulling, drag racing will void warranty on product. A sheared or twisted shaft, broken planetary gear sets, burned clutches, broken drive hubs, sun gear damage, cracked housings are not covered. Damage caused from debris in oil contaminated coolers, improper fluids and filters or damage caused from fuel or air contamination, Biodiesel, low fluid levels are also not covered. This warranty does not cover deterioration of plating, paint or any other coating, linings or parts that are subject to normal wear and tear, such as light bulbs, fuses, bearing wear, seal wear, etc.

In the case of BD transmissions, a BD torque convertor must be installed at the time of installation of the transmission. Use of a 3rd party or OE convertor may invalidate the transmission warranty.

If product is not installed by a trained and authorized BD dealer, installation facility must prove it is properly tooled and has certified training to have installed or to carry out repair of product.

The Seller also disclaims any liability for incidental or consequential damages including but not limited to, repair labor, rental vehicles, hotel cost or any other inconvenience cost. To the extent permitted by law, this warranty is in lieu of all other warranties or guaranties, either expressed or implied, included the implied warranties of merchantability and fitness for a particular purpose and shall not extend to any Buyer or to any person other than the original purchaser residing within the boundaries of the continental U.S. or Canada. As well the seller is not responsible or obligated to update previously manufactured parts that are currently under the above warranty.

NOTE THAT THIS GUARANTEE WILL BE VOID IF THE USER BREACHES THE CONDITIONS IN THE SECTION LABELED "NOT COVERED UNDER THIS WARRANTY" AND IS ONLY APPLICABLE ON THE PRODUCTS THE SELLER MANUFACTURES.

DISCLAIMER OF LIABILITY

Other than as expressly set forth herein, the Seller, together with its distributors, jobbers and dealers shall in no way be responsible for the product's proper use and service. In no event shall the Seller be liable for any special, incidental, indirect or consequential damages of any kind or nature, whether or not the Buyer was advised of the possibility of damage, arising or resulting from the use or performance of the product, and the Buyer hereby waives any and all such claims.

The Buyer acknowledges that he/she/it is not relying on the Seller's skill or judgment to select or furnish goods suitable for any particular purpose and that the Seller has no liability that will extend beyond the scope of the limited warranty contained herein, and the Buyer hereby waives all remedies or liabilities, expressed or implied, arising by operation of law or otherwise, (including, without limitation, any obligations of the Seller with respect to fitness for any particular purpose; merchantability; and special, incidental, indirect or consequential damages) or whether or not occasioned by the Seller's negligence.

The Seller disclaims any warranty and expressly disclaims any liability for personal injury or damages related to the Buyer's use of the product. The Buyer acknowledges and agrees that the disclaimer of any liability for personal injury is a material term for this Agreement and the Buyer agrees to indemnify the Seller and hold the Seller harmless from any claim related to the product and its use or performance. Under no circumstances will the Seller be liable for any damages, liabilities, costs or expenses incurred as a result of by reason of the use, performance or sale of the product, including without limitation, any damages, liabilities, costs or expenses incurred by reason of the Buyer's negligence related to those uses of the product as a result of the removal of the speed limiter.

The Seller assumes no liability regarding the improper installation or misapplication of the product. It is the installer's responsibility to check for proper installation, and, if in doubt, contact the manufacturer.

Limited Warranty Details			
Product Name	Parts (Months/Miles)1	Labor (Months/Miles) 1,2	Notes
Torque Converters	36/ 150,000	12/12,000	No Race abuse covered
Transmissions (TowMaster & TorqueMaster)	36/ 150,000	12/ 24,000	No Race abuse or broken shafts covered. Remote filter required for inspection with a cooler flow rate in GPM at Oil/Air transmission cooler outlet. Freight provision allowed.
Transmissions (RoadMaster)	24/ 100,000	12/ 24,000	
Rebuild/Repair Transmission	12/ 24,000	12/ 24,000	Defined as “Cost of Repair” or repaired units that fall outside of the retail warranty period.
Race Transmissions	12/ 24,000	Not Eligible	
Valve / Accumulators Bodies	12/ 24,000	12/ 24,000	
Transmission Pans	36/ 150,000	Not Eligible	
Flex Plates	36/ 150,000	Not Eligible	
Injectors (Mechanical) & Injection Pumps	12/ 24,000	12/ 24,000	VP44/P7100 Race Pumps 90 days parts/No labor coverage
Performance Injector Nozzles (Common Rail)	Not Eligible	Not Eligible	
Common Rail Injectors	24 Months	Not Eligible	Manufacturing and material defects are only covered. Cracks caused by high fuel pressure are not covered. High Return flow not covered after 12 months on Performance Injectors. For No Hassle Eligibility, see https://us.bddiesel.com/pages/extended-warranty
	24 Months + No Hassle	Not Eligible	
Performance Tuners and Chips	Manufacturer[3]	Not Eligible	
BD Electronic Modules (TSB, VVB, etc)	24/ 48,000	Not Eligible	
Intake / Exhaust Manifolds	36/ 75,000	Not Eligible	
Exhaust Up pipes	12/24,000	Not Eligible	Surface rust not eligible.
Exhaust Kits	Manufacturer[3]	Manufacturer[3]	
Hoses / Clamps	12/ 24,000	Not Eligible	
BD Xtruded Transmission Cooler	12/ 24,000	Not Eligible	
Manual Transmission Clutches	Manufacturer[3]	Manufacturer[3]	
Short Shifters	12/ 24,000	Not Eligible	
Engine / Head Stud kits	Manufacturer[3]	Manufacturer[3]	
Positive Air Shutoff / Electronic Positive Air Shutoff	24/ 24,000	Not Eligible	
Exhaust Brakes	24/ 24,000	12/ 24,000	
Gauges and Mounts	Manufacturer[3]	Manufacturer[3]	
Screamer Turbos	24 Months	Not Eligible	24 Month warranty effective for sales after 11/01/2024
Performance/OEM Turbos	12 Months	Not Eligible	
Remanufactured ISX Turbos	90 Days	Not Eligible	See I-00437 for more details. For 1045880, see OEM Turbos.
Auxiliary Fuel Pumps	12/ 12,000	Not Eligible	
BD FICM	12 Months	Not Eligible	
Fuel Control Plate/Pin (VE & P7100)	24 Months	Not Eligible	
Distributed Product (Not Manufactured by BD)	Manufacturer[3]	Manufacturer[3]	
Replacement Components	12 Months	Not Eligible	
Transmission Rebuild/Build It Kits	12 Months	Not Eligible	Material Defects Only
Steering & Suspension Parts (Track Bar, Caster kit, Steering Stabilizer, Bars and links)	Limited Lifetime (12 months if not registered)	Not Eligible	Must register online within 30 days of purchase to be eligible. See website https://warranty.bddiesel.com/limited-lifetime/ for details. Excludes normal wear & tear (boots, bushings, joints, bearings) and improper use.
Venom/FlowMAX Fuel Lift Pump Kit	Limited Lifetime (12 months if not registered)	Not Eligible	Must register online within 30 days of purchase to be eligible. See website https://warranty.bddiesel.com/limited-lifetime/ for details. Excludes normal wear/service items (hose, filters) and improper use.

A Return Material Authorization (RMA) number, obtained in advance from a customer service representative of the Seller and the dated bill of sale or receipt, must accompany any product returned by the buyer for warranty determination.

[1] Warranty is based on whichever occurs first (Months or Mileage).

[2] Prior approvals must be given to qualify for labor reimbursement.

[3] As per Manufacturer’s warranty

Updated 10/21/2024

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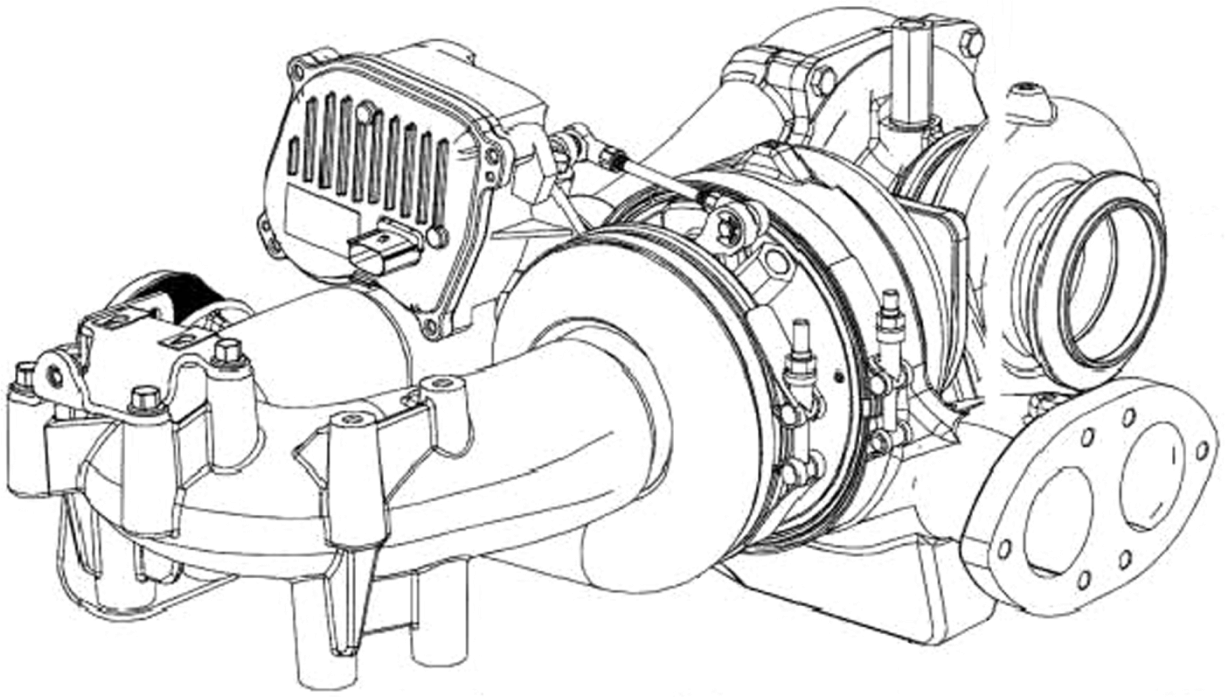


BD Diesel Screamer Turbos

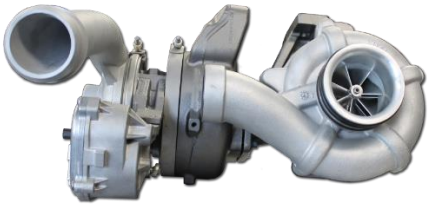
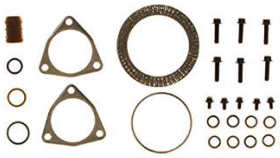
Performance Turbocharger for 2008-2010 6.4L Ford

1047080	**6.4 Screamer C/W AFE 51-81262 Intake***
1047081	**6.4 Screamer (Requires AFE 51-81262)***
1047082	**6.4 Screamer C/W AFE 53-10016D Intake**
1047083	**6.4 Screamer (Requires AFE 53-10016D)**

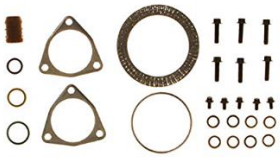
*AFE 51-81262 intakes are now discontinued. Suggest using 1047082/1047083

PLEASE READ ALL INSTRUCTIONS BEFORE INSTALLATION

1047080 – Kit Contents	
1047081	**54-81262**
	
Turbo 6.4L Screamer V1 w/ Gaskets	*Cold air Intake Kit*
Qty: 1	**Qty: 1**

1047081 – Kit Contents ***(intake kit required, OEM intake not compatible)***		
1407159/60	**GS33566 / 8C3Z9T514C**	**B32256**
		
Turbo 6.4L Screamer V1	*Gasket Kit*	*Gasket*
Qty: 1	**Qty: 1**	**Qty: 2**

1047082 – Kit Contents	
1047083	**AFE53-10016D**
	
Turbo 6.4L Screamer V2 w/ Gaskets	*Cold air Intake Kit*
Qty: 1	**Qty: 1**

1047083 – Kit Contents ***(intake kit required, OEM intake not compatible)***		
	GS33566 / 8C3Z9T514C	**B32256**
		
Turbo 6.4L Screamer V2	*Gasket Kit*	*Gasket*
Qty: 1	**Qty: 1**	**Qty: 2**

1047083 – Kit Contents continued		
1405858	**FT-0427642**	**FT-0427640**
		
Silicone Boot 4”x3.35”	*Hose Clamp*	*Hose Clamp*
Qty: 1	**Qty: 1**	**Qty: 1**

Pre-Installation Notes

This turbocharger works best for a 6.4L operating up to 3500RPM. Fueling should be for 500 H.P. & less to keep exhaust temp within operating temperatures of 1200-1400°F.

Installation should occur on a cold vehicle, as turbo and exhaust components become very hot with use.

Note: It is recommended that this component be serviced with the body removed. If the body can be removed, refer to the Turbocharger – Body off section in this manual.

Pre-Installation Procedures

When replacing a turbocharger BD recommends the following precautions are taken:

- Replace or clean the air filter.
- Change the engine oil and filter.
- Inspect Intake and CAC passages for debris, and clean if necessary.

In the case of a previous failure also include the following steps:

- Inspect CAC for debris and cleanout if necessary.
- Inspect engine oil for debris. Flush system if debris was present.

Ensuring that these steps are followed will prolong the life of your new turbocharger.

Replacement Filter Part Numbers

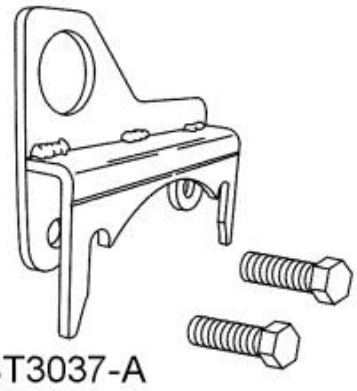
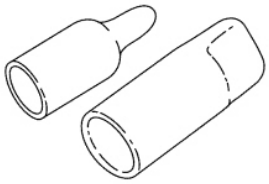
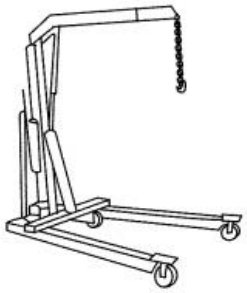
AFE 51-81262 intake replacement filter part number is AFE 24-90015

AFE 53-10016D intake replacement filter part number is AFE 23-91129

Material

Item	Specification
Motorcraft® SAE 15W-40 Super Duty Diesel Motor Oil (US); Motorcraft® SAE 15W-40 Super Duty Diesel Motor Oil (Canada); XO-15W40-QSD (US); CXO-15W40-LSD12 (Canada)	WSS-M2C171-E

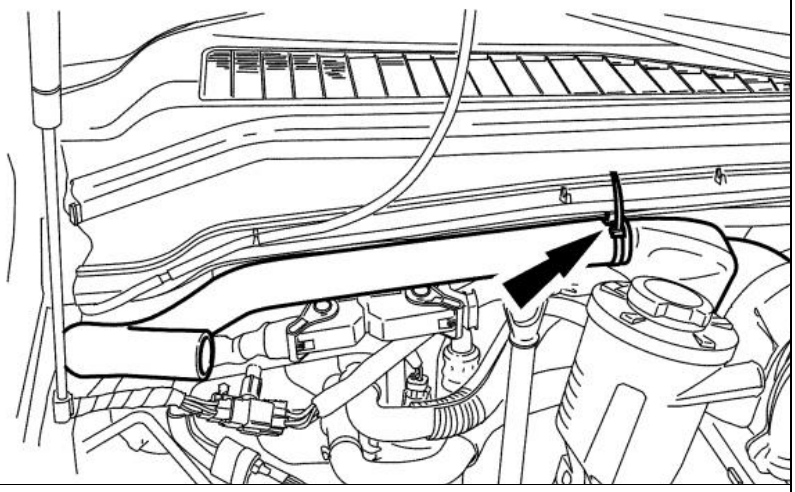
Special Tool(s)

 ST3037-A	Bracket, turbocharger lifting 303-1266 Or equivalent.
 ST3023A	Caps, Fuel System 310-158 Or equivalent.
 ST1341-A	Heavy Duty Floor Crane 014-00072 or equivalent
• Suction gun for fuel filter. • Fuel line disconnect tool. • 3/8” Drive torque wrench.	• 10mm/12mm Half moon wrench. • 12mm Allen wrench.

Removal – Body On/Off

Block wheels to ensure vehicle does not roll during installation. Record radio settings and disconnect the negative terminals on both batteries. Drain coolant from vehicle ***CAUTION*** coolant may be hot, use of protective gear is recommended.

1. With the vehicle in NEUTRAL, position vehicle on a hoist. Remove degas bottle, air box and intake tube.



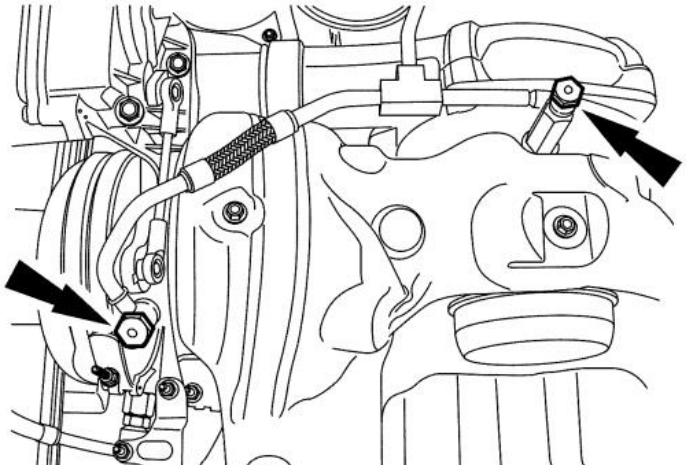
2. Remove air cleaner (ACL) assembly and ACL outlet pipe. Remove the auxiliary air intake hose.

NOTICE: Do not lean on, pull on or use the turbocharger oil supply tube as a handle or damage to the turbocharger oil supply tube may occur.

NOTE: Use a secondary wrench to prevent the fittings from turning.

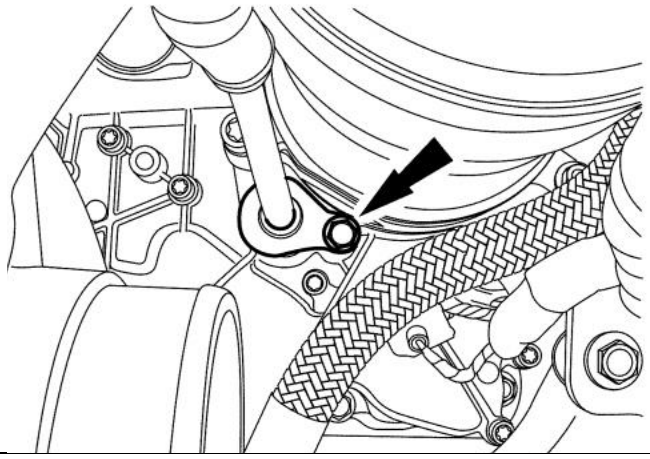
3. Remove the 2 turbocharger oil supply tube banjo bolts and sealing washers.

- Discard the sealing washers.



4. Remove the bolt and the turbocharger oil supply tube.

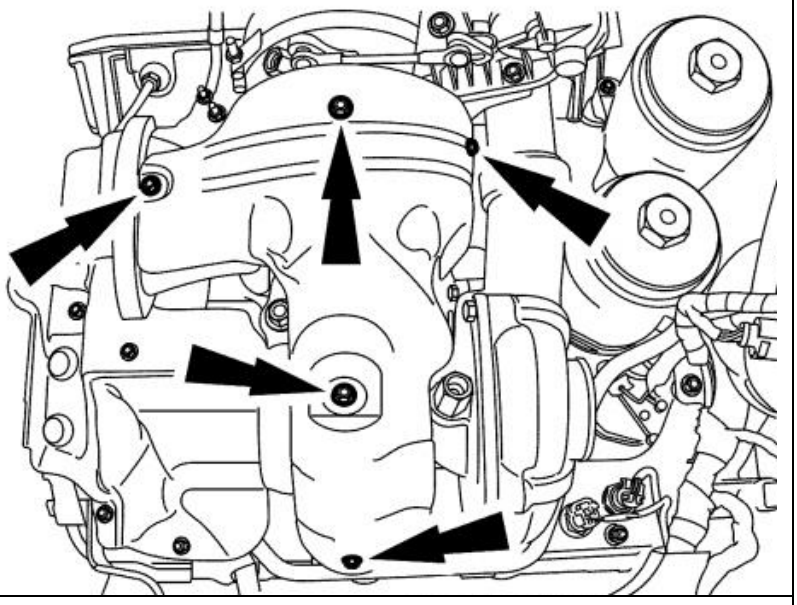
- Remove and discard the o-ring seal
- Plug or cap the openings as needed.



5. Remove the 5 bolts and the turbocharger heat shield.

NOTE: Roll the heat shield towards the cowl, then lift up in the front and remove forward.

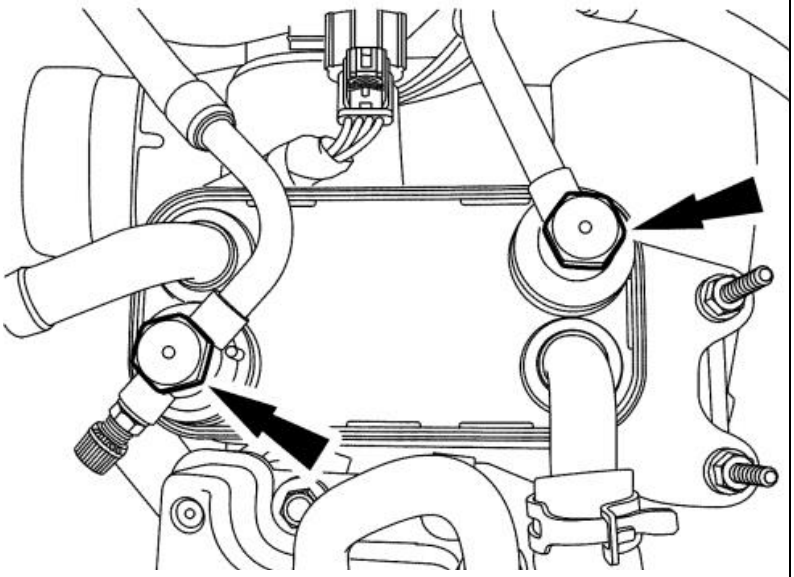
IF BODY IS REMOVED SKIP TO STEP #32



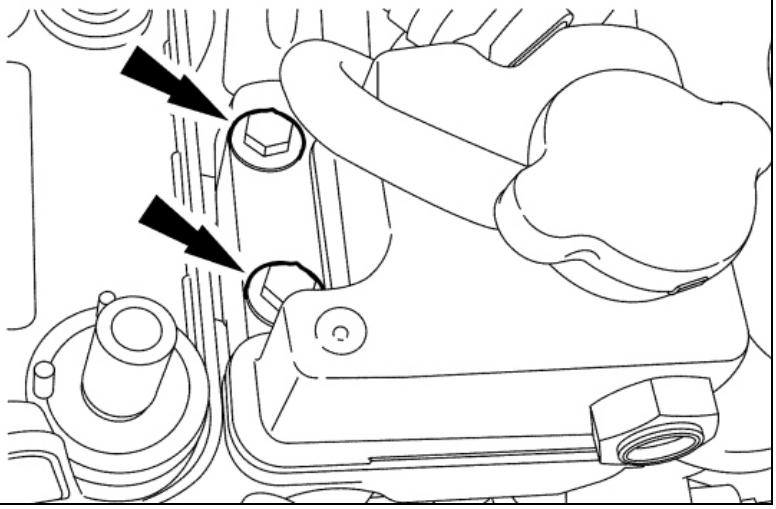
NOTICE: Fuel injection equipment is manufactured to very precise tolerances and fine clearances. To prevent fuel system damage, it is essential that absolute cleanliness is observed when working with these components. Always install fuel system caps to any open orifices or tubes.

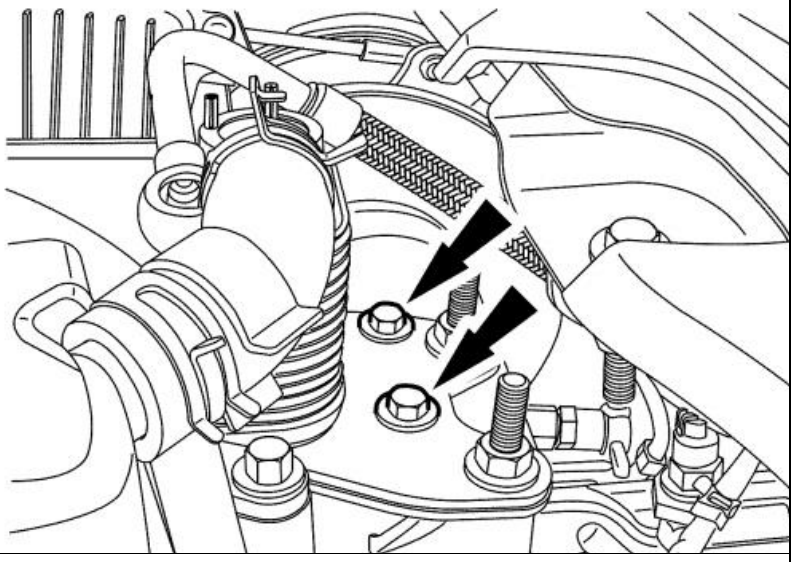
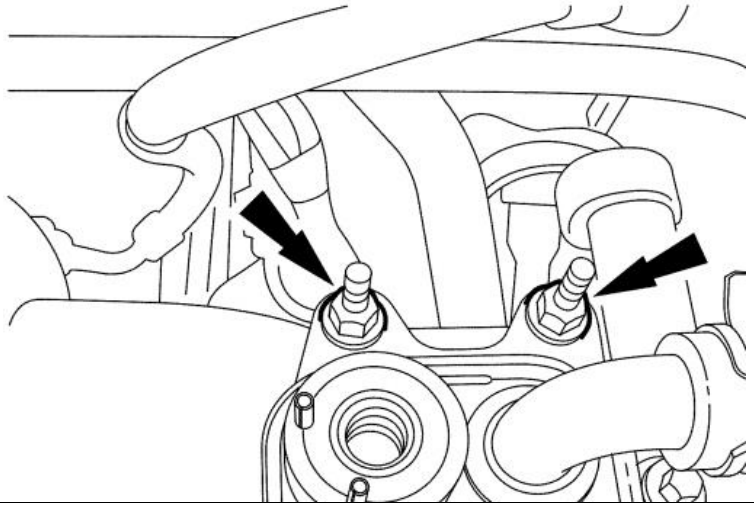
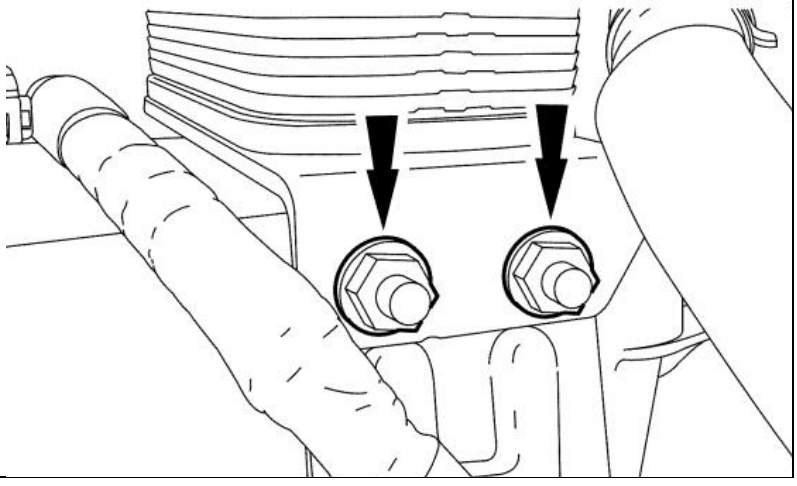
6. Remove the 2 banjo bolts and the sealing washers at the fuel cooler.

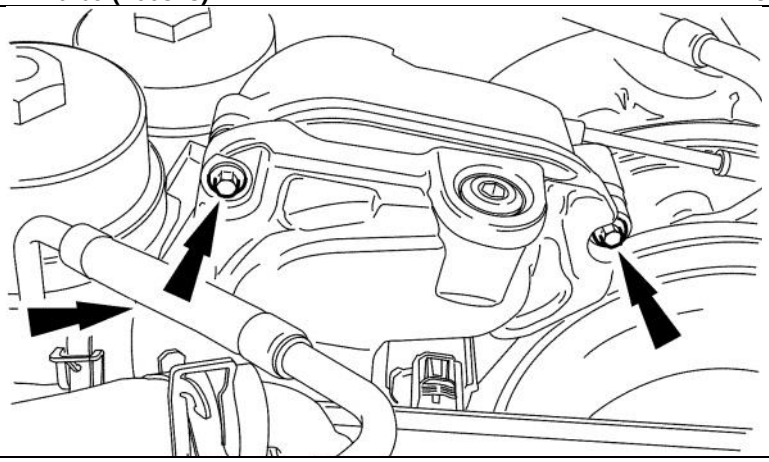
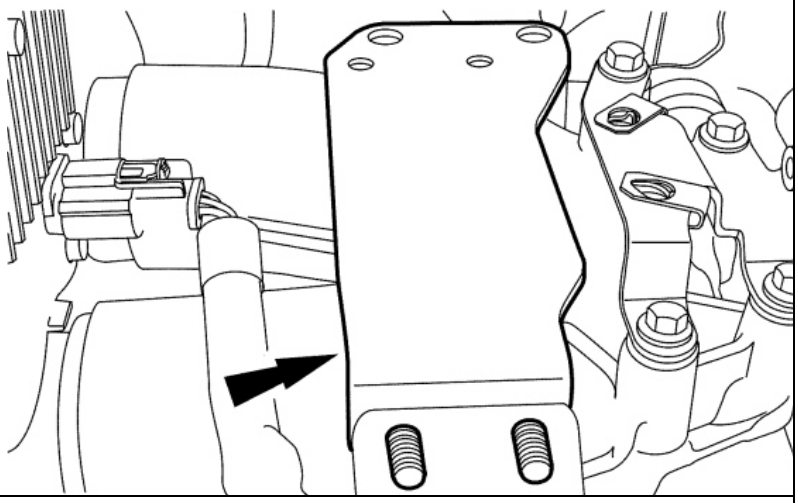
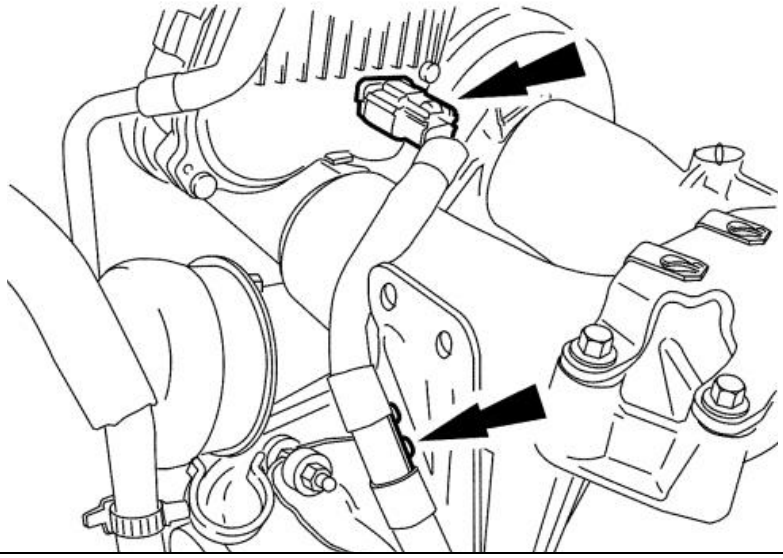
- Discard the sealing washers.



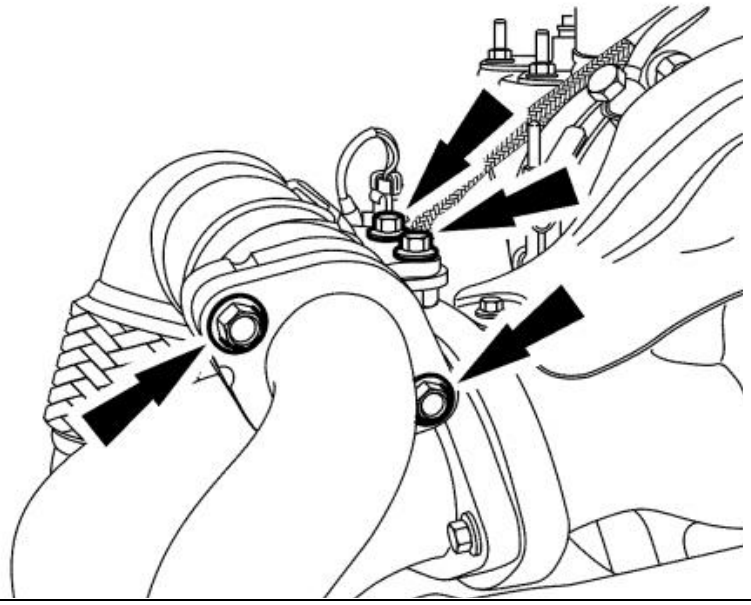
7. Remove the 3 bolts for the fuel cooling system expansion tank.



8. Remove the 2 bolts for the fuel cooler.	
9. Remove the 2 stud bolts for the fuel cooler.	
10. Remove the 2 nuts for the fuel cooler.	

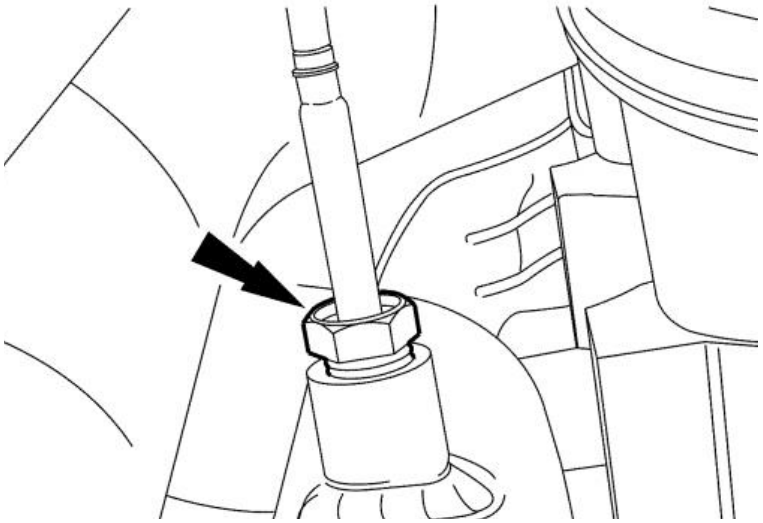
11. Remove the 3 bolts for the turbocharger actuator cooler. Position the fuel cooler, fuel cooling system expansion tank and turbocharger actuator cooler aside.	
12. Remove the fuel cooler bracket.	
13. Disconnect the turbocharger actuator electrical connector and pin-type retainer.	

14. Remove the 2 RH turbocharger inlet pipe-to-EGR-oxidation Catalytic converter (OC) pipe bolts and the 2 EGR-OC-to-turbocharger



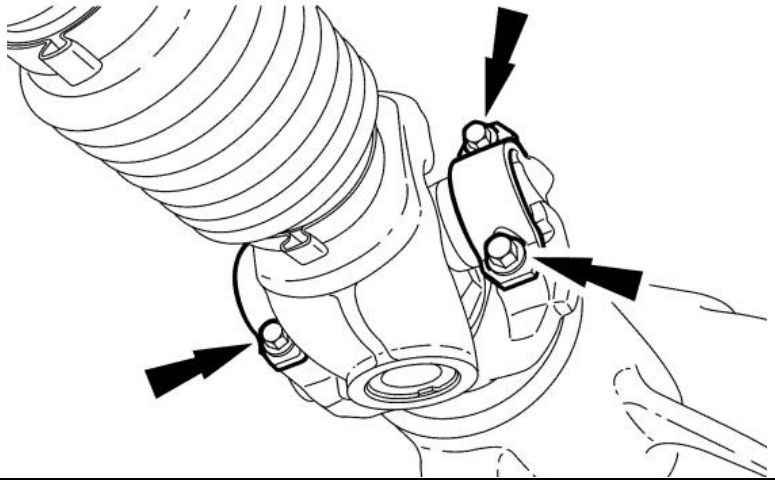
15. Remove the RH splash shield.

16. Remove the exhaust gas recirculation temperature (EGRT) sensor from the RH turbocharger inlet pipe.

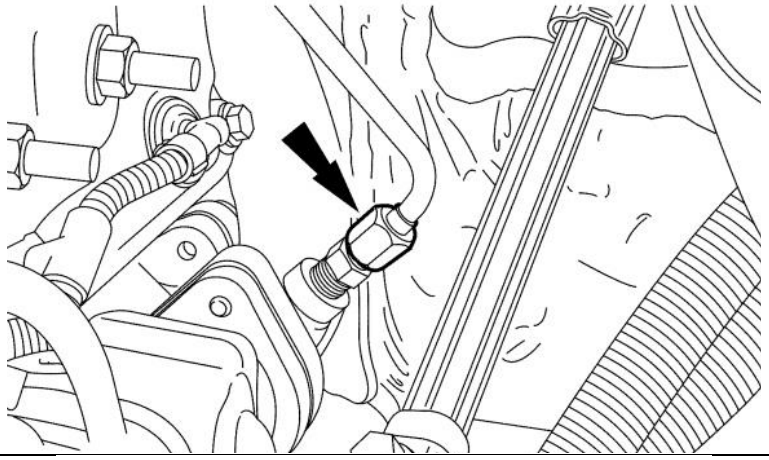


NOTE: Index-mark the drive shaft prior to disconnecting from the axle.

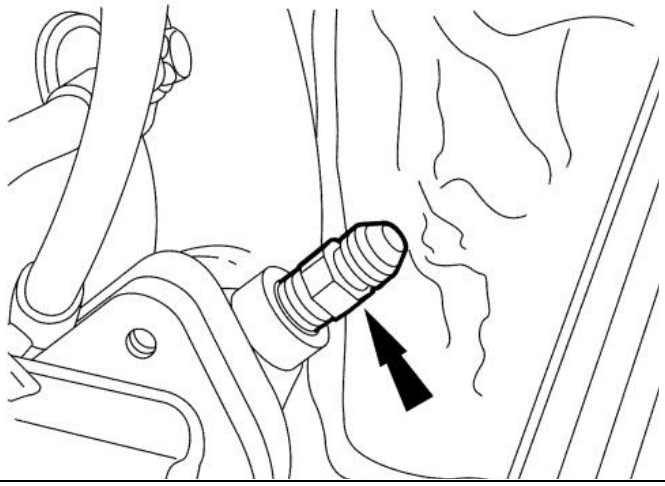
17. If equipped, remove the 4 bolts, 2 straps and position aside the front drive shaft.



18. Disconnect the exhaust pressure (EP) sensor tube from the EGR-OC pipe.

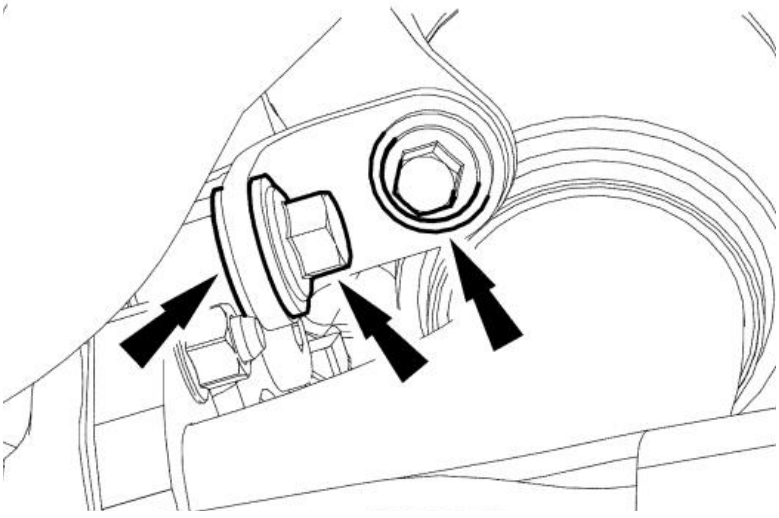


19. Remove the EP sensor tube fitting from the EGR-OC pipe.



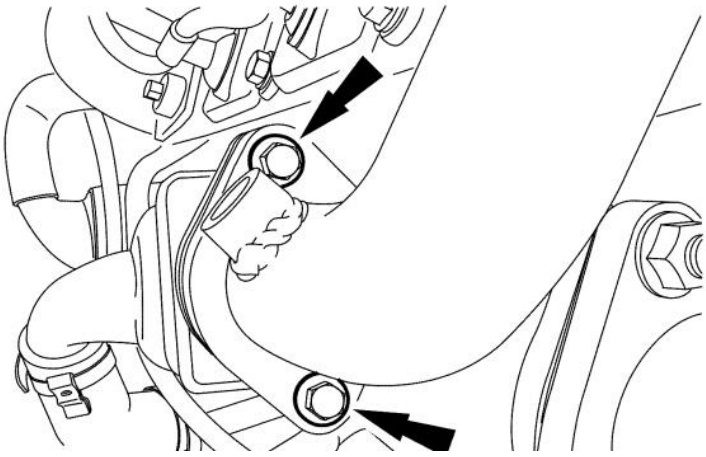
20. Remove the EGR-OC pipe bracket-to-bracket bolt and washer. Remove the cylinder head bracket-to-cylinder head bolt, washers and the bracket.

    - Discard the bolts

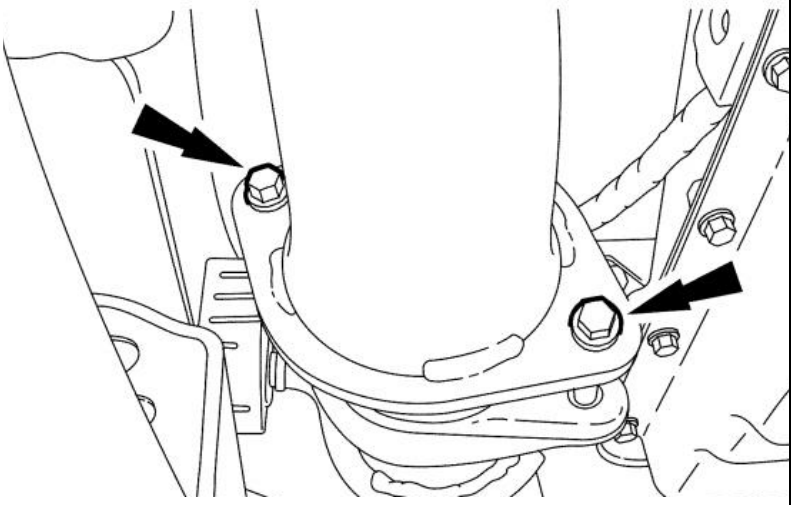


21. Remove the 2 EGR-OC-to-EGR cooler bolts.

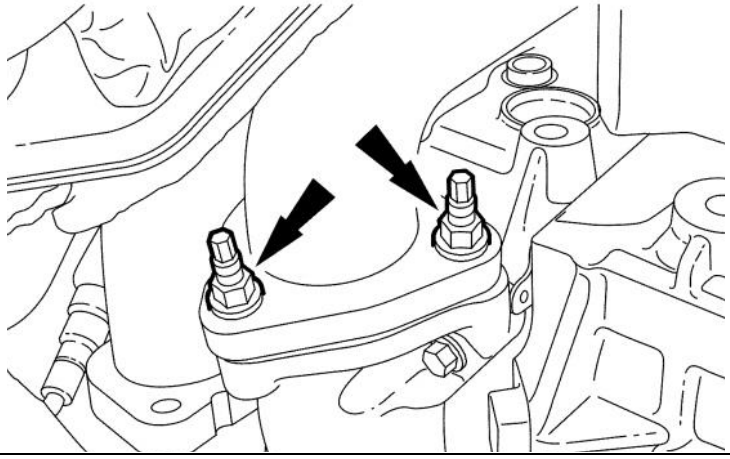
    - Discard the bolts and gasket.



22. Loosen the 2 exhaust downpipe-to-OC pipe bolts.

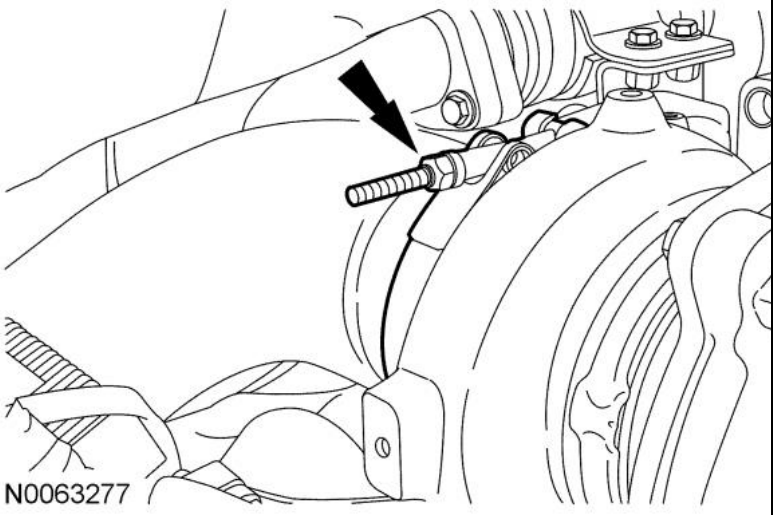


23. *NOTE:* LH Shown, RH Similar. Remove and discard the 6LH and RH turbocharger inlet pipes-to-exhaust manifold nuts.



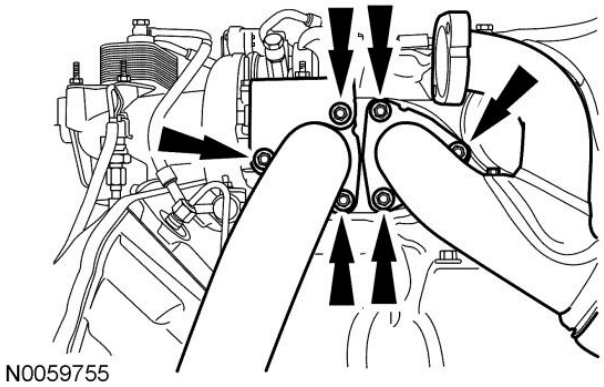
24. Remove and discard the exhaust downpipe clamp. Position aside the exhaust downpipe.

    - Remove and discard the exhaust downpipe gasket.



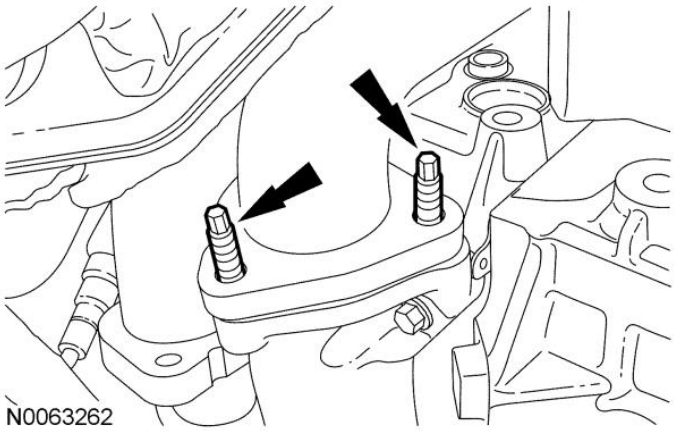
25. Remove the 6 turbocharger inlet pipe bolts and EGR-OC-to-turbocharger bracket.

    - Discard the bolts and gaskets.



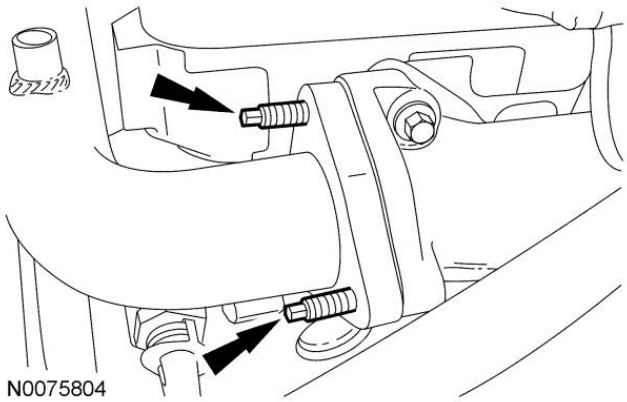
26. Remove the 3 LH turbocharger inlet pipes-to-exhaust manifold studs and gasket. Remove the LH turbocharger inlet pipe.

    - Discard the studs and gasket.

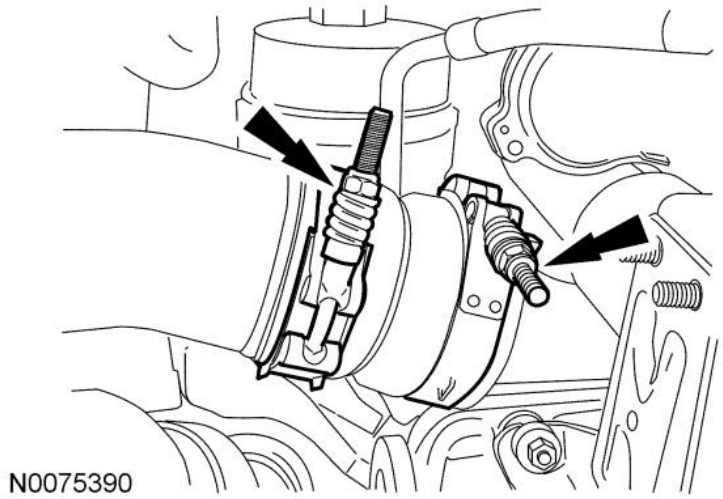


27. Remove the 2 outer RH turbocharger inlet pipes-to-exhaust manifold studs.

    - Discard the studs.



28. Loosen the clamps and remove the Charge Air Cooler (CAC) tube flex coupling.

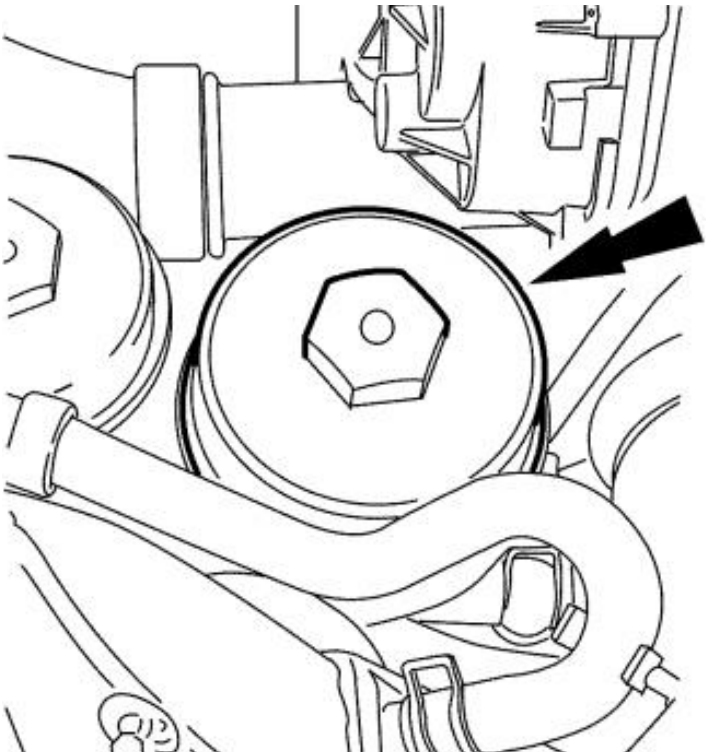


29. Fuel injection equipment is manufactured to a very precise tolerances and fine clearances.

    To prevent fuel system damage, it is essential that absolute cleanliness is observed when working with these components. Always install fuel system caps to any open orifices or tubes.

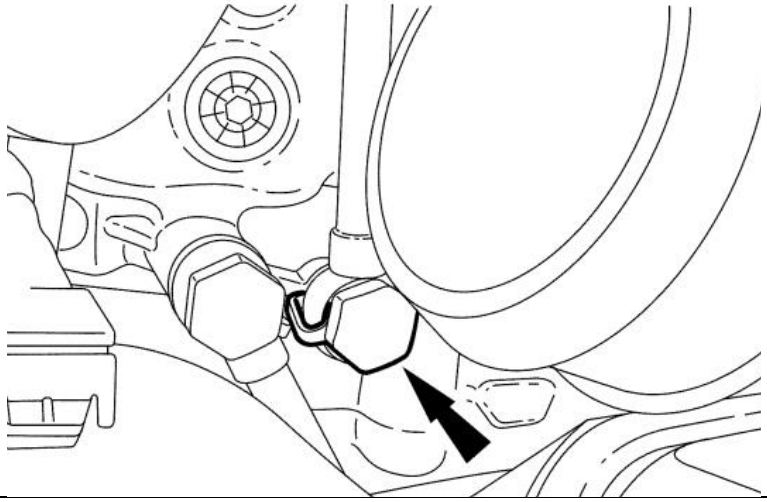
    Remove the fuel filter module cover, fuel filter and, using a suitable suction device, remove the fuel from the fuel filter module.

    - Cover the fuel filter housing with a covering to prevent foreign material from entering the fuel system.

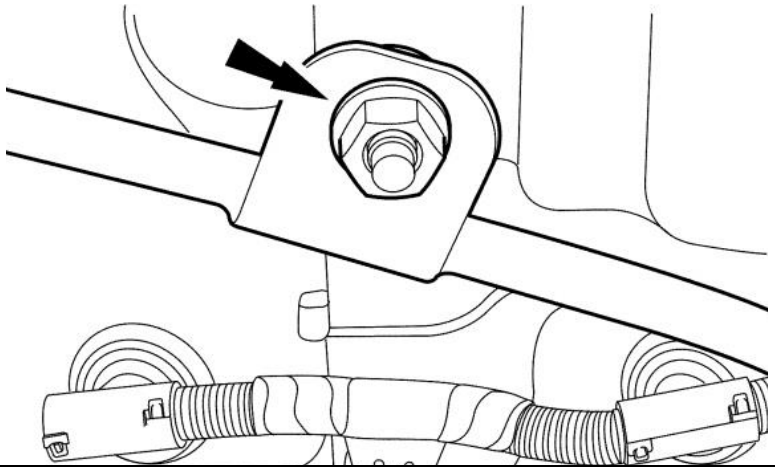


30. Remove the banjo bolt, sealing washer(s) and fuel cooler to fuel filter module tube.

    - Discard the sealing washer(s)



31. Remove the nut and position the oil level indicator and tube aside.

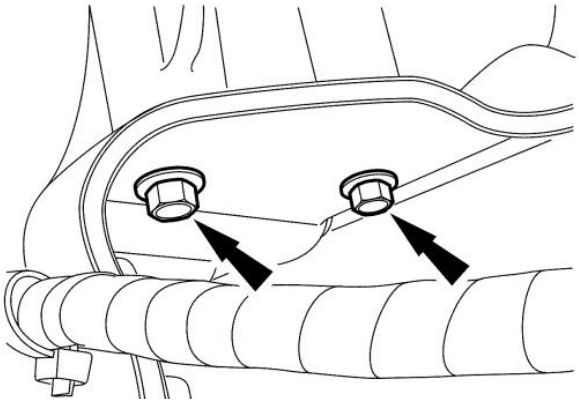


NOTE: Rear bolts shown, front bolts similar.

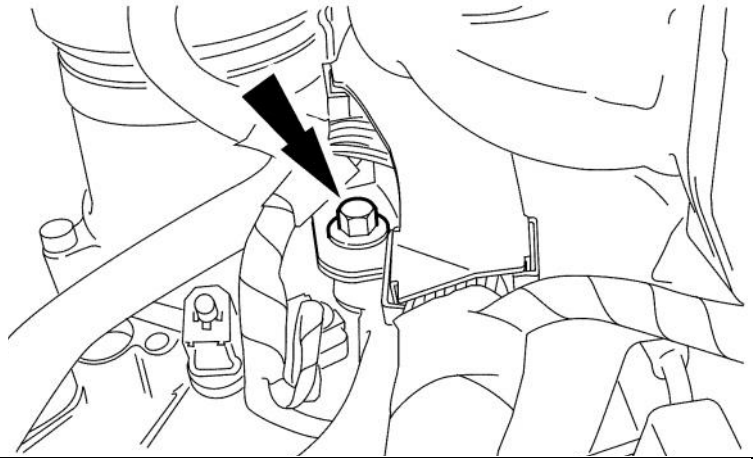
32. Remove the 4 bolts for the turbocharger crossover tube.

    - Remove the front fuel cooler bracket.

IF BODY IS REMOVED SKIP TO STEP #40

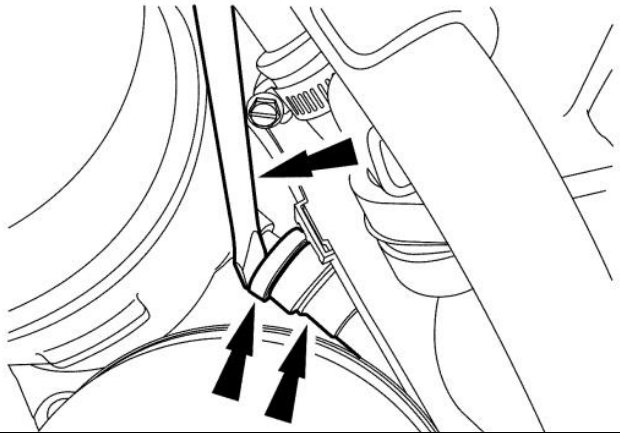


33. Remove the bolt for the engine wiring harness.

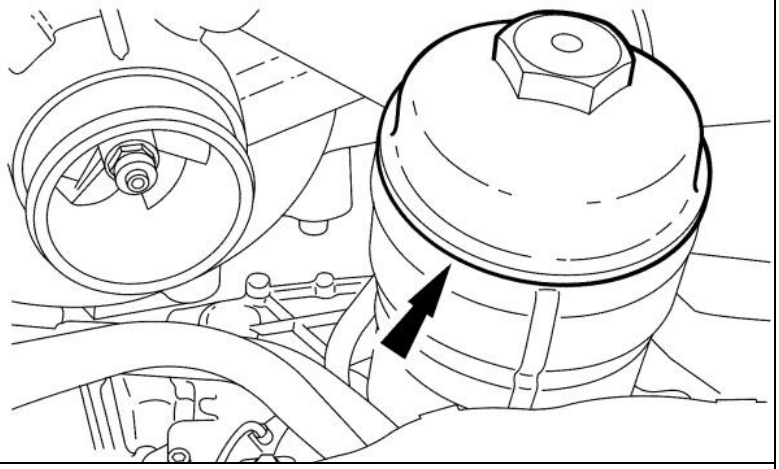


34. Use a commercially available disconnect tool and a screwdriver to release the fuel tube.

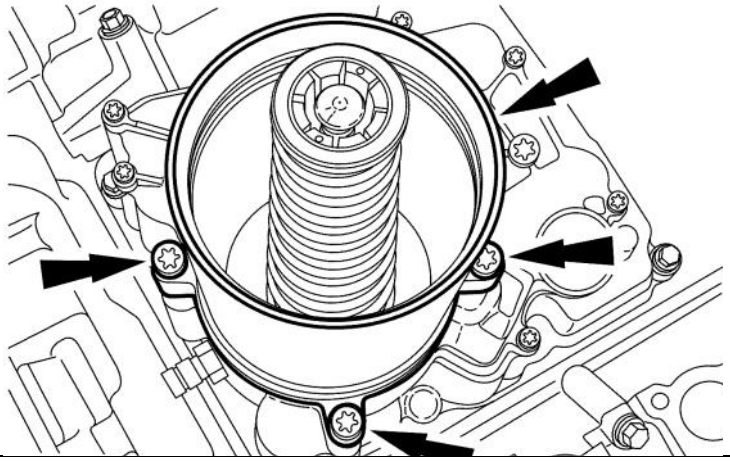
    Disconnect the fuel injection pump supply tube at the fuel filter module.



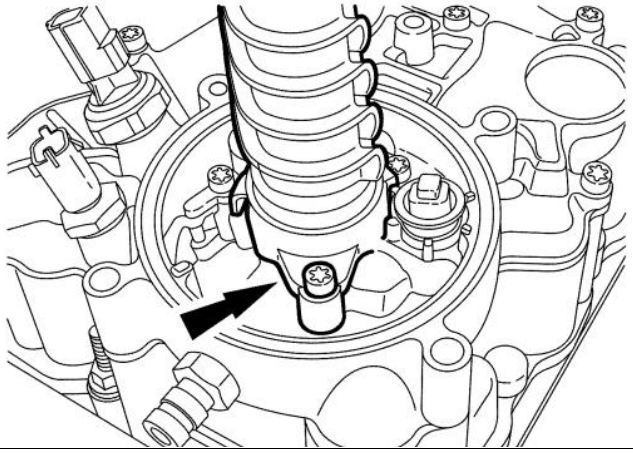
35. Remove and discard the oil filter element and O-ring seal.



36. Remove the 4 torx bolts and the oil filter housing.

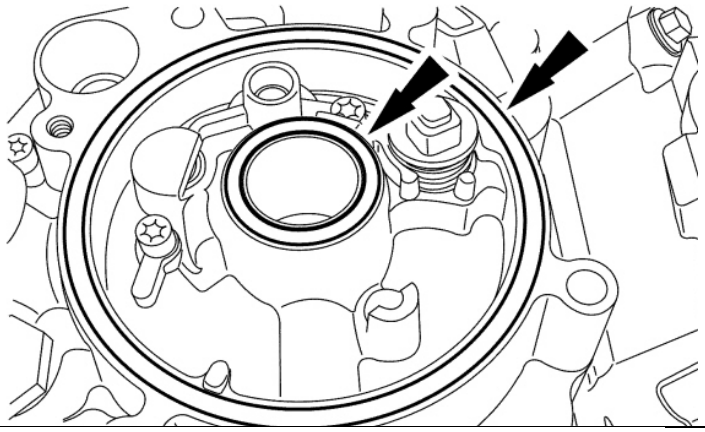


37. Remove the screw and the oil filter return tube assembly.

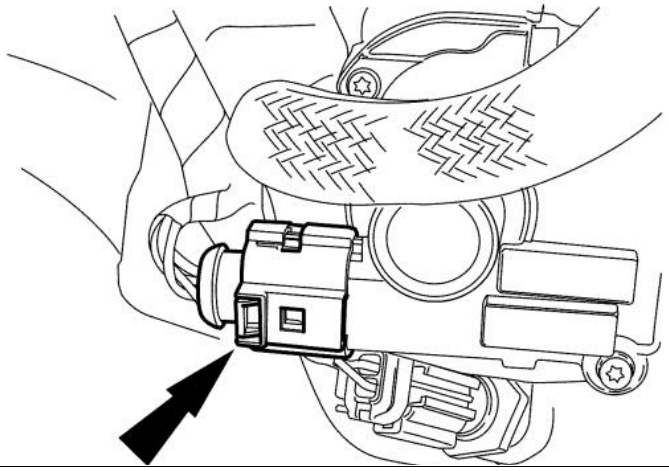


38. Remove and discard the oil filter base gasket and seal.

    - Cover the oil cooler to prevent foreign material from entering.

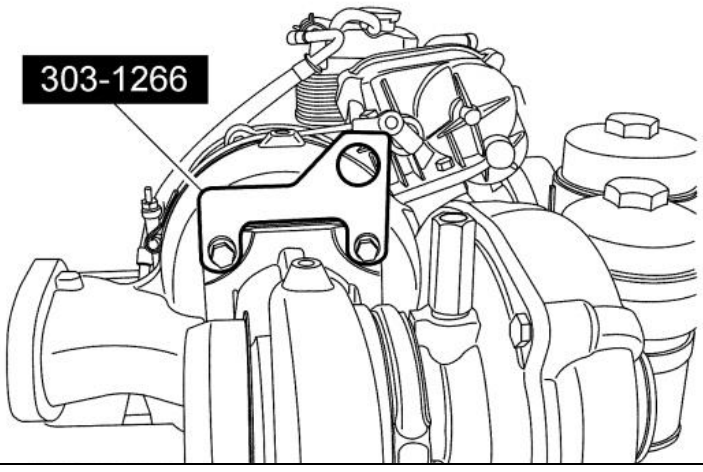


39. Disconnect the EGR valve electrical connector.



40. Remove the 2 bolts and the hold downs for the turbocharger.

41. Install the turbocharger lifting bracket and 2 bolts.
    Tighten to 177 in/lbs



NOTICE: Failure to use the turbocharger lifting bracket during removal, handling or installation of the turbocharger could result in a low pressure to high pressure turbocharger seal failure.

NOTICE: Make sure the turbocharger assembly is kept level to the engine during removal or installation. Failure to follow these instructions may result in damage to the high pressure oil drain tube.

NOTE: Use care when removing the turbocharger. The crossover tube should not be removed. The seals in the crossover tube are one-time-use seals and must be installed new.

With the help of an assistant, using the heavy duty floor crane, remove the turbocharger assembly.

- Remove and discard the RH turbocharger inlet pipe gasket at the RH exhaust manifold.

42. Remove the turbocharger oil drain tubes.
    - Remove and discard the low-pressure drain tube.
    - Remove the high pressure oil drain tube.
    - Remove and discard the 2 O-ring seals.

Installation – Body On/Off

1. *NOTE*: Lubricate the low-pressure turbocharger oil drain tube with clean engine oil prior to installing.

   NOTE: Install the low-pressure turbocharger drain tube with the taper side down. Install the new low-pressure turbocharger drain tube in the turbocharger.

2. *NOTE*: Install 2 new O-rings seals and lubricate with clean engine oil prior to installing.

   Install the turbocharger high-pressure oil drain tube.

3. ***NOTICE****:* Failure to use the Turbocharger Lifting Bracket during removal, handling or installation of the turbocharger could result in a low-pressure to high-pressure seal failure.

   NOTICE*:* Make sure the turbocharger assembly is kept level to the engine during removal or installation. Failure to follow these instructions may result in damage to the high-pressure oil drain tube.

   NOTE: Make sure the turbocharger is positioned under the high-pressure fuel pump heat shield on the right side.

   NOTE: Install a new gasket for the RH turbocharger inlet pipe at the RH exhaust manifold prior to installing the turbocharger assembly.

   With the help of an assistant, using the Heavy Duty Floor Crane, install the turbocharger assembly.

4. *NOTE*: After removing the Turbocharger Lifting Bracket, the 2 bolt holes remain open on the turbocharger.

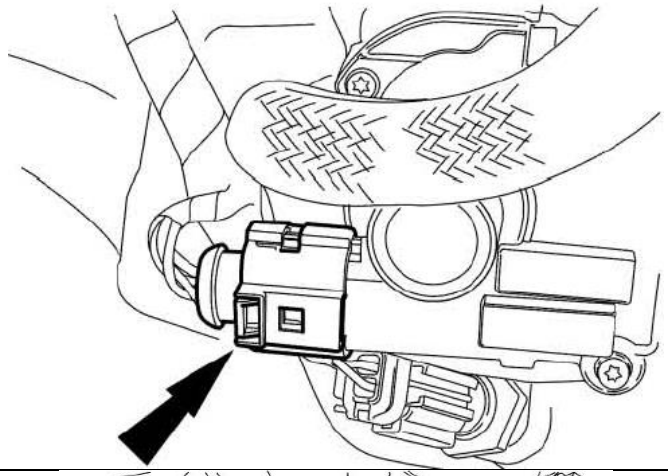
   Remove the 2 bolts and the Turbocharger Lifting Bracket.

5. Install the 2 turbocharger hold downs and bolts.

- Tighten to 201 Nm (148 ft/lbs).
-

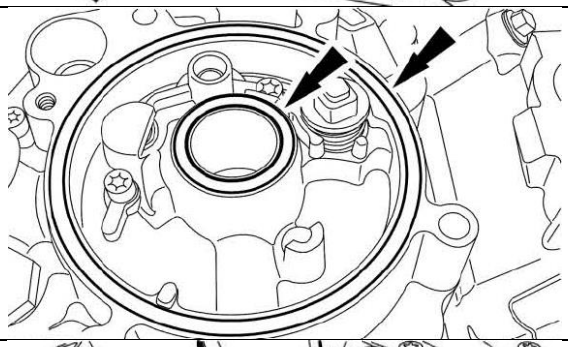
IF BODY IS REMOVED SKIP TO STEP #13

6. Connect the EGR valve electrical connector.

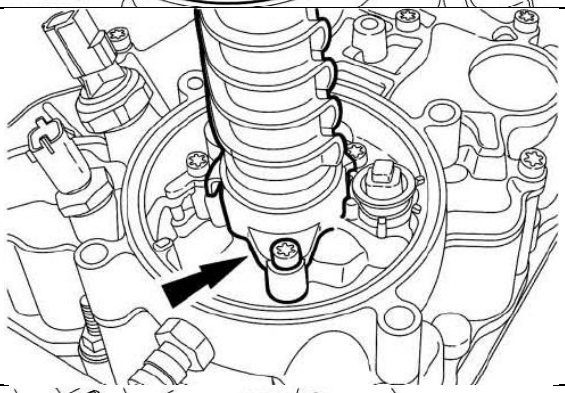


7. Install the new oil filter base gasket and O-ring seal.

- Apply clean engine oil to the oil filter base gasket and O-ring seal.

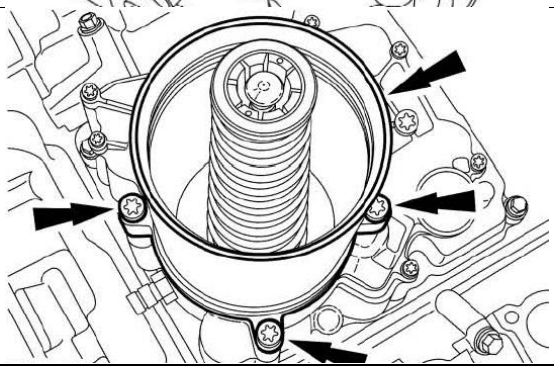


8. Install the oil filter return tube assembly and screw.
- On new oil return tubes, tighten to 7 Nm (62 in/lbs).
- On used oil return tubes, tighten to *5* Nm (44 in/lbs).



9. Install the oil filter housing and 4 Torx bolts.

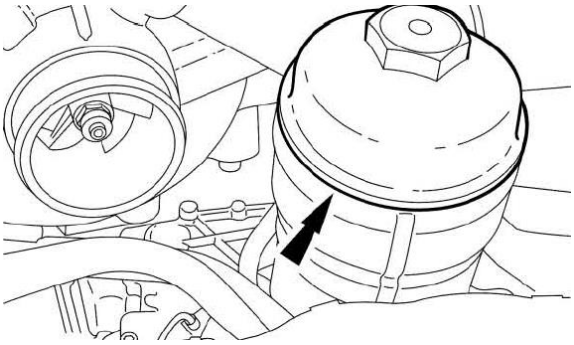
- Tighten to 22 Nm (16 ft/lbs).



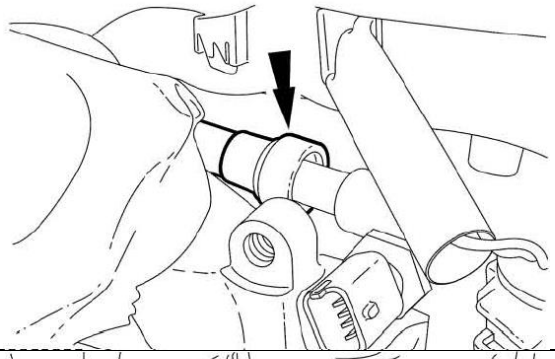
10. *NOTE*: Install a new O-ring seal on the oil filter cap and apply clean engine oil.

    Install a new oil filter element and the oil filter cap.

    - Tighten to 25 Nm (18 ft/lbs).

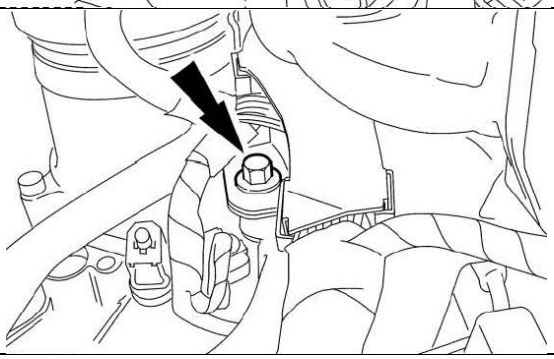


11. Connect the fuel injection pump supply tube at the fuel filter module.

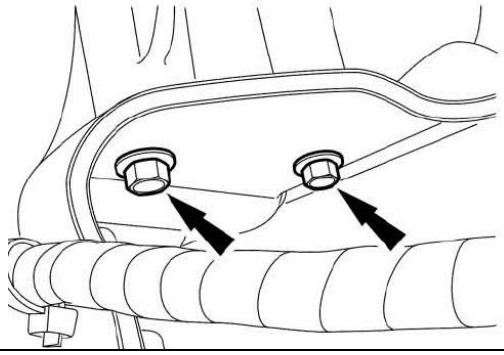


12. Install the bolt for the engine wiring harness.

    - Tighten to 8 Nm (71 in/lbs).

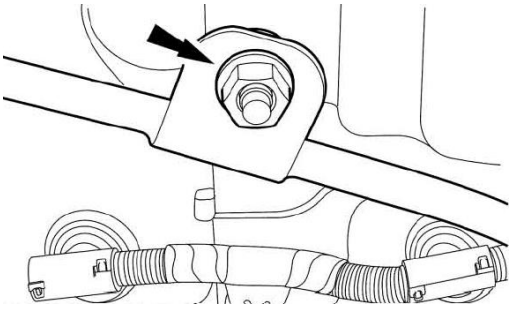


13. *NOTE*: Rear bolts shown, front bolts similar. Position the front fuel cooler bracket. Install the 4 bolts for the turbocharger crossover tube.
    - Tighten to 31 Nm (23 ft/lbs).



14. Position back the oil level indicator and tube and install the nut.
    - Tighten to 31 Nm (23 ft/lbs).

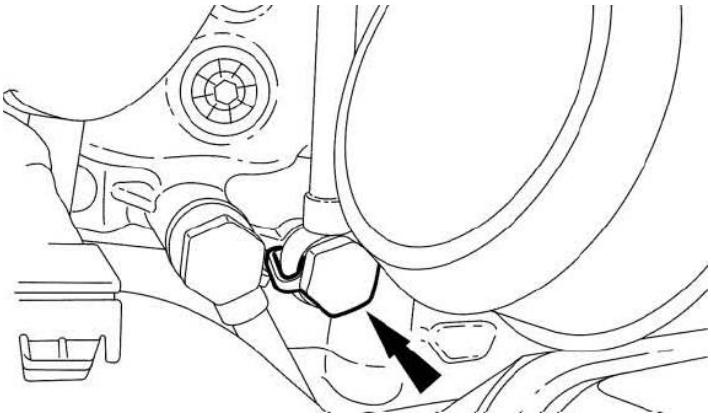
IF BODY IS REMOVED SKIP TO STEP #38



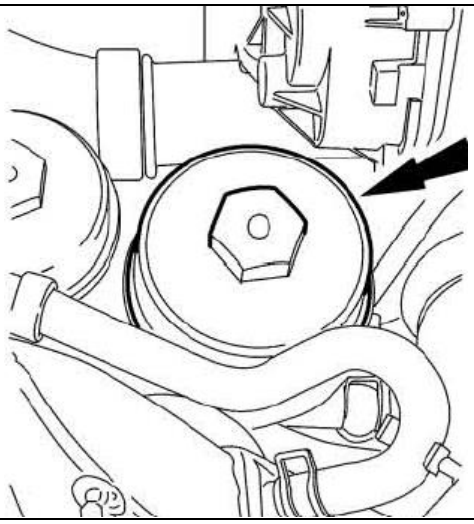
15. ***NOTICE**:* Use only banjo bolts with a green hex head. The green-headed bolts do not contain a check valve. When viewed from the inner end, the correct bolt will appear open. Failure to install the correct banjo bolt may result in damage to the fuel system.

    Install fuel cooler-to-fuel filter module tube, new sealing washer(s) and the banjo bolt.

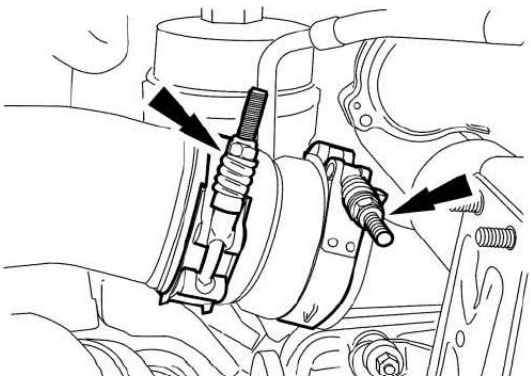
    - For Viton® sealing washers, tighten to 25 Nm (18 ft/lbs).
    - For a copper sealing washer, tighten to 38 Nm (28 ft/lbs).



16. Install the fuel filter element and cover.
    - Tighten to 27 Nm (20 ft/lbs).

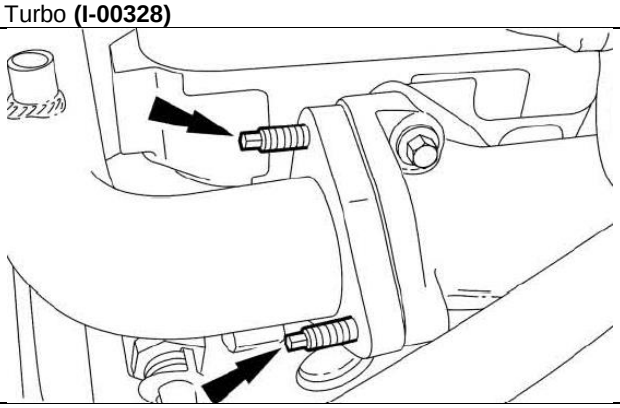


17. Install the CAC tube flex coupling and clamps.
    - Tighten the engine clamp to 12 Nm (106 in/lbs).
    - Tighten the tube clamp to 8 Nm (71 in/lbs).



18. Install the 2 new studs for the RH turbocharger inlet pipe.
- Tighten to 18 Nm (159 in/lbs).

Use supplied gaskets (B32256)



19. ***NOTICE****:* Do not bend or twist the turbocharger inlet pipe or damage to the turbocharger inlet pipe may occur.

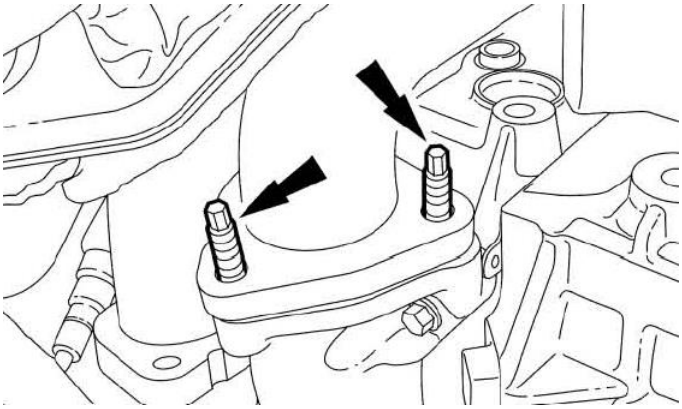
    NOTE: To aid in installation, replace the top stud with bolt part number W302649.

    NOTE: It will be necessary to position the EGR-OC pipe as needed.

    Position the LH turbocharger inlet pipe in the vehicle. Install the new gasket and 2 new studs for the LH turbocharger inlet pipe. Loosely install the bolt.

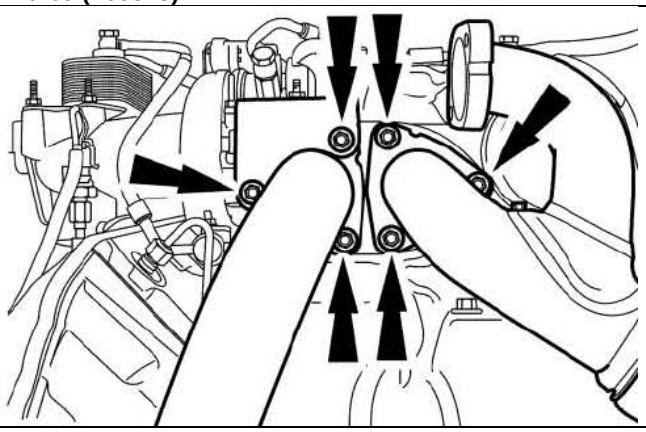
- Tighten the studs to 18 Nm (159 in/lbs).

    Use supplied gaskets (B32256)



20. Install the new turbocharger inlet pipe gaskets, bracket and loosely install the 6 new bolts.
    - Tighten the top 4 bolts to 25 Nm (18 ft/lbs).

Use gaskets from GS33566



21. ***NOTICE****:* Due to limited access, one of the specific Half-moon wrenches and other tools described must be used to correctly tighten the fasteners in this step. Failure to follow this instruction may result in engine failure.

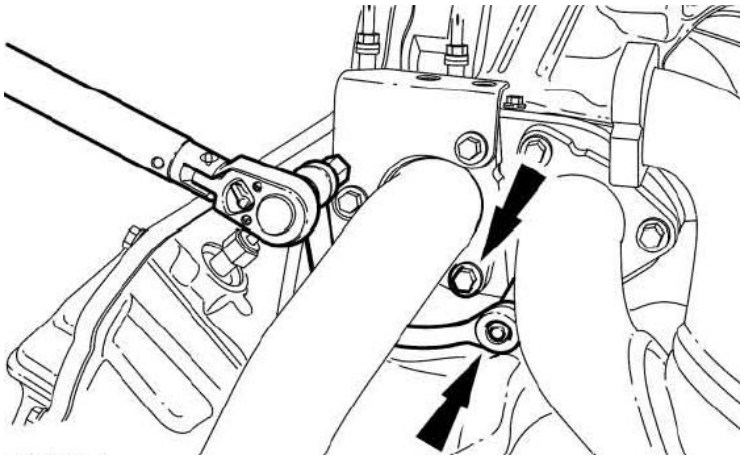
    NOTE:
    To complete this step, it will be necessary to use the following tools:

- A *3/8-in* drive torque wrench that is 241.3 mm (9.5 in) or 368.3 mm (14.5 in) from center of the handle to the center of the square drive.
- One of the 10-mm/12-mm Half-moon wrenches listed in the following chart.
- A 12-mm Allen socket (to drive the Half-moon wrench).

NOTE: To obtain the required torque value of 25 Nm (18 ft/lbs), it will be crucial to orient the Half-moon wrench in the direction shown and 180 degrees (Straight out) from the torque wrench. The torque wrench must be set to the value specified in the following chart for the Half-moon wrench and torque wrench length being used.

Tighten the turbocharger inlet pipes-to-turbocharger bottom 2 bolts.

Refer to the following chart for torque wrench setting, based on the specific Half-moon wrench and torque wrench length being used.

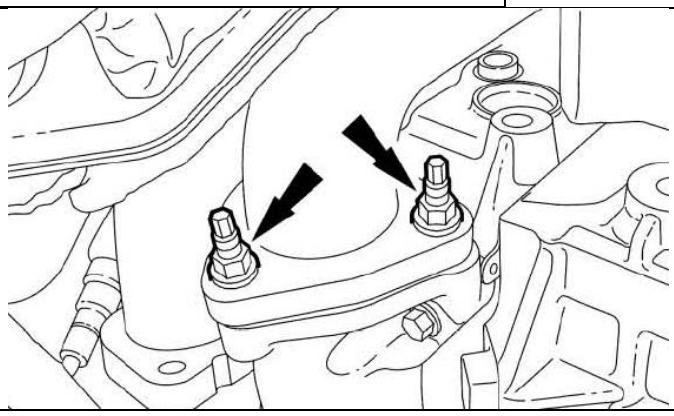


Torque Chart - Turbocharger Inlet Pipes-to-Turbocharger, Bottom 2 Bolts					
Half-Moon Wrench Brand	Wrench Part Number	Wrench Size	Torque Wrench Length	Torque Wrench Setting	
				Nm	lb-in
Comwell®	BWM-1012MM	10/12 mm	9.5 in	20	177
Gear Wrench®	9851	10/12 mm	9.5 in	18	159
Matco®	MHM1012	10/12 mm	9.5 in	18	159
Mac®	HMM1012R	10/12 mm	9.5 in	15	133
Snap-On®	CXM1012	10/12 mm	9.5 in	18	159
Cornwell®	BWM-1012MM	10/12 mm	14.5 in	19	168
Gear Wrench®	9851	10/12 mm	14.5 in	18	159
Matco®	MHM1012	10/12 mm	14.5 in	18	159
Mac®	HMM1012R	10/12 mm	14.5 in	16	142
Snap-On®	CXM1012	10/12 mm	14.5 in	18	159
NOTE: To achive the required torque of 25 Nm (18 lb-ft), the torque wrench must be set to the appropriate Torque Wrench Setting listed in this chart.					

22. *NOTE*: LH shown, RH similar.

    Install the 5 new lower turbocharger inlet pipe nuts.

    - Tighten to 31 Nm (23 ft/lbs).



23. ***NOTICE****:* Due to limited access, one of the specific Half-moon wrenches and other tools described must be used to correctly tighten the fasteners in this step. Failure to follow this instruction may result in engine failure.

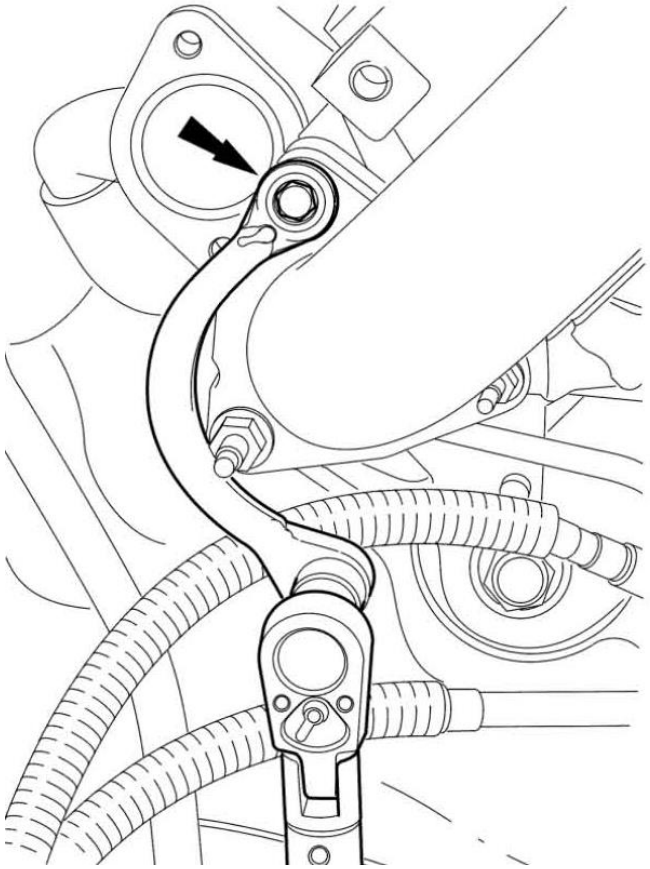
    NOTE: To complete this step, it will be necessary to use the following tools:

- A *3/8-in* drive torque wrench that is 368.3 mm (14.5 in) or 381.0 mm (15.0 in) from the center of the handle to the center of the square drive.
- One of the 10-mm/12-mm Half-moon wrenches listed in the following chart.
- A 12-mm Allen socket (to drive the Half-moon wrench).

    *NOTE**:*** To obtain the required torque value of 31 Nm (23 ft/lbs), it will be crucial to orient the Half-moon wrench in the direction shown and 180 degrees (straight out) from the torque wrench. The torque wrench must be set to the value specified in the following chart for the Half-moon wrench and torque wrench length being used.

    Tighten the LH turbocharger inlet pipe-to-LH exhaust manifold bolt.

    Refer to the following chart for torque wrench setting, based on the specific Half-moon wrench and torque wrench length being used.

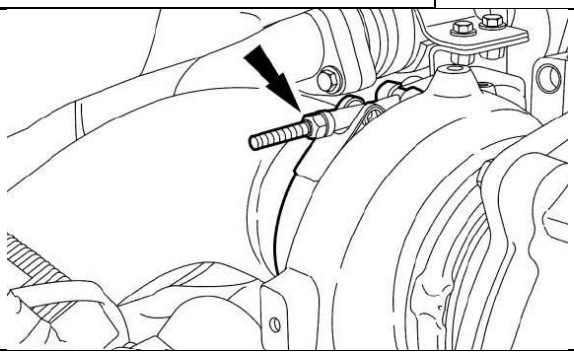


Torque Chart – LH Turbocharger Inlet Pipe-to-LH Exhaust Manifold, Upper Bolt

Half-Moon Wrench Brand	Wrench Part Number	Wrench Size	Torque Wrench Length	Torque Wrench Setting	
				Nm	lb-in
Comwell®	BWM-1012MM	10/12 mm	14.5 in	26	19
Gear Wrench®	9851	10/12 mm	14.5 in	23	17
Matco®	MHM1012	10/12 mm	14.5 in	22	16
Mac®	HMM1012R	10/12 mm	14.5 in	22	16
Snap-On®	CXM1012	10/12 mm	14.5 in	22	16
Cornwell®	BWM-1012MM	10/12 mm	15.0 in	27	20
Gear Wrench®	9851	10/12 mm	15.0 in	23	17
Matco®	MHM1012	10/12 mm	15.0 in	23	17
Mac®	HMM1012R	10/12 mm	15.0 in	23	17
Snap-On®	CXM1012	10/12 mm	15.0 in	23	17

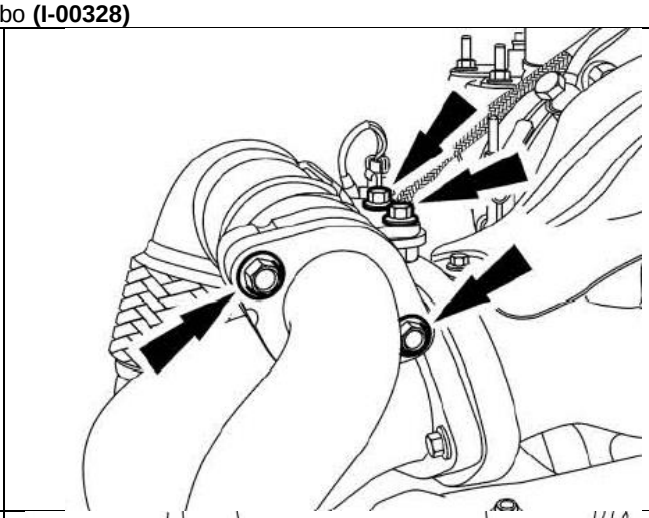
NOTE: To achive the required torque of 31 Nm (23 lb-ft), the torque wrench must be set to the appropriate Torque Wrench Setting listed in this chart.

24. Install the new gasket and clamp for the exhaust downpipe.
    - Tighten to 15 Nm (133 in/lbs).

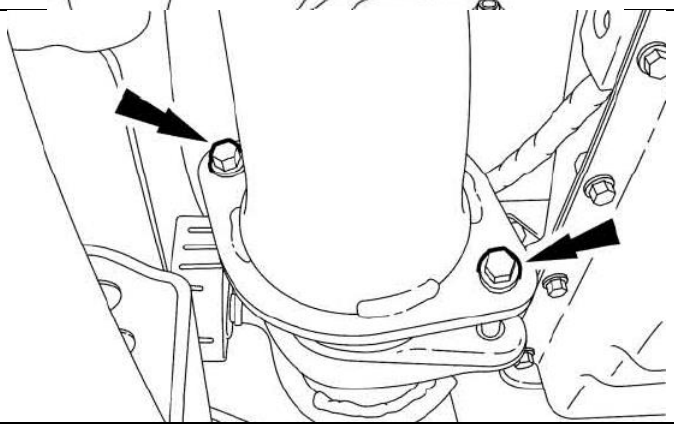


25. ***NOTICE**:* Make sure the correct bolts are installed in the bracket or damage to the bracket can occur.

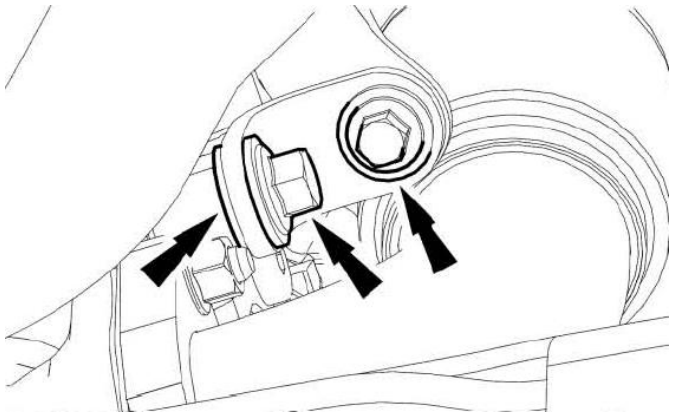
    Position the EGR-OC pipe and loosely install the 2 new bracket bolts. Install a new gasket and loosely install the 2 new bolts.



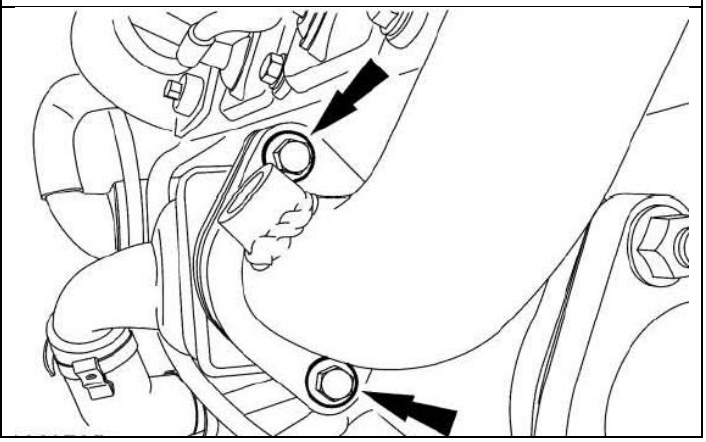
26. Tighten the 2 bolts for the exhaust downpipe at the OC.
- Tighten to 40 Nm (30 ft/lbs).



27. ***NOTICE**:* Failure to install and correctly tighten the Exhaust Gas Recirculation (EGR)-Oxidation Catalytic Converter (OC) pipe support bolts will result in damage to the horizontal EGR cooler and possible engine damage. Install the bracket, washers and loosely install the 2 new bolts for the EGR-OC pipe bracket.

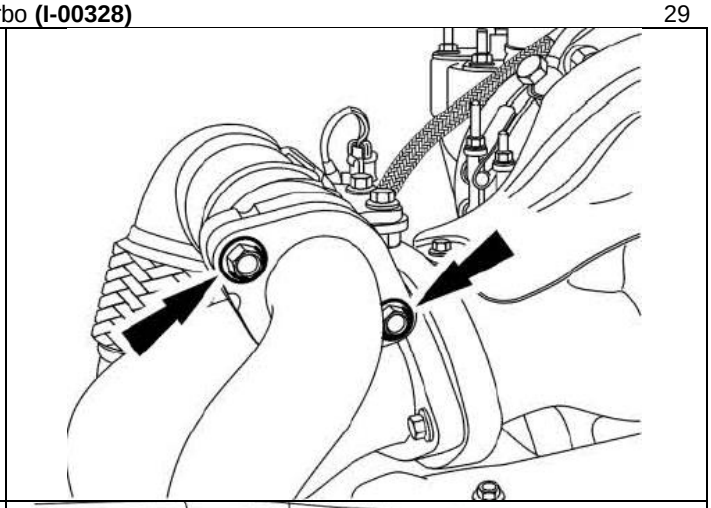


28. Install the new gasket and the 2 new bolts for the EOR-OC pipe at the EGR cooler.
- Tighten to 31 Nm (23 ft/lbs).



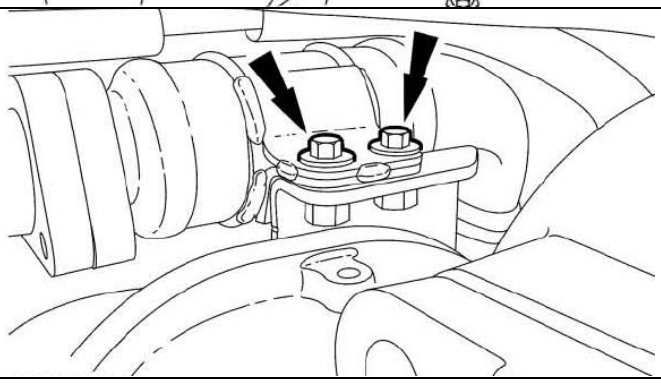
29. Tighten the 2 EOR-OC pipe bolts at the RH turbocharger inlet pipe.

    - Tighten to 31 Nm (23 ft/lbs).



30. Tighten the 2 bolts for the EOR-OC pipe bracket at the turbocharger.

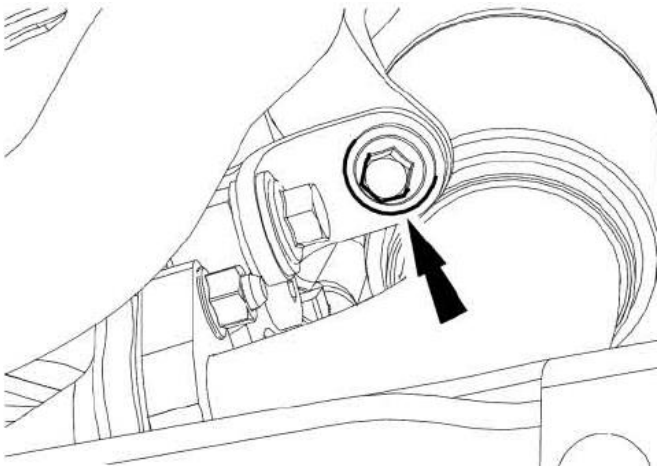
    - Tighten to 31 Nm (23 ft/lbs).



31. ***NOTICE***: Failure to install and correctly tighten the Exhaust Gas Recirculation (EGR)-Oxidation Catalytic Converter (OC) pipe support bolt will result in damage to the horizontal EGR cooler and possible engine damage.

    Tighten the bolt for the EGR-OC pipe bracket.

    - Tighten to 31 Nm (23 ft/lbs).



32. ***NOTICE:*** Failure to install and correctly tighten the Exhaust Gas Recirculation (EGR)-Oxidation Catalytic Converter (OC) pipe support bolt wiII result in damage to the horizontal EGR cooler and possible engine damage.

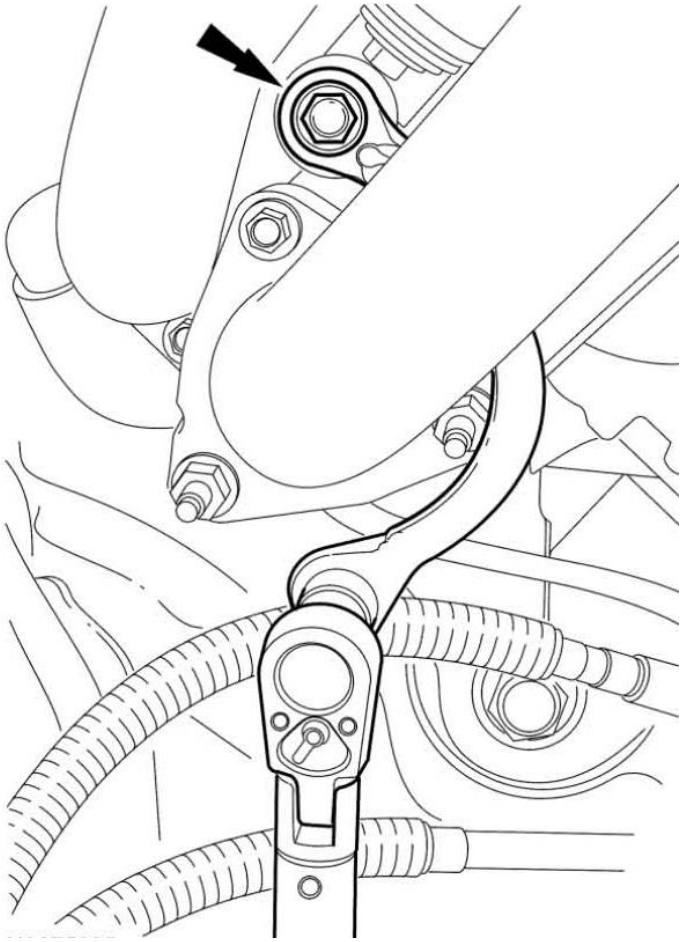
    NOTICE: Due to limited access, One of the specific Half-moon wrenches and other tools described must be used to correctly tighten the fasteners in this step. Failure to follow this instruction may result in engine failure.

    NOTE: To complete this step, it will be necessary to use the following tools:

- A *3/8-in* drive torque wrench that is 368.3 mm (14.5 in) or 381.0 mm (15.0 in) from the center of the handle to the center of the square drive.
- One of the II-mm/13-mm Half-moon wrenches listed in the following chart.
- A 11-mm Allen socket (to drive the Half-moon wrench).

    NOTE: To obtain the required torque value of 63 Nm (46 ft/lbs), it will be crucial to orient the Half-moon wrench in the direction shown and 180 degrees (straight out) from the torque wrench. The torque wrench must be set to the value specified in the following chart for the Half-moon wrench and torque wrench length being used.

    Tighten the EGR-OC pipe bracket-to-LH cylinder head bolt.

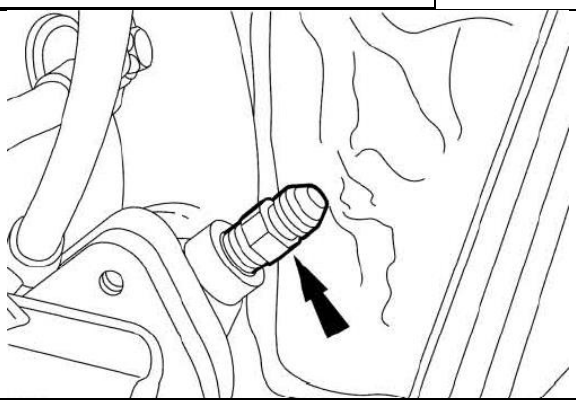


Refer to the following chart for torque wrench setting, based on the specific Half-moon wrench and torque wrench length being used.

Torque Chart - Turbocharger Inlet Pipes-to-Turbocharger, Bottom 2 Bolts					
Half-Moon Wrench Brand	Wrench Part Number	Wrench Size	Torque Wrench Length	Torque Wrench Setting	
				Nm	lb-in
Comwell®	BWM-1113MM	11/13 mm	14.5 in	47	35
Gear Wrench®	9852	11/13 mm	14.5 in	46	34
Matco®	MHM1113	11/13 mm	14.5 in	46	34
Mac®	HMM1113R	11/13 mm	14.5 in	46	34
Snap-On®	CXM1113	11/13 mm	14.5 in	46	34
Cornwell®	BWM-1113MM	11/13 mm	14.5 in	49	36
Gear Wrench®	9852	11/13 mm	14.5 in	47	35
Matco®	MHM1113	11/13 mm	14.5 in	47	35
Mac®	HMM1113R	11/13 mm	14.5 in	47	35
Snap-On®	CXM1113	11/13 mm	14.5 in	47	35
NOTE: To achive the required torque of 62 Nm (46 lb-ft), the torque wrench must be set to the appropriate Torque Wrench Setting listed in this chart.					

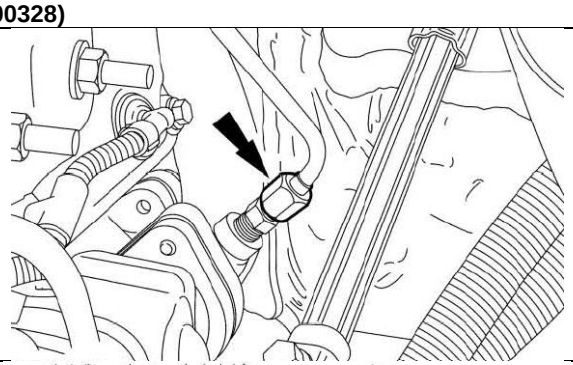
33. Install the EP sensor tube fitting into the EGR-OC pipe.

- Tighten to 27 Nm (20 ft/lbs).



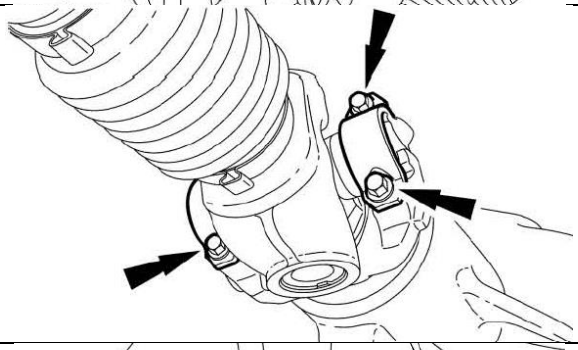
34. Connect the EP sensor tube to the EGR-OC pipe.

- Tighten to 20 Nm (177 in/lbs).



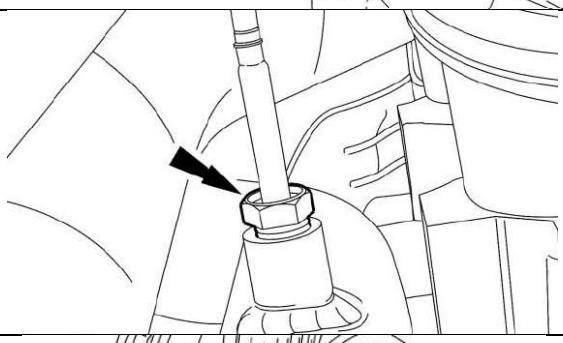
35. If equipped, position back the front driveshaft and install the 2 straps and 4 bolts.

- Tighten to 35 Nm (26 ft/lbs).



36. Install the EGRT sensor into the RH turbocharger inlet pipe.

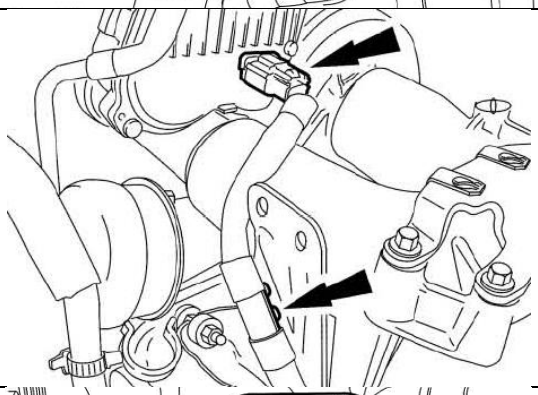
- Tighten to 44 Nm (32 ft/lbs).



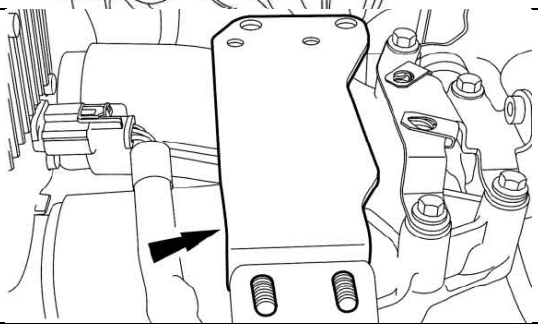
37. Install the RH splash shield.

38. Connect the turbocharger actuator electrical connector and pin-type retainer.

IF BODY IS REMOVED SKIP TO STEP #47

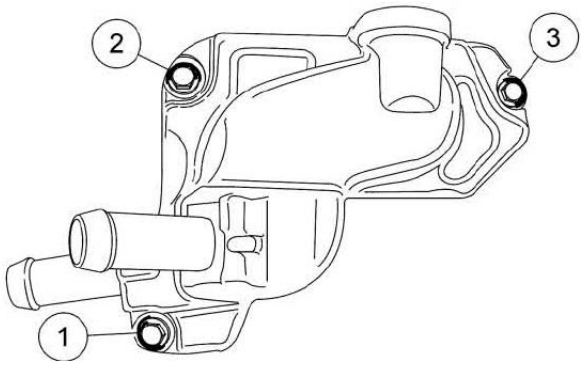


39. Position the fuel cooler bracket.



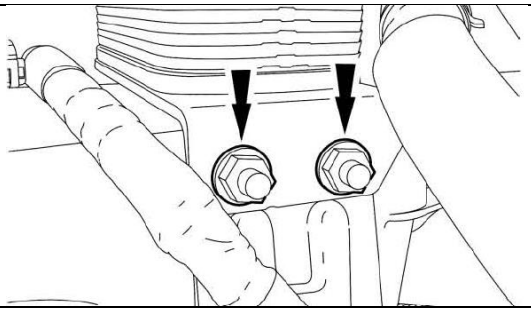
40. Position back the fuel cooler, fuel cooling system expansion tank and turbocharger actuator cooler. Install the 3 bolts for the turbocharger actuator cooler. Tighten the bolts in the sequence shown in 2 stages.

- Stage I: Finger-tighten the bolts.
- Stage 2: Tighten to 7 Nm (62 in/lbs).



41. Install the 2 nuts for the fuel cooler.

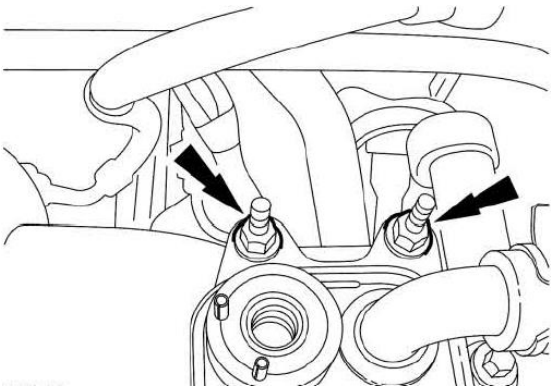
- Tighten to 19 Nm (168 in/lbs).



42. *NOTE*: It may be necessary to loosen the front bolts of the turbocharger crossover in order to get correct alignment of the holes for the fuel cooler.

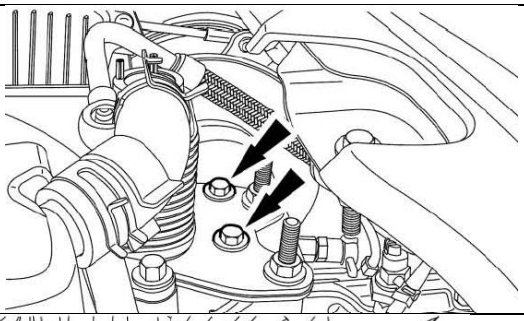
Install the 2 stud bolts for the fuel cooler.

- Tighten to 25 Nm (18 ft/lbs).



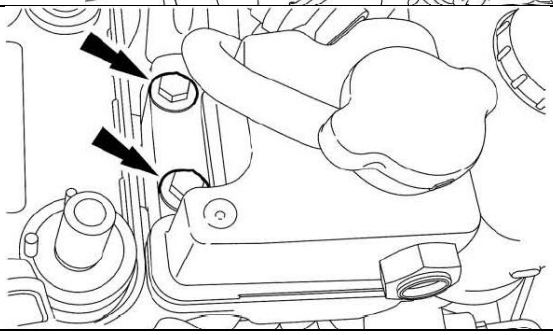
43. Install the 2 bolts for the fuel cooler.

- Tighten to 9 Nm (80 in/lbs).



44. Install the 3 bolts for the fuel cooling system expansion tank.

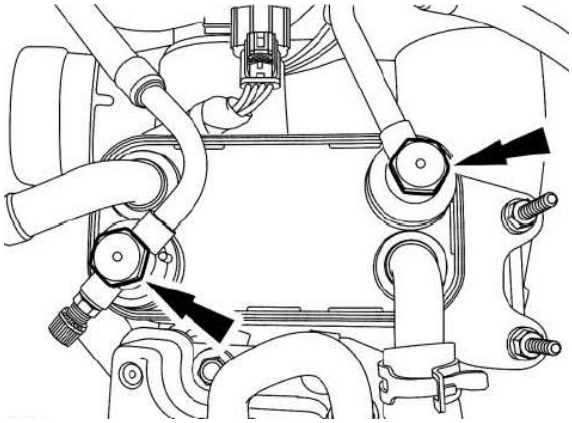
- Tighten to 9 Nm (80 in/lbs).



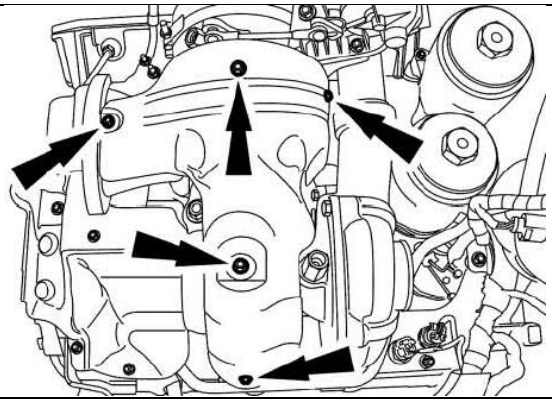
45. ***NOTICE****:* Use only banjo bolts with a green hex head. The green-headed bolts do not contain a check valve. When viewed from the inner end, the correct bolt will appear open. Failure to install the correct banjo bolt may result in damage to the fuel system.

    NOTICE*:* Make sure that the fuel tubes are not rubbing against the turbocharger actuator cooler or damage to the fuel tubes may occur.
    Install the new sealing washers and 2 banjo bolts at the fuel cooler.

    - Tighten to 25 Nm (18 ft/lbs).



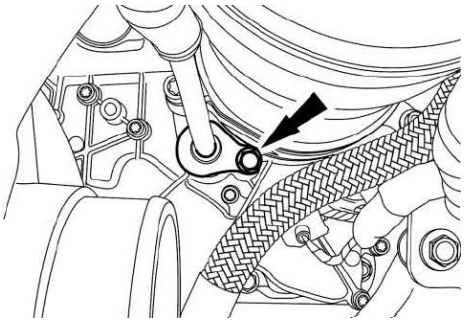
46. Position the turbocharger heat shield and install the 5 bolts.
    - Tighten to 11 Nm (97 in/lbs).



47. *NOTE*: Install a new O-ring seal and apply clean engine oil.

    Position the turbocharger oil supply tube and install the bolt.

    - Tighten to 13 Nm (115 in/lbs).



48. Prelubricate the oil inlet holes of the turbocharger assembly with clean engine oil and spin the compressor wheel several times to coat the bearings with oil.

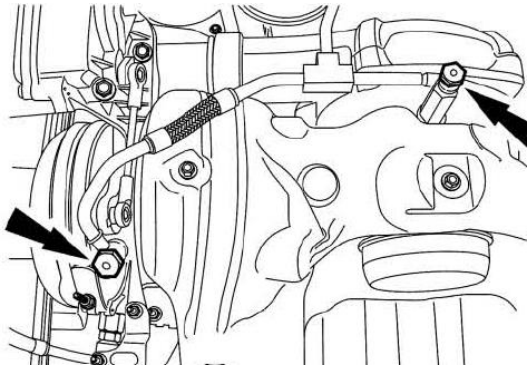
    ***NOTICE**:* Use only banjo bolts with a green hex head. The green-headed bolts do not contain a check valve. When viewed from the inner end, the correct bolt will appear open. Failure to install the correct banjo bolt may result in damage to the turbocharger.

    ***NOTICE**:* Do not lean on, pull on or use the turbocharger oil supply tube as a handle or damage to the turbocharger oil supply tube may occur.

    NOTE: Use a back-up wrench to prevent the fittings from turning.

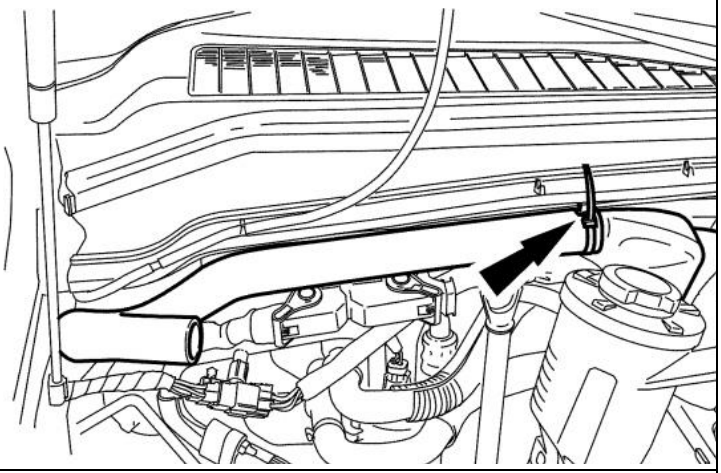
    NOTE: The back banjo bolt will require a torque adapter to be tightened properly.

    Install new sealing washers and the 2 turbocharger oil supply tube banjo bolts.



- Calculate the correct torque wrench setting for the following torque. Refer to the Torque Wrench Adapter Formulas in the Appendix.
- For Viton® sealing washers, using a torque adapter, tighten to 25 Nm (18 ft/lbs).
- For copper sealing washer, using a torque adapter, tighten to 38 Nm (28 ft/lbs).
- Verify that the turbocharger oil supply tube does not contact the turbocharger actuator linkage.

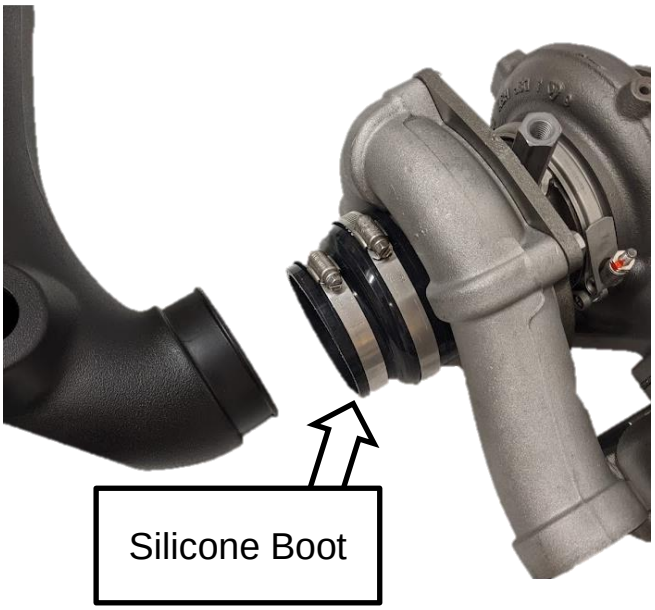
49. Position the auxiliary air intake (ACL) hose in the vehicle.
50. Install the ACL assembly and ACL outlet pipe.



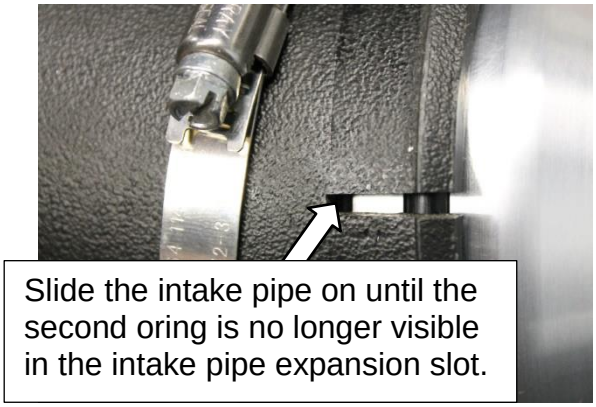
51. Install the degas bottle.

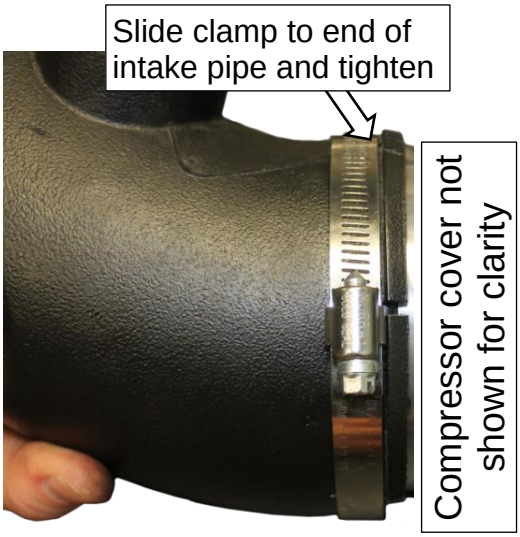
52. Install AFE cold air intake.

1047082/83 ONLY – Use supplied silicone boot and hose clamps to adapt the AFE intake to the BD Screamer turbo.



1047080/81 ONLY - Do not use reducer bushing from kit. Disregard step 9 from the AFE intake manual.





IF BODY IS NOT REMOVED SKIP TO STEP #55

53. Reinstall the Exhaust Gas Recirculation (EGR) Oxidation Catalytic Converter (OC).

54. Lower the cab back onto the frame by following the manufacturer procedure.

55. Bleed the low pressure fuel system.

**IMPORTANT* When idled for any length of time some oil may leak from the turbo. If the performance/boost is satisfactory and the wheel is not touching the housing (There will be some small movement), the excess oil is not a concern. Simply wipe with a clean cotton cloth and continue use.*

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)

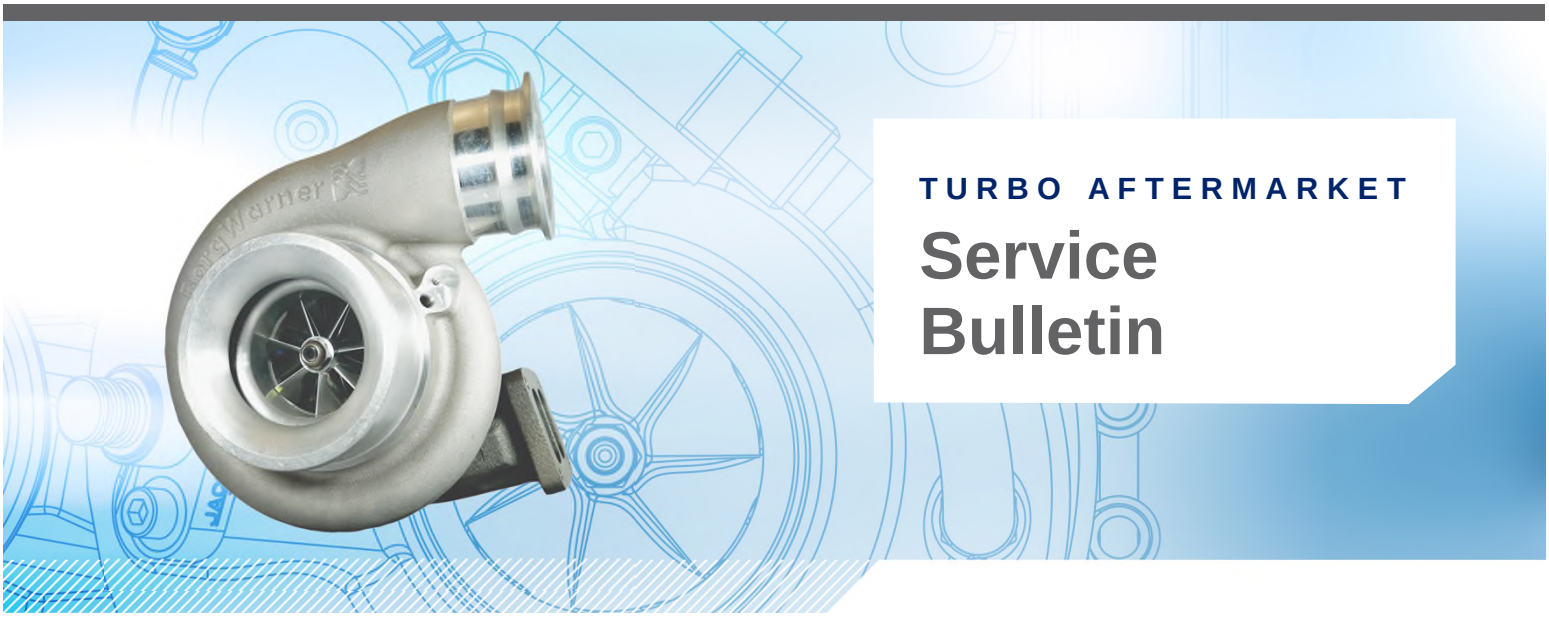
BD TRANSMISSION/TORQUE CONVERTOR CORE ACCEPTANCE POLICY

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



New Retrofit Actuator for Ford V2S and HP Turbos

This bulletin outlines the introduction and service procedure of the new BorgWarner CBA (Compact Brushless Actuator) assembly, part number **59001107387.**

The original SRA (Smart Remote Actuator) Assembly, part number **476840** for the Ford 6.4 liter Powerstroke V2S turbo systems sold between 2008 and 2010 has been discontinued. The new retrofit actuator that fits into the same packaging and is identical in performance as the original actuator.

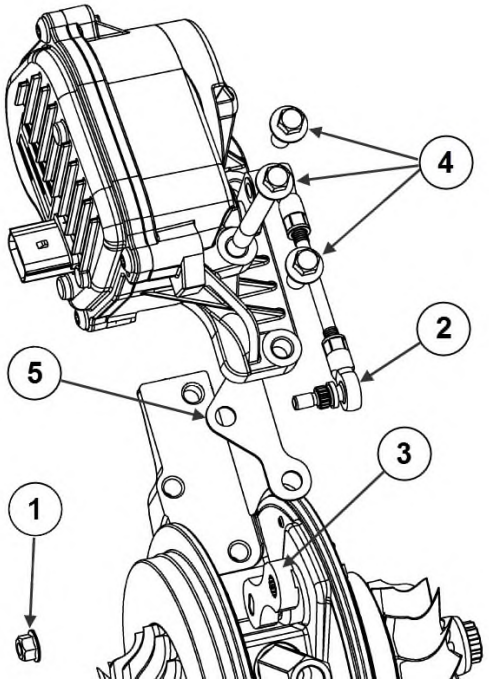
Retrofit Actuator Assembly

The new Retrofit Actuator Assembly consists of a BorgWarner CBA (Compact Brushless Actuator) with linkage, new actuator bracket, thermal spacer and mounting hardware. Installation of the Retrofit Actuator Assembly to the turbo requires removal of the original SRA Assembly and the specific installation sequence listed below.

Original SRA Assembly Removal

See Figure 1

1. Remove M6 nut (1) and separate linkage (2) from dog-bone (3)
2. Disconnect two coolant hoses from SRA
3. Disconnect electrical connector from SRA
4. Remove three M8 bolts (4)
5. Remove SRA Assembly and thermal spacer (5) from turbocharger
6. Properly discard SRA Assembly and hardware



February 12, 2018 | S-02-18

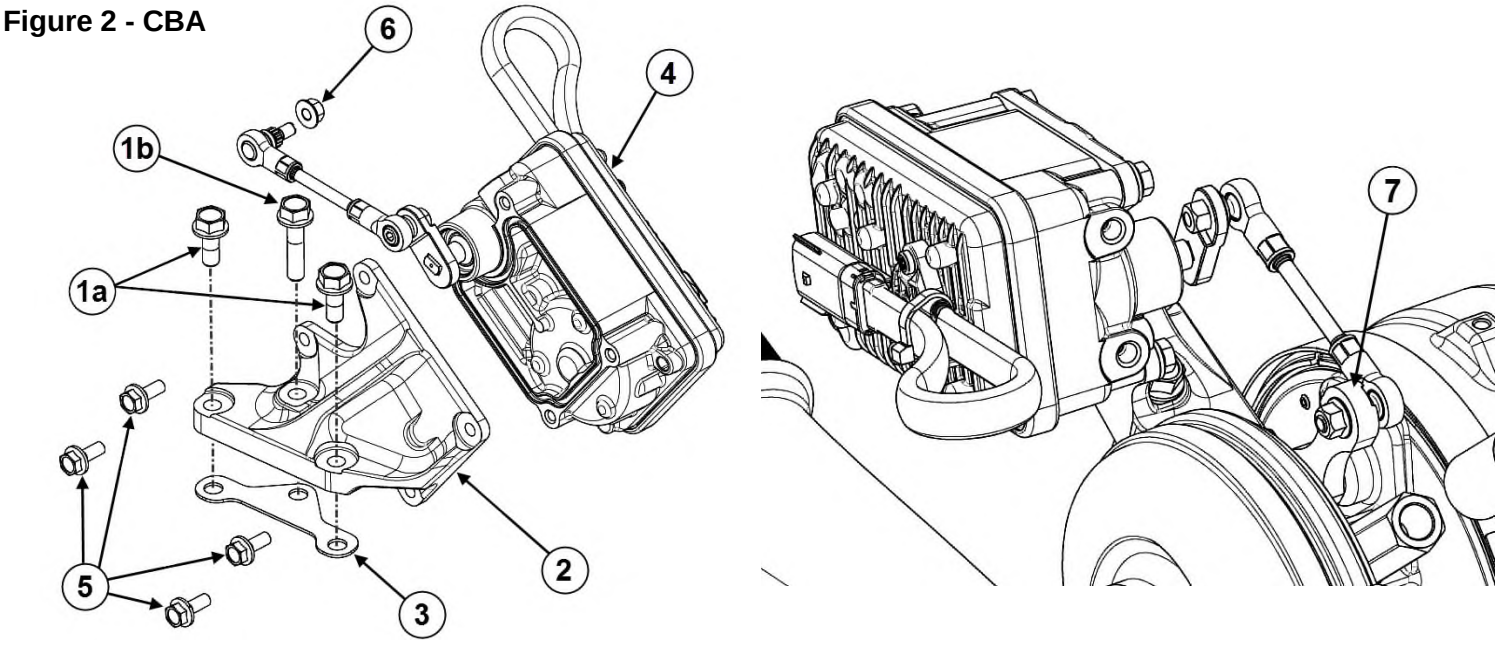
Before installing the Retrofit Actuator Assembly:

1. **Rotate the dog-bone by hand to ensure the VTG mechanism moves freely**
2. **Ensure the mounting surfaces and threads are clean and free of debris**

Retrofit Actuator Assembly Installation
See Figure 2

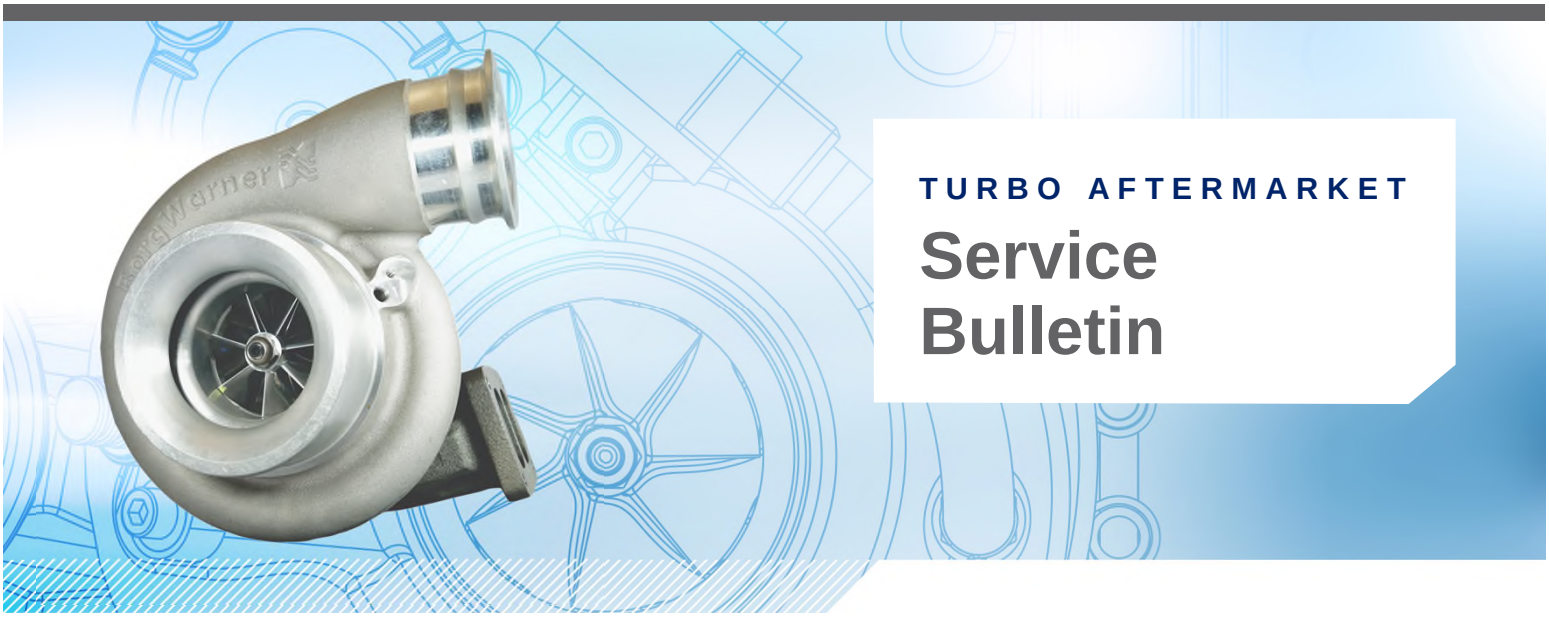
1. Mount the thermal spacer (3) and Actuator bracket (2) to the turbocharger bearing housing using the supplied M8 bolts (1a,1b), ensuring proper orientation of thermal spacer. Torque the three M8 bolts to 19±1 Nm.
2. Insert Actuator linkage end into dog-bone (7) and loosely secure with M6 nut (6) by hand
3. Install Actuator assembly (4) to bracket (2) using the four supplied M6 bolts (5) and tighten to 13.5±1.1 Nm
4. Tighten M6 nut (6) to 10.5±0.3 Nm

Figure 2 - CBA



Item #	Description	Qty
1a	Flange Head Bolt - M8 x 20mm	2
1b	Flange Head Bolt - M8 x 35mm	1
2	Actuator bracket	1
3	Thermal spacer	1
4	Actuator assembly	1
5	Flange Head Bolt - M6 x 16	4
6	Nut - M6	1

Please refer to BorgWarner Turbo Aftermarket **Service Bulletin S-03-17** for the coolant line re-routing procedures.



6.4 liter V2S and HP stage Actuator Replacement

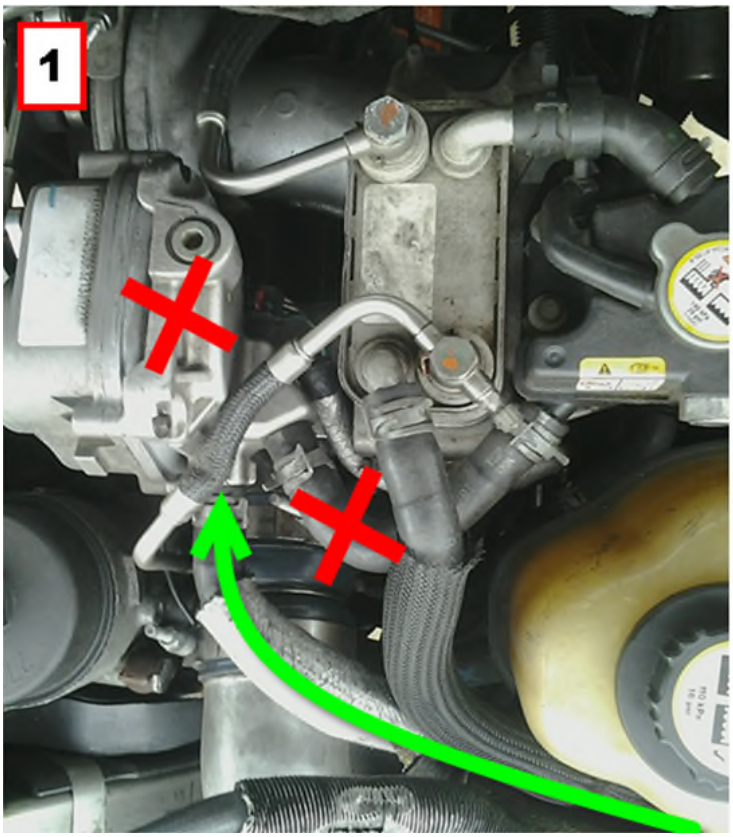
New retrofit Actuator

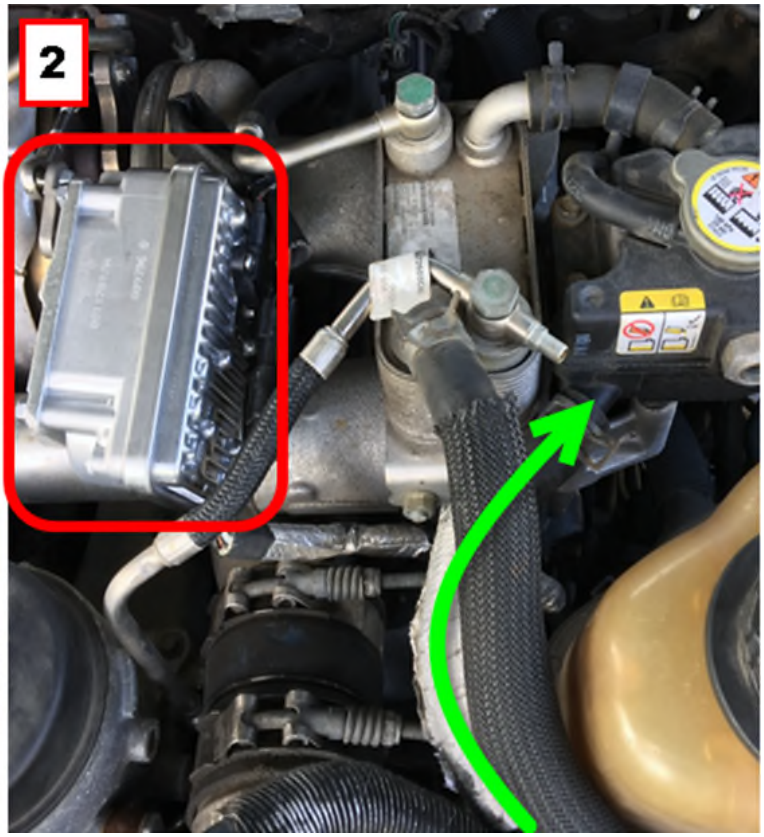
We are pleased to announce the release of the Ford 6.4 liter Powerstroke V2S turbo system. with the BorgWarner retrofit actuator. This new actuator effectively replaces the original turbo Smart Remote Actuator (SRA). The BorgWarner Contact Brushless Actuator (CBA) fits into the same packaging profile and has the same performance characteristics as the original actuator which is no longer available.

Cooling Circuit

The new CBA retrofit actuator does not require water cooling as did the original SRA. The existing coolant lines can be rerouted to bypass the actuator and complete the cooling circuit without modification by eliminating the actuator coolant block and the short hose that went from the old actuator coolant block to the reservoir.

Photo #1 below shows the original actuator and coolant line arrangement and Photo #2 shows the new actuator with the coolant line rerouted directly to the coolant reservoir.





The coolant block attached to the original SRA actuator and the short hose connecting the coolant block to the reservoir will no longer be used. See red **X**'s in photo #1 above.

The shielded hose marked with the green → will move from the coolant block connection shown in photo #1 and go directly to the reservoir connection as shown in photo #2.

Calibration

There is no external calibration procedure required for the new retrofit CBA actuator. The new actuator will automatically calibrate the first time it is powered up. Key on powers up the actuator and it moves to a safe position at 20% of full travel. It waits at this position for the ECU to provide information that will allow the actuator to execute a complete span sweep to learn its limits.

Contaminants in the engine oil

It is common for solid contaminants to build up in the 6.4 liter bearing systems. Not only in the turbo but in the oil cooler, and the oil lines and fittings supplying oil to the turbos. Please check the oil system to be sure it is free of solid contaminants before installing a new turbo system. These solid contaminants are carried to the turbo bearing system and deposited there causing premature bearing and turbo failure. Checking the system for debris before connecting the oil lines to the turbo will help protect your investment.

Final Assembly instructions