Garrett Turbocharger Upgrade Kit for the Mitsubishi Evo X

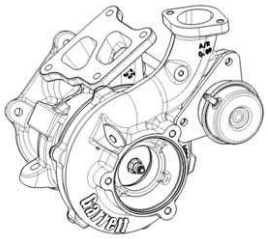
Bill of Materials & Precautions

Application:
2008+ Mitsubishi Lancer Evolution X

Part Numbers: **788550-5001S:** ***GT3071R, 0.73 A/R***
788550-5002S: ***GT3076R, 0.94 A/R***
788550-5003S: ***GT3071R, 0.94 A/R***
788550-5004S: ***GT3076R, 0.73 A/R***

Parts List

Item	Description	Qty.
1	Turbocharger (**GT3071R** or **GT3076R**)	1
2	Compressor inlet elbow	1
3	Oil inlet fitting (banjo bolt)	1
4	Oil drain line (with o-ring)	1
5	Water line	1
6	Oil inlet spacer	1
7	O-ring for inlet elbow	1
8	Oil drain bolt (M8 x 1.25, 8mm 12-pt head)	2
9	Oil drain gasket	1
10	Copper crush washer, M14	4
11	Copper crush washer, M12	3
12	Copper crush washer, M10	2
13	Actuator retaining ring	1
14	Bolt, turbine (stainless, M10 x 1.25 x 35)	2
15	Installation Instructions	1



Tools Needed

- Ratchet and metric sockets: 10, 12, 14, 17, 19, 22mm, 8mm 12-point
- Socket extensions, various sizes
- Universal joint ("wobbly") for socket extension
- Torque wrench (lb-ft or N-m)
- Combination wrenches: 10, 12, 14, 17, 19mm
- Pliers for hose clamps (needlenose or similar)
- Screwdrivers: flat blade and Phillips, various sizes
- Cutoff wheel or hacksaw for trimming steel heat shields & stud
- File or de-burring tool for steel heat shields & stud
- Ruler, scale or calipers (inch or metric)
- Floor jack and 2 jack stands rated for weight of vehicle, or vehicle lift

- NOTE: Bolt and fastener sizes may be different from one model year to the next depending on OE specifications. Different tools than those listed above may be required.

Recommended Other Items

- Factory Service Manual & Owner's Manual
- Safety glasses
- Anti-seize compound

PLEASE INSURE THAT THE PART NUMBER THAT HAS BEEN RECEIVED WAS THE INTENDED PART NUMBER BEFORE BEGINNING INSTALLATION.

See Honeywell Turbo Technologies' return policy if the incorrect kit has been ordered.

IMPORTANT INFORMATION - PLEASE READ CAREFULLY

We recommend that this Garrett product be installed by a qualified automotive technician. If you have any doubts as to your ability to install this product, consult with a local automotive repair company. Please be sure to carefully read all of the attached instructions prior to starting the installation process. If you have any questions about the enclosed parts or the instructions, call the distributor that you purchased the kit from for clarification.

Prior to the Garrett product installation, be sure that the vehicle is parked on a level surface and the engine is cool. Engine fluids and components can be extremely hot following normal vehicle operation. Avoid direct contact of engine fluids or components with your skin which may cause personal injury.

IMPORTANT INFORMATION - PLEASE READ CAREFULLY

Return Policy
Only unused and complete merchandise will be accepted for return subject to inspection and acceptance by Honeywell Turbo Technologies. No goods will be accepted without prior return authorization from Honeywell Turbo Technologies. No returns are accepted after thirty (30) days from original ship date from Honeywell. All accepted returns are subject to a 20% restocking charge - NO EXCEPTIONS.

Damaged Shipments
The customer must file a claim with the shipping company if goods arrive in a damaged condition. The customer must also notify the distributor from which the goods were purchased with pertinent information.

Refused Shipments
Sending a shipment back to The Garrett Garage (or Honeywell) does not automatically give rise to a complete refund or credit. Honeywell Turbo Technologies may, at its sole discretion require different payment means for any shipment refused and then reshipped. It is the customer's responsibility to make all arrangements with Honeywell Turbo Technologies for disposition of refused shipments.

Shortage or Discrepancy Claim
Shortage or Discrepancy claims must be reported within forty-eight (48) hours of receipt of goods to the distributor from which the goods were purchased. The Honeywell distributor will determine the best solution on how to address shortages or discrepancies.

Limited Warranty
Honeywell Turbo Technologies warrants to the original purchaser of its Turbocharger Products that such Turbocharger Products will, for a period of 1 year from date of shipment and subject to the Limitations on Warranty, be free from defects in materials and workmanship. For approved warranty claims Honeywell Turbo Technologies will, at its sole discretion, either credit the original purchaser in an amount equal to the original purchase price, or replace the applicable Turbocharger Product free of charge, within 60 days of Honeywell Turbo Technologies' approval. This is purchaser's sole and exclusive remedy and provides the complete financial responsibility of Honeywell Turbo Technologies for a warranty claim. To be eligible for reimbursement, Customer must (a) submit all warranty claims to Honeywell Turbo Technologies within 30 days of the discovery of the alleged Turbocharger Product defect; and (b) complete and return a Returned Material Authorization Form. Consumers are required to work through Honeywell's distributors in order to process any warranty claims.

When Honeywell Turbo Technologies requires the examination of a failed part, Honeywell Turbo Technologies will promptly notify Customer and will await receipt of the failed part before further processing the warranty claim. If Honeywell Turbo Technologies ultimately determines that the failed part is covered under the Limited Warranty, Honeywell Turbo Technologies will reimburse Customer for the actual cost of ground shipment for any part found to be defective.

IMPORTANT INFORMATION - PLEASE READ CAREFULLY

Limitations on Warranty
The Limited Warranty does not apply to any parts: (a) not used in accordance with Honeywell Turbo Technologies' written instructions (b) for which no fault is found; (c) that have been modified in any manner not specifically approved by Honeywell Turbo Technologies; (d) for which an inspection indicates that reasonable and proper installation and/or preventative care and maintenance has not occurred; (e) that have been subject to damage attributable to or caused by misuse, abuse or vandalism; mishandling, improper shipping or other transit related damage; acts of god or insurrection; foreign object entry; any part not supplied by Honeywell Turbo Technologies; any repair, maintenance or service by anyone other than Honeywell Turbo Technologies; or any other acts that are beyond Honeywell Turbo Technologies' reasonable control; or (f) attributable to parts not supplied by Honeywell Turbo Technologies. Honeywell Turbo Technologies expressly disclaims any and all warranties relative to the foregoing circumstances.

Honeywell Turbo Technologies shall not be liable to Customer under any circumstances for any special, incidental or consequential damages, including without limitation, damage to or loss of property other than for Turbocharger Products; damages incurred in installation, repair or replacement; lost profits, revenue or opportunity; loss of use; losses resulting from or related to downtime of Turbocharger Products; the cost of replacement transportation, power, or compression; the cost of substitute products; or claims of third parties for such damages, howsoever caused, and whether based on warranty, contract, and/or tort (including negligence, strict liability or otherwise).

The Limited Warranty is the only warranty made by Honeywell Turbo Technologies for any of its turbochargers and related parts and/or services, and is in lieu of and excludes all other warranties, expressed or implied, including warranties of merchantability or fitness for a particular purpose. Honeywell Turbo Technologies hereby disclaims all other warranties not expressly set forth. Some jurisdictions do not allow for the exclusion of implied warranties, so the above exclusions may not apply to you, however if implied warranties do apply they are limited to the original purchaser and for a period of one (1) year from the date of shipment.

Diagnosing Your Vehicle
Do not rely on diagnostic software without seeking the advice of an ASE certified mechanic. Diagnostic software should only be used as a general guideline to help you facilitate the repair of your car. If you experience or suspect any malfunction of vital safety equipment, such as your brakes, exhaust, motor, transmission, fuel delivery system, your car's structural integrity or any other potentially life threatening malfunction, cease driving your vehicle immediately and seek professional help. Always consult your owner's manual.

Vehicle Modification Notice
Any modifications to your car are AT YOUR OWN RISK. You should consult the owner's manual and service manual. You should also contact your car's manufacturer to determine what effects modifications may have on your safety, warranty, performance, etc. Please also contact your local authorities to determine whether your intended modifications will make your car illegal to drive on public roads. A vehicle modified by the use of competition parts may not meet the legal requirement for use on public roads. It is your responsibility to comply with federal, state, and local laws prior to driving your vehicle on public roads.

IMPORTANT INFORMATION - PLEASE READ CAREFULLY

OTHER PRECAUTIONS

Observe all safety precautions and warnings contained in the installation instructions. Wear eye and ear protection and appropriate protective clothing. When working under or around the vehicle support it securely with jack stands. Use only the proper tools. Exercise extreme caution when working with flammable, corrosive, and hazardous liquids and materials.

LEGAL INFORMATION

The Garrett turbo kits are for use off the public roadways. Federal law restricts the removal or modification of any part of a federally required emission control system on motor vehicles. Also, many states have enacted laws which prohibit tampering with or modifying emission or noise control systems. Vehicles which are not operated on public roadways may be exempt from certain regulations, however the buyer is strongly urged to check all applicable local and state laws and is ultimately responsible for compliance with the applicable laws and regulations.

Contact Information for Questions

Please contact the Honeywell distributor from which the equipment was purchased for any questions regarding this Shipping/Returns/Cancellation Policy, for notifications to Honeywell Turbo Technologies, and for instructions on processing damaged shipments and authorized returns.

Honeywell Turbo Technologies
Garrett Independent Aftermarket
Honeywell International Inc.
3201 W. Lomita Blvd.
Torrance, CA 90505
www.TurboByGarrett.com

Installation Instructions

NOTE: *2 steel heat shields and one steel stud will need to be trimmed as part of this installation. See steps 35 & 48-50.*

TURBOCHARGER REMOVAL

1. Uncover the vehicle's battery, which is located in the trunk. Disconnect the ground cable and secure it away from the terminal (10mm wrench or socket). See *Fig. 1.*

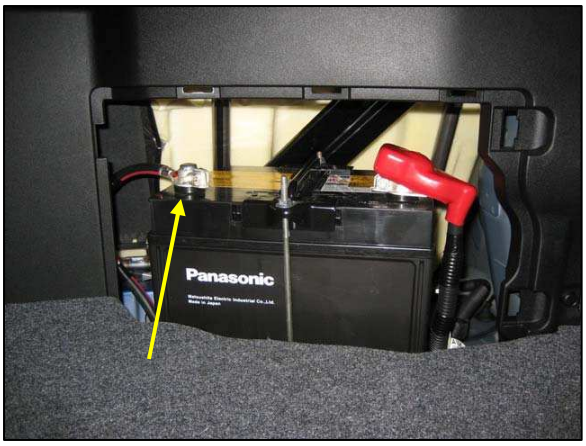


Fig. 1

2. Locate the plastic engine compartment covers under the vehicle. Remove the rear-most center cover, shown outlined in yellow in *Fig. 2*. The cover is secured by round plastic clips. Use a prying tool or a flat blade screwdriver to pop out the center section of the clip, and then pull the clip out by hand (clips, flat blade screwdriver).

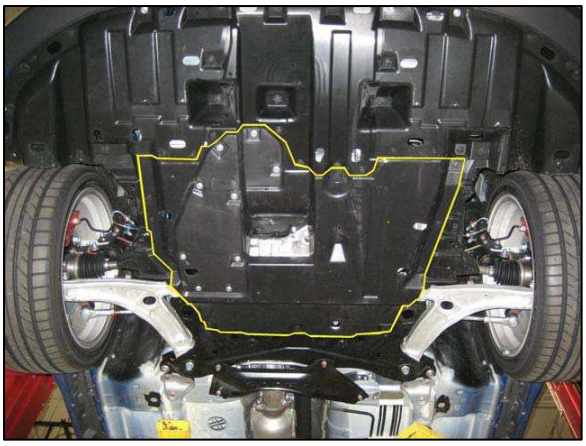


Fig. 2

3. Then remove the passenger side front cover, which is secured by 2 bolts and plastic clips. This cover is shown outlined in *Fig. 3*, with bolt locations shown by arrows (2 bolts, clips, 10mm socket, screwdriver).

4. Drain the engine coolant by opening the drain valve, which is now accessible on the passenger's side front of the radiator. Drain into a suitable container. Open the radiator cap to speed the process (pliers).

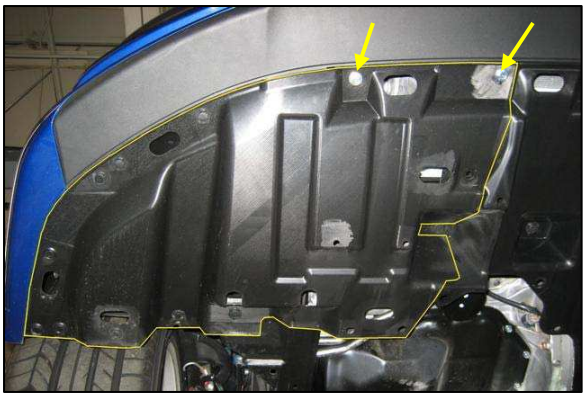


Fig. 3

Installation Instructions

5. Remove the upper plastic engine cover by pulling upwards until it pops off. See *Fig. 4*.

Fig. 4

6. Remove the compressor outlet elbow hoses complete with the adapter tube between them. Remove the hose clamps at the locations shown by arrows in *Fig. 5*. These parts will be reused (2 clamps, screwdriver).

Fig. 5

7. Remove the compressor inlet hose, complete with rubber elbow and bypass valve. To do so, remove all 4 clamps at locations shown in *Fig. 6*. These are:

    1. MAF sensor clamp
    2. Bypass valve clamp
    3. Bypass valve signal line clamp
    4. Turbocharger inlet elbow clamp (out of sight)

    These parts will be reused (4 clamps, Phillips screwdriver or 10mm socket, pliers).

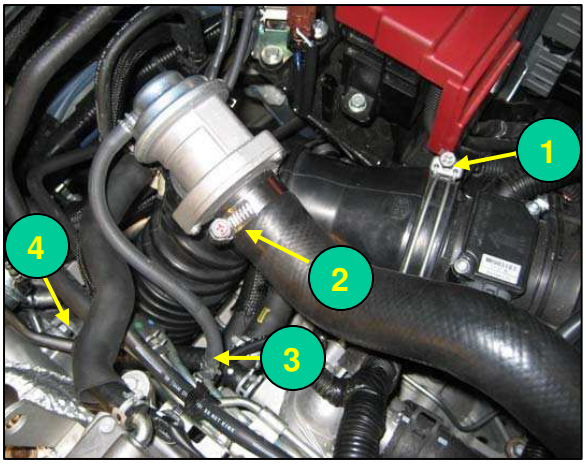


Fig. 6

Installation Instructions

8. Remove the strut tower brace bar. There are 3 nuts on each side of the car securing it to the strut towers, and 2 bolts in the center of the bar securing it to the cowl. These parts will be reused (6 nuts, 2 bolts, 14mm socket). See *Fig. 7*.

Fig. 7

9. Remove the cowl heat shield, located on the firewall behind the cylinder head and under the cowl overhang. These parts will be reused (3 bolts, 10mm socket). See *Fig. 8*.

Fig. 8

10. Remove the heat shield covering the exhaust manifold and downpipe. These parts will be reused (5 bolts, 10mm socket). Bolt locations are shown by arrows in *Fig. 9.*

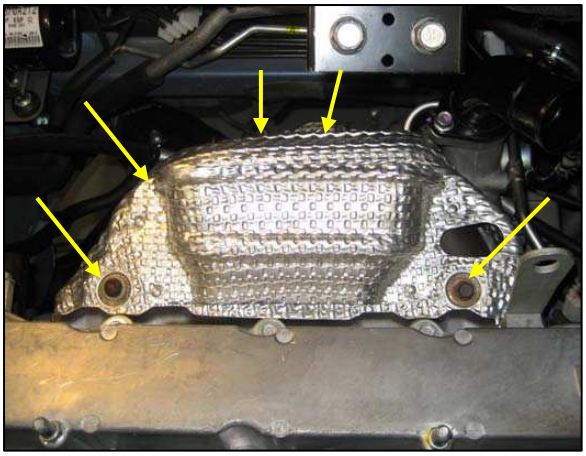


Fig. 9

Installation Instructions

11. Remove the vacuum / emission hose from the black metal compressor outlet elbow and from the wastegate actuator. Tag this hose for easy identification upon reassembly, and secure the hose out of the way in the engine compartment. These parts will be reused (2 hose clamps, pliers). See *Fig. 10*.

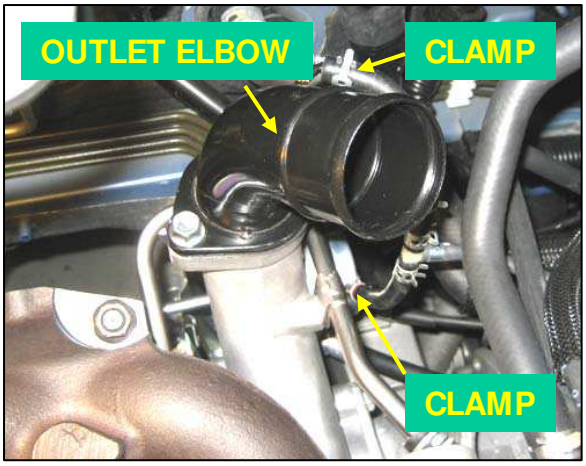


Fig. 10

12. Remove the black metal compressor outlet elbow and its gasket, noting orientation of the gasket. These parts will be reused (2 bolts, 12mm socket). See *Fig. 11*.

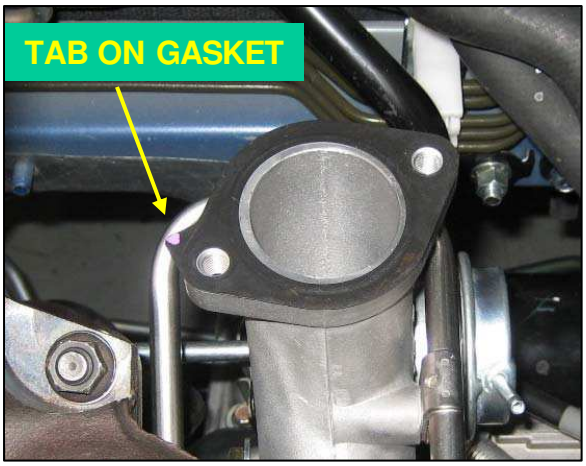


Fig. 11

13. From the driver's side, find the steel bracket that braces the compressor housing to the engine block. Remove this bracket, noting orientation. This part will be reused (2 bolts, 17mm socket/wrench). See *Fig. 12*.

14. Remove the cast aluminum inlet elbow from the compressor housing, along with its gasket. The bolts will be reused but the elbow and gasket will not (3 bolts, 12mm socket). See *Fig. 12*.

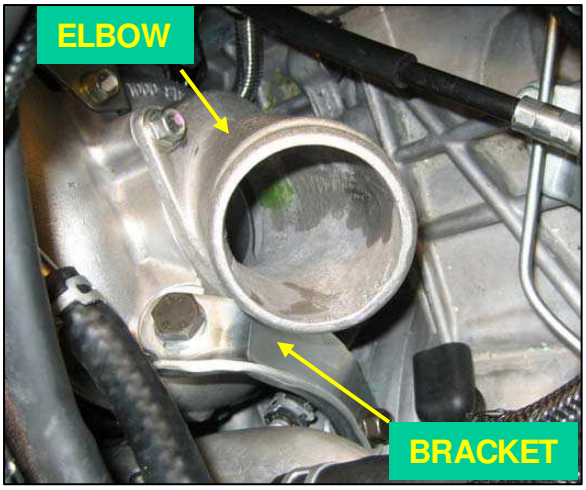


Fig. 12

Installation Instructions

15. Find the hard steel water line that connects to the rear of the turbocharger's center housing (facing firewall). Remove it, along with its banjo bolt, copper crush washers, and mounting bolt. Disconnect the rubber hose. These parts will be reused, except for the crush washers. The hard line will be transferred to the Garrett turbocharger in step 31, using the original banjo bolt and new copper crush washers supplied in kit (1 banjo bolt, 1 bracket bolt, 1 clamp, pliers, 10mm & 17mm sockets). See *Fig. 13*.

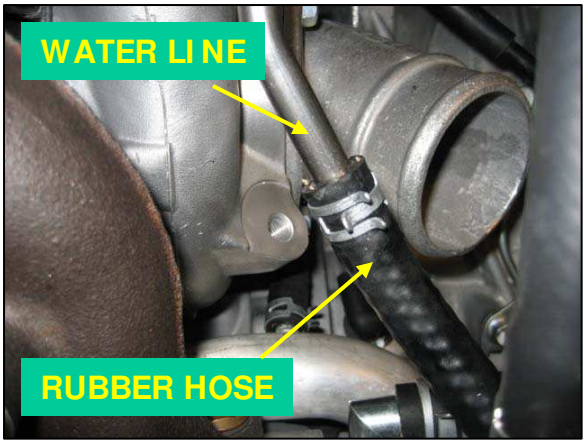


Fig. 13

16. Find the hard steel water line that connects to the front of the turbocharger's center housing (closest to engine block). See *Fig. 14*; turbocharger shown off of vehicle for clarity. Remove the rubber hose that connects to the hard line, but leave the hard line attached to the turbocharger for now. The hard line will not be reused. Only the banjo bolt will be reused, with new M14 copper crush washers supplied in kit (2 clamps, pliers).

WARNING: *If raising vehicle is necessary, use a lift, or jack and jack stands, rated for weight of vehicle and follow manufacturer's recommendations for lift points.*


Fig. 14

17. From underneath the vehicle, remove the front exhaust pipe (before catalytic converter). Remove the 2 bolts with springs into downpipe with 14mm socket on 12" (305mm) extension. Rear nuts are 19mm. If you do not desire to remove the oxygen sensor from the pipe, secure the pipe under the car with zip-ties or wire, so that the oxygen sensor wire is not supporting the weight of the pipe (2 bolts, 2 nuts, 14mm & 19mm sockets, extension). Fastener locations shown by arrows in *Fig. 15*.

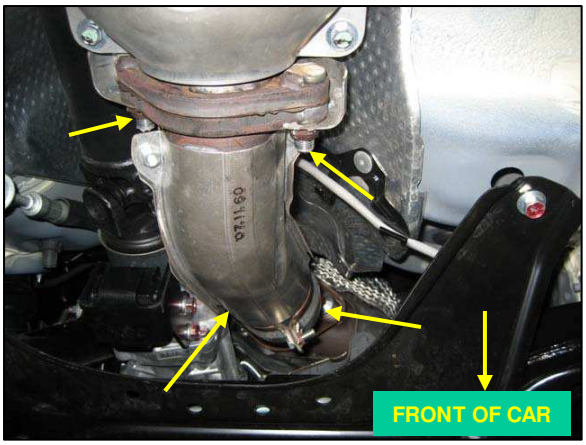


Fig. 15

Installation Instructions

18. From underneath the vehicle, remove the black steel bracket that connects the turbine outlet elbow (downpipe) to the engine block. This part will be reused (2 bolts, 14mm socket). See *Fig. 16*.

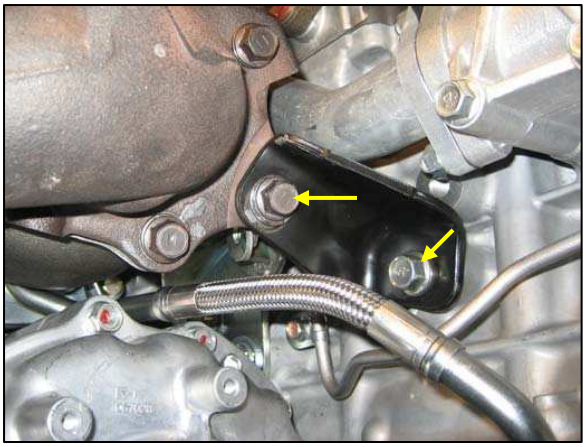


Fig. 16

19. From underneath the vehicle, remove the heat shield attached to the top side of the transfer case, behind and below the turbocharger. This part will be trimmed in step 49 and reused. Bolts fasten downward into transfer case (3 bolts, 10mm socket). See *Fig. 17*.

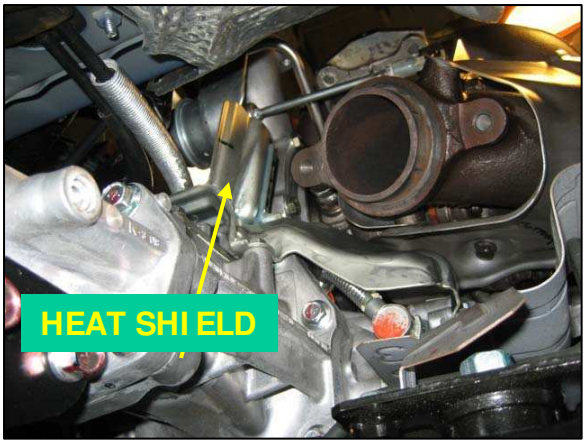


Fig. 17

20. Remove the heat shield above the passenger-side inner driveshaft boot. This part will be trimmed in step 48 and reused (2 bolts, 10mm socket). See *Fig. 18.*

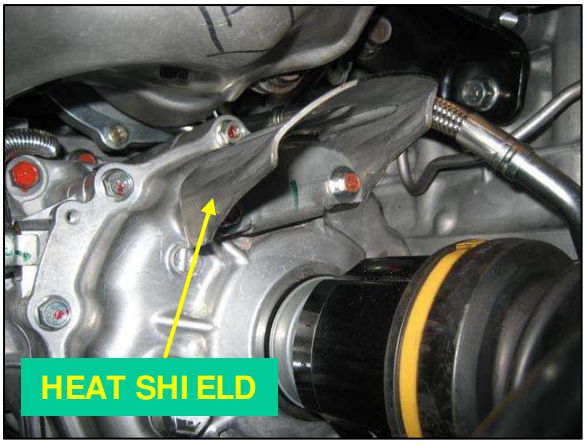


Fig. 18

Installation Instructions

21. From above the turbocharger, locate the large heat shield that covers the downpipe. There is a small heat shield that shares one hole with the large shield and also has its own bolt. The shared bolt is on the underside of the downpipe. Remove 3 bolts total to free both heat shields, note orientation and remove them. These parts will be reused (3 bolts, 14mm socket). See *Fig. 19*. These shields can also be seen in *Fig. 17*.

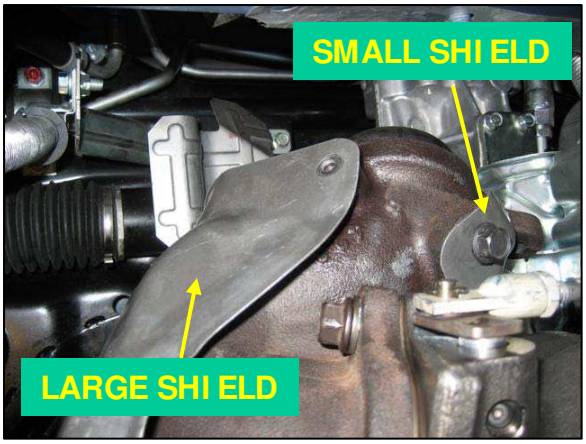


Fig. 19

22. Remove the downpipe next. There are four bolts and one nut securing it to the turbine housing. The nut is installed on a stud that is threaded into the downpipe. The downpipe, bolts, nut and washers will be reused. The gasket may be reused. Penetrating oil may be needed to loosen fasteners (4 bolts, 1 nut, 14mm socket).

23. Find the small steel bracket that connects the turbine housing to the engine block. Remove the bolt into the turbine housing. This bolt is accessible from underneath the vehicle, and is visible between the passenger-side driveshaft and the oil pan. Leave the bracket attached to the engine block. This part will be reused (1 bolt, 14mm socket, extension, u-joint). See *Fig. 20.*

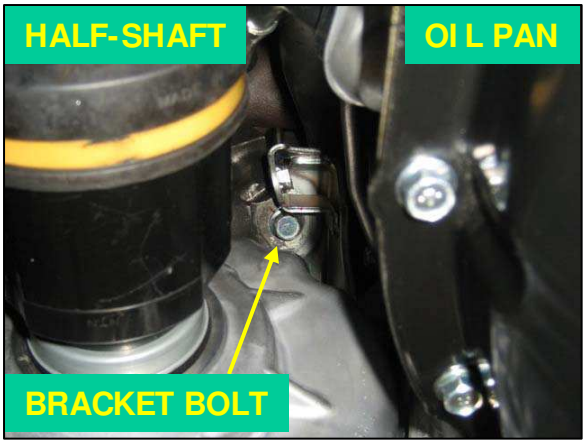


Fig. 20

24. Remove the oil feed line (hard steel) from the engine block. Its banjo bolt installs into the backside of the engine block (facing firewall) on the passenger side, directly below the water pump. Remove bolts securing the oil line to engine block and compressor housing. These bolts pass through 2 steel tabs on the oil line. Oil feed line will be reused along with banjo bolt and engine block support bolt. New M10 copper crush washers are supplied in the kit (2 bolts, 10mm wrench / socket). See *Fig's. 21 & 40*.

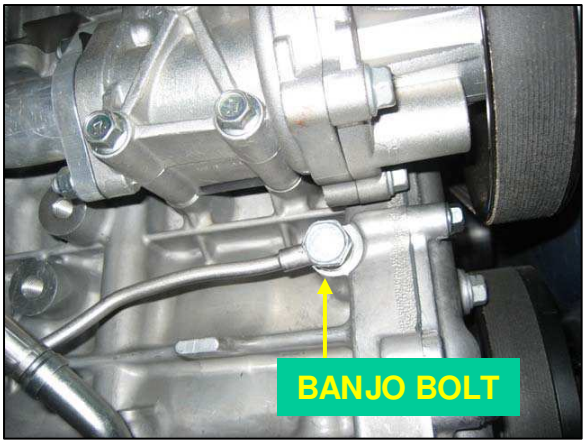


Fig. 21

Installation Instructions

25. Locate the turbocharger oil drain line. See *Fig. 22* (shown off of vehicle for clarity). It drains into the passenger side rear of engine block, below oil feed banjo bolt. Remove single bolt securing clamp to engine block. Remove bolt near middle of line securing it to engine block. Pull oil drain line out of block but leave attached to turbocharger. Ensure the rubber o-ring is present and did not break and fall into oil pan. Clamp bolt will be reused. New oil drain line and o-ring included in kit. Middle support bolt will not be reused (2 bolts, 10mm wrench/socket).

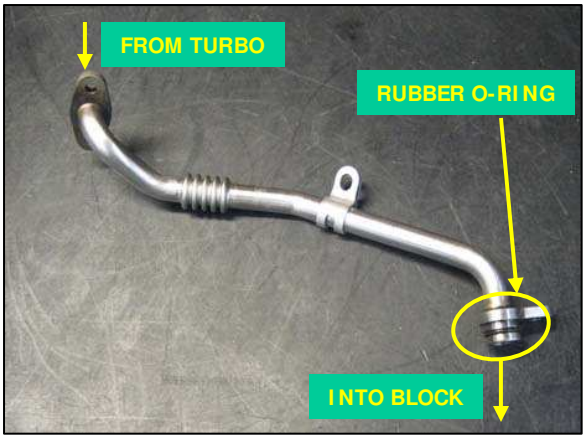


Fig. 22

26. From above the turbocharger, remove the 2 bolts and 2 nuts securing the turbine housing to the exhaust manifold. These fasteners may need to be sprayed with penetrating oil prior to loosening. Carefully lower the turbocharger as these fasteners are removed, being sure that the turbocharger does not damage any other components in the engine compartment. It can temporarily rest on the transfer case. The 2 bolts can be reused. New bolts are supplied with the kit to replace the studs (the old studs may strip if removed from the turbine housing). Reuse all 8 washers. Inspect turbine inlet gasket and replace if any signs of leakage are present (2 bolts, 2 nuts, 14mm socket). See *Fig. 23*

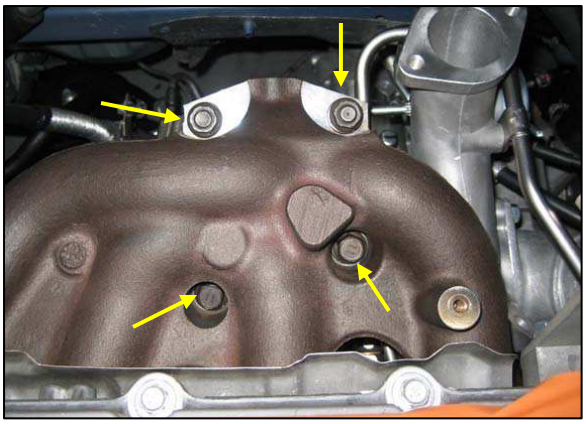


Fig. 23

27. Remove 10 nuts and washers securing exhaust manifold to cylinder head (5 on top and 5 on underside). Wrench from top side will reach all nuts. Pull the manifold towards the rear of the vehicle, off of its studs and pull it up out of the engine compartment. Inspect the exhaust manifold gasket. Replace the gasket if any signs of leakage are present. The manifold, nuts and washers will be reused (10 nuts, 14mm socket). Underside of manifold is shown off of vehicle for clarity in *Fig 24.*

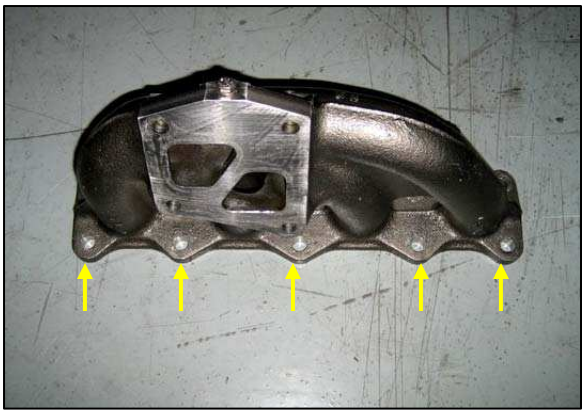


Fig. 24

Installation Instructions

28. Pull the turbocharger up and out of the engine compartment from the top side. It may be necessary to tilt the turbocharger on end and rotate it to allow removal. The space between the cowl/firewall and the valve cover is fairly tight but the turbocharger will fit. Thick tape can be used to protect the valve cover and cowl if desired. Be careful not to damage any oil lines, water lines, electrical wiring or other components under the hood. See *Fig. 25*.

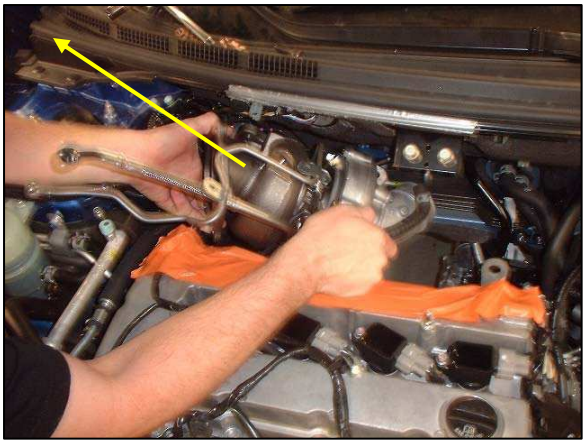


Fig. 25

TRANSFER OF COMPONENTS FROM STOCK TURBOCHARGER TO GARRETT TURBOCHARGER

29. Set the OE (original equipment / stock) turbocharger and the Garrett upgrade turbocharger next to each other on a clean work surface.

30. Make note of the orientation of the short hard water line (closest to engine block) on the OE turbocharger. Remove the water line, its banjo bolt and crush washers. Install the **new** short water line (supplied in kit) on the Garrett turbo, keeping the orientation identical to OE. Use the OE banjo bolt and 2 new 14mm copper crush washers supplied with the kit. Torque the banjo bolt to 26-36 lb-ft (35-49 N-m). Install the rubber water hose on the hard line to a depth of 1.0 inch (25 mm) in orientation shown (22mm socket, pliers).
See *Fig's. 26 & 27.*

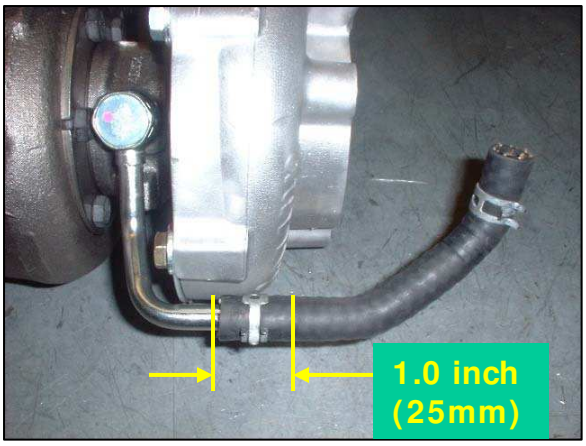


Fig. 26

Fig. 27

Installation Instructions

31. Install the longer OE hard water line on the back of the turbocharger's center housing. Use the OE banjo bolt and 2 new 14mm copper crush washers supplied with the kit. Leave the banjo bolt loose initially. The water line wraps around the compressor housing outlet and is secured with one bolt into the housing. Install this bolt and torque to 6-8 lb-ft (72-98 lb-in / 8-11 N-m). Then tighten the banjo bolt to 26-36 lb-ft (35-49 N-m). Bolt locations are shown by arrows in *Fig. 28*. The actuator is not shown for clarity (2 bolts, 10mm socket, 22mm socket).

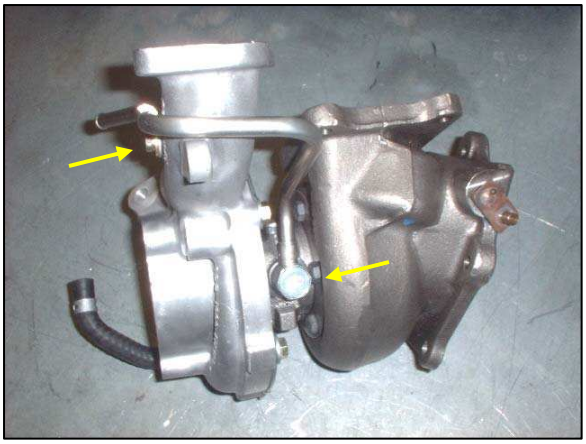


Fig. 28

32. Install the supplied large diameter o-ring onto the new Garrett compressor inlet elbow. Ensure it is not crooked or twisted and is properly seated against the elbow face. See *Fig. 29*.

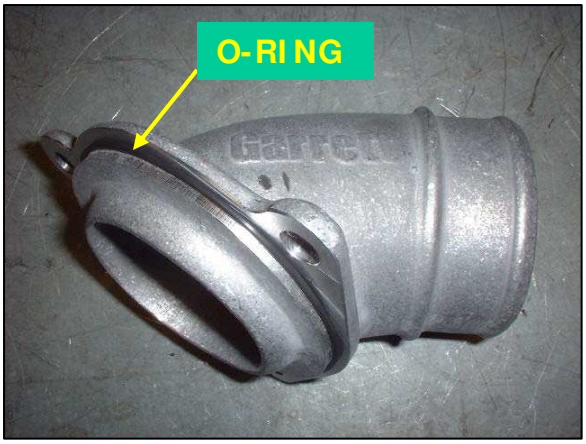


Fig. 29

31. Install the compressor inlet elbow on the Garrett compressor housing, making sure it faces upwards like the OE elbow. Take care not to pinch the o-ring against the housing. Use the 3 OE elbow bolts and torque to 20-22 lb-ft (27-29 N-m) (3 bolts, 12mm socket). See *Fig. 30*. Actuator not shown for clarity.

Fig. 30

Installation Instructions

34. **IMPORTANT:** Coat the supplied new oil drain o-ring with new motor oil and carefully install it on the end of the new oil drain line. Ensure that it is not twisted or crooked in the ring groove. See *Fig. 31*.

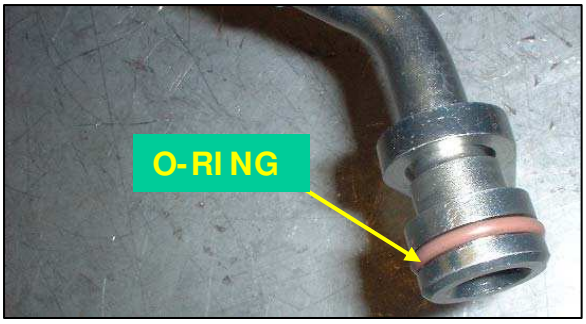


Fig. 31

35. Install the new oil drain line along with its 2-bolt fiber gasket and 8mm 12-point bolts, onto the Garrett turbocharger in the orientation shown.

WARNING: *Do not coat the gasket with any substance (liquid gasket sealant, RTV, silicone, etc). Install it dry.*

Torque the bolts to 15-17 lb-ft (20-23 N-m) (2 bolts, 8mm 12 point socket). See *Fig. 32*.

Fig. 32

36. Install the OE oil feed line onto the top of the Garrett turbo center housing. Use the new banjo bolt supplied in the kit, along with the short steel spacer and the **three** new 12mm copper crush washers. Order of assembly **onto bolt**: 1st washer, oil line, 2nd washer, spacer, 3rd washer. The bolt, together with washers, spacer and oil line, is then installed into the center housing. Ensure that the crush washers stay centered and are not jammed by the bolt or spacer during installation. Snug the banjo bolt (do not tighten) so that the oil line can be adjusted on the vehicle. Bolt will be tightened later in step 43. See *Fig. 33* for assembly order. See *Fig. 34* for approximate orientation on turbocharger.

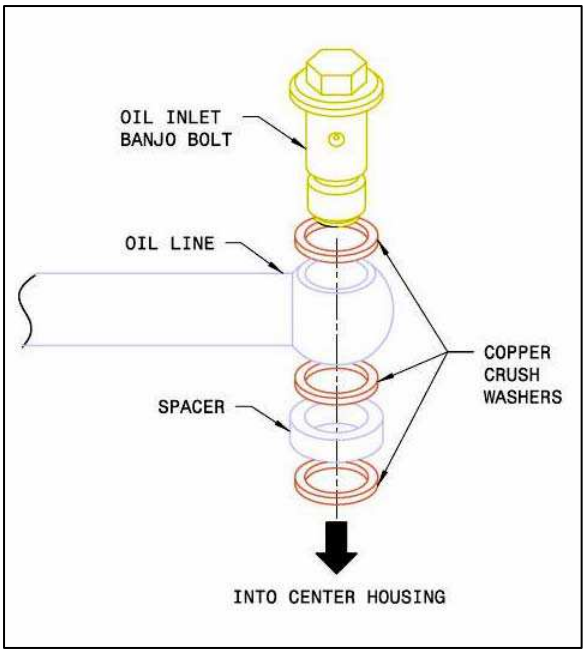


Fig. 33

Installation Instructions

(*Fig. 34* shows approximate orientation of oil inlet line on turbocharger. Do not tighten inlet bolt yet; oil line will need to be adjusted once turbocharger is installed on vehicle.)

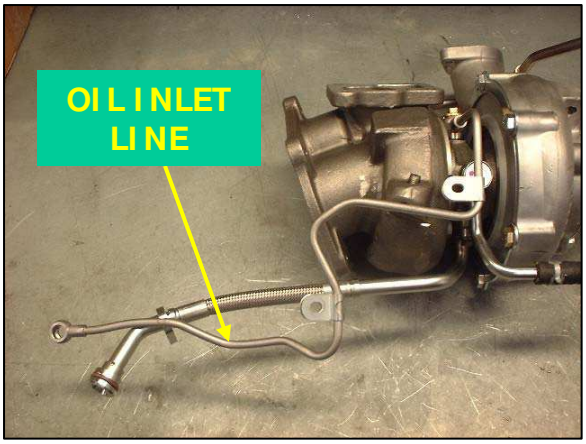


Fig. 34

37. Test-fit downpipe onto turbine housing with its OE gasket. The downpipe stud may or may not be too long to allow installation of the nut and washer depending on the turbine housing used. If the stud is too long, thread the nut all the way onto the stud, and cut the stud until 0.866 inches (22.00 mm) remains protruding from the downpipe. De-burr the freshly cut edge. Back the nut off completely to clean up remaining threads (ruler or calipers, hacksaw or cutoff wheel, file or de-burring tool). See *Fig. 35.*

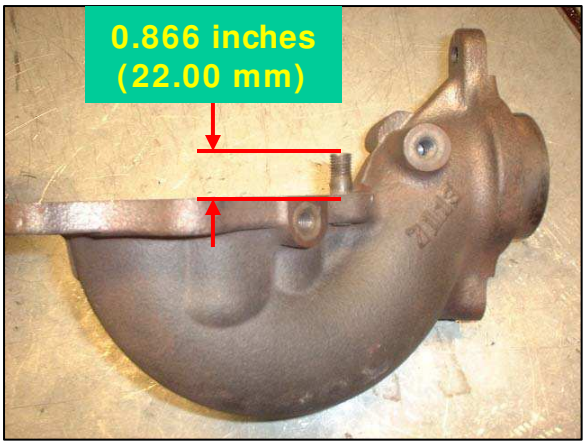


Fig. 35

38. Drop the Garrett turbocharger (together with oil and water lines installed) down into the engine bay. Rest the turbine housing carefully on the OE turbine housing support bracket, which is shown outlined in yellow in *Fig. 36*.

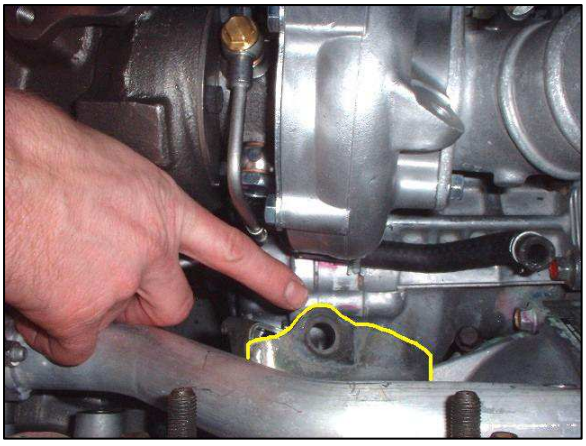


Fig. 36

Installation Instructions

39. Install the lower end of the oil drain line into engine block. **WARNING:** make sure o-ring is liberally coated with oil. Take extreme care when pushing line into block. If the oil line is not aligned with the hole, the o-ring could be sheared on installation. Pieces of the o-ring could potentially fall into the oil pan. Clamp the end of the oil line using the OE bolt in the one-hole clamp and tighten to 6-7 lb-ft (72-88 lb-in / 8-10 N-m) (1 bolt, 10mm wrench). See *Fig. 37.*

Fig. 37

40. Install the exhaust manifold gasket on the cylinder head exhaust studs (if removed). Place the manifold on the studs, install washers and nuts and tighten to 34-40 lb-ft of torque (44-54 N-m) (10 nuts, 14mm socket).

41. Place the turbine inlet gasket on the turbine housing. Bring the turbocharger up to meet the manifold and use the 2 OE bolts and the 2 new stainless steel bolts supplied in kit. Apply an anti-seize compound to the bolt threads to protect against corrosion. **NOTE:** each bolt uses 2 washers. Place the washers back-to-back, with the identification holes on the outside facing *up* on the top washer and *down* on the bottom washer. See *Fig. 38*. Torque the bolts to 21-23 lb-ft (27-31 N-m) in an "X" pattern. Tighten the bolts another 60-70 degrees after reaching the torque spec, again using an "X" pattern (4 bolts, 14mm socket).

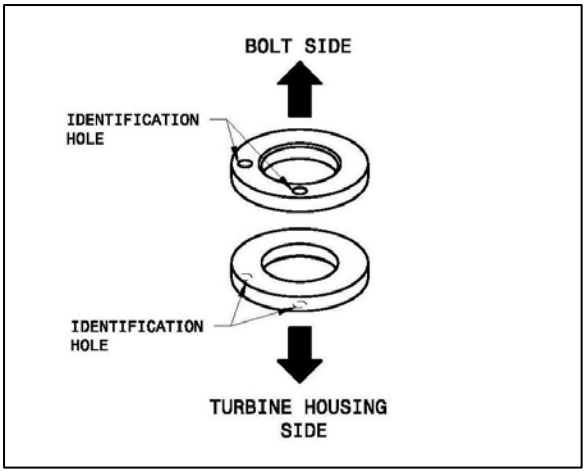


Fig. 38

42. Install the oil feed line into the engine block using the OE banjo bolt and 2 new copper crush washers supplied in kit. Torque the banjo bolt to 12-14 lb-ft (15-19 N-m). Install the support bolt through the oil line tab into the engine block and tighten to 5-9 lb-ft (63-107 lb-in / 7-12 N-m) (2 bolts, 10mm & 17mm sockets). See *Fig's. 39 & 40.*

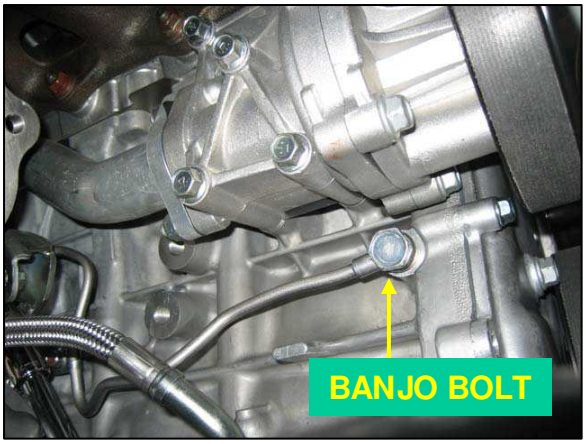


Fig. 39

Installation Instructions

43. Tighten the oil inlet banjo bolt (which was not fully tightened in step 36). Tighten from above using box-ended wrench as shown in *Fig. 41*. Yellow circle represents approximate location of bolt as seen from above. Torque spec is 22-24 lb-ft (30-33 N-m) (1 bolt, 10mm wrench). See *Fig. 41.*

44. Install the single bolt into the turbine housing support bracket. Apply anti-seize compound to bolt threads to protect against corrosion. The bracket may need to be loosened from the engine block in order to align it with the turbine housing. Ensure both bolt holes are aligned and that the bracket is in close contact with engine block and turbine housing before tightening. Torque the bolt to engine block (if necessary) to 33-43 lb-ft (44-58 N-m). Torque the bolt to turbine housing to 45-51 lb-ft (59-69 N-m) (1 or 2 bolts, 14mm socket, extension, u-joint). Refer to *Fig. 20.*

44. Place the downpipe gasket onto the downpipe and install onto turbine housing using OE fasteners. Apply anti-seize compound to fastener threads to protect against corrosion. Ensure the nut is installed with its washer under the head. Torque all 5 fasteners to 25-51 lb-ft (59-69 N-m) (4 bolts, 1 nut, 14mm wrench). Two of the downpipe bolts can be seen in *Fig. 42.*

45. Install the downpipe support bracket. Ensure that both bolt holes are aligned and that the bracket is in close contact with engine block and downpipe before tightening. Torque the bolt to the engine block to 33-43 lb-ft (44-58 N-m). Torque the bolt into downpipe to 45-51 lb-ft (59-69 N-m) (2 bolts, 14mm wrench). See *Fig. 42.*

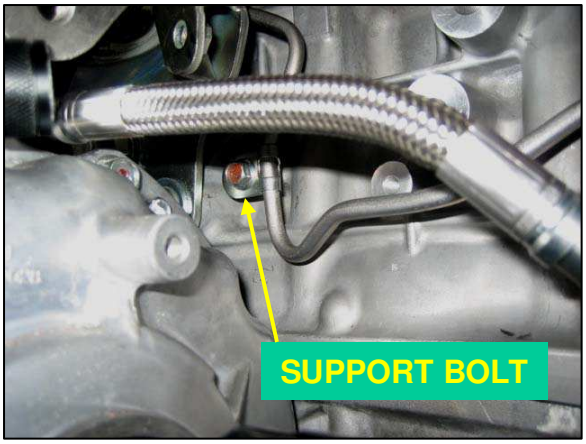


Fig. 40

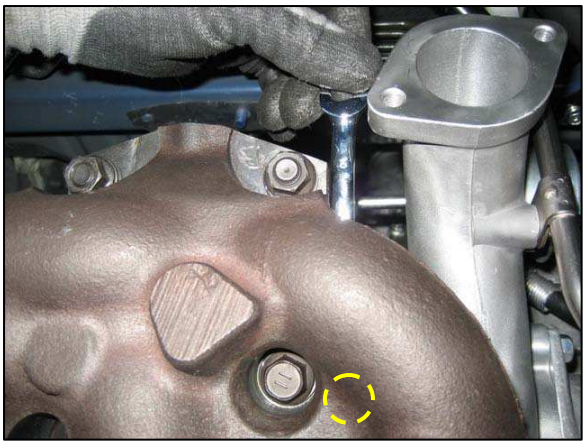


Fig. 41

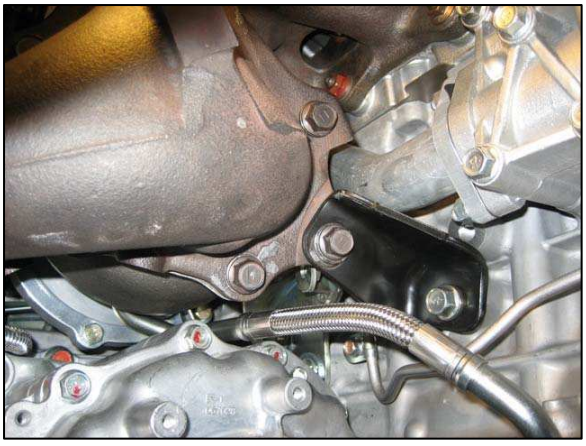


Fig. 42

Installation Instructions

47. Install the small and large heat shields onto the downpipe. The small heat shield shares its lower bolt hole with the large heat shield. Torque bolts to 17-21 lb-ft (21-29 Nm) (3 bolts, 12mm socket). Refer to *Fig's. 17 & 19.*

48. The heat shield above the passenger's side inner driveshaft boot needs to be trimmed in order to clear the new turbocharger oil drain line. Trim away approximately the blue shaded area shown in *Fig. 43*. Test-fit the heat shield, and flex the oil line towards it to check that the oil line cannot contact the heat shield. Trim more as necessary. De-burr sharp edges as necessary after cutting. Once final trimming is complete, tighten the bolts to 5-7 lb-ft (63-89 lb-in / 7-10 N-m) Final fitment is shown in figure 44. (cutting wheel, file / de-burring tool, 2 bolts, 10mm socket).

49. The heat shield that attaches to the top of the transfer case needs to be trimmed to clear the compressor housing. Trim away approximately the shaded areas shown in *Fig's. 45 & 46*. Test-fit the heat shield and ensure that it does not contact the compressor housing or any other part of the Garrett turbocharger. De-burr sharp edges as necessary after cutting (cutting wheel, file / de-burring tool).

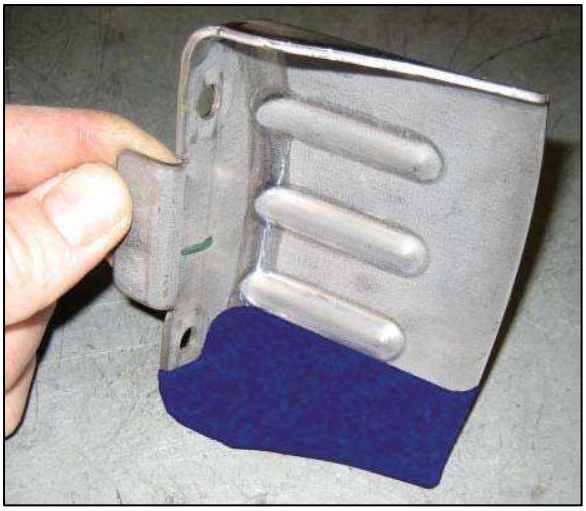


Fig. 43

Fig. 44

Fig. 45

Fig. 46

Installation Instructions

50. The final trimmed heat shield is shown in *Fig. 47*. Once final trimming is complete, install shield and tighten the bolts to 6-8 lb-ft (72-106 lb-in / 8-12 N-m) (3 bolts, 10mm socket). Heat shield is shown installed in *Fig. 48*, outlined in yellow.

Fig. 47

51. Install the front exhaust pipe with its OE seal ring and gasket. Apply anti-seize compound to all fastener threads. Install bolts into downpipe with springs underneath heads, and torque to 23-37 lb-ft (31-51 N-m). Install nuts onto studs on catalytic converter and torque to 37-51 lb-ft (49-69 N-m). If oxygen sensor was removed, install and torque to 30-36 lb-ft (39-49 N-m) (2 bolts w/ springs, 2 nuts, 14mm & 19mm sockets, extension). Refer to *Fig. 15.*

52. Install the rubber water line onto the longer OE water line that wraps around the compressor housing outlet. Use the OE clamps (2 clamps, pliers). Refer to *Fig. 13.*

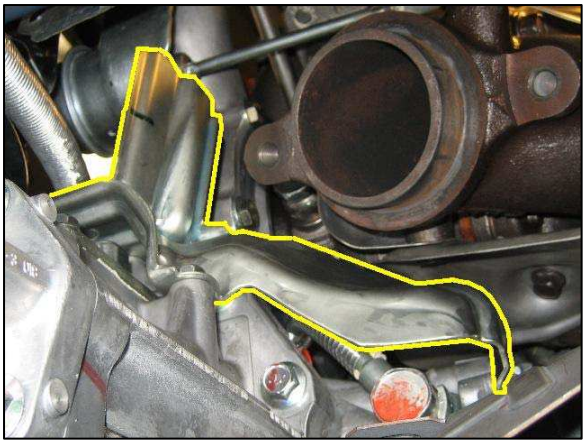


Fig. 48

53. Install the compressor housing support bracket that connects the housing to the engine block. Make sure of correct orientation. Torque bolt into engine block first and into compressor housing second, both to 33-43 lb-ft (44-58 N-m) (2 bolts, 14mm socket). Refer to *Fig. 12.*

54. Place the OE compressor outlet gasket onto the Garrett compressor outlet flange in the correct orientation (tab facing passenger side, rear). Install the black metal compressor outlet elbow to the housing using OE bolts. Torque bolts to 17-21 lb-ft (21-29 N-m) (2 bolts, 12mm socket). Refer to *Fig's. 10 & 11.*

Fig. 49

Installation Instructions

55. Install the vacuum / boost hose to the black metal compressor outlet fitting using the OE clamp. Install the other end on the wastegate actuator using the OE clamp (2 clamps, pliers). Refer to *Fig. 10.*

56. Install the heat shield that covers the exhaust manifold and downpipe. Torque to 6-8 lb-ft (72-106 lb-in / 8-12 N-m) (5 bolts, 10mm socket). Refer to *Fig. 9.*

57. Install the cowl heat shield (3 bolts, 10mm socket). Refer to *Fig. 8.*

58. Install the strut tower bar, torque nuts to 28-38 lb-ft (38-52 N-m) and bolts to 14-20 lb-ft (19-27 N-m) (6 nuts, 2 bolts, 14mm socket). Refer to *Fig. 7.*

59. Install the compressor inlet hose assembly with bypass valve (4 clamps, pliers, Phillips screwdriver or 10mm socket). Refer to *Fig. 6.*

60. Install the compressor outlet hose assembly (2 clamps, Phillips screwdriver or 10mm socket). Refer to *Fig. 5.*

61. It is recommended to change the engine oil and filter whenever a new turbocharger is installed. If doing so, oil drain plug can be found on the passenger's side rear of the oil pan. Drain oil, remove filter, and replace drain plug with new gasket and oil filter per manufacturer's recommendations. Refill the engine oil with OE grade. Capacity: 5.0 qt (4.8 L) without filter, 5.32 qt (5.2 L) with filter.

62. Refill the engine coolant with 7.9 qt (7.5 L) of OE grade or equivalent mixture.

63. Reconnect the battery (10mm wrench or socket). Refer to *Fig 1*.

64. Start up and check for oil and coolant leaks. Shut off engine, tighten any fittings or fasteners that are leaking, then start and re-check until any leaks are eliminated.

65. After leak check is complete and once the engine has cooled, install the upper plastic engine cover and the covers under the engine compartment. Refer to *Fig's. 2 & 3*. Lower the car if it was raised on jackstands or a lift. Install Garrett stickers as necessary to increase horsepower output (2 bolts, 10mm socket, plastic clips, Garrett stickers). See *Fig. 49.*

66. In order to realize the full performance potential of the Garrett upgrade turbocharger and ensure safe operation, the vehicle ECU should be "re-flashed" or tuned by a professional. Installation of this turbocharger kit results in an upgrade to hardware only.

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