

**SECTION 303-04D Fuel Charging and Controls — Turbocharger**

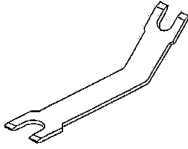
**CONTENTS**

**PAGE**

Turbocharger .....	303-04D-2
--------------------	-----------

## Turbocharger

### Special Tool(s)

 <p>ST2703-A</p>	<p>Disconnect Tool, Quick-Release Coupling 303-755</p>
---------------------------------------------------------------------------------------------------	------------------------------------------------------------

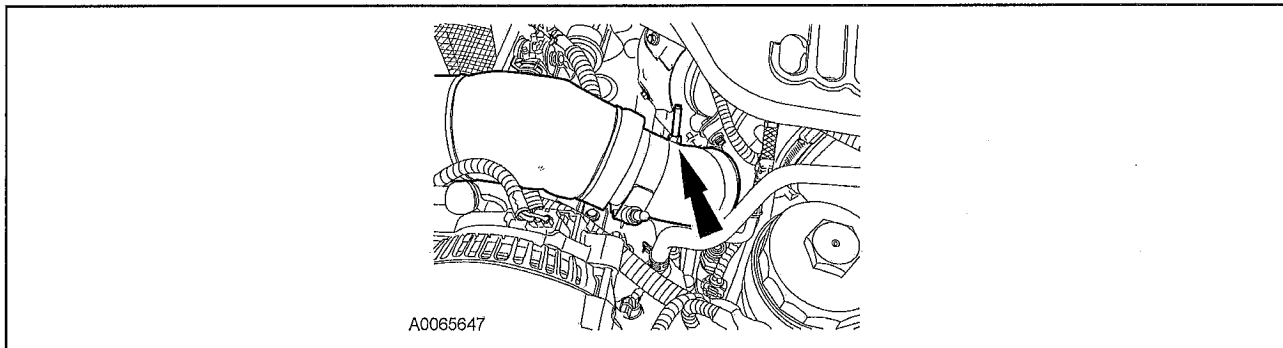
### Material

Item	Specification
SAE 15W-40 Super Duty Motor Oil XO-15W40-QSD or equivalent	WSS-M2C171-D
High Temperature Nickel Anti-Seize Lubricant XL-2	ESE-M12A4-A

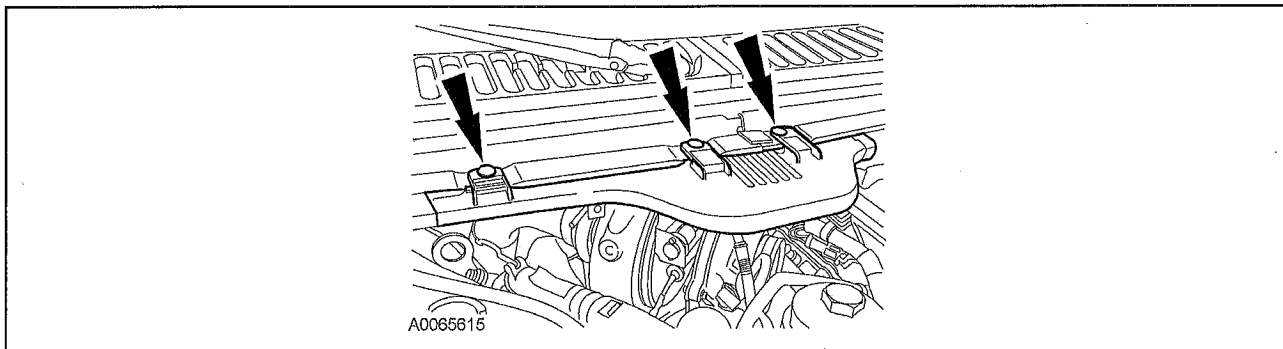
### Removal

#### All vehicles

1. Remove the turbocharger intake tube. For additional information, refer to Turbocharger Intake Tube in this section.
2. Disconnect the charge air cooler inlet pipe.

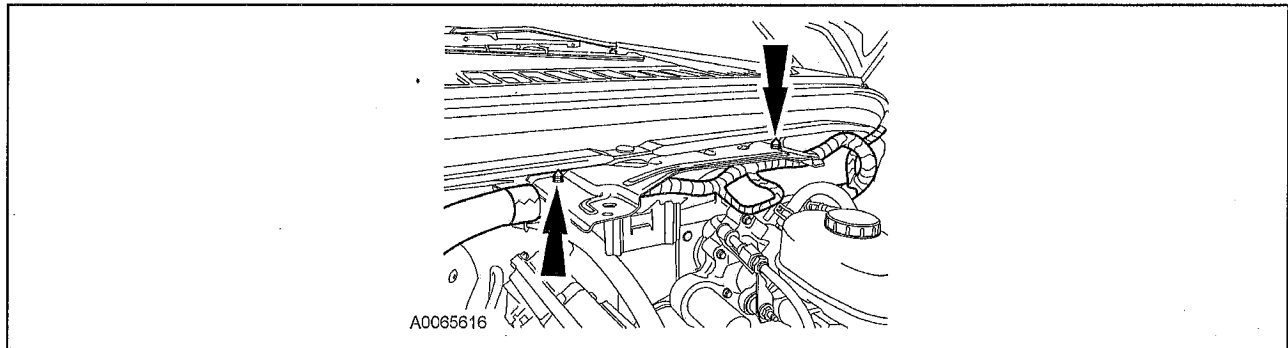


3. Remove the push pins.

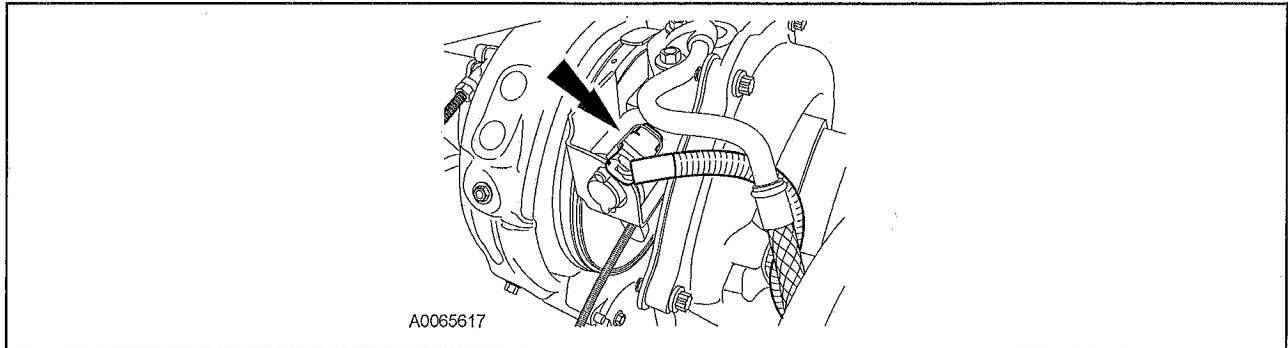


4. Disconnect the two wiring harness push pins and position aside.

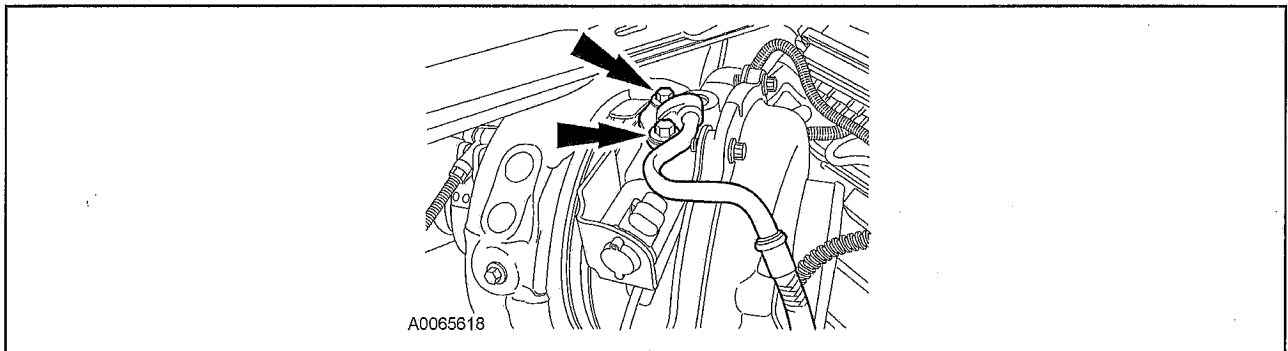
(Continued)



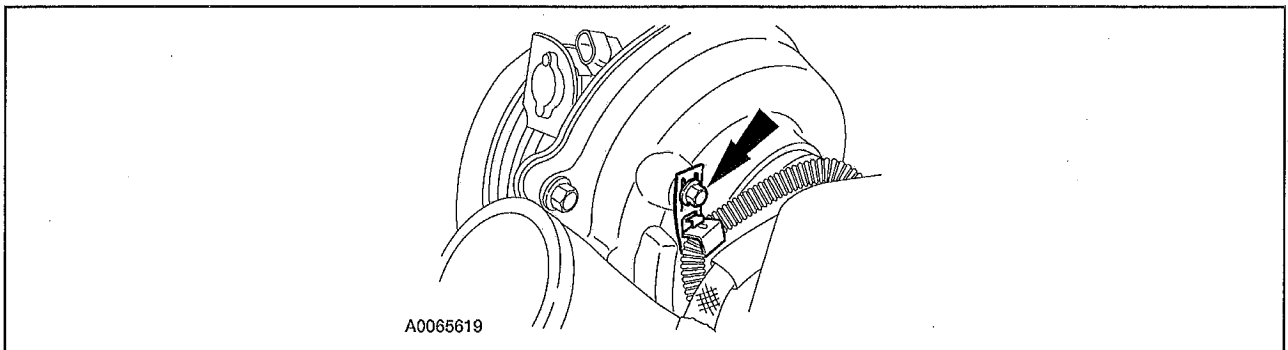
5. Disconnect the turbocharger variable vane hydraulic control valve electrical connector.



6. Remove the bolts for the oil supply tube.
- Remove and discard the gasket.

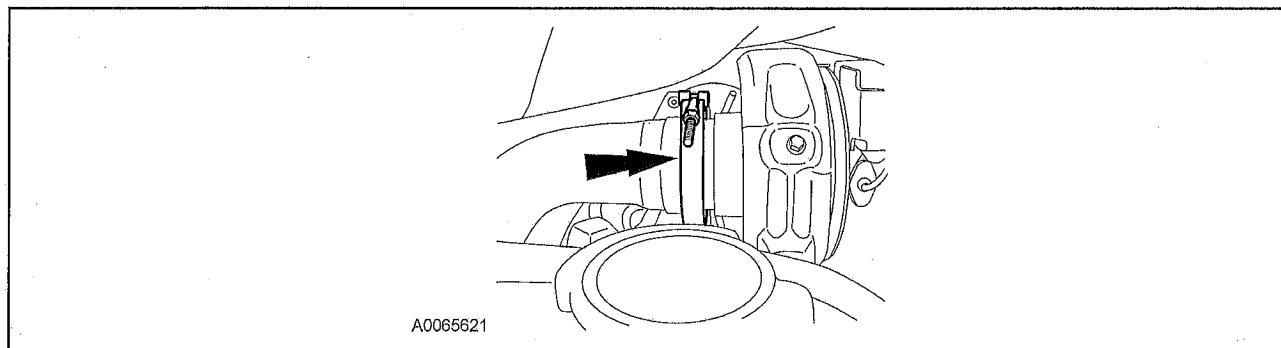


7. Remove the bolt and the wire retainer.

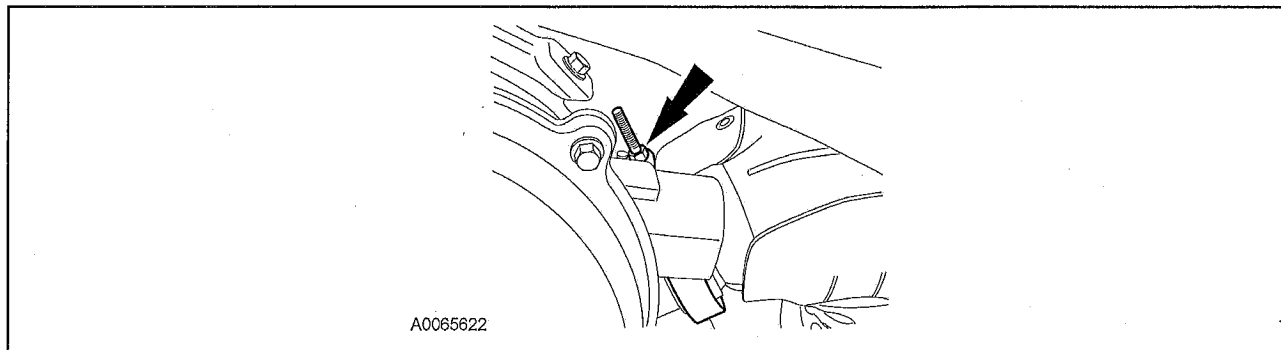


8. Remove the marmon clamp from the turbocharger outlet.

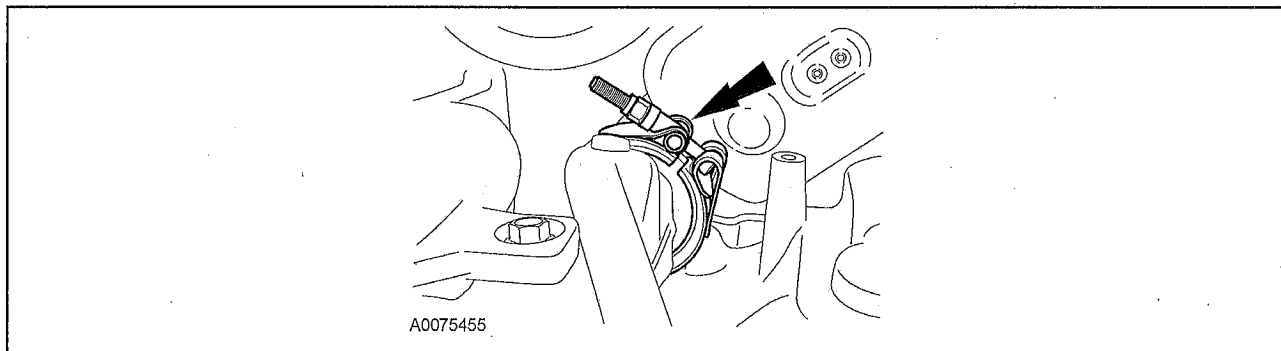
(Continued)



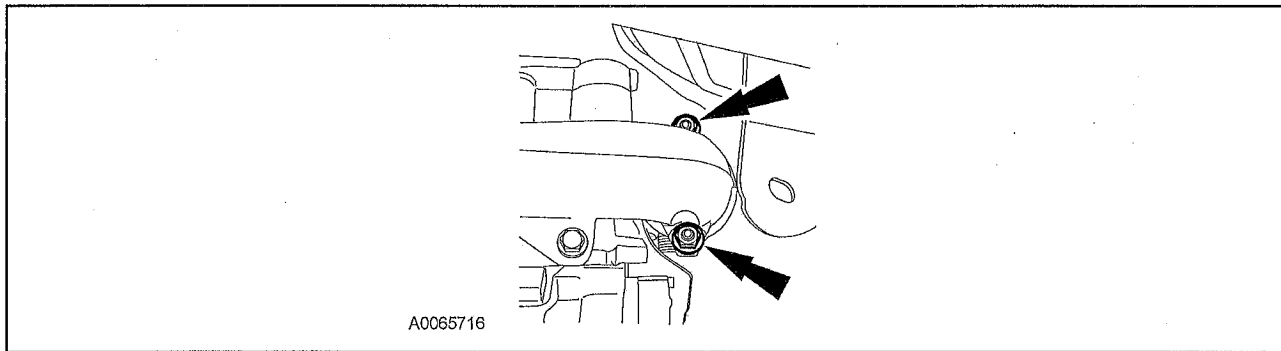
9. Remove the Marmon clamp from the turbocharger inlet.



10. Loosen the exhaust inlet pipe-to-EGR cooler clamp.

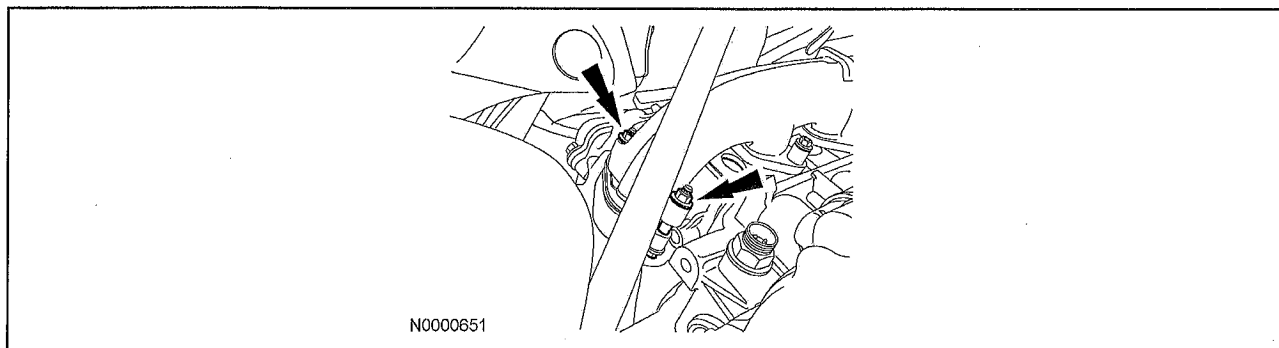


11. Loosen the LH exhaust inlet pipe-to-exhaust manifold nuts.

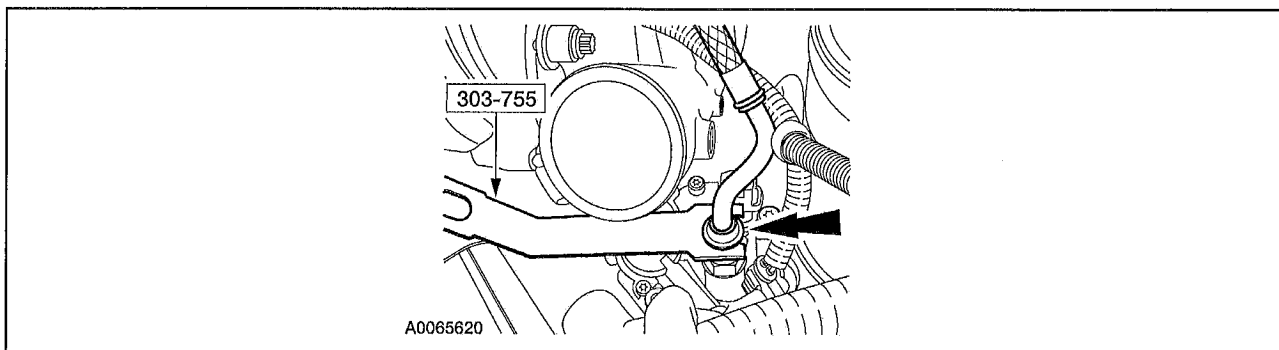


12. Loosen the RH exhaust inlet pipe-to-exhaust manifold nuts.

(Continued)

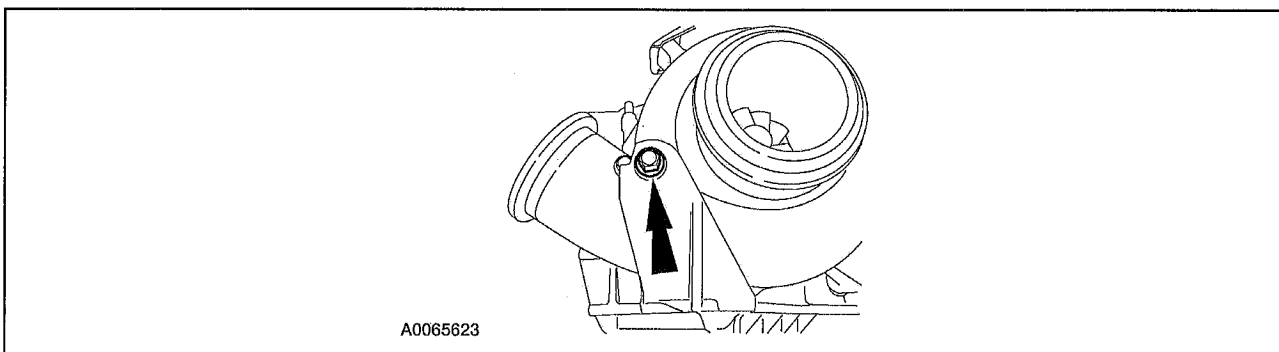
**Early build**

13. Using the special tool, remove the oil feed tube.



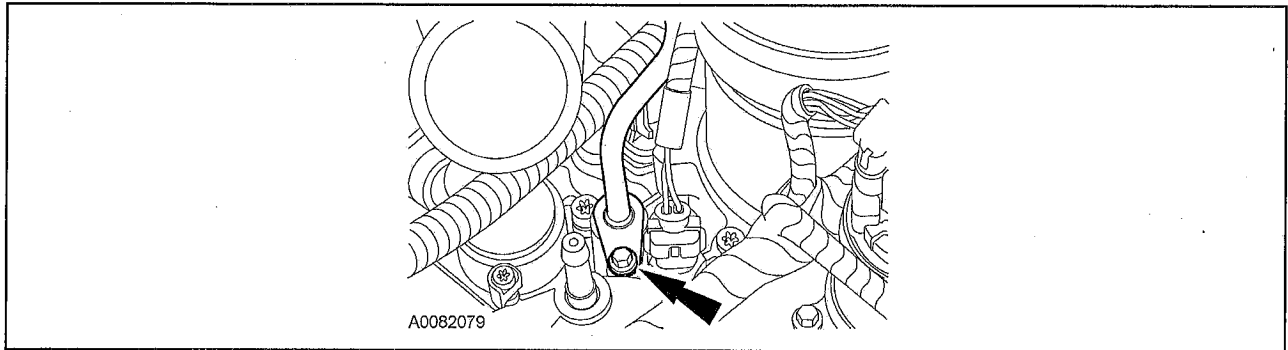
14. **NOTE:**  
Turbocharger shown removed for clarity.

Remove the rear turbocharger mounting bolt.

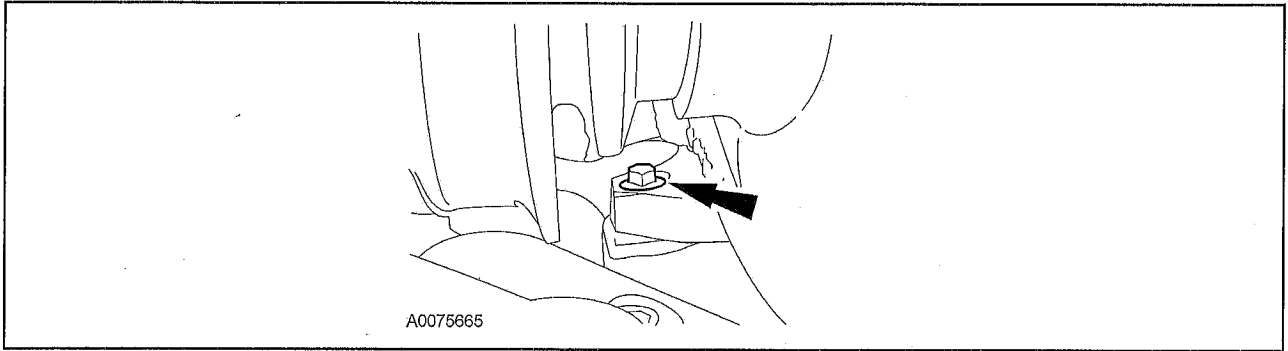
**Late build**

15. Remove the bolt and turbocharger oil supply tube.
- Remove and discard the O-ring.

(Continued)



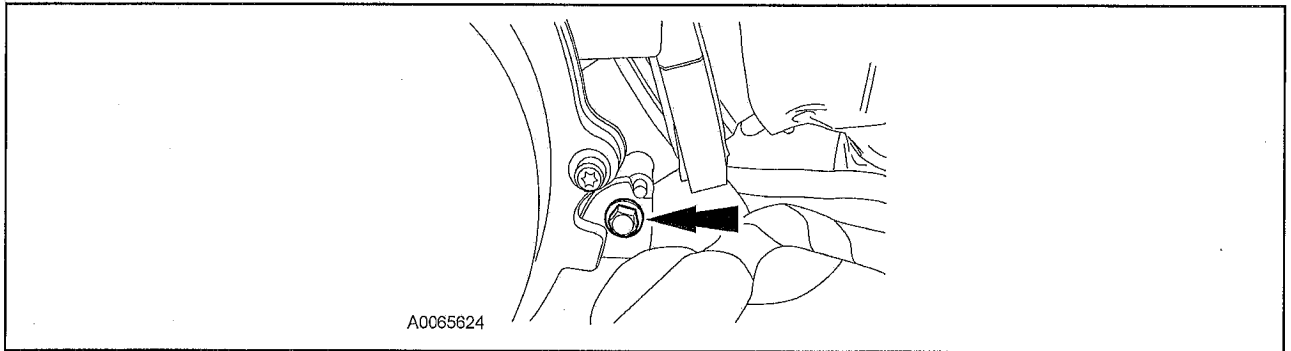
16. Remove the rear turbocharger mounting bolt.



**All vehicles**

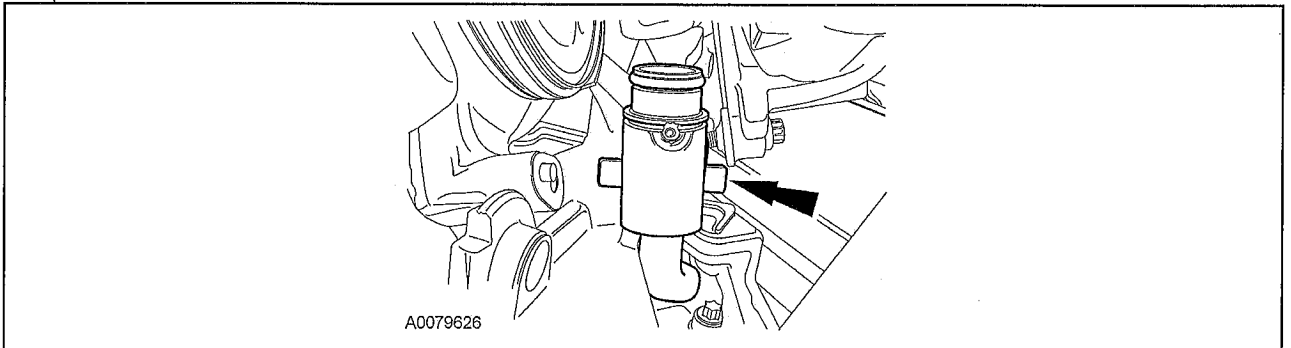
17. **NOTE:**  
Left side shown, right side similar.

Remove the front mounting bolts.



18. Position the turbocharger and remove the turbocharger drain tube.

- Remove and discard the drain tube O-rings.



(Continued)

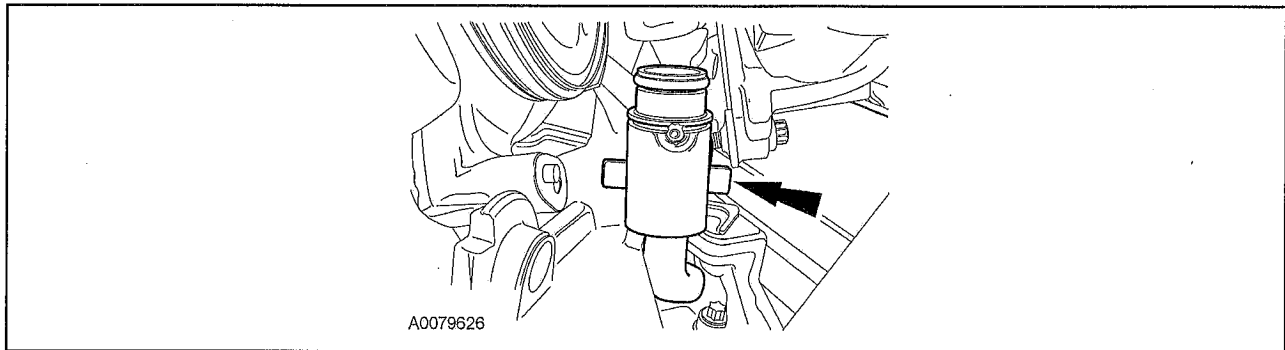
19. Remove the turbocharger.

### Installation

#### All vehicles

1. Position the turbocharger on the turbocharger pedestal.
  - Place the turbocharger onto the mounting bracket. Make sure the exhaust inlet pipe is correctly aligned to the turbocharger. If it is not, loosen the mounting bracket and reposition the turbocharger and the mounting bracket for correct alignment. Complete the turbocharger installation.
2. **NOTE:**  
Install new O-rings and apply clean engine oil.

Position the turbocharger and install the turbocharger drain tube.

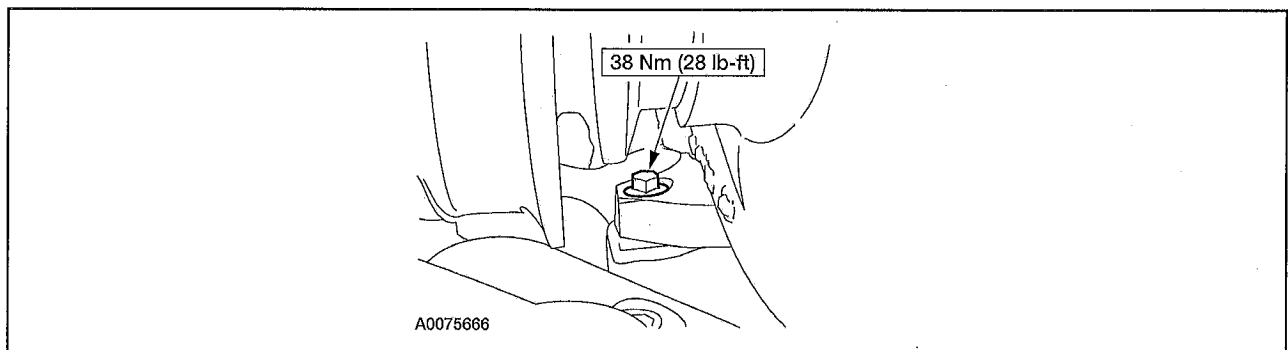


#### Late build

#### NOTE:

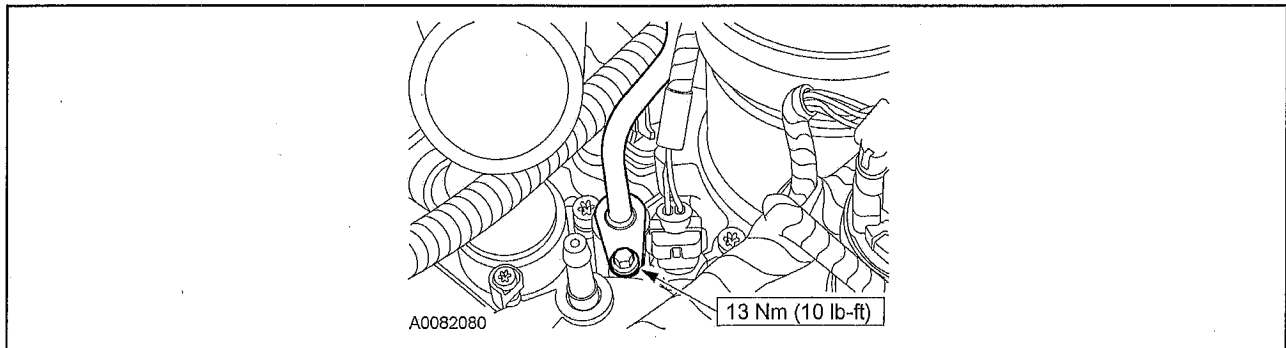
Apply High Temperature Nickel Anti-Seize Lubricant to the bolt threads prior to installation.

3. Install the turbocharger and the rear mounting bolt.



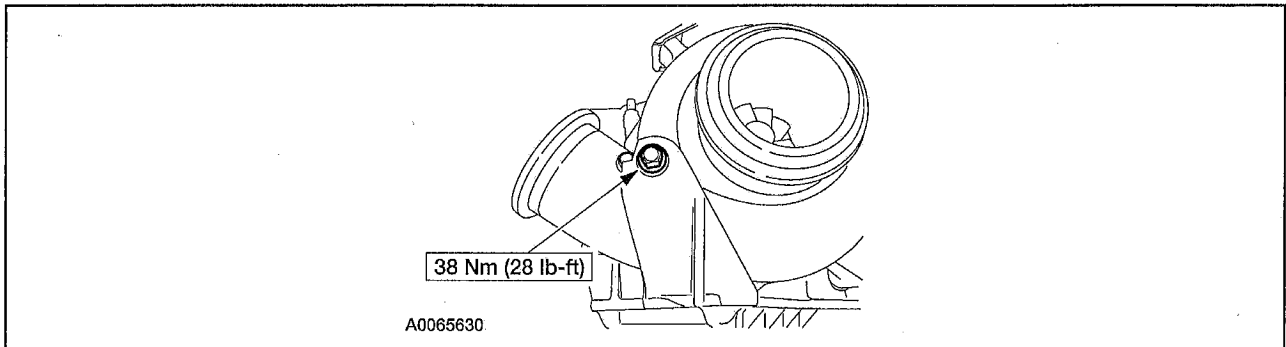
4. **NOTE:**  
Install a new O-ring and apply clean engine oil.  
  
Install the oil supply tube.
  - Position the locking bracket and install the bolt.

(Continued)

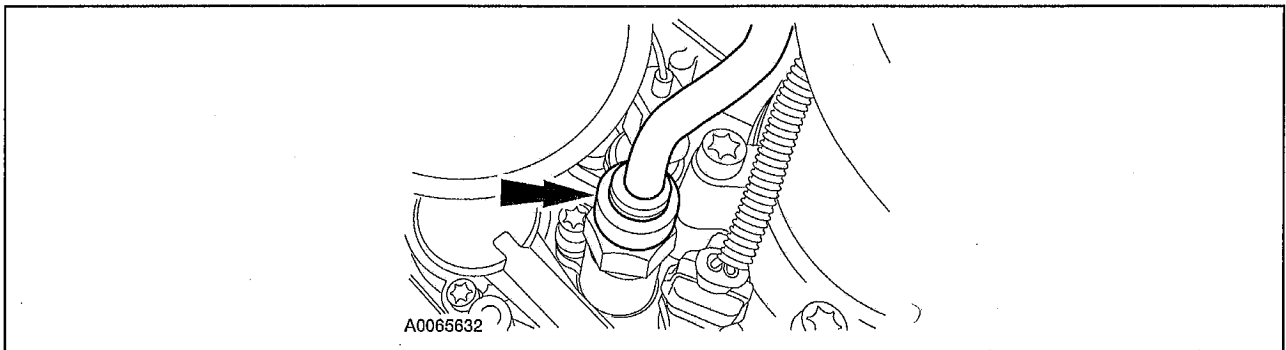
**Early build****NOTE:**

Apply High Temperature Nickel Anti-Seize Lubricant to the bolt threads prior to installation.

5. Install the turbocharger and the rear mounting bolt.



6. Install the oil feed tube.

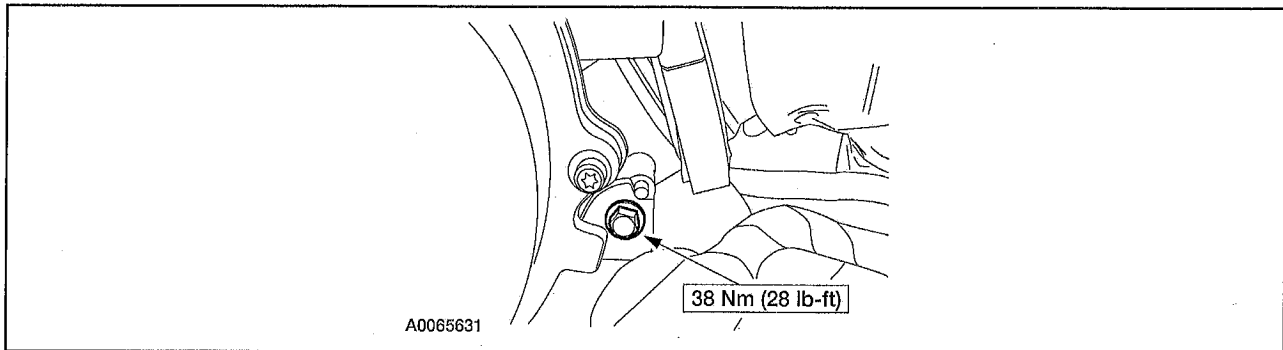
**All vehicles****NOTE:**

Apply High Temperature Nickel Anti-Seize Lubricant to the bolt threads prior to installation.

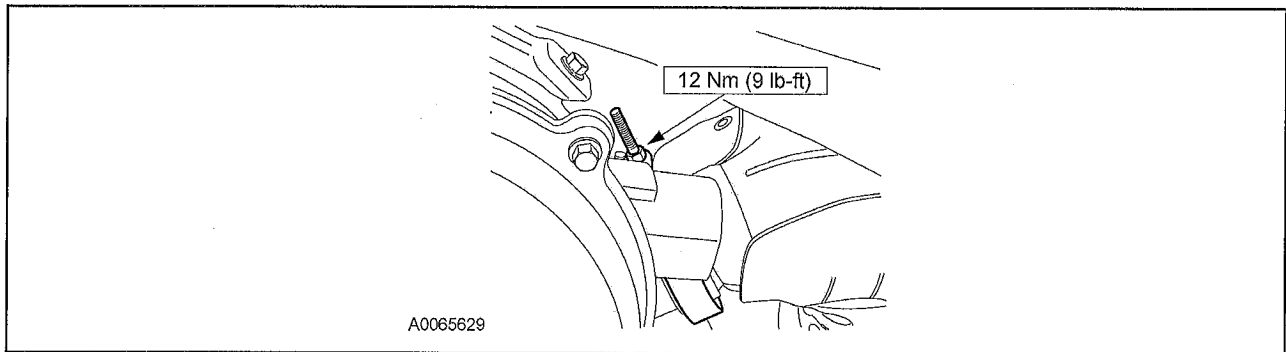
7. Install the turbocharger front mounting bolts.



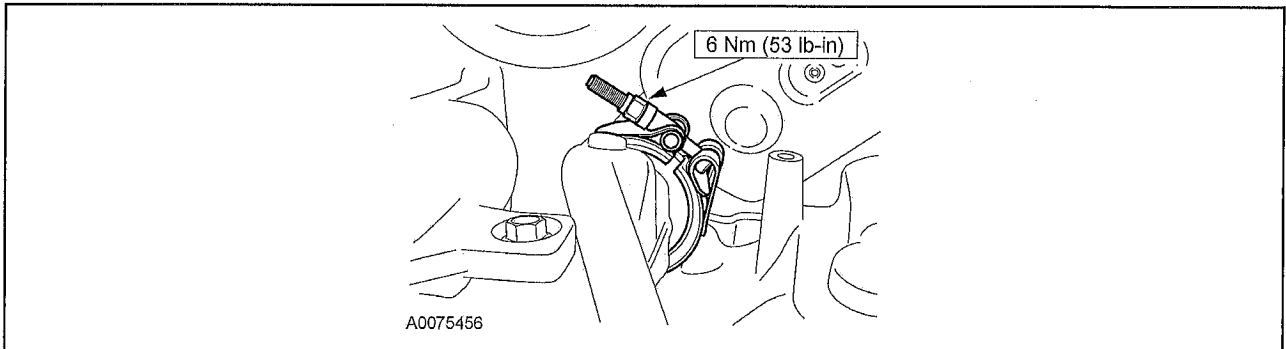
(Continued)



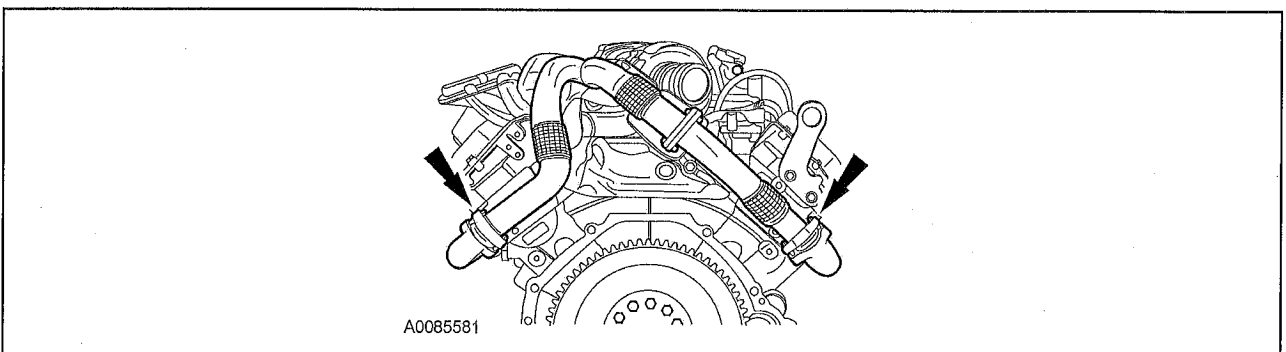
8. Install the turbocharger inlet marmon clamp.



9. Position the clamp and tighten to specification.



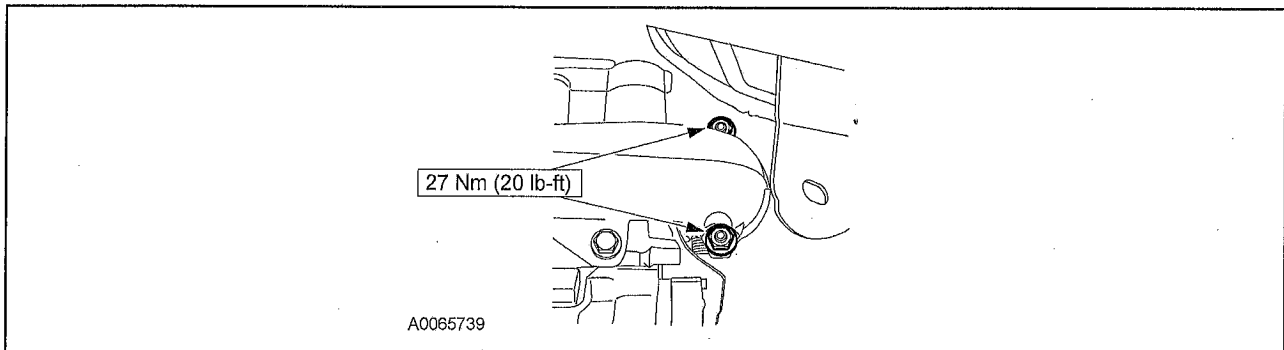
10. Make sure the exhaust inlet pipe is correctly aligned to the exhaust manifolds. Using hand tools, alternately tighten the nuts to draw the pipe to the exhaust manifold. There should be an equal gap spacing between the pipe flange and the exhaust manifold flange at the top and bottom bolts.



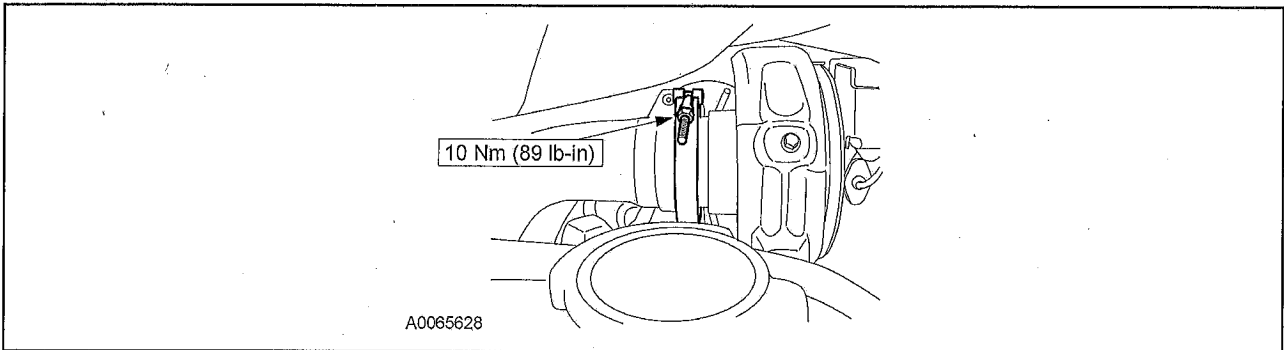
11. **NOTE:**  
LH side shown, RH side similar.

Alternately tighten the exhaust inlet pipe-to-exhaust manifold nuts to specification.

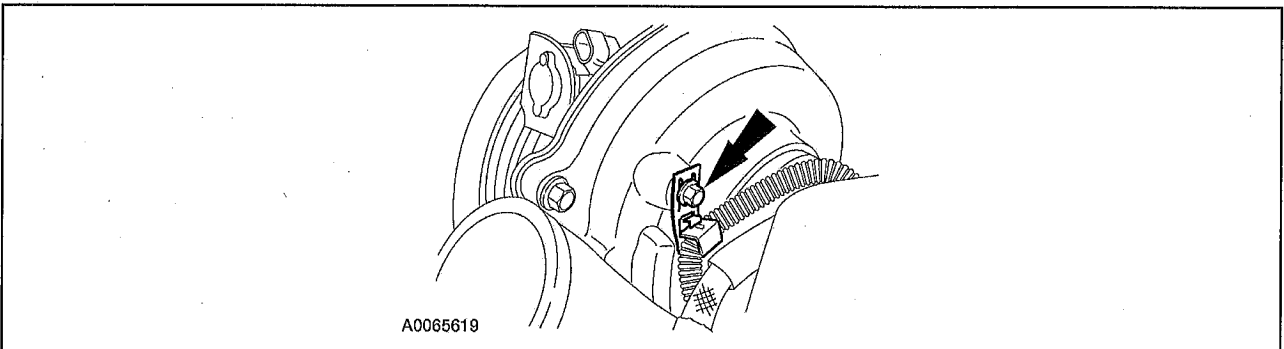
(Continued)



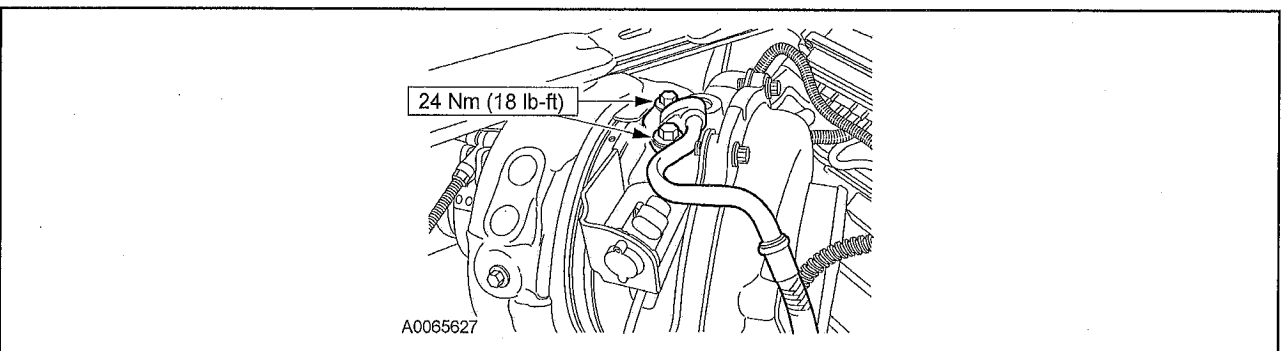
12. Install the turbocharger exhaust manifold clamp.



13. Position the wire retainer and install the bolt.

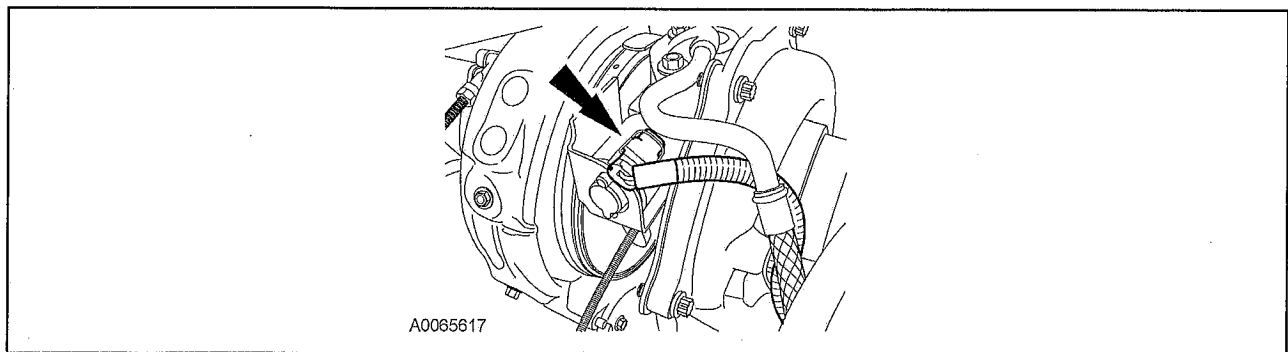


14. Prelubricate the oil inlet hole of the turbocharger assembly with clean engine oil and spin the compressor wheel several times to coat the bearing with oil.
15. Position the oil feed tube and install the bolts.
- Install a new gasket.

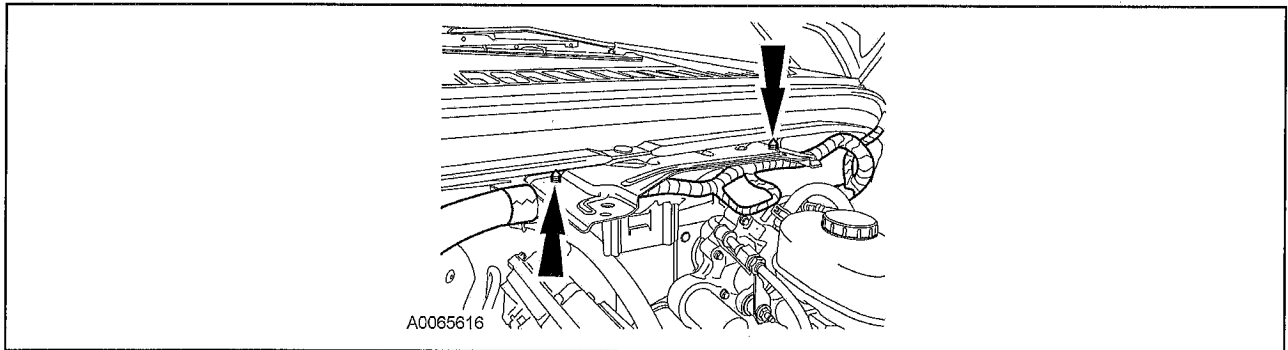


16. Connect the turbocharger variable vane hydraulic control valve electrical connector.

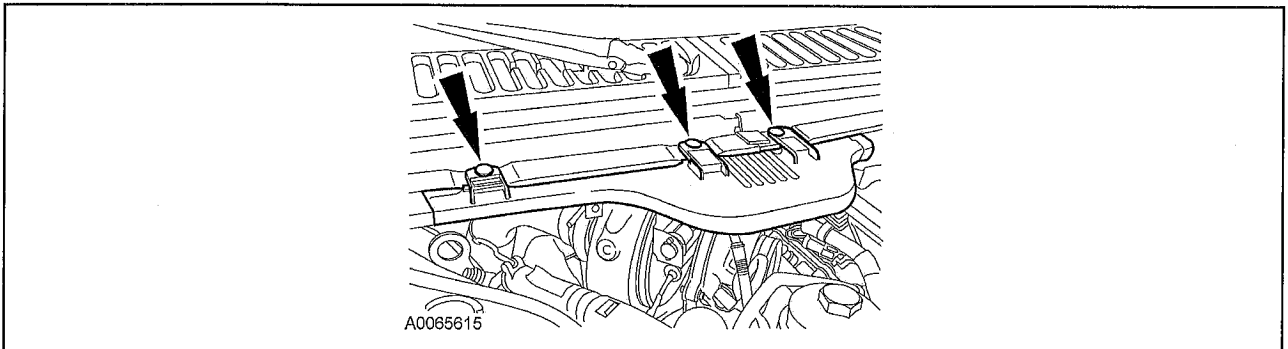
(Continued)



17. Position the wiring harness and connect the pushpins.

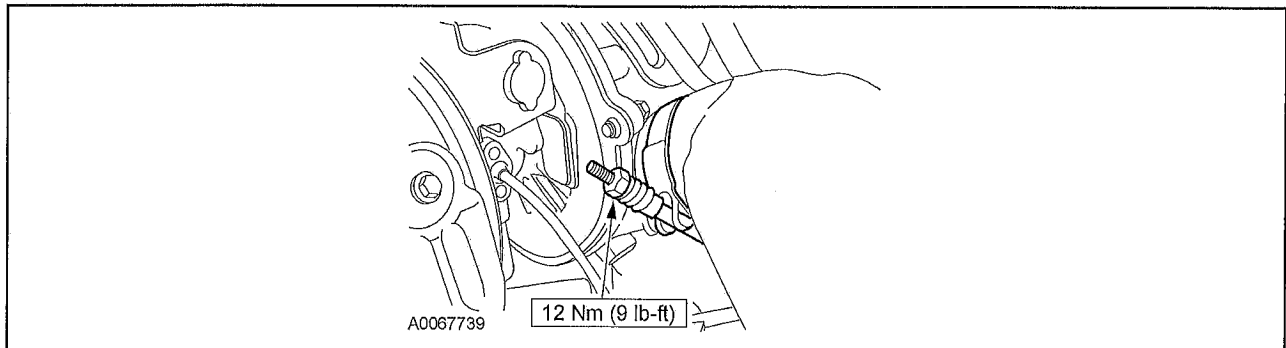


18. Install the pushpins.



19. **NOTE:**  
If there is any oil residue, clean both connecting ports and the inside surface of the charge air cooler duct to prevent the duct from blowing off.

Connect the charge air cooler inlet duct.



20. Install the turbocharger intake tube. For additional information, refer to Turbocharger Intake Tube in this section.