

REMOVAL AND INSTALLATION

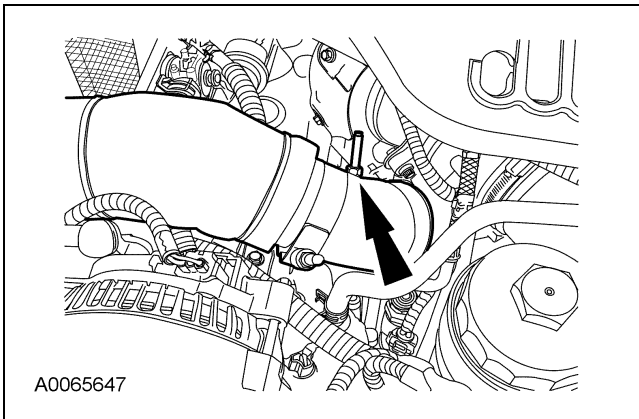
Turbocharger

Material

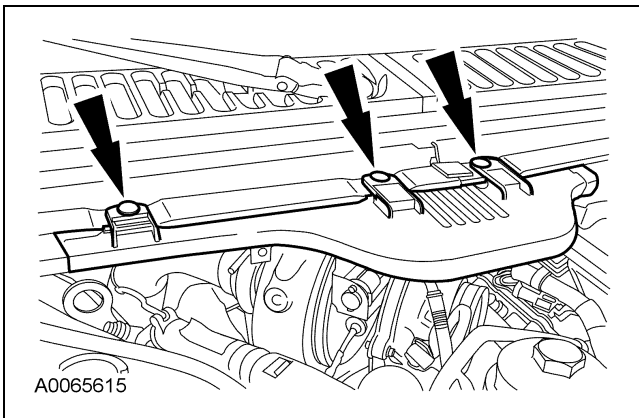
Item	Specification
SAE 15W-40 Super Duty Motor Oil XO-15W40-QSD or equivalent	WSS-M2C171-D
High Temperature Nickel Anti-Seize Lubricant XL-2	ESE-M12A4-A

Removal

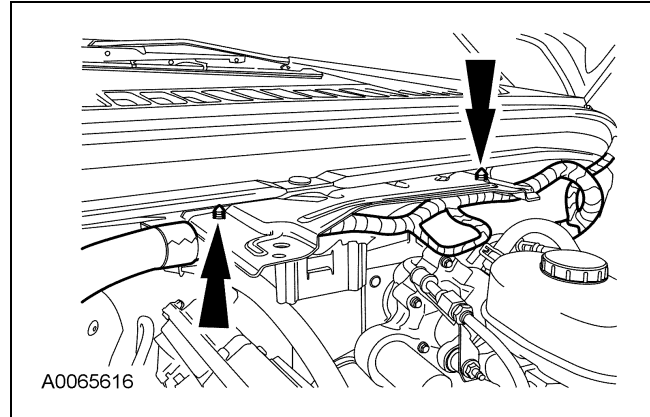
1. Remove the turbocharger intake tube. For additional information, refer to Turbocharger Intake Tube in this section.
2. Disconnect the charge air cooler inlet pipe.



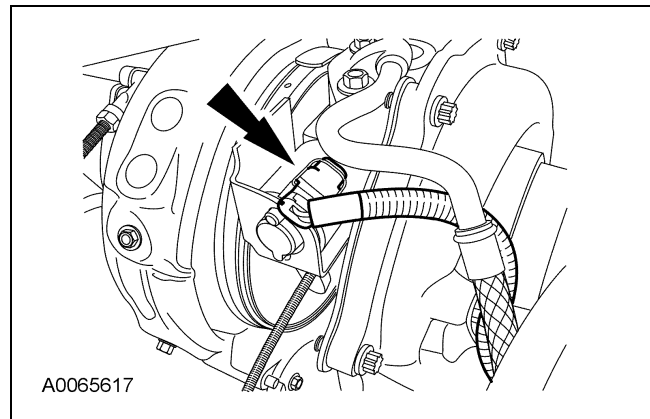
3. Remove the push pins.



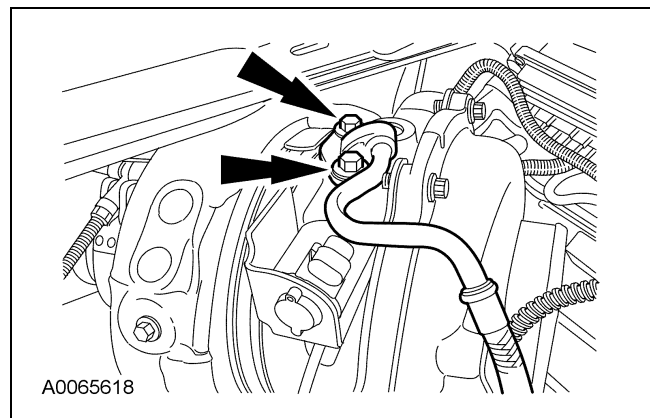
4. Disconnect the two wiring harness push pins and position aside.



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

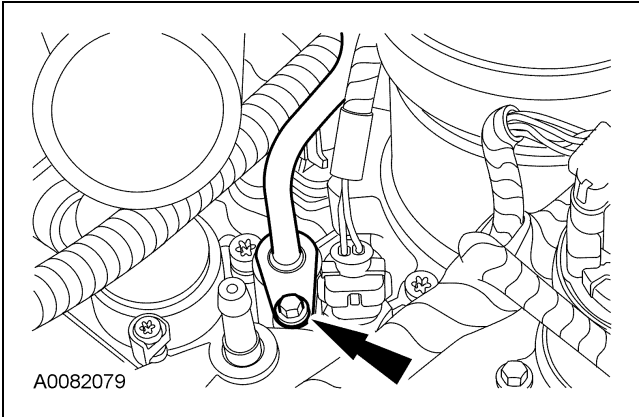


6. Remove the bolts for the oil supply tube.
 - Remove and discard the gasket.

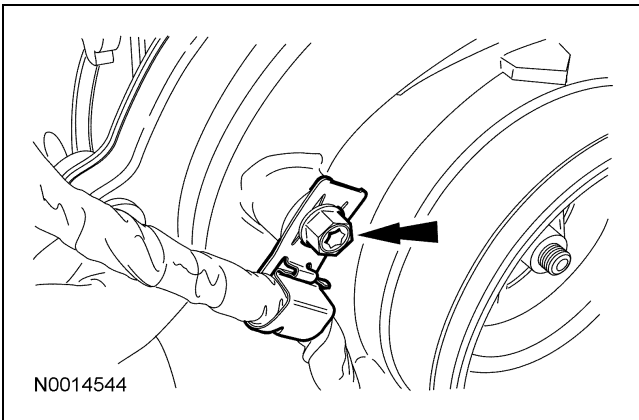


REMOVAL AND INSTALLATION (Continued)

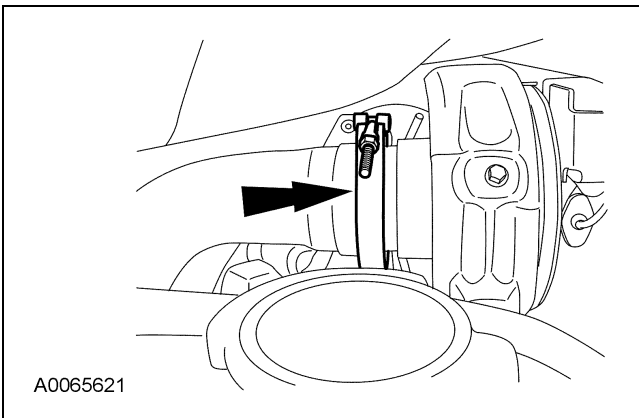
- 7. Remove the bolt and turbocharger oil supply tube.
 - Remove and discard the O-ring.



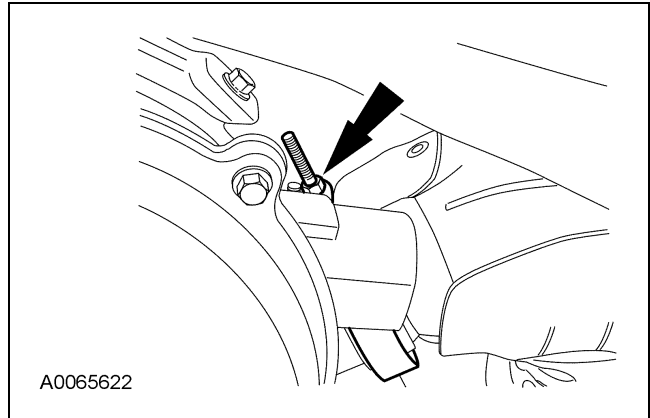
- 8. Remove the bolt and the wire retainer.



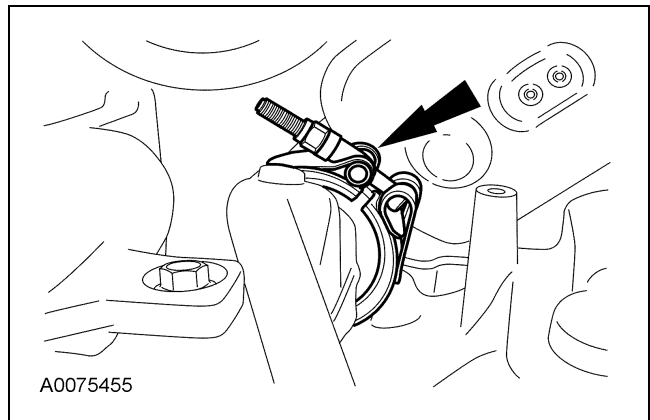
- 9. Remove the marmon clamp from the turbocharger outlet.



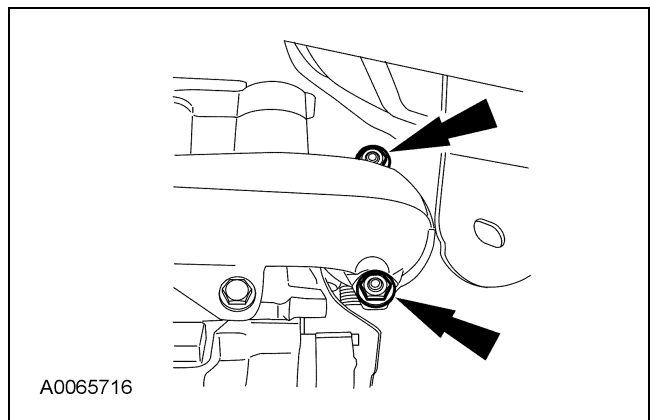
- 10. Remove the marmon clamp from the turbocharger inlet.



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

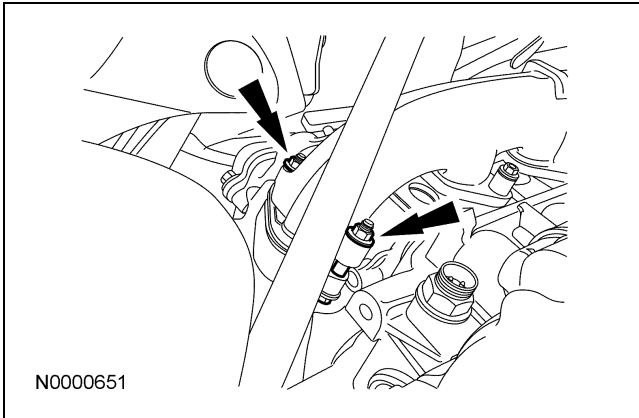


- 12. Loosen the LH exhaust inlet pipe-to-exhaust manifold nuts.

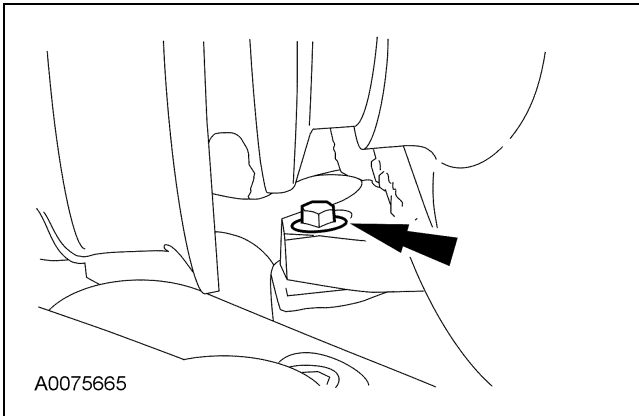


REMOVAL AND INSTALLATION (Continued)

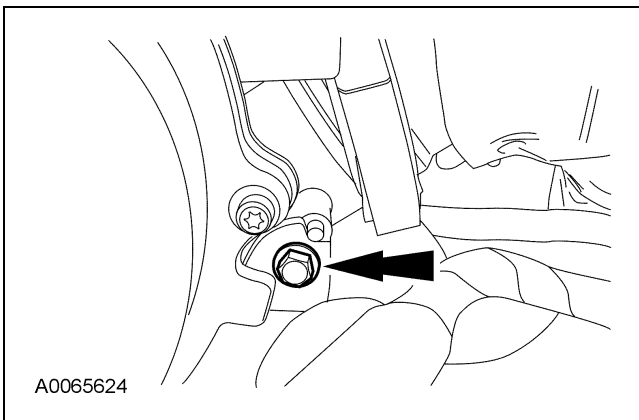
13. Loosen the RH exhaust inlet pipe-to-exhaust manifold nuts.



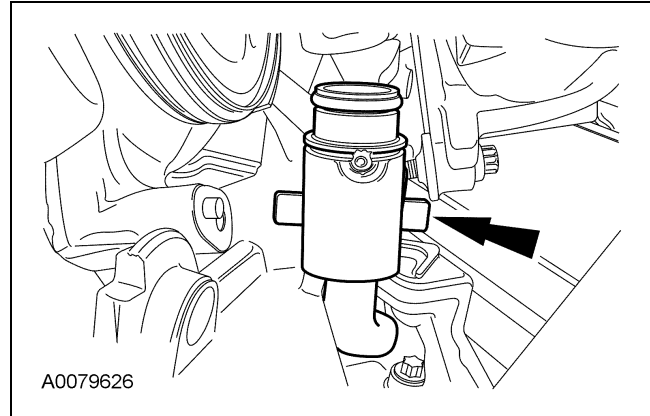
14. Remove the rear turbocharger mounting bolt.



15. **NOTE:** Left side shown, right side similar.
Remove the front mounting bolts.



16. Position the turbocharger and remove the turbocharger drain tube.
- Remove and discard the drain tube O-rings.



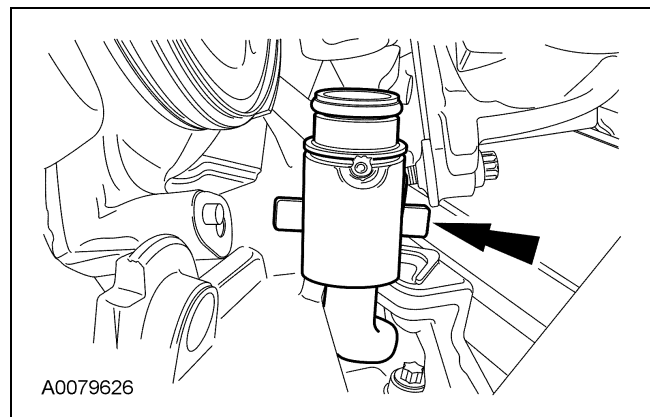
17. Remove the turbocharger.

Installation

- 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 mounting bracket for correct alignment. Complete the turbocharger installation.

- NOTE:** Install new O-rings and apply clean engine oil.

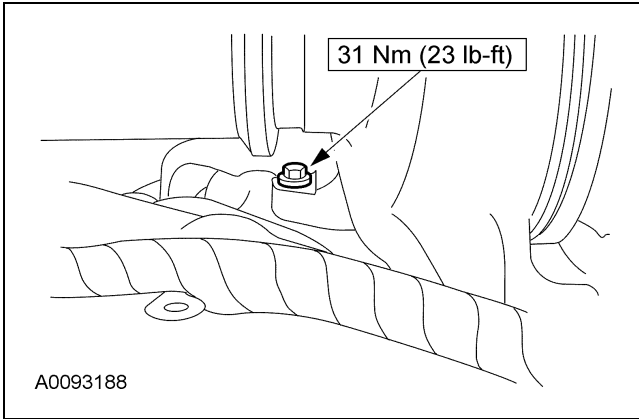
Position the turbocharger and install the turbocharger drain tube.



REMOVAL AND INSTALLATION (Continued)

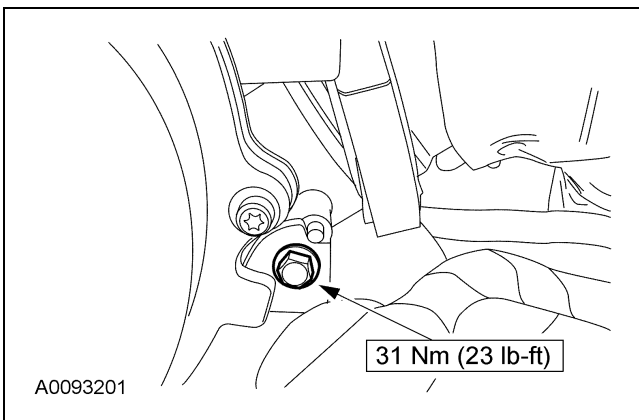
3. **NOTE:** Apply High Temperature Nickel Anti-Seize Lubricant to the bolt threads prior to installation.

Install the turbocharger and the rear mounting bolt.

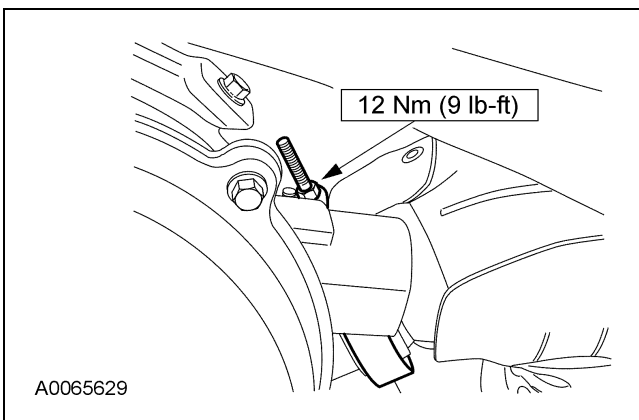


4. **NOTE:** Apply High Temperature Nickel Anti-Seize Lubricant to the bolt threads prior to installation.

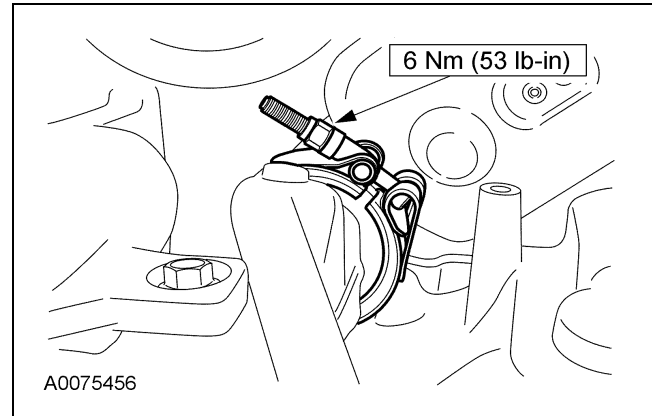
Install the turbocharger front mounting bolts.



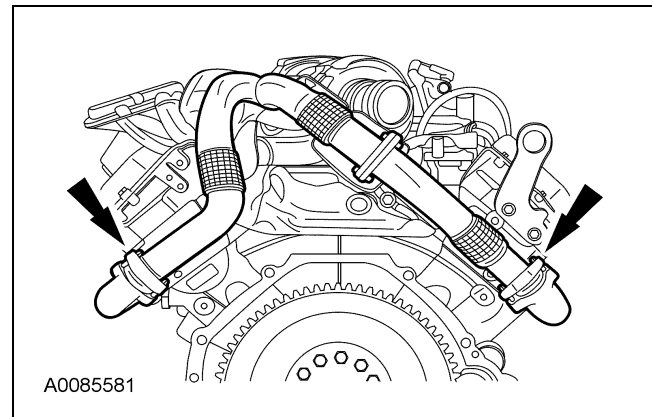
5. Install the turbocharger inlet marmon clamp.



6. Position the clamp and tighten to specification.

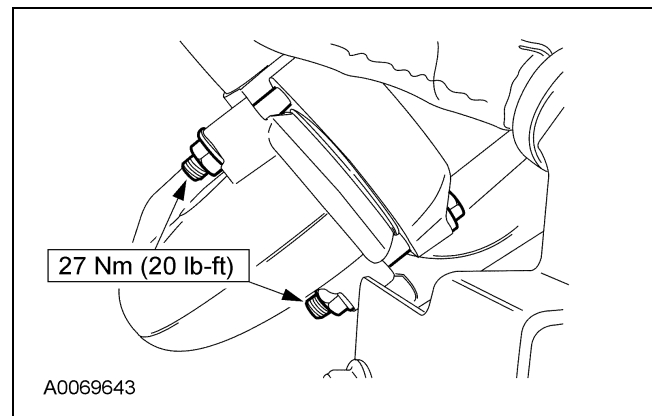


7. Make sure the exhaust inlet pipe is correctly aligned to the exhaust manifolds. Using hand tools, alternately tighten the nuts to draw the pipe to the exhaust manifold. There should be an equal gap spacing between the pipe flange and the exhaust manifold flange at the top and bottom bolts.



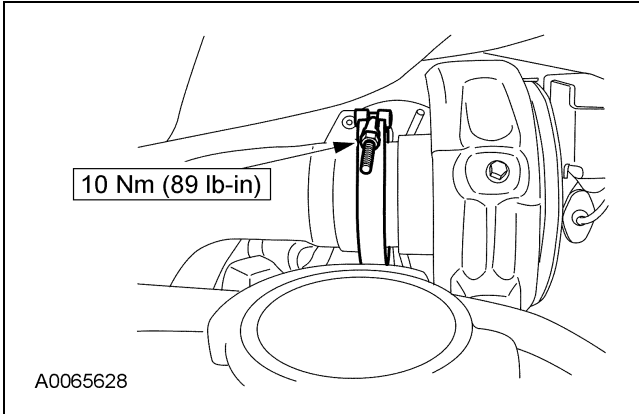
8. **NOTE:** LH side shown, RH side similar.

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

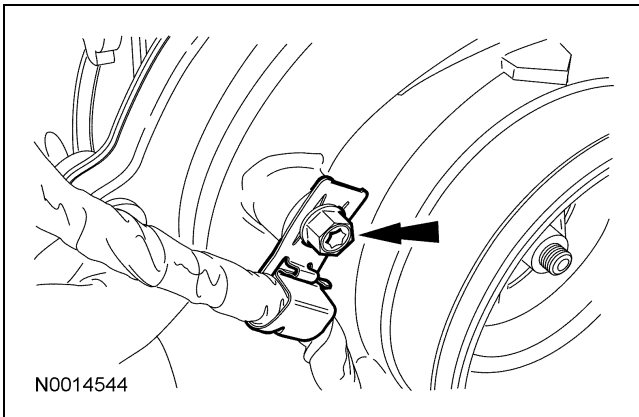


REMOVAL AND INSTALLATION (Continued)

9. Install the turbocharger exhaust manifold clamp.



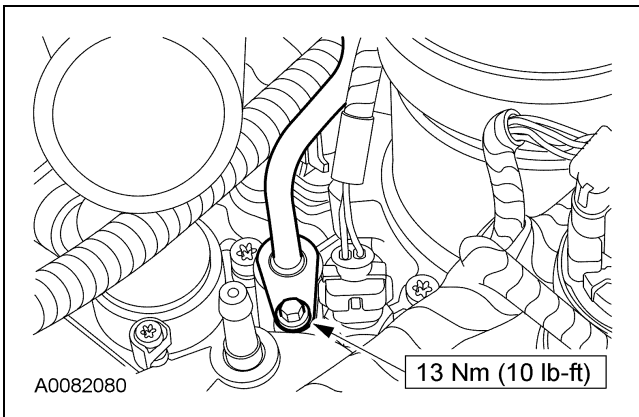
10. Position the wire retainer and install the bolt.



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

Install the oil supply tube.

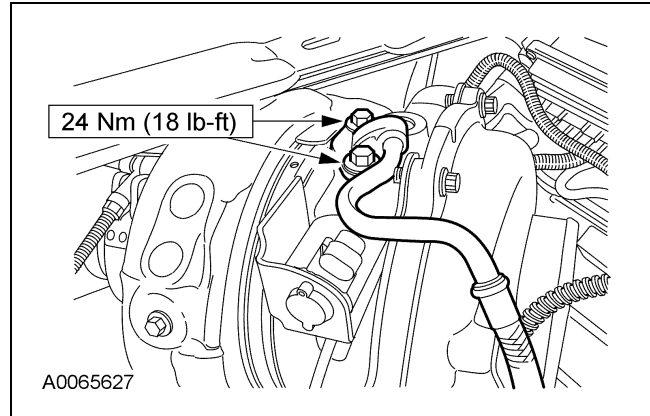
- Position the locking bracket and install the bolt.



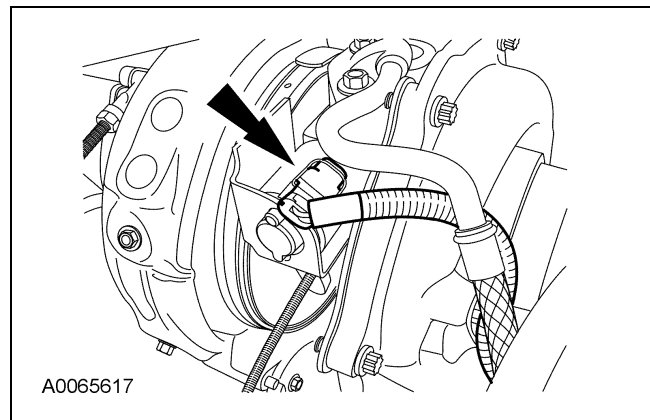
12. Prelubricate the oil inlet hole of the turbocharger assembly with clean engine oil and spin the compressor wheel several times to coat the bearing with oil.

13. Position the oil feed tube and install the bolts.

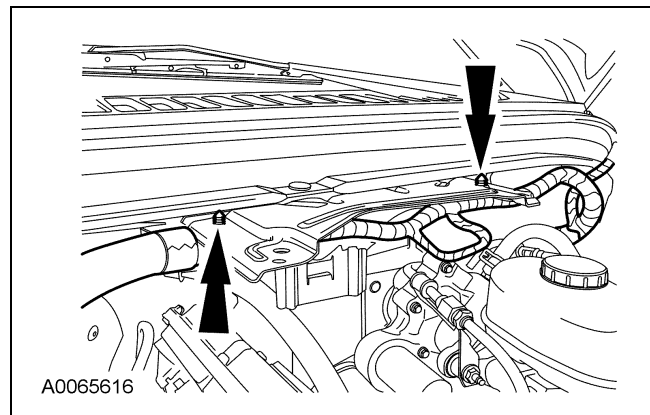
- Install a new gasket.



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

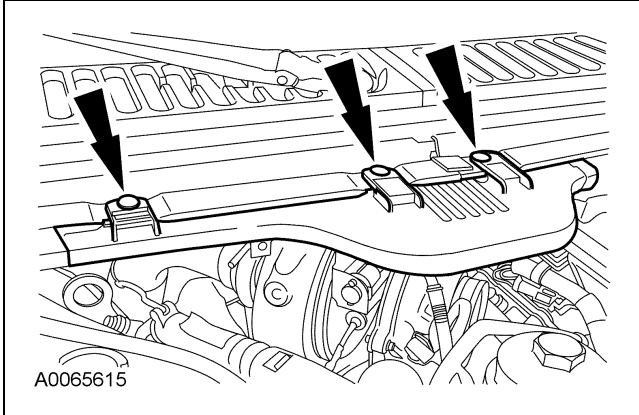


15. Position the wiring harness and connect the push pins.



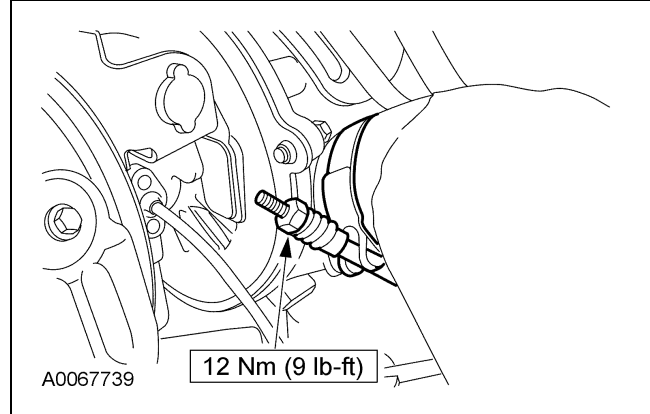
REMOVAL AND INSTALLATION (Continued)

16. Install the push pins.



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

Connect the charge air cooler inlet pipe.



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