

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

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## GENERAL PROCEDURES

### Turbocharger Wastegate Adjustment

1. Disconnect the turbocharger wastegate actuator vacuum hose.



2. **NOTE:**  
The upper intake is removed for clarity only.

Connect a vacuum source to the vacuum port of the turbocharger wastegate actuator, apply 34 kPa (10.0 in-Hg) to make sure it holds vacuum for 5 seconds and then release the vacuum.



3. **NOTE:**  
If vacuum is applied too fast, incorrect reading will occur.

Very slowly apply vacuum while watching the turbocharger wastegate actuator rod end nut relative to the turbine housing, looking for the first signs of movement.

- If the first sign of movement occurs between 28 kPa (8.3 in-Hg) to 34 kPa (10.0 in-Hg), no adjustment is needed. Remove the test vacuum source and connect the turbocharger wastegate actuator vacuum hose.
- If movement is seen before 28 kPa (8.3 in-Hg) or after 34 kPa (10.0 in-Hg), adjust the turbocharger wastegate rod.

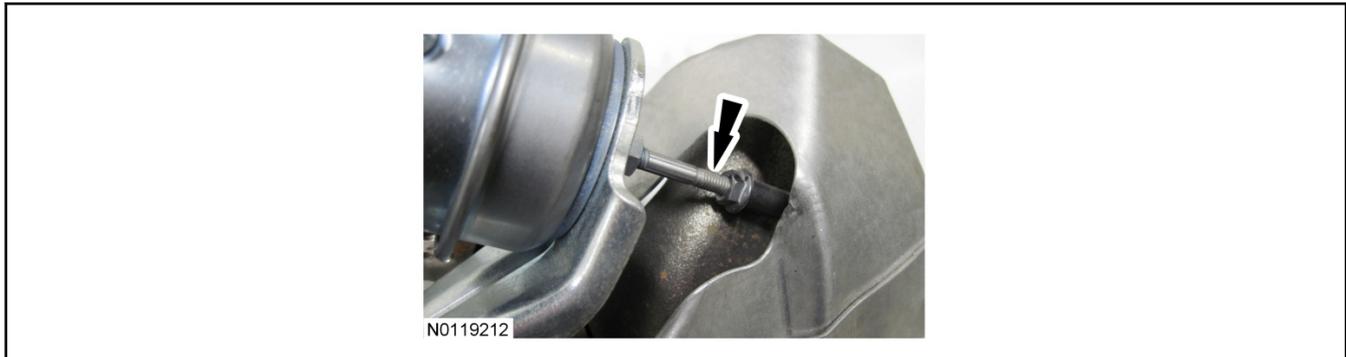


4. **NOTE:**  
The following steps are only for the adjustment of the turbocharger wastegate actuator rod.

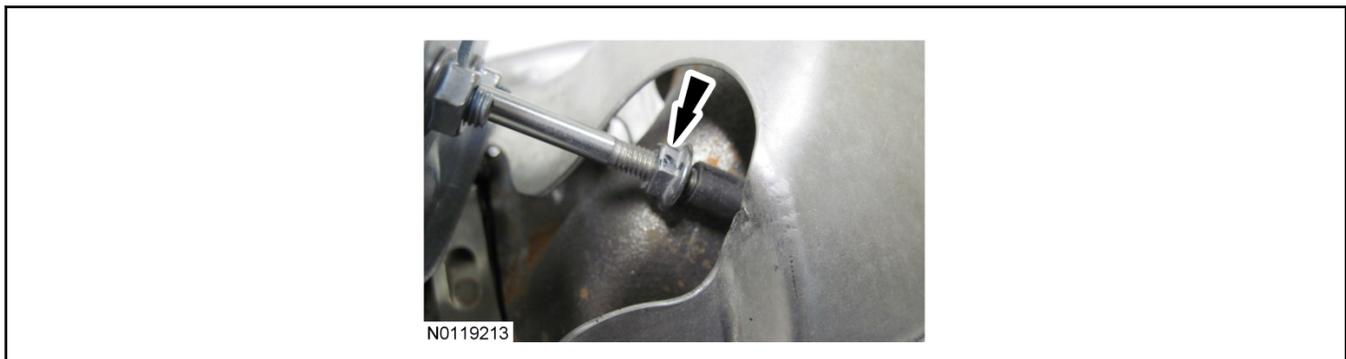
Remove the upper intake manifold. For additional information, refer to Section 303-01C.

**GENERAL PROCEDURES (Continued)**

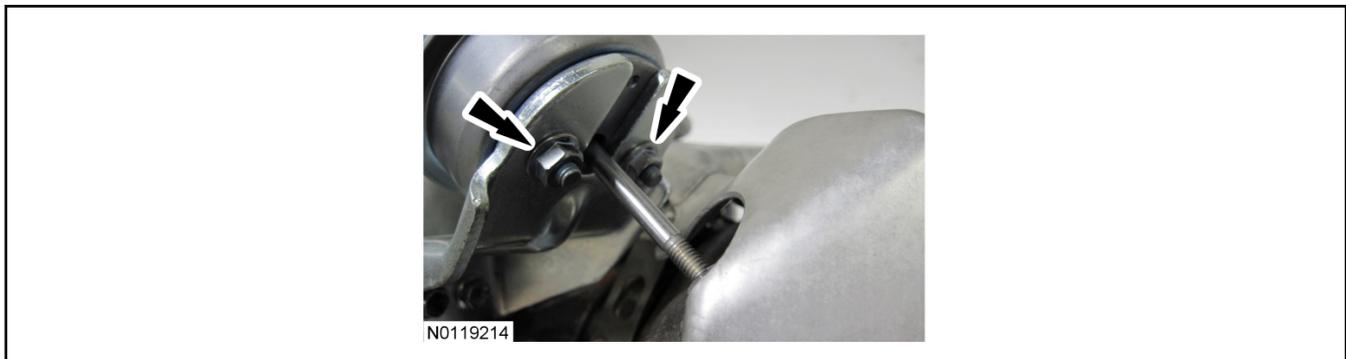
5. Count and note the number visible threads on the turbocharger wastegate actuator rod.



6. Loosen the rod end nut 10 mm (0.393 in) to allow rod end adjustment.



7. Remove the 2 turbocharger wastegate actuator nuts.

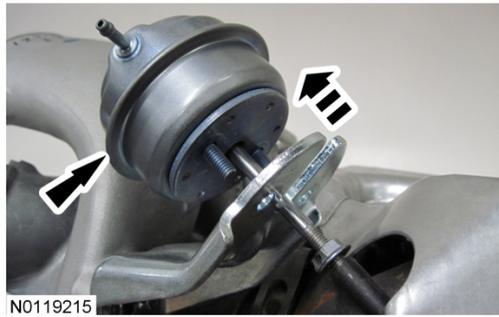


8. **NOTE:**  
If actuator rod movement is less than 28 kPa (8.3 in-Hg), rotate the turbocharger wastegate actuator counterclockwise. If actuator rod movement is greater than 34 kPa (10 in-Hg), rotate the turbocharger wastegate actuator clockwise.

**NOTE:**  
One full turn equals one thread.

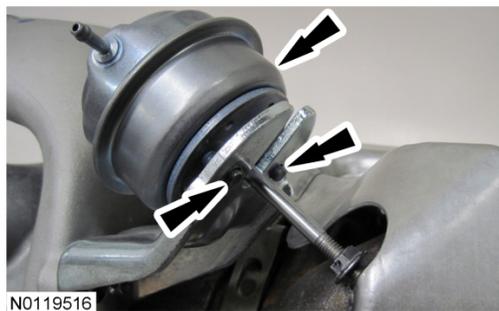
Pull the turbocharger wastegate actuator out of the bracket and rotate clockwise or counterclockwise in 360° increments until 11 threads are visible as a starting point.

## GENERAL PROCEDURES (Continued)



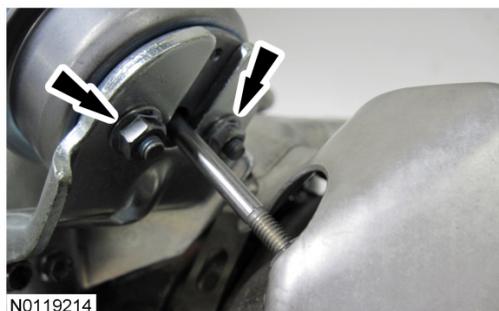
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9. Install the turbocharger wastegate actuator back into the bracket.



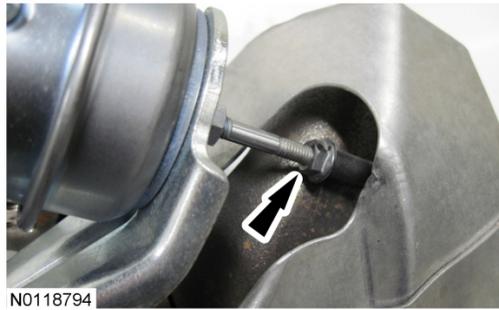
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10. Applying force by hand, hold the turbocharger wastegate actuator into the bracket and retest.
- If actuator rod movement is seen before 28 kPa (8.3 in-Hg), turn the turbocharger wastegate actuator one more turn counterclockwise and retest.
  - If movement is not seen before 34 kPa (10.0 in-Hg), turn the turbocharger wastegate actuator one turn clockwise and retest.
11. If actuator rod movement is seen between 28 kPa (8.3 in-Hg) and 34 kPa (10.0 in-Hg), install the turbocharger wastegate actuator bracket nuts.
- Calculate the correct torque wrench setting for the following torque. Refer to the Torque Wrench Adapter Formulas in the Appendix.
  - Tighten to 6 Nm (53 lb-in).



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12. Tighten the rod jam nut.

**GENERAL PROCEDURES (Continued)**

13. Retest the turbocharger wastegate actuator one additional time.
14. If actuator rod movement is not seen between 28 kPa (8.3 in-Hg) and 34 kPa (10.0 in-Hg), repeat steps 6 through 13.
15. If actuator rod movement is seen between 28 kPa (8.3 in-Hg) and 34 kPa (10.0 in-Hg), connect the turbocharger wastegate actuator vacuum hose.



16. Install the upper intake manifold. For additional information, refer to Section 303-01C.