

## TURBOCHARGER ACTUATOR - INSTALLATION

### INSTALLATION

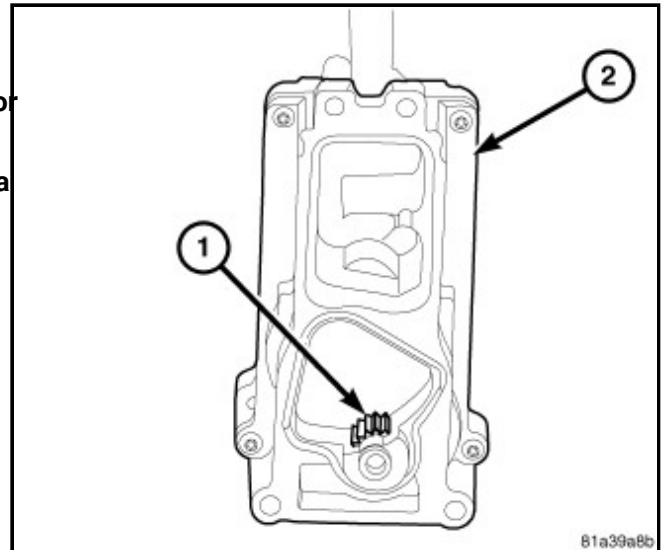
**NOTE:**

If turbocharger actuator is removed for any reason, the actuator must be calibrated to the turbo with this procedure. Reinstallation without calibrating turbo actuator may result in a DTC.

**NOTE:**

If turbocharger actuator calibration procedure is interrupted without completing, it may result in a P003A. Turbocharger actuator must be recalibrated using this procedure.

1. Clean turbocharger actuator housing (2) and turbocharger mounting surfaces.



**CAUTION:** The electronic turbocharger actuator (2) must be removed from the turbocharger to perform this function. Turbocharger failure could result if the electronic turbocharger actuator (2) is not removed from the turbocharger.

2. Position the turbocharger actuator (2) into the engine compartment so the actuator gear (1) will be free to rotate.

**NOTE:**

**Keep fingers away from actuator gear in case of movement.**

3. Connect turbocharger actuator wire harness connector.
4. Connect both of the negative battery cables.
5. Turn ignition to on position, **DO NOT START THE ENGINE**. Using the scan tool, create a freeze frame of all current DTCs and then clear them.
6. Using a scan tool function "Misc functions" under PCM, perform VG Turbocharger Actuator Pre-Alignment/Self Calibrate.

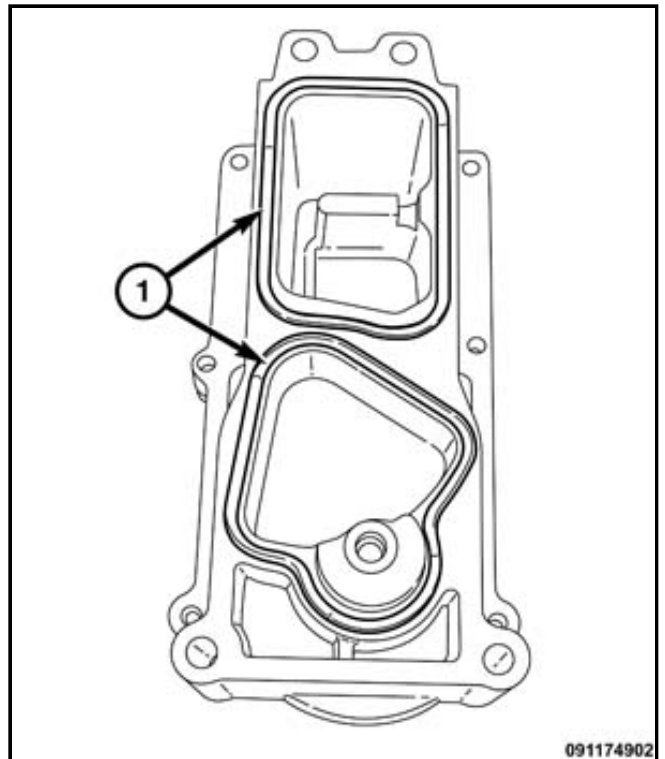
**NOTE:**

**This is a two step process, the tool will perform the Pre-align portion first (very quickly) followed by the Self Calibration portion.**

**NOTE:**

**Do not turn off the ignition or disconnect the tool after performing the turbocharger actuator pre-align portion of the routine.**

7. Install a **NEW** O-ring seals (1) on the turbocharger actuator.

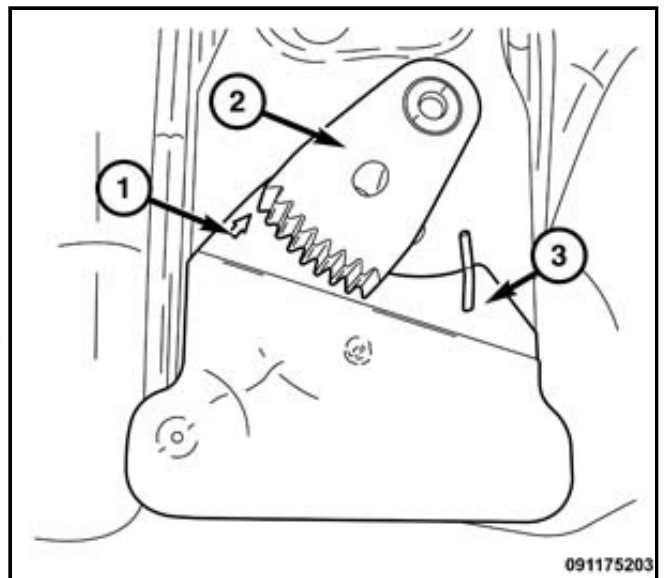


8. Install the sector gear travel gauge (3) (provided in actuator kit) onto the turbocharger.
9. With the sector gear travel gauge installed (3), grasp the sector gear (2) by hand and rotate the sector gear (2) toward the turbocharger turbine housing. Be sure the sector gear (2) is rotated all the way toward the install position arrow (1).

**NOTE:**

**It is critical for smooth reliable operation of the actuator to use the full amount of the Holset® supplied grease.**

**CAUTION:** Use only turbocharger actuator grease supplied in the service kit. Use of any other type of grease or too much grease may result in damage to turbocharger. Use the full amount of grease supplied with the service kit.

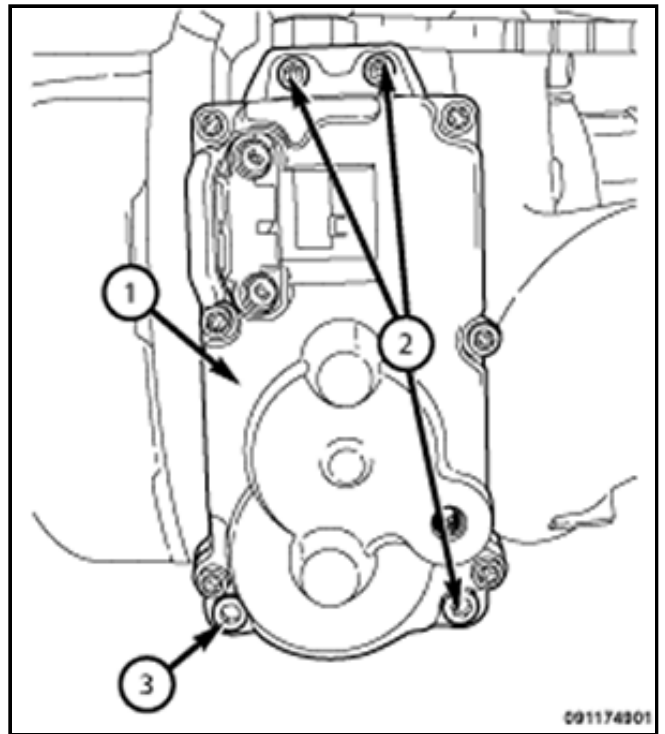


10. Coat the teeth on the sector gear (1) with the full amount of grease supplied in the packet from installation kit
11. Remove the sector travel gauge. **DO NOT** move the sector gear after this point.
12. Install the guide pins onto turbocharger top two mounting screw holes.
13. Insert the bottom two **NEW** screws into actuator mounting holes before placing onto turbocharger.
14. Position turbocharger actuator onto guide pins and install the two bottom bolts finger tight.
15. Remove the two guide pins from top holes and install **NEW** bolts finger tight.

**NOTE:**

**These are the only three screws that are accessible in the 3500 Chassis.**

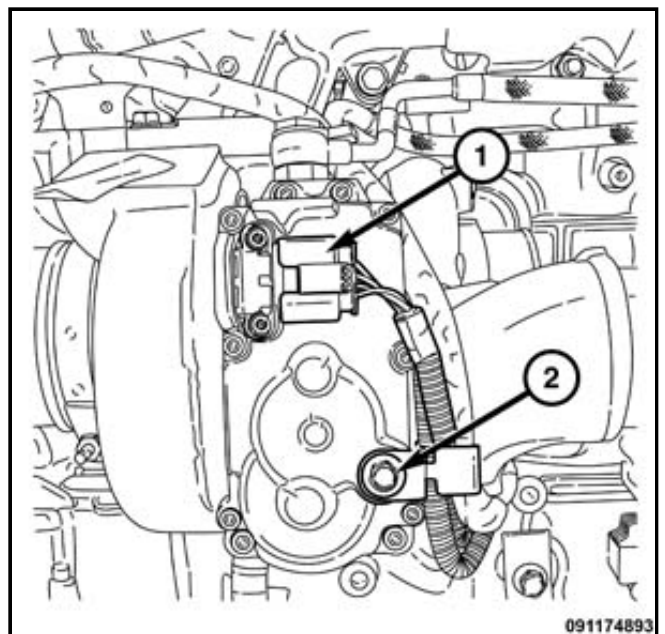
16. Tighten the three screws (2) to 9 N·m (80 in. lbs.).



**NOTE:**

Technician will notice a significant increase in resistance when the cap screw head come into contact with the actuator body.

17. Using an Allen Wrench, tighten the remaining cap screw (3) until it is flush with the actuator body.
18. After screw (3) has been brought flush with the actuator housing, tighten the screw an additional 90° turn.
19. Install the bolt (2) securing the wire harness to the turbocharger actuator and tighten the bolt to 11 N·m (8 ft. lbs.).



20. Now, after actuator is installed, using scan tool, perform the self calibration portion of the "VG Turbocharger Actuator Pre-Alignment/Self Calibrate routine.

**NOTE:**

Clear any DTCs that may appear after Pre-Alignment/Self Calibrate procedure is complete.

**NOTE:**

**Actuator may take multiple attempts to calibrate/learn with turbocharger.**

**NOTE:**

**If calibration fails, remove Electronic Turbocharger Actuator and go back to step 1 to repeat calibration.**

21. Power down the PCM (key off). Automatic Transmission equipped trucks must have key off for at least 10 minutes. Manual Transmission trucks must have key off for at least 75 seconds.
22. Install the right wheelhouse splash shield, (Refer to 23 - Body/Exterior/SHIELD, Splash, Wheel House/Installation) .
23. Install the air cleaner body (Refer to 09 - Engine/Air Intake System/BODY, Air Cleaner/Installation) .
24. Fill the cooling system (Refer to 07 - Cooling - Standard Procedure) .