ULTIMATE TURBOS

INSTALLATION MANUAL

TURBO ACTUATOR

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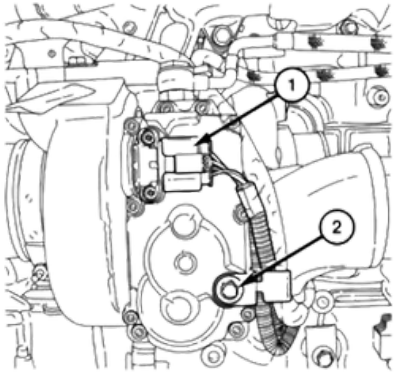
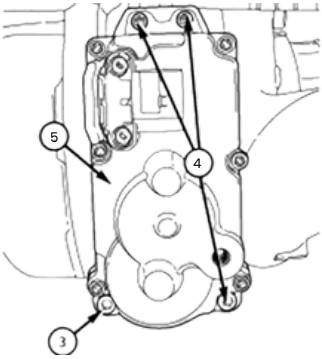
REMOVAL

Ensure the ignition key is in the OFF position.
Drain the cooling system.

Remove the right wheel inner guard.
Remove bolt (2) securing the wiring harness to the turbocharger actuator.
Unplug the electrical connector (1) from the turbocharger actuator.





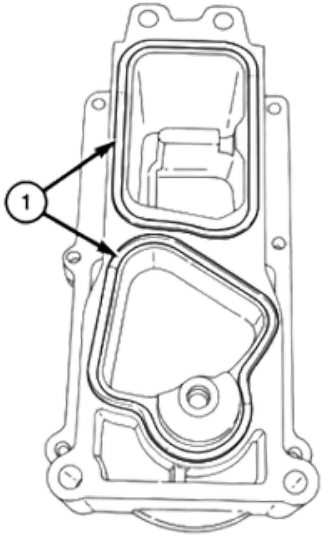
Remove bolts (3) and (4) and remove the turbocharger actuator (5).

INSTALLATION

Clean the sealing surfaces on the turbocharger to ensure the actuator has a proper seal after installation.

Install new rubber seals onto the actuator.

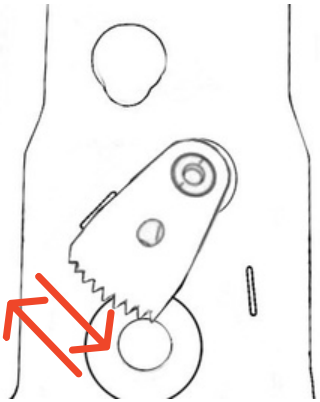
Do **NOT** plug in the electrical connector.

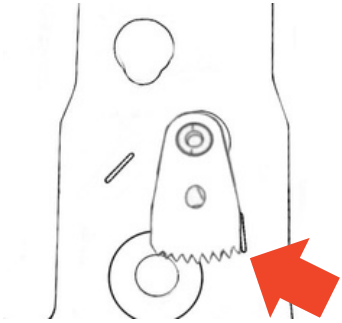


Grasp the sector gear by hand and rotate it back and forth, checking for smooth movement.

1.2013–2025 models: the gear must sweep freely between the reference lines.
2.2007–2012 models: no reference lines are present; the gear must still move freely.

If there is any tightness or resistance, the turbocharger is seized and must be replaced.

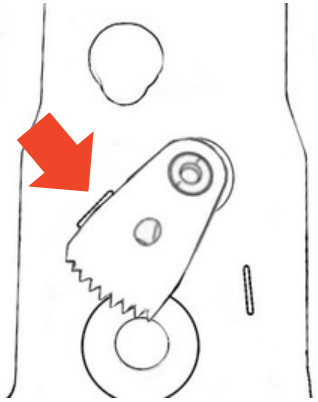




Apply grease to the teeth of the sector gear to reduce noise.

Position the sector gear fully to the left, toward the turbine housing (hot side, firewall side).

The sector gear must always be positioned to the left. Do not attempt to align any holes or notches.



(hot side / firewall/ cab)

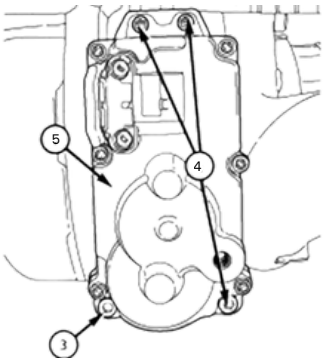
Insert the bottom two bolts into the actuator mounting holes before placing the actuator onto the turbocharger.

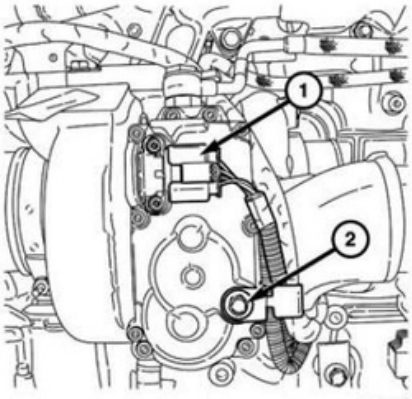
Install the remaining bolts and tighten them evenly to specification.

Tighten all actuator mounting bolts to 90 in-lbs.

Using an Allen wrench, tighten the remaining cap screw (3) until it is flush with the actuator body. Once the screw is flush with the actuator housing, tighten it an additional 90 degrees.

Do not install the wiring harness retaining bolt at this time.





Install bolt (2) securing the wiring harness to the turbocharger actuator and tighten to 11 N·m (8 ft-lbs).

Plug in the electrical connector (1).

Refill the cooling system. Start the engine and allow it to run. Check for coolant leaks.

Install the right wheel inner guard.

Installation is complete.

Code U010C or P0046 - The issue may be related to either the turbocharger actuator or the power, ground, or communication wires going to the actuator. However, a bad turbocharger is not the cause of this error code. Thus, it is advisable to examine the wiring to ensure that the connector terminals are not corroded or damaged. Additionally, check that you have a good power and ground connection to the actuator (power and ground are the two outside terminals). To perform a resistance check, ensure the key is turned off and wait around 1 minutes to allow the ECM to shut down. Afterward, unplug the actuator and check the ohms between the two middle pins of the connector on the harness side. The reading should be between 115-125 ohms. Please note that this is with the actuator unplugged. While performing the check, it is essential to shake the wiring to ensure that there are no damaged wires.Furthermore, check the ohms on those two pins on the actuator itself (with the harness still unplugged). The reading should be between 115-125 ohms. It is also worth noting that the wiring order is different between the early and late models. On the late model, the wire order goes "Ground, Can Low, Can High, and Power," whereas on the early model, it goes "Power, Ground, Can High, Can Low.

" The resistance check should be between "Can High and Can Low." Code P003A - This indicates that the actuator could not find the end stops. This issue is usually caused by a problem with the actuator, but it could also be the result of removing the actuator without recalibrating it.

Code P00AF - This code may indicate a faulty actuator or wiring. Please review Code P0046.

Code P226C - This code referes to the turbocharger and indicates that the desire position of the vanes does not match the actual position. This issue usually occurs when the vanes get stuck and may not remain stuck all the time. To avoid any further complications, we suggest rebuilding the turocharger, regardless of how the vanes feel. In some rare cases, a bad actuator can also lead to this problem. However, if that's the case, the P00AF or P003A code will also be displayed. Please note that even if all three codes are displayed, we do not recommend replacing the actuator alone as it could be both a bad actuator and stuck vanes.

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