



No.: 09 TS-4Rev
June 18, 2009

TO: Service Locations

FROM: Technical Support Development

SUBJECT: **EPA04 Series 60® Turbocharger Actuator Replacement**

ISSUE

Turbocharger actuator is leaking or out of adjustment.

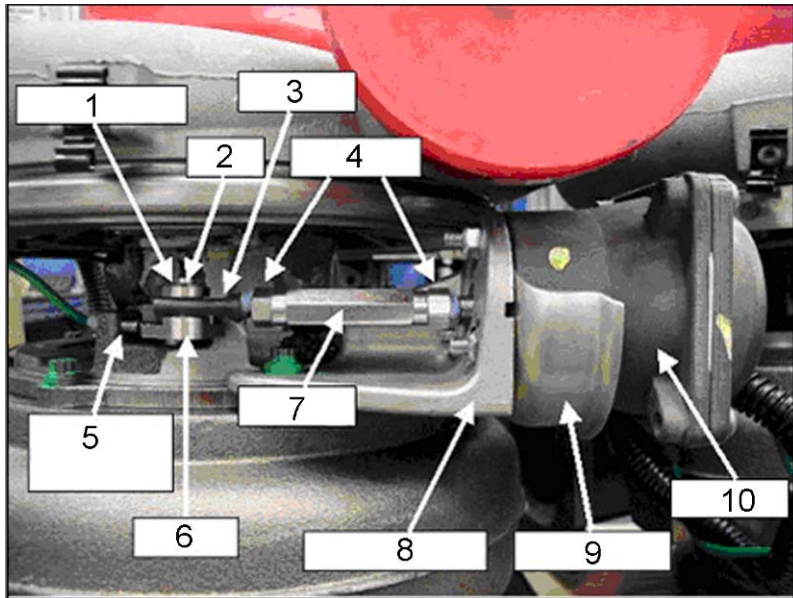
PARTS REQUIRED

Service kit (P/N: 23538827) contains all the needed parts to replace the turbocharger actuator on the EPA04 Series 60 turbocharger.

Replacement kit P/N: 23538827 contains the following items listed in Table 1:

Part No.	Qty.	Description
23534917	1	Actuator
23538821	1	Lower Locking Nut
23538824	1	C-Clip
23538825	1	Upper Locking Nut
23538819	1	Rod end
23538820	1	Pin
23538822	1	Adjuster
18SP664	1	Installation Instructions

Table 1 Turbocharger Actuator Replacement Kit (P/N: 23538827)

REQUIRED ACTION

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- | | |
|--------------------------------|---------------------|
| 1. Retaining Ring | 6. Clevis |
| 2. Pin | 7. Adjuster |
| 3. Rod End | 8. Actuator Bracket |
| 4. Lock Nuts | 9. Heat Shield |
| 5. Minimum Flow Stop Set Screw | 10. Actuator |

Figure 1. Turbocharger Actuator Pieces

! WARNING:

EYE INJURY

To avoid injury from flying parts when working with components under spring tension, wear adequate eye protection (face shield or safety goggles).

DO NOT open actuator canisters in an attempt to rebuild them. There is a powerful coil spring compressed inside the canister that could suddenly be released, causing serious injury. The actuators are serviced as an assembly and internal parts are not available.

NOTE: Verify that the mounting bracket is cast and not stamped steel. If the bracket is stamped steel, replace the turbo with a complete assembly. See Figures 2 and 3.



Figure 2. Stamped steel mounting bracket

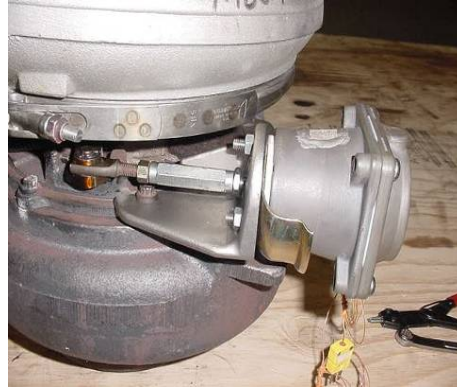
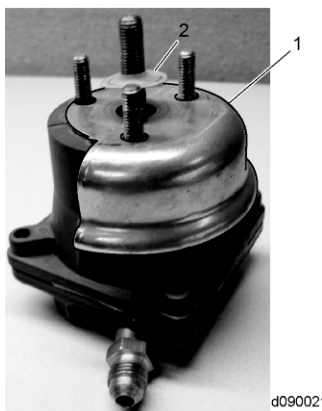


Figure 3. Cast mounting bracket

NOTICE: Do **NOT** attempt to remove the pin at this time as the rod is still under load from the internal actuator spring. The actuator or VNT linkage can be damaged by attempting to pry off the rod end.

1. Loosen the lock nuts and turn the adjuster until there is free play on the pin.
2. Remove the pin from the turbo and actuator assembly.
3. Disconnect air line to actuator.
4. Remove the three mounting bolts holding the actuator to the mounting bracket.
5. Remove actuator from turbo bracket.
6. Remove and discard the lower lock nut and adjuster. Remove the heat shield and dust seal.
7. Remove brass fitting from actuator.
NOTE: If brass fitting is damaged, replace with fitting P/N: 23536197.
8. Install the heat shield and **scraper seal** on the new turbo actuator (23534917), verifying the heat shield is in the correct orientation. See Figure 4.



1. Heat Shield 2. Scraper Seal

Figure 4. Heat shield and **scraper seal**

9. Install brass fitting into the new actuator.
10. Install the lower lock nut (23538821) approximately 9.5 mm onto the shaft of the actuator. See Figure 5.



Figure 5. Lower lock nut on shaft of actuator

11. Install the adjuster (23538822) until it contacts the lock nut. See Figure 6.



Figure 6. Adjuster on actuator

12. Install the new upper lock nut (23538825) on the new rod end (23538819) approximately 16 mm. See Figure 7.



Figure 7. Lock nut on rod end

13. Install actuator rod end on to the adjuster until it contacts the lock nut. See figure 8.



Figure 8. Actuator rod on adjuster

14. Install the actuator into the cast bracket on the turbo. Torque the mounting bolts to 5-8 N·m (4-6 lb·ft).
15. Rotate the **adjuster** and align the clevis and rod end holes. Insert the pin and secure with the retaining ring.

Note: If needed, turn the adjuster to lengthen or shorten the actuator rod to allow the pin to line up. If the rod needs to be lengthened, the lower lock nut will need to be moved lower on the actuator. Verify that the top lock nut does not move when turning the adjuster. Once pin is in place, turn adjuster until it comes in contact with the top lock nut. If the rod needs to be shortened then the top lock nut will need to be moved higher on the rod end. Verify that the lower lock nut does not move when turning the adjuster. Once the pin is in place, turn adjuster until it comes in contact with the lower lock nut.
16. Connect air line to the fitting and torque to 20 N·m (15 lb·ft).
17. Perform actuator adjustment routine using **Diagnostic Link 6.45** or newer version.

CONTACT INFORMATION

Please contact the Detroit Diesel Customer Support Center at 313-592-5800 or email csc@daimler.com if you have any questions.