



Service Information Bulletin

NUMBER: 6 09–09 **S.M. REF.:** Listed in Table 1 **ENGINE:** MBE 4000 **DATE:** June 2009

SUBJECT: EPA07 MBE 4000 TURBOCHARGER ACTUATOR (WASTEGATE) REPLACEMENT AND ADJUSTMENT

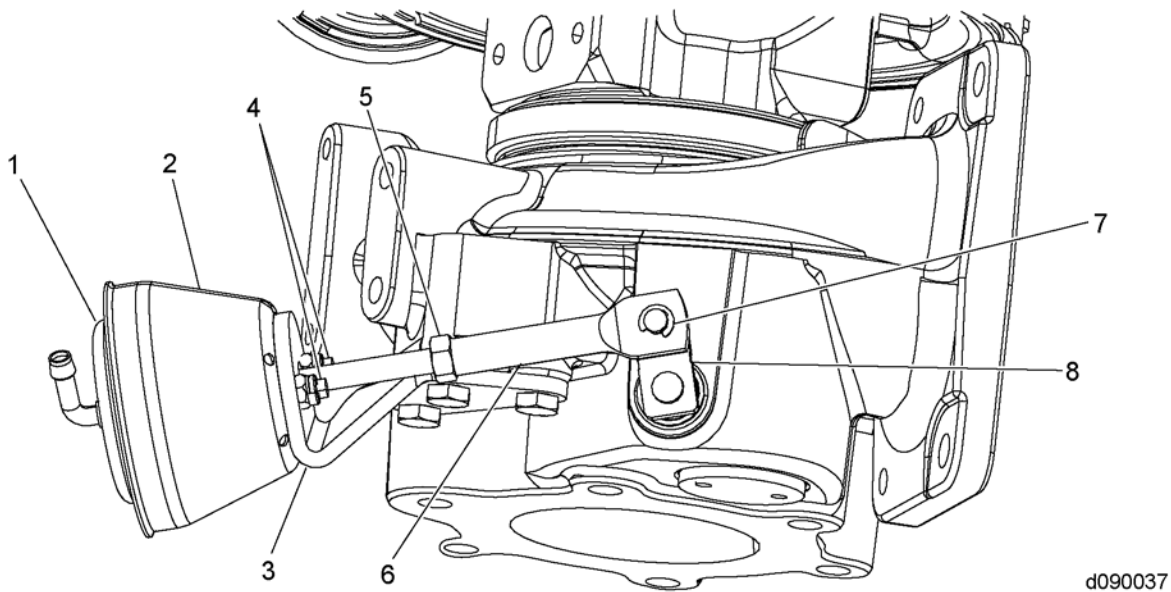
ADDITIONS, REVISIONS, OR UPDATES

Publication Number	Platform	Section Title	Change	Page Number(s)
DDC-SVC-MAN-0026	EPA07 MBE 4000 Service Manual	6.7 Turbocharger	Turbocharger Wastegate Actuator Removal, Installation and Adjustment procedures have been added.	6–23

NOTE: Page numbers are based on the most recent version of the individual publication and may be adjusted throughout the annual print cycle.

Table 1

REMOVAL OF WASTEGATE ACTUATOR



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|-----------------------|-------------------------------|
| 1. Wastegate Actuator | 5. Adjusting Rod Jam Nut (M8) |
| 2. Heat Shield | 6. Adjusting Rod |
| 3. Actuator Bracket | 7. E-Clip |
| 4. Hex Nuts (M6) | 8. Wastegate Swing-Arm |

Figure 1 Turbocharger Actuator Components

Removal is as follows:

1. Shut off the engine, apply the parking brake, chock the wheels, and perform any other applicable safety steps.
2. Remove the turbocharger. Refer to section 6.7.2.
3. Loosen the jam nut on the wastegate adjusting rod.
4. Remove the two nuts securing the actuator to the actuator bracket.
5. Remove and discard the E-clip holding the adjusting rod onto the actuator swing-arm pin.
6. Remove the adjusting rod and jam nut from the actuator swing-arm pin.

NOTE:

There is significant tension on the actuator rod and swing arm. Take care not to damage the swing arm pin when removing the adjusting rod.

7. Remove the adjusting rod and jam nut from the actuator rod.
8. Remove the actuator and heat shield from the mounting bracket.

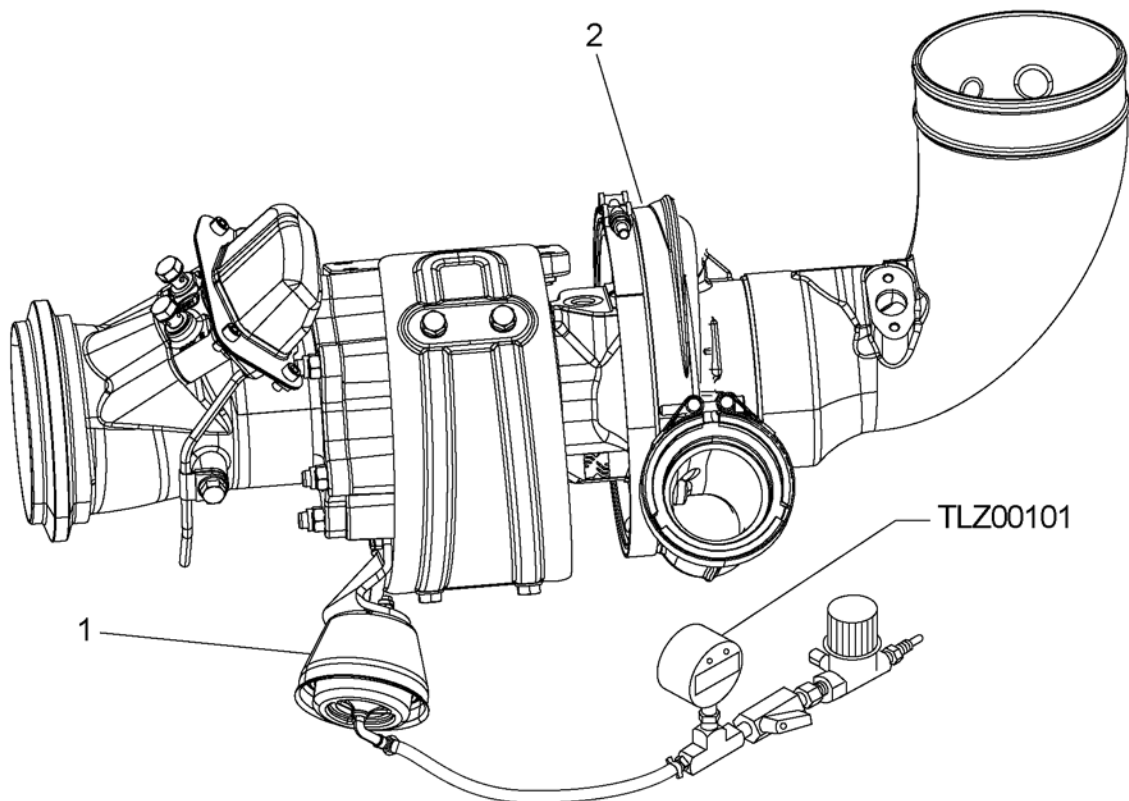
INSTALLATION AND ADJUSTMENT OF WASTEGATE ACTUATOR

Installation is as follows:

NOTE:

Proper installation and adjustment of the wastegate actuator requires the use of a highly accurate digital air pressure gauge, TLZ00101 (included in special tool kit TLZ00100) or equivalent.

1. With the adjusting rod and jam nut removed from the actuator rod, install the heat shield on the new wastegate actuator, and then install the wastegate actuator to the actuator bracket. Tighten nuts to 12 N·m (9 lb-ft).
2. Thread the jam nut and adjusting rod onto the actuator rod; do not tighten.
3. Attach regulated shop air to the digital pressure/regulator setup.
4. Adjust the regulator output knob until airflow stops.
5. Turn the digital pressure gauge (TLZ00101 or equivalent) on and set to “zero.”
6. Attach the digital pressure/regulator hose to the wastegate actuator port.
7. Connect the new wastegate actuator to a regulated air supply as shown in Figure 2. Secure all air hose connections, ensuring there are no leaks.



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1. Wastegate Actuator

2. Turbocharger

Figure 2 Proper Setup of Regulated Air for Calibration

8. SLOWLY adjust the air regulator output to 25.5 psi (175 kPa).

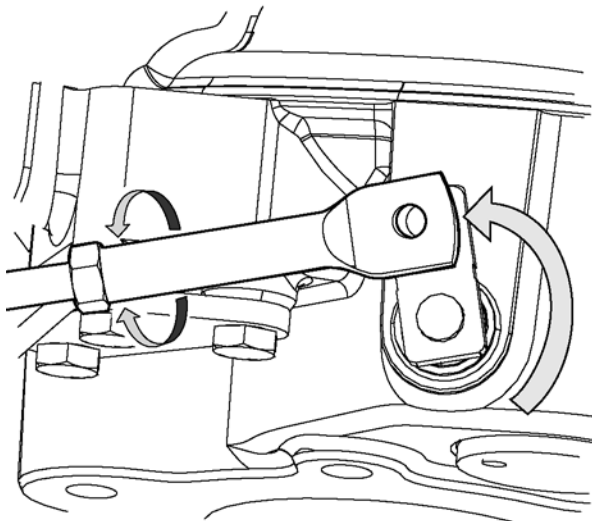
NOTE:

If during the adjustment, the pressure is exceeded, reduce the regulator output to 0 (zero) psi and increase slowly again to 25.5 psi (175 kPa).

9. With the wastegate in the fully closed position, adjust the free length of the adjusting rod by rotating it, so that the adjusting rod hole lines up with the wastegate swing-arm pin.

NOTE:

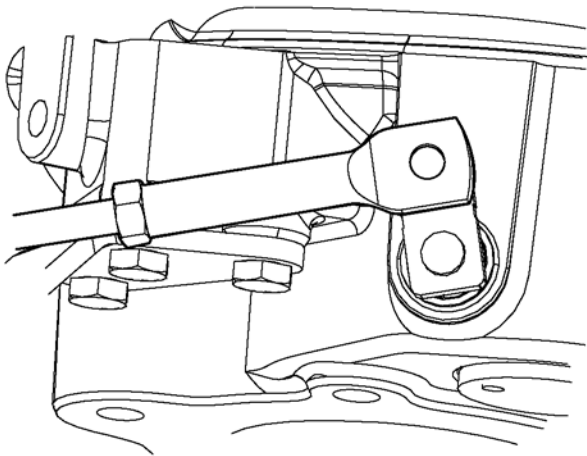
It is critical that the swing-arm remains in the closed position and the actuator rod is not moved in or out of the actuator during the adjustment. If the rod is moved in or out, it will slowly return to the correct position and must be readjusted. See Figure 3.



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Figure 3 Wastegate Swing-Arm in Closed Position

10. Install the adjusting rod on the wastegate swing-arm pin. With the wastegate swing-arm in the fully closed position and the adjusting rod length properly set, the adjusting rod should be perfectly aligned with the swing-arm pin, see Figure 4. The adjusting rod should slip over the wastegate swing-arm pin nearly effortlessly when properly adjusted.



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Figure 4 Proper Adjusting Rod Length

11. Install replacement E-clip onto the wastegate lever pin.
12. Tighten the jam nut on the wastegate actuator adjusting rod, taking care not to rotate the actuator shaft. Torque jam nut to 5 N·m (4 lb·ft).
13. Disconnect regulated air supply.
14. Install the turbocharger. Refer to section 6.7.3.
15. Verify the repair.

ADDITIONAL SERVICE INFORMATION

Additional service information is available in *Power Service Literature*.

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