



18SP664* – EPA04 Series 60[®] Turbocharger Actuator Replacement Kit (P/N: 23538827)

* Revision - 6/12/09

KIT DESCRIPTION

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

KIT CONTENTS

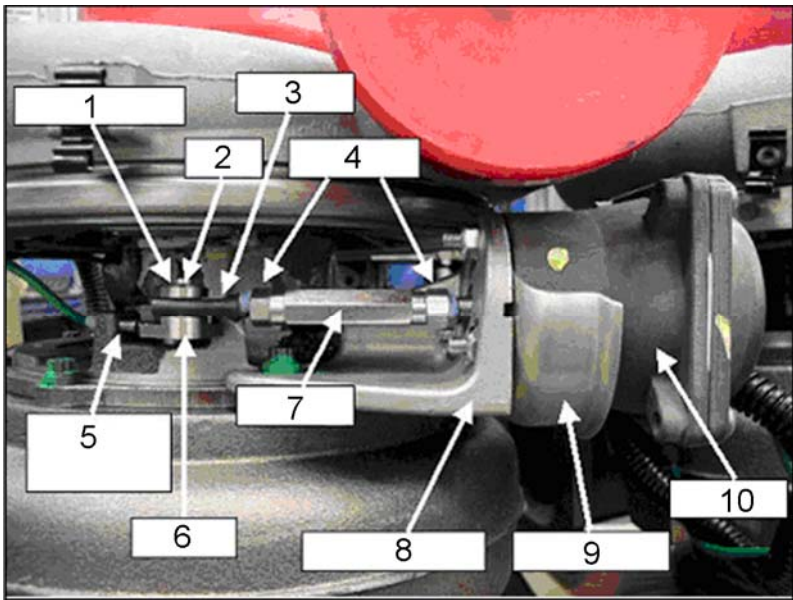
Replacement kit P/N: 23538827 contains the following items listed in Table 1:

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)

INSTALLATION PROCEDURE

Use the following procedure to remove and install the turbocharger actuator:



d090026

- | | |
|--------------------------------|---------------------|
| 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 EPA04 Series 60 Turbocharger Actuator and Bracket

WARNING:

EYE INJURY

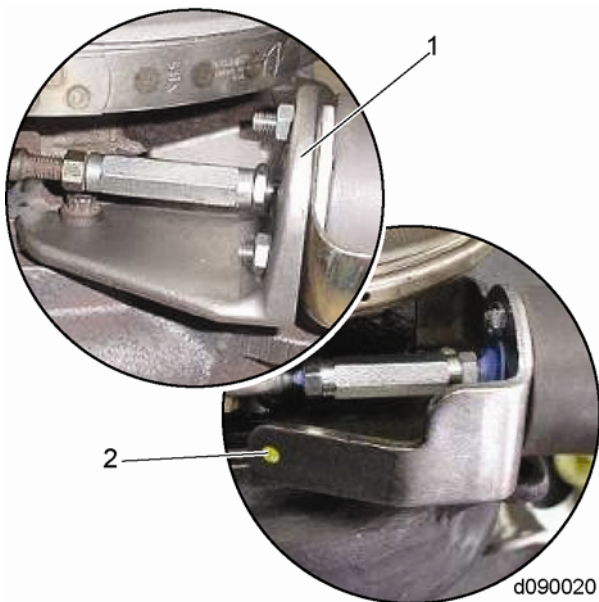
To avoid injury from flying parts when working with components under spring tension, wear adequate eye protection (face shield or safety goggles).

NOTE:

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 turbocharger with a complete assembly. See Figure 2.



1. Cast Mounting Bracket
2. Stamped Steel Mounting Bracket

Figure 2 Actuator Mounting Bracket Styles

NOTICE:
Do NOT attempt to remove the rod end from 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.

Removal Procedure

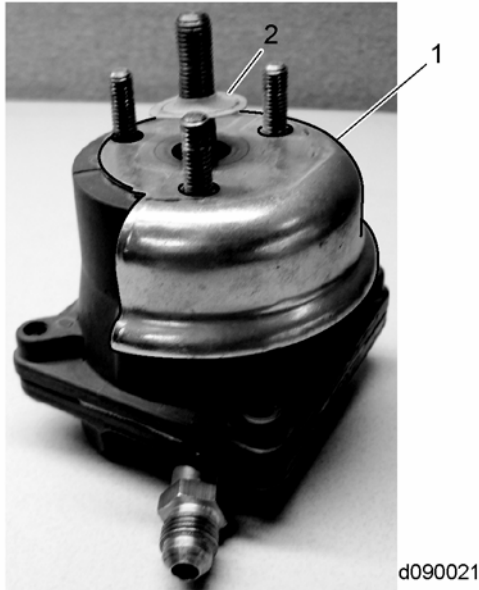
1. Loosen the lock nuts and turn the adjuster until there is free play on the pin.
2. Remove the pin from the turbo and actuator assembly.
3. Disconnect air line to actuator.
4. Remove the three mounting bolts holding the actuator to the mounting bracket.
5. Remove actuator from mounting bracket.
6. Remove and discard the lower lock nut and adjuster. Remove the heat shield and scraper seal.
7. Remove brass fitting from actuator.

NOTE:

If brass fitting is damaged, replace with fitting P/N: 23536197.

Installation Procedure

1. Install the heat shield and scraper seal on the new turbo actuator (P/N: 23534917), verifying that the heat shield is in the correct orientation. See Figure 3.



1. Heat Shield
2. Scraper Seal

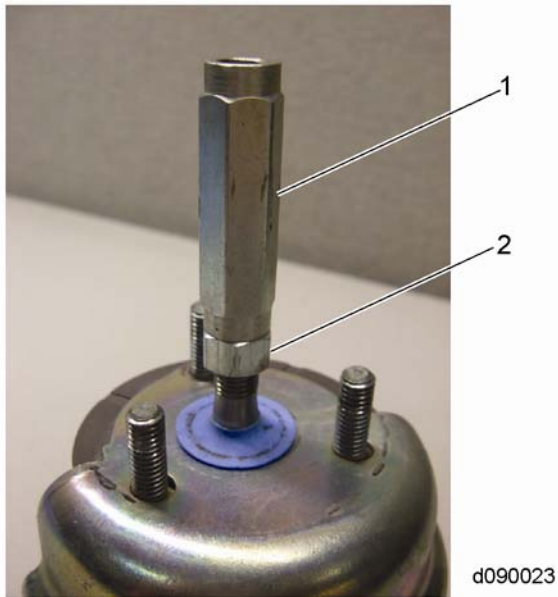
Figure 3 Actuator Heat Shield

2. Install brass fitting into the new actuator. Torque to 16 N·m (11.8 lb·ft).
3. Install the lower lock nut (P/N: 23538821) approximately 9.5 mm onto the shaft of the actuator. See Figure 4.



Figure 4 Installing Lower Lock Nut

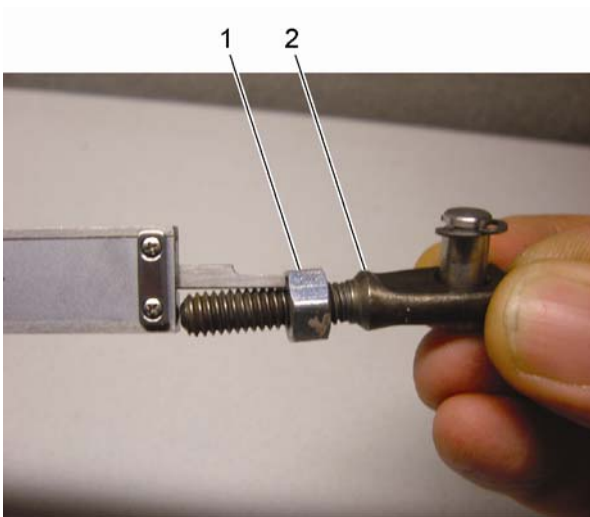
4. Install the adjuster (P/N: 23538822) until it comes in contact with the lower lock nut. See Figure 5.



1. Adjuster
2. Lower Lock Nut

Figure 5 **Installing Adjuster to Lower Lock Nut**

5. Install the new upper lock nut (P/N: 23538825) on the new rod end (P/N: 23538819) approximately 16 mm. See Figure 6.



1. Upper Lock Nut
2. Rod End

Figure 6 **Installing Upper Lock Nut to Rod End**

6. Install the actuator rod end on to the adjuster until it comes in contact with the upper lock nut. See Figure 7.



d090025

1. Actuator Rod End
2. Upper Actuator Lock Nut

Figure 7 Installing Rod End on to Adjuster

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

NOTE:

If needed, turn the adjuster to lengthen or shorten the actuator rod, allowing 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 so you can return to a neutral position. 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 so you can return to a neutral position.

9. Connect air line to the fitting and torque to 20 N·m (15 lb·ft).
10. Perform Actuator Adjustment Routine using Diagnostic Link 6.45 or newer version.



13400 Outer Drive, West, Detroit, Michigan 48239-4001
Telephone: 313-592-5000
www.detroitdiesel.com

Specifications are subject to change without notice. Detroit Diesel Corporation is registered to ISO 9001:2001. Copyright © 2009 Detroit Diesel Corporation. All rights reserved. Detroit Diesel Corporation is a Daimler company.

18SP664Rev. 0906 As technical advances continue, specifications will change. Printed in U.S.A.