PART #: 0000-88-C96A
INSTR: MSP.10003.152

INSTRUCTIONS FOR REMOVAL AND REPLACEMENT OF WASTEGATE ACTUATOR

APPLICATION: 03/3.5MY
MAZDASPEED PROTEGÉ

WARNING

When the engine and intake air system are hot, they can badly burn. Turn off engine and wait until they are cool before removing the intake air system.

Disconnect the battery before attempting procedure.

IMPORTANT NOTICE

This actuator has been supplied with a tube of TORQUE SEAL inspection lacquer. This lacquer is used to determine the presence of tampering and must be applied to all specified joints, as outlined in these instructions, prior to the release of the vehicle. Information on applying TORQUE SEAL can be found on page 3 of these instructions.

1 REMOVE COMPRESSOR OUTLET TO INTERCOOLER INLET DUCT

- Loosen clamp at intercooler.
- Raise heat protective sleeve.
- Loosen clamp at compressor discharge.
- Slide spring clamp for Air Bypass Valve hose backward off of duct nipple.
- Slide ABV hose off of duct.
- Remove duct.
    - First remove from turbocharger.
    - Next remove from intercooler.
- Cover turbo outlet and intercooler inlet to keep out foreign objects.

2 REMOVE COMPRESSOR INLET TO MASS AIR FLOW SENSOR DUCT

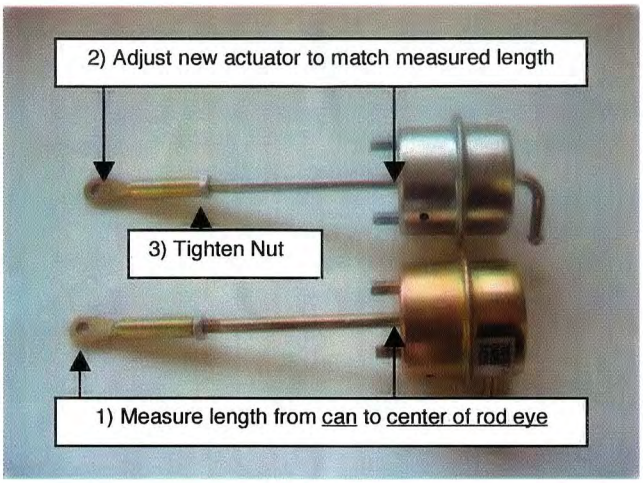
- Loosen clamp at MAF sensor.
- Slide spring clamp forward on ABV, remove ABV from duct and place off to the side.
- Remove valve cover breather hose.
- Disconnect electrical connector halves for reverse light switch and then remove the connector body from duct.
- Loosen clamp at compressor inlet.
- Unclip fuel line from retainer on duct.
- Remove air filter box lid by disconnecting electrical connectors from MAF & Inlet Air Temperature sensor.
-Remove retainer holding wires to airbox lid.
-Unlatch the two latches, lift hinge lid up and remove from the duct by rocking back and forth while pulling.
-Remove duct from compressor inlet.
-Cover turbo inlet to keep foreign objects out.

3 REMOVE WASTEGATE ACTUATOR

- Remove clamp holding oil feed line to water lines.
- Remove and discard oetiker clamp holding boost signal line to wastegate actuator.
- Disconnect line from wastegate actuator.
- Raise vehicle and suitably support.
- Remove clip holding actuator arm to wastegate lever.
- Release actuator arm from wastegate lever.
- Remove lower nut holding actuator to bracket.
- Lower vehicle.
- Remove upper nut holding actuator to bracket.
- Remove actuator, oil feed line may need to be moved out of the way.

4 REPLACE WASTEGATE ACTUATOR

- Measure length of rod on new and old actuators.
- Adjust new actuator rod length to equal old actuator rod length and then apply TORQUE SEAL to the tightened nut.



- Install actuator, by holding oil line out of the way.
- Ensure the heat shield is between actuator and mounting bracket and signal line is pointing down.
- Install and tighten the nut holding the top of the actuator. Apply TORQUE SEAL to nut.
- Raise the vehicle.
- Install and tighten the lower nut holding the actuator to the bracket. Apply TORQUE SEAL to nut.
- Pull actuator arm forward to connect to wastegate lever.
- Reinstall retaining clip to secure actuator arm to wastegate lever. Apply TORQUE SEAL to this joint.
- Reconnect boost signal line to actuator using a new oetiker service clamp.
- Reinstall clamp for oil and water lines.

6 REINSTALL COMPRESSOR OUTLET DUCT

- Install compressor outlet to intercooler inlet duct.
- Torque clamps to 66 lb. In.
- Slide heat shield down compressor outlet to intercooler inlet duct, to cover bellows closest to turbo.
- Install ABV onto nipple of compressor discharge to intercooler inlet duct.
- Align ABV so that the top of the valve is level
- Install spring clamps at both ends.

5 REINSTALL COMPRESSOR INLET DUCT

- Install compressor inlet to MAF duct, do not tighten clamps until both ends are aligned.
- Install airbox lid/MAF.
- Reconnect fuel line into clip on duct.
- Reconnect reverse light connection onto duct.
- Reconnect reverse light electrical connection.
- Reconnect valve cover breather hose.
- Reconnect electrical connections to MAF & IAT sensors.
- Reconnect wiring harness retainer to airbox.
- Align compressor inlet to MAF duct, making sure there is adequate clearance between it and the intercooler to throttlebody duct.
- Torque clamps to 66 lb-in.
- Install ABV onto nipple on compressor inlet duct – Do not clamp yet.

7 VERIFY/ADJUST BOOST LEVEL

- Reconnect battery cable.
- Connect WDS can tool.
- Run engine to operating temp.
- In a safe area, accelerate in 1st gear while dragging brakes with your left foot.
- Continue opening throttle until it is wide open. Apply brake as needed to control engine rpm at 4,000 rpm.
- Using the snapshot function, record rpm, mass air flow, air inlet temperature, and engine coolant temperature.

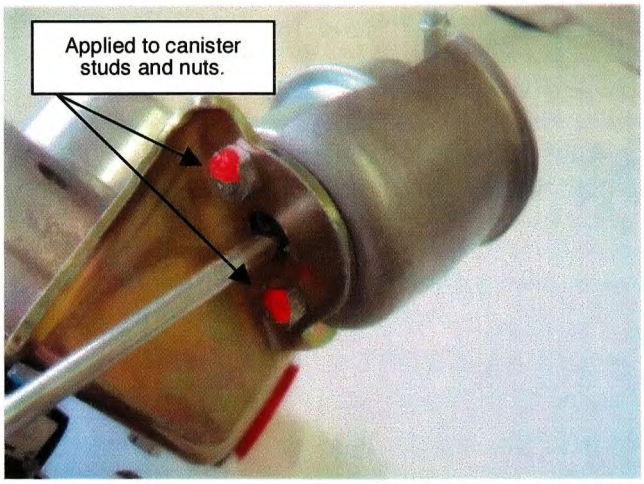
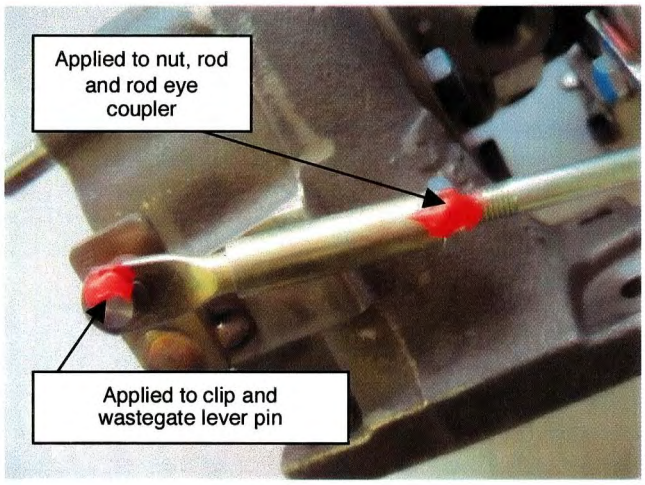
The mass airflow should be within g/s specifications of:

Low Limit 90 Target 95 High Limit 100

If not within specification, the rod length needs to be adjusted:

To raise boost, make the actuator rod shorter.
To lower boost, make the actuator rod longer.

IF ADJUSTMENT IS NECESSARY, REAPPLY ANY TORQUE SEAL TO THE DISTURBED AREAS.

APPLICATION OF TORQUE SEAL

- TORQUE SEAL is used to detect tampering and should be applied whenever servicing the turbocharger wastegate actuator. It should be applied as shown below: