

Service Information

Mazda Motor Corporation

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Category F	Technical	Ref. No. E003/14	Page 1 of 4
Coverage <input type="checkbox"/> Distributor only <input checked="" type="checkbox"/> Please inform your dealers		Date Issued January 21, 2014	
Please convey this information to your <input type="checkbox"/> Director <input checked="" type="checkbox"/> General Manager <input checked="" type="checkbox"/> Warranty Dept. <input checked="" type="checkbox"/> Parts Dept. <input checked="" type="checkbox"/> Training Dept. <input checked="" type="checkbox"/> Field Rep.		Date Revised	
Applicable Model All models with SKYACTIV-D		Applicable Countries or Specifications Worldwide (except North America)	

Note: This Service Information supersedes E042/12 (for Europe).

Subject: Fuel Injector Tightening Procedure

DESCRIPTION

To improve the accuracy of the injector clamping force, a new tightening procedure for the fuel injectors has been implemented.

Caution:

It is crucial to scrupulously follow the tightening procedure below. If the injector clamping force is too low, this will result in combustion gas leakage which generates carbon residues in engine oil. As a final result the oil pump strainer may become clogged. On the other hand, if the injector clamping force is too high, the injector operation is impaired due to deformation of the nozzle body, leading to an incorrect injection amount.

Note (Europe only):

The use of following tools is strongly recommended to obtain an accurate tightening.

- Torque screw driver (for measuring such small torque).
- Angle gauge (for measuring the tightening angle).

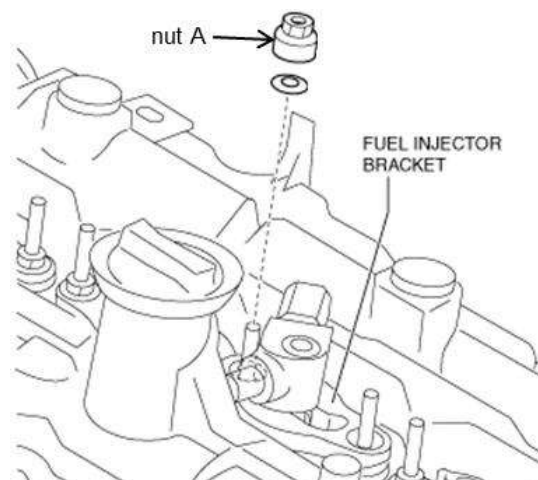
Nuts and Washers are not-reusable parts, please make sure to use new ones.

Two different tightening procedures are described in this Service Information.

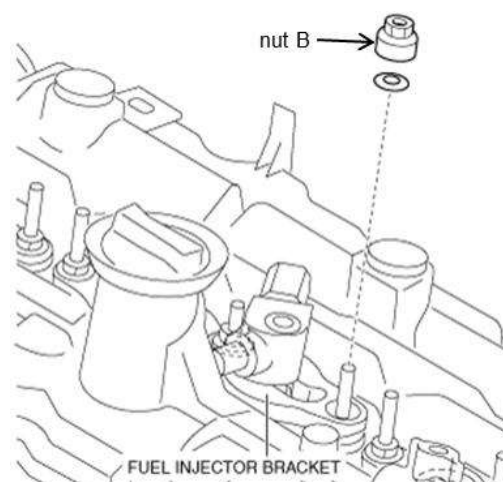
- Tightened by using angle gauge.
- Tightened without using angle gauge.

Fuel injector installation procedure
(Tightened by using angle gauge)

1. Tighten the nut A with specified torque.
Tightening torque:
1.8 – 2.2 N·m {16 – 25 kgf·cm, 14 – 22 in·lbf}
2. Loosen the nut A with specified angle.
Loosening angle:
Between -30° and -150°

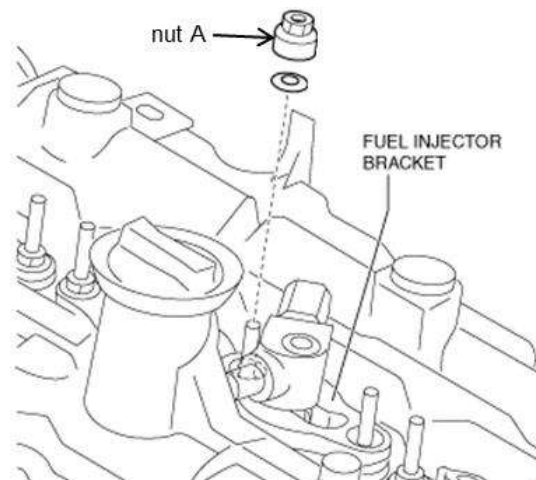


3. Tighten the nut B with specified torque.
Tightening torque:
1.8 – 2.2 N·m {16 – 25 kgf·cm, 14 – 22 in·lbf}
4. Tighten the nut B with specified angle.
Tightening angle:
Between 207° and 213°



Fuel injector installation procedure (Tightened without using angle gauge)

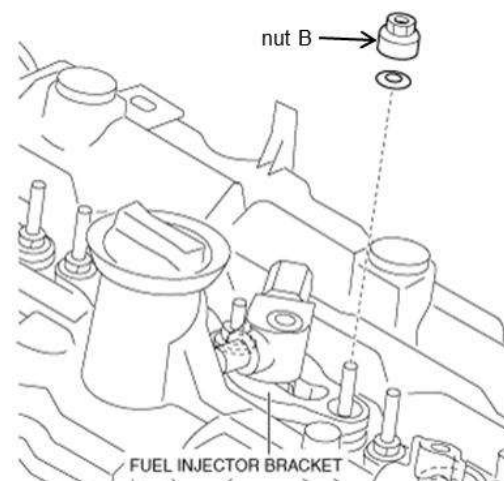
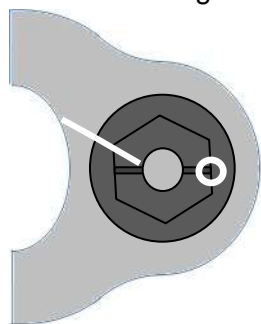
1. Tighten the nut A with specified torque.
Tightening torque:
1.8 – 2.2 N·m {16 – 25 kgf·cm, 14 – 22 in·lbf}
2. Loosen the nut A with specified angle.
Loosening angle:
Between -30° and -150°



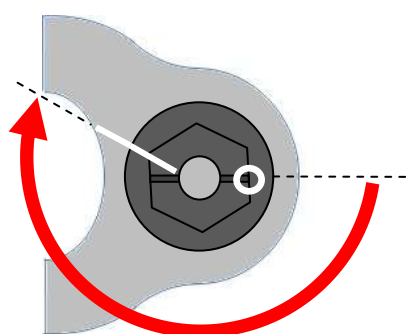
3. Tighten the nut B with specified torque.
Tightening torque:
1.8 – 2.2 N·m {16 – 25 kgf·cm, 14 – 22 in·lbf}

4. Tighten the nut B with specified angle according to following steps.

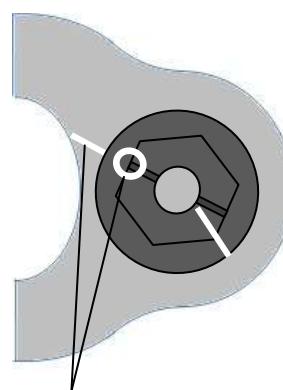
- 1) Put marks on nut and bracket as shown in white in below figure.



- 2) Tighten the nut to align the “white circle mark” with the “white line mark” of the bracket.



Approx. 210 deg.

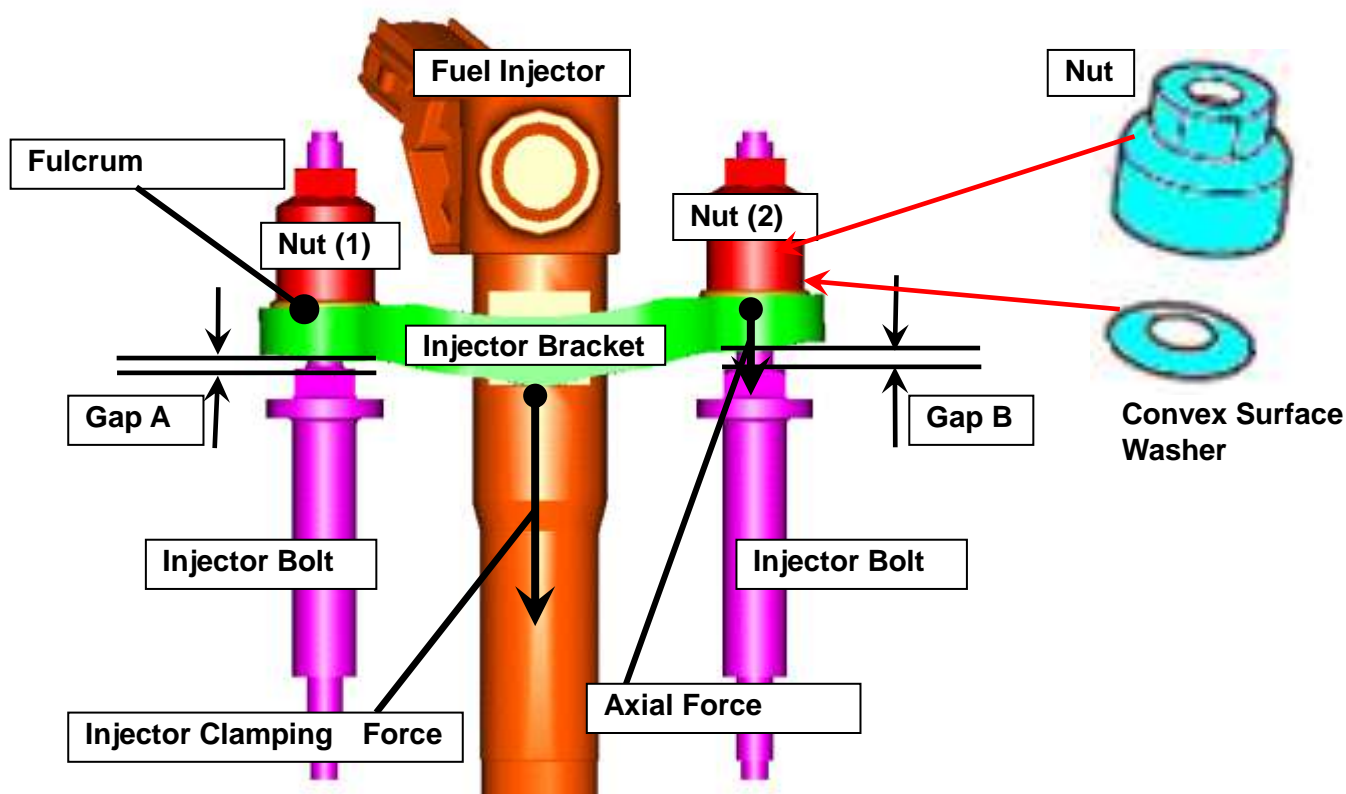


Align the “white circle mark” with the “white line” of the bracket.

Background Information: Fuel Injector Fastening Structure.

The new injector fastening structure works according to the principle of the one-sided lever, i.e. the nut (1) serves as a fulcrum for the injector bracket (lever) and the nut (2) generates the axial force required to clamp the injector.

Additionally, the convex surface washer is installed between nut and bracket to apply the injector clamping force vertically.



This structure improves the accuracy of the injector clamping force and the accuracy of clearance (Gap A&B) between injector bracket and injector bolt to reduce the ticking noise (Radiated sound of impact energy when fuel is injected).

ATTACHMENT (For Europe only)

Establishment of a Torque Screwdriver at Werner Weitner Special Tool Supplier

Description: To accurately achieve the very small temporary tightening torque for the injectors, a torque screwdriver with a measuring range of 1.5...3.0 Nm (in 0.1 Nm increments) has been established. The torque screwdriver can be used on both R2 and SH engines.



Contents: Torque screwdriver with magnetic bit holder, allen key for torque adjustment, adapter for 1/4 " square drive sockets.

Ordering: Please place your order of these tools with the Werner Weitner webshop, which is accessible via the URL <http://www.werner-weitner.com/index.php/en/shop>.

Werner Weitner GmbH
Sollnau 12 + 14
85072 Eichstätt
Germany

Telephone: (+49) 8421-9816-0
Telefax: (+49) 8421-9816-98
info@werner-weitner.com

Price:

Part No.	Description	Price
49-0000-205	Torque screwdriver 1.5...3.0 Nm incl. adapter for 1/4 " square drive sockets	62.30 €

Notes about this quotation:

1. All prices are quoted ex works. The delivery will be charged at extra cost.
2. Payment term: 30 days from delivery date.

This offer is based on Werner Weitner GmbH General Terms and Conditions, which are available on:
<http://www.werner-weitner.com/index.php/en/downloads/category/4-terms-and-conditions>.