

# FUEL PUMP

[YD]

## FUEL PUMP Components

PF17042

GBS000Z

A

EM

C

D

E

F

G

H

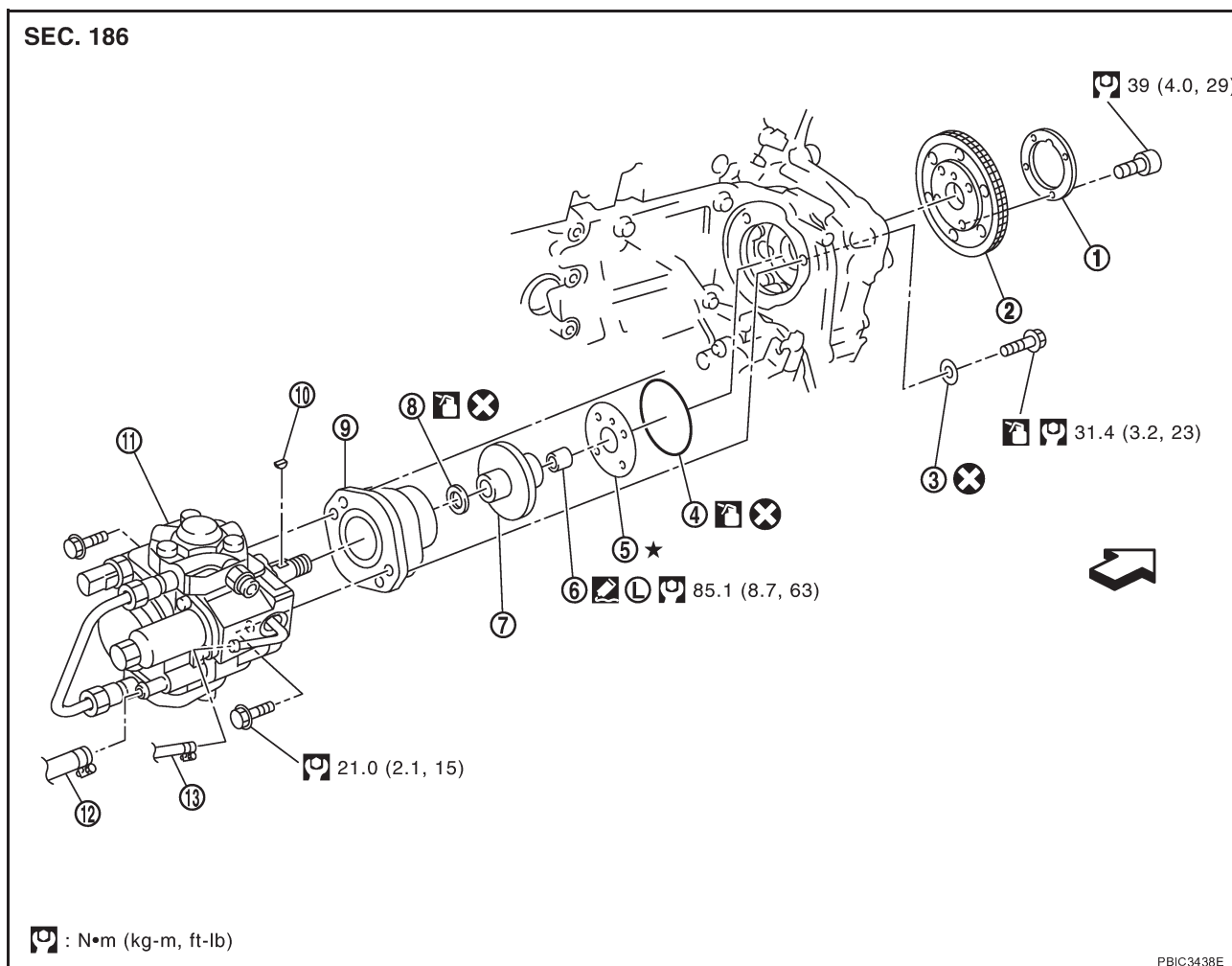
I

J

K

L

M



- |                |                       |                 |
|----------------|-----------------------|-----------------|
| 1. Washer      | 2. Fuel pump sprocket | 3. Seal washer  |
| 4. O-ring      | 5. Adjusting shim     | 6. Sprocket nut |
| 7. Coupling    | 8. Oil seal           | 9. Spacer       |
| 10. Key        | 11. Fuel pump         | 12. Fuel hose   |
| 13. Spill hose |                       |                 |
- ⇐ Engine front

- Refer to [GI-10, "Components"](#) for symbol marks except in the above.

## Removal and Installation

GBS00010

### CAUTION:

- Before removing and installing fuel pump, be sure to remove sprocket. Do not loosen or remove installation nut in the center of fuel pump. If loosened or removed, replace fuel pump.
- After removing timing chain, do not turn crankshaft and camshaft separately, or valves will strike piston heads.
- When installing camshafts, chain tensioners, oil seals, or other sliding parts, lubricate contacting surfaces with new engine oil.
- When fuel pump is replaced with new one or another one, perform fuel pump leaning value cleaning before starting engine. Refer to [EC-1013, "Fuel Pump Learning Value Clearing"](#).

### REMOVAL

- Remove engine cover, vacuum gallery and heater feed pipe. Refer to [EM-164, "INTAKE MANIFOLD"](#).

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2. Remove fuel hose and spill hose from fuel pump. Refer to [EM-188, "INJECTION TUBE AND FUEL INJECTOR"](#).

**CAUTION:**

**Be careful not to spill fuel in the engine component.**

3. Disconnect harness connectors from fuel pump.
4. Remove injection tube center, clip and insert rubber. Refer to [EM-188, "INJECTION TUBE AND FUEL INJECTOR"](#).

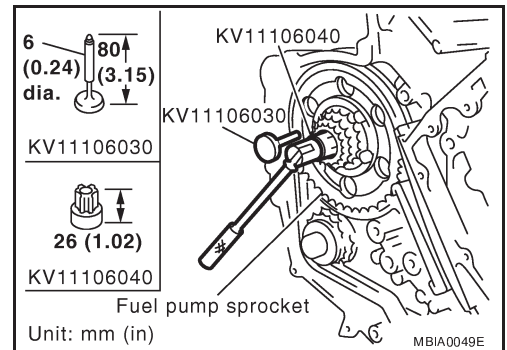
**CAUTION:**

**Be careful not to spill fuel in the engine component.**

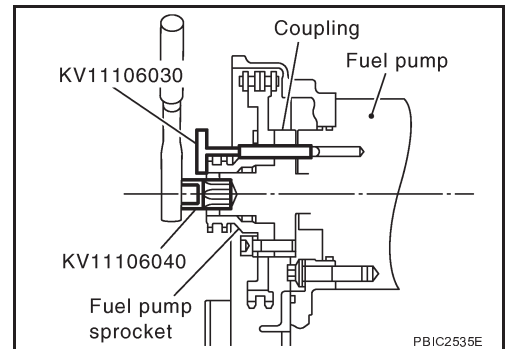
5. Remove secondary timing chain. Refer to [EM-217, "SECONDARY TIMING CHAIN"](#).

6. Hold fuel pump sprocket and remove bolt.

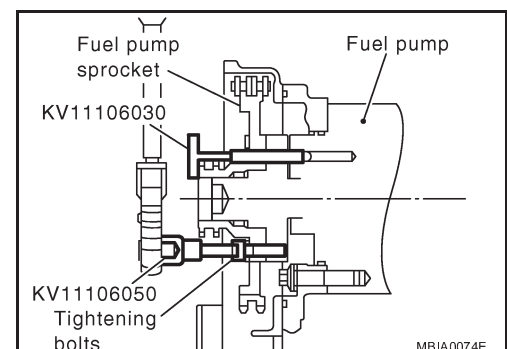
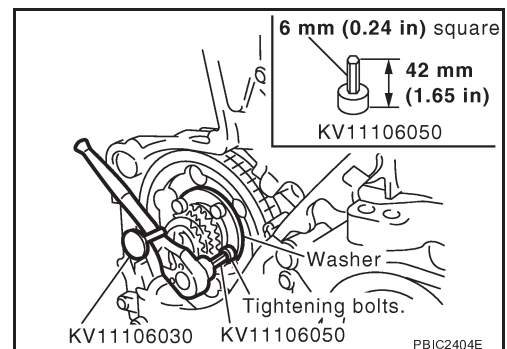
- a. Insert the positioning stopper pin [SST] into the hole 6 mm (0.24 in) in the diameter on the fuel pump sprocket.
- b. Using the TORX wrench [SST], turn pump shaft little by little to adjust the position of fuel pump sprocket so that the holes align.
- c. Push the positioning stopper pin [SST] through fuel pump sprocket to fuel pump body to hold fuel pump sprocket.



- Insert the positioning stopper pin until its flange contacts the fuel pump sprocket.



7. Using the hexagon wrench [SST] remove tightening bolts of fuel pump sprocket.

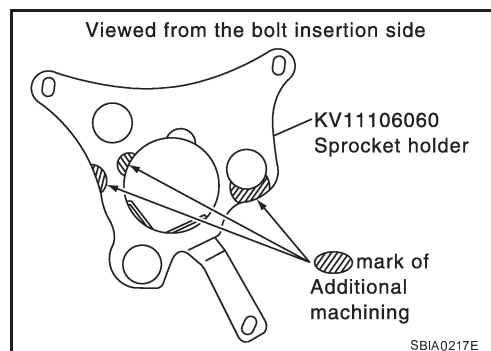


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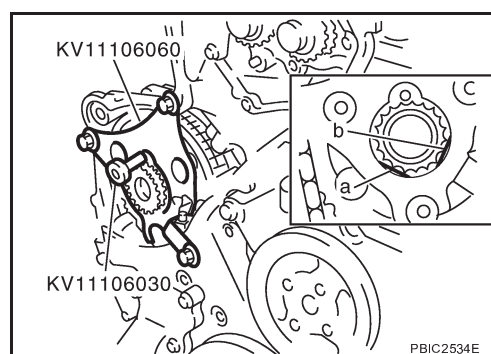
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8. Using the sprocket holder [SST], hold fuel pump sprocket to prevent falling.

- For sprocket holder, use KV11106060 machined as shown in the figure, because the previous bore is not fitting.



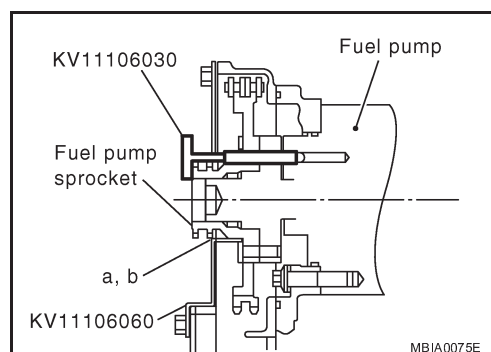
- When the sprocket holder is installed, if the positioning stopper pin [SST] interferes, pull out the positioning stopper pin approximately 10 mm (0.39 in), then install it.
- After the sprocket holder is installed temporarily, tighten the sprocket holder after making extension bar and TORX socket (size: E10) (commercial service tool) insert into the machined bore.
- The length of the sprocket holder mounting bolts should be approximately 15 mm (0.59 in) (M6 thread length).
- Make sure that the a- and b-faces of the sprocket holder contact the bottom side of the sprocket (small diameter side).



### CAUTION:

**Do not remove the sprocket holder [SST] until fuel pump is installed.**

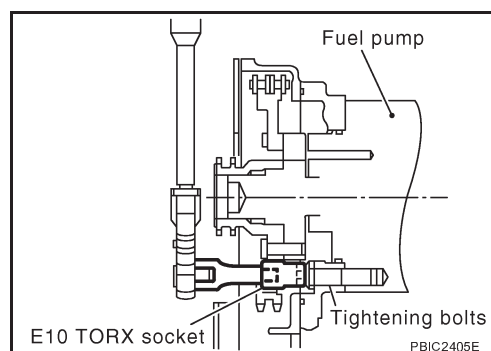
- After the sprocket holder is installed, pull out the positioning stopper pin from fuel pump sprocket.



9. Using the extension bar and the TORX socket (size: E10) (commercial service tool), remove the tightening bolts.

### CAUTION:

**Do not disassemble or adjust fuel pump.**



10. Remove the fuel pump toward the rear of engine.

### CAUTION:

**For removal, be careful not to drop the seal washer into the engine.**

### NOTE:

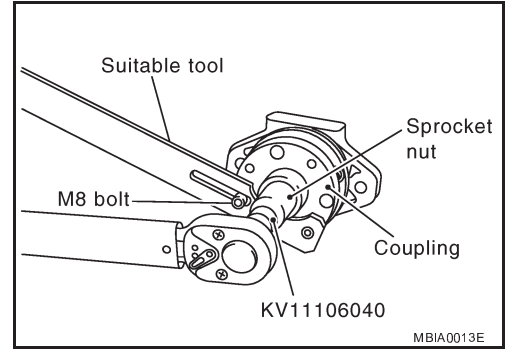
The seal washer of the tightening bolts cannot be reused.

11. Remove adjusting shim.
12. Attach a suitable tool in the M8 bolt hole on coupling.

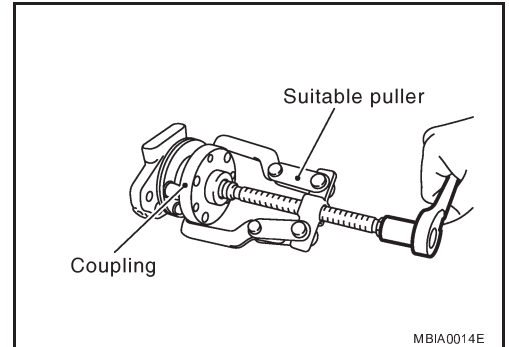
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13. Loosen sprocket nut with the TORX wrench [SST].



14. Remove coupling with a suitable puller.



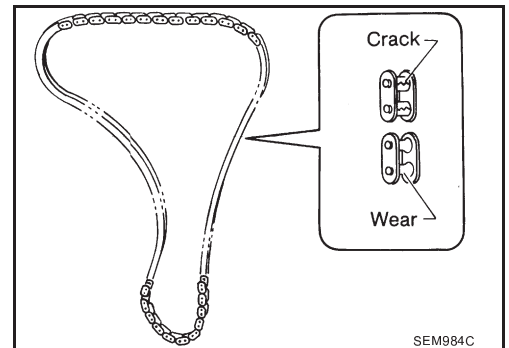
15. Remove spacer from fuel pump.

16. Remove oil seal from spacer.

## INSPECTION AFTER REMOVAL

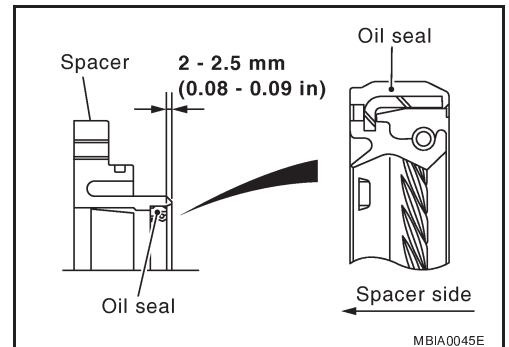
### Timing Chain

Check for cracks and excessive wear at roller links. Replace timing chain if necessary.



## INSTALLATION

1. Install new oil seal to spacer.



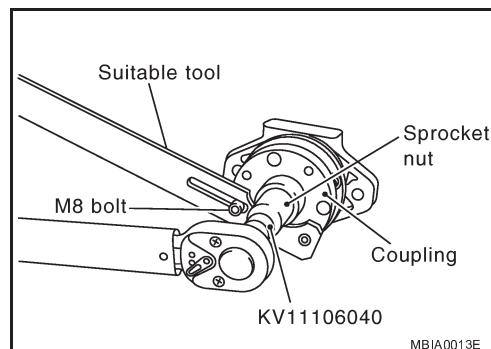
2. Install spacer to fuel pump.

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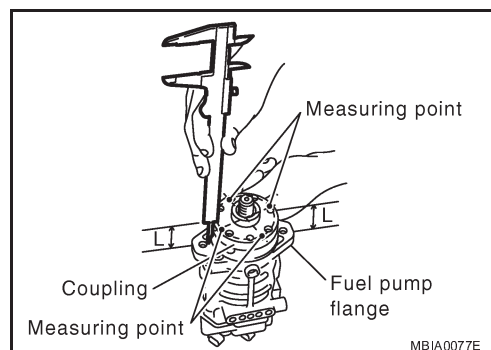
### 3. Install coupling to fuel pump of spacer.

- Using the TORX wrench [SST], tighten the sprocket nut to fix the coupling.

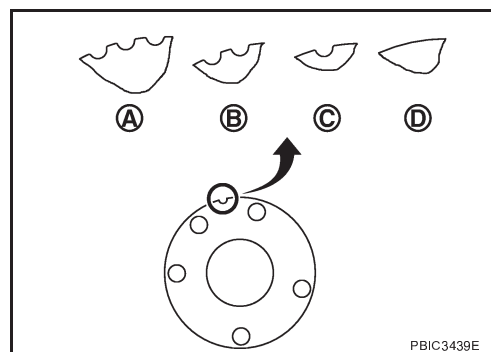


### 4. Install adjusting shim.

- For shim adjustment, measure dimension L [Distance between front surface of coupling and the fuel pump flange (spacer)] at two opposing points near the coupling bolt center. Use the average of these two measurements to select the shim grade that marked on adjusting shim.



- The shim adjustment is required only when the fuel pump is replaced.

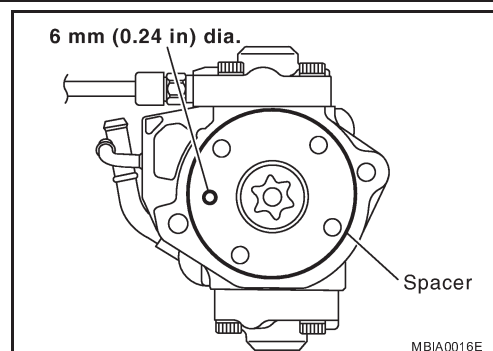


Part No. of adjusting shim	Grade number	Measuring dimension L mm (in)	Type
16614 8H800	0.5 t	38.23 - 39.77 (1.5051 - 1.5657)	A
16614 8H810	1.0 t	38.76 - 38.23 (1.5260 - 1.5051)	B
16614 8H860	1.2 t	38.57 - 38.76 (1.5185 - 1.5260)	C
16614 8H820	1.6 t	38.18 - 38.57 (1.5031 - 1.5185)	D
16614 8H800 + 16614 8H860	0.5 t + 1.2 t	38.09 - 38.18 (1.4996 - 1.5031)	A + C
16614 8H810 + 16614 8H810	1.0 t + 1.0 t	37.80 - 38.09 (1.4882 - 1.4996)	B + B
16614 8H860 + 16614 8H810	1.2 t + 1.0 t	37.60 - 37.80 (1.4803 - 1.4882)	C + B
16614 8H820 + 16614 8H810	1.6 t + 1.0 t	37.21 - 37.60 (1.4650 - 1.4803)	D + B

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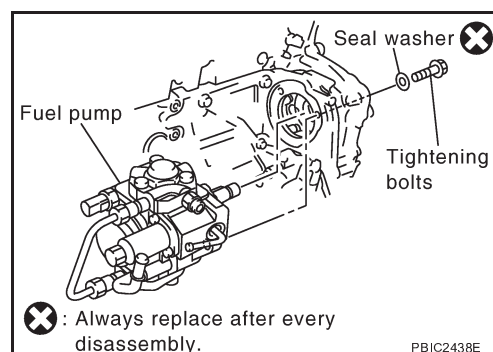
- Before fuel pump is installed, make sure that spacer and the 6 mm (0.24 in) dia. hole on coupling are aligned.



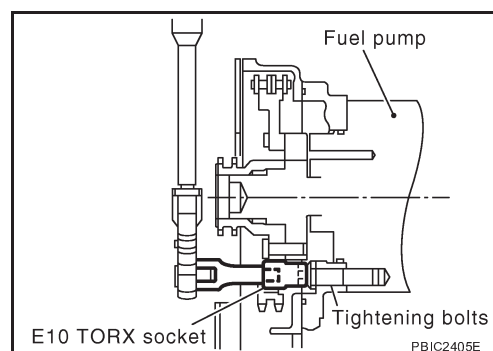
- Insert fuel pump to the mounting position from the rear side of the engine, and install the tightening bolts with seal washer.

**CAUTION:**

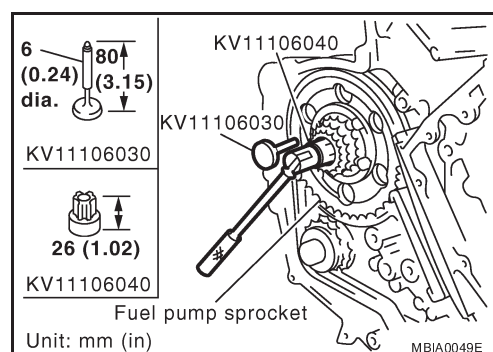
**Be careful not to drop the seal washer into engine.**



- Using the extension bar and the TORX socket (size: E10) (commercial service tool), tighten the tightening bolts of fuel pump.
- Remove the sprocket holder [SST].



- Using the TORX wrench [SST], turn the pump shaft gradually to adjust the position of fuel pump sprocket. Then, insert the positioning stopper pin [SST] to the 6 mm (0.24 in) dia. hole of the fuel pump sprocket through the pump body.
- Remove the TORX wrench [SST].



- Using the hexagon wrench [SST], tighten the sprocket tightening bolt.
  - When the washer of the fuel pump sprocket is removed, install it with the marking "F" (front) facing the front of the engine.
- Pull out the positioning stopper pin [SST].

