Bosch VP30 fuel injection pump

General description

Cautions:

- Do not loosen the nut (A2) from the fuel injection pump. The fuel pump hub is fitted to the shaft in the factory to ensure that the fuel pump is in the correct position for timing. If the nut is loosened and the hub moves, the hub will need to be accurately fitted to the pump by use of specialist equipment before the pump can be fitted to the engine.

- A new fuel injection pump will be supplied with the pump shaft in the locked position. The drive shaft of the pump must not be turned without the spacer (B2) in position under the locking screw (B1). Before the crankshaft is turned, or the pump is fitted, put the spacer into position under the locking screw to ensure that the pump drive shaft is released.

The manufacturer fits the hub (A2) to the pump to ensure very accurate timing. These engines have the drive gear fastened to the hub instead of to the shaft of the pump.

The mounting flange has holes instead of slots to prevent incorrect adjustments to the engine timing by rotation of the fuel pump.

Accurate timing of the pump to the engine is by a pin (A1) used to align the fuel pump gear and the hub with a hole in the body of the fuel pump. The gear is passed over the pin and fastened to the hub with four flanged setscrews and hardened washers.

An ‘O’ ring (B3) is fitted into a groove in the pump flange. This ‘O’ ring is fitted instead of a joint between the pump flange and the timing case.
Special requirements

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<td>21825964</td>
<td>Timing pin</td>
<td>27610032</td>
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**Caution:** Do not loosen the nut (A2) from the fuel injection pump. The fuel pump hub is fitted to the shaft in the factory to ensure that the fuel pump is in the correct position for timing. If the hub is moved, the hub will need to be accurately fitted to the pump by use of special equipment.

1. Disconnect the battery.
2. Set the engine to TDC number 1 cylinder compression stroke, see Operation 8-1.
3. Insert the timing pin (B5) through the hole (B3) in the fuel pump gear and the slot of the hub (B2). Push the pin fully into the hole (B1) in the body of the fuel pump. If the pin can be fully inserted then the pump timing is correct. There should be no resistance when the pin is inserted.

**Caution:** Use a second spanner to prevent movement of the high pressure outlet on the pump when the union nut for each high pressure pipe is released.

4. Remove the low pressure and the high pressure fuel pipes from the pump.
5 Disconnect the electrical connection by pulling the locking mechanism as shown (E) from the connector. Carefully remove the connector from the fuel pump. Do not damage the pins of the connector.

**Caution:** Do not rotate the crankshaft when the pump is not on the engine.

6 Remove the four setscrews and the hardened washers (D4), remove the fuel pump gear from the hub of the fuel injection pump.

7 Remove the setscrew from the fuel pump support bracket (F1).

8 Remove the setscrews and washers from the timing case that secure the fuel pump and remove the pump.

9 Discard the fuel pump ‘O’ ring (C3).
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Cautions:

- The engine must be set to TDC number 1 cylinder compression stroke before the pump is fitted, see Operation 8-1.
- A new fuel injection pump will be supplied with the pump shaft in the locked position. The drive shaft of the pump must not be turned without the spacer (A2) in position under the locking screw (A1). Before the crankshaft is turned, or the pump is fitted, put the spacer into position under the locking screw to ensure that the pump drive shaft is released.

1. Fit a new ‘O’ ring (A3) to the pump flange.
2. Lightly lubricate the ‘O’ ring with clean engine lubricating oil. Fit the pump into position in the timing case and fit the three washers and setscrews.

Continued
3 Loosely fit the setscrew (C1) of the support bracket. Ensure that force is not applied to the fuel injection pump.

4 Put the fuel pump gear onto the hub of the fuel pump. The setscrews (B4) for the fuel pump gear should be in the centre of the slots to allow for the removal of backlash. Loosely fit the setscrews.

5 Insert the timing pin (B5) through the hole (B3) of the fuel pump gear and the slot of the hub (B2) until it can be pushed fully into the hole (B1) in the body of the fuel injection pump. If the timing pin cannot be pushed into the pump body, check that the engine is correctly set at TDC on the number 1 cylinder, see Operation 8-1.

6 Carefully turn the gear counter-clockwise by hand to remove the backlash between the idler gear and the fuel pump gear. Do not rotate the crankshaft or the fuel injection pump shaft. Tighten the setscrews for the fuel injection pump gear to 28 Nm (20 lbf ft) 2.8 kgf m.

7 Remove the timing pin.

8 Fit the timing case cover, see Operation 6-2.

9 Tighten the setscrew (C1) of the support bracket to 44 Nm (32 lbf ft) 4.4 kgf m. Ensure that force is not applied to the fuel injection pump.
Cautions:

- Do not tighten the union nuts of the high-pressure pipes more than the recommended torque tension. If there is a leakage from the union nut, ensure that the pipe is correctly aligned with the pump outlet. Do not tighten the pump union nut more, as this can cause a restriction at the end of the pipe. This can affect the fuel delivery.

- Use a second spanner to prevent movement of the high pressure outlet on the pump when the union nut for each high pressure pipe is tightened.

10 Fit the low pressure and the high pressure fuel pipes to the pump. Tighten the high pressure pipe union nuts to 27.5 Nm (21 lbf ft) 2.8 kgf m.

11 Fit the electrical connector to the fuel pump; to fit the electrical connector, push the connector fully into the socket on the fuel pump, to lock the connector to the fuel pump push in the locking clamp (D). Ensure that the connector pins are not damaged.

12 Connect the battery.

13 Eliminate air from the fuel system, see Operation 11-8.

14 Operate the engine and check for leakage of fuel and that there is no air in the system.