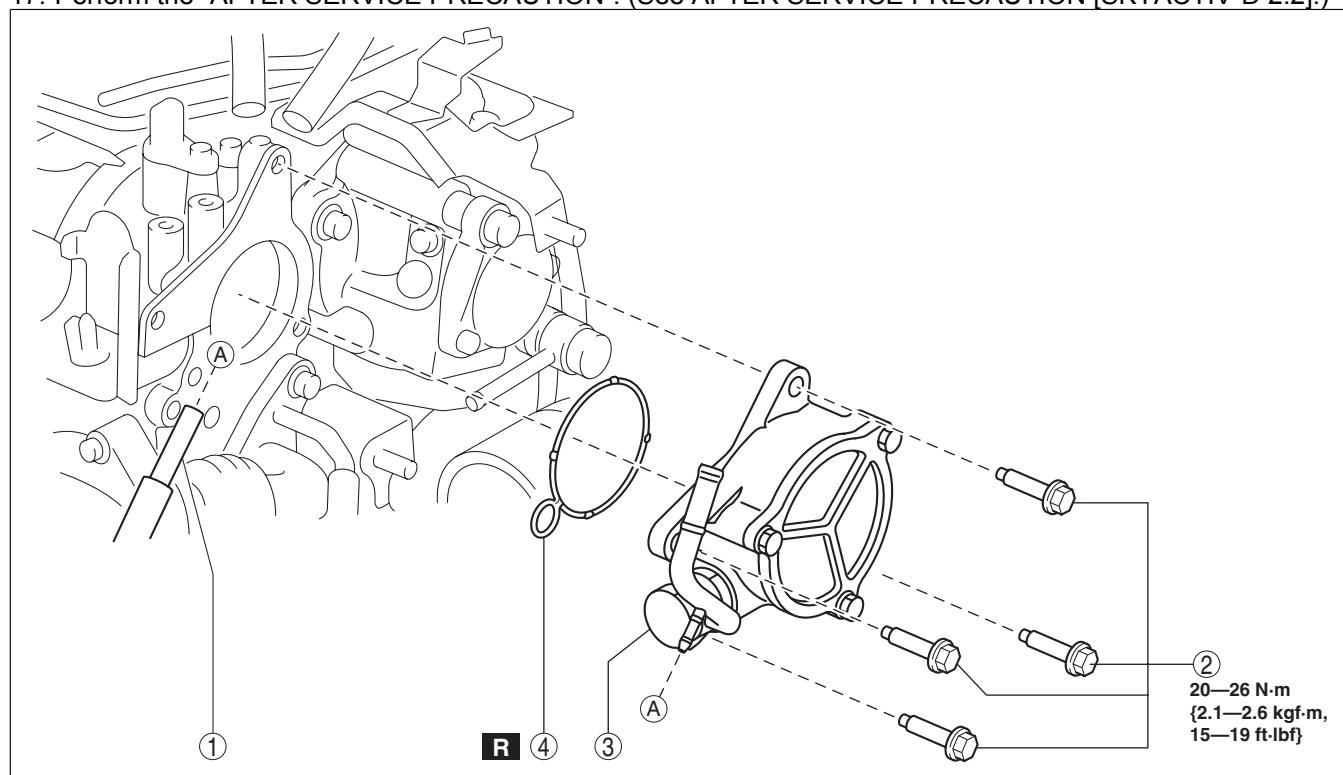


## VACUUM PUMP REMOVAL/INSTALLATION [SKYACTIV-D 2.2]

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1. Remove the engine cover. (See ENGINE COVER REMOVAL/INSTALLATION [SKYACTIV-D 2.2].)
2. Remove the battery and battery tray. (See BATTERY REMOVAL/INSTALLATION [SKYACTIV-D 2.2].)
3. Pinch open the clamp using pliers and disconnect the vacuum hose from the vacuum pump. (See VACUUM HOSE REMOVAL/INSTALLATION.)
4. Remove the following parts.
  - (1) Air cleaner cover (See INTAKE-AIR SYSTEM REMOVAL/INSTALLATION [SKYACTIV-D 2.2].)
  - (2) Air cleaner element (See INTAKE-AIR SYSTEM REMOVAL/INSTALLATION [SKYACTIV-D 2.2].)
  - (3) Fresh-air duct (See INTAKE-AIR SYSTEM REMOVAL/INSTALLATION [SKYACTIV-D 2.2].)
  - (4) Air cleaner case (See INTAKE-AIR SYSTEM REMOVAL/INSTALLATION [SKYACTIV-D 2.2].)
  - (5) Air hose (See INTAKE-AIR SYSTEM REMOVAL/INSTALLATION [SKYACTIV-D 2.2].)
  - (6) Air inlet pipe (See INTAKE-AIR SYSTEM REMOVAL/INSTALLATION [SKYACTIV-D 2.2].)
5. Remove the turbo charger air outlet hose along with the air intake pipe. (See INTAKE-AIR SYSTEM REMOVAL/INSTALLATION [SKYACTIV-D 2.2].)
6. Disconnect the fuel temperature sensor connector. (See FUEL TEMPERATURE SENSOR REMOVAL/INSTALLATION [SKYACTIV-D 2.2].)
7. Disconnect the CMP sensor connector. (See CAMSHAFT POSITION (CMP) SENSOR INSPECTION [SKYACTIV-D 2.2].)
8. Remove the CMP sensor harness from the lower case.
9. Perform the "BEFORE SERVICE PRECAUTION". (See BEFORE SERVICE PRECAUTION [SKYACTIV-D 2.2].)
10. Remove the water pipe assembly installation bolts, then set the water pipe assembly out of the way. (See SUPPLY PUMP REMOVAL/INSTALLATION [SKYACTIV-D 2.2].)
11. Remove the fuel return pipe (supply pump-side). (See SUPPLY PUMP REMOVAL/INSTALLATION [SKYACTIV-D 2.2].)
12. Remove the fuel return pipe (fuel injector-side). (See FUEL INJECTOR REMOVAL/INSTALLATION [SKYACTIV-D 2.2].)
13. Remove fuel return hose No.1 and fuel return hose No.2. (See SUPPLY PUMP REMOVAL/INSTALLATION [SKYACTIV-D 2.2].)
14. Remove the lower case installation bolts, then set the lower case out of the way. (See LOWER CASE REMOVAL/INSTALLATION [SKYACTIV-D 2.2].)
15. Remove in the order shown in the table.
16. Install in the reverse order of removal.
17. Perform the "AFTER SERVICE PRECAUTION". (See AFTER SERVICE PRECAUTION [SKYACTIV-D 2.2].)



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1	Vacuum tube
2	bolt
3	Bolt

4	Vacuum pump (See Vacuum Pump Removal Note.) (See Vacuum Pump and O-ring Installation Note.)
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O-ring  
(See Vacuum Pump and O-ring Installation Note.)

**Vacuum Pump Removal Note**

1. When removing the vacuum pump, place a rag under the installation surface of the vacuum pump so that engine oil does not get on other parts.
2. Remove the vacuum pump.

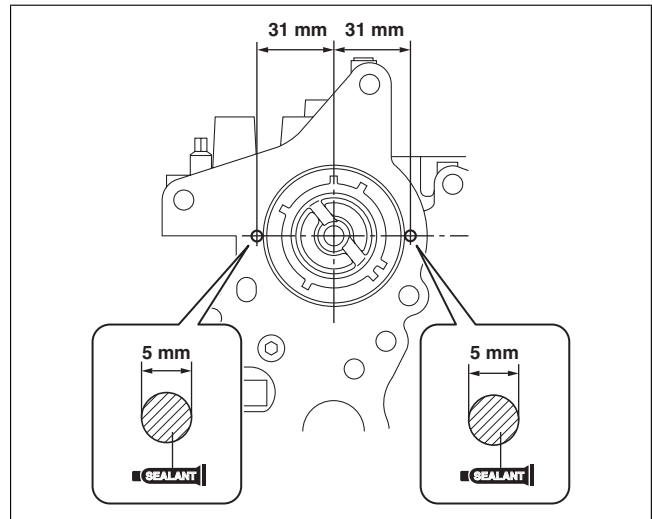
**Vacuum Pump and O-ring Installation Note**

1. Rotate the vacuum pump by hand to drain the remainder of the engine oil in the vacuum pump.
2. Degrease the O-ring installation groove and installation surface.
3. Install the new O-ring to the vacuum pump.
4. Apply a light coat of silicon sealant as shown in the figure.

**Note**

- Install the vacuum pump before the applied sealant starts to harden.

5. Install the vacuum pump.



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