## HYDRAULIC VARIABLE VALVE TIMING ACTUATOR [SKYACTIV-G 2.0, SKYACTIV-G 2.5]

id0110h3001700

**Purpose, Function**

- The hydraulic variable valve timing actuator operates according to the hydraulic pressure and changes the phases of the exhaust camshaft. As a result, the open/close period of the exhaust valve is changed, optimized valve timing in accordance with driving conditions is realized, and the output and combustion efficiency is improved.

**Construction**

- The hydraulic variable valve timing actuator is installed to the exhaust camshaft.
- The hydraulic variable valve timing actuator has an assist spring to move the rotor in the advance direction while the engine is stopped.

**Operation**

**At engine start**

- Because the stopper pin in the hydraulic variable valve timing actuator is engaged with the rotor at the maximum advance position by the spring force, the camshaft sprocket and camshaft are rotated as a single unit.

**Retarding valve timing**

- Engine oil is lead to the retard oil passage by the OCV to apply oil pressure to the stopper pin and retard chamber. As a result, the engagement of the stopper pin is released, the rotor connected to the camshaft rotates in the retard direction against the camshaft sprocket driven by the crankshaft, and the valve timing is retarded.

**Advancing valve timing**

- Engine oil is lead to the advance oil passage by the OCV to apply oil pressure to the advance chamber. As a result, the rotor connected to the camshaft rotates in the advance direction against the camshaft sprocket driven by the crankshaft, and the valve timing is advanced.

**Maintaining intermediate valve timing**

- The retard and advance oil passages is closed by the OCV. As a result, the relative angle of the rotor and camshaft sprocket is maintained at a constant to hold the valve timing.