INTAKE STROKE EGR USING DOUBLE EXHAUST VALVE ACTUATION SYSTEM (IDEVA) [SKYACTIV-D 2.2]

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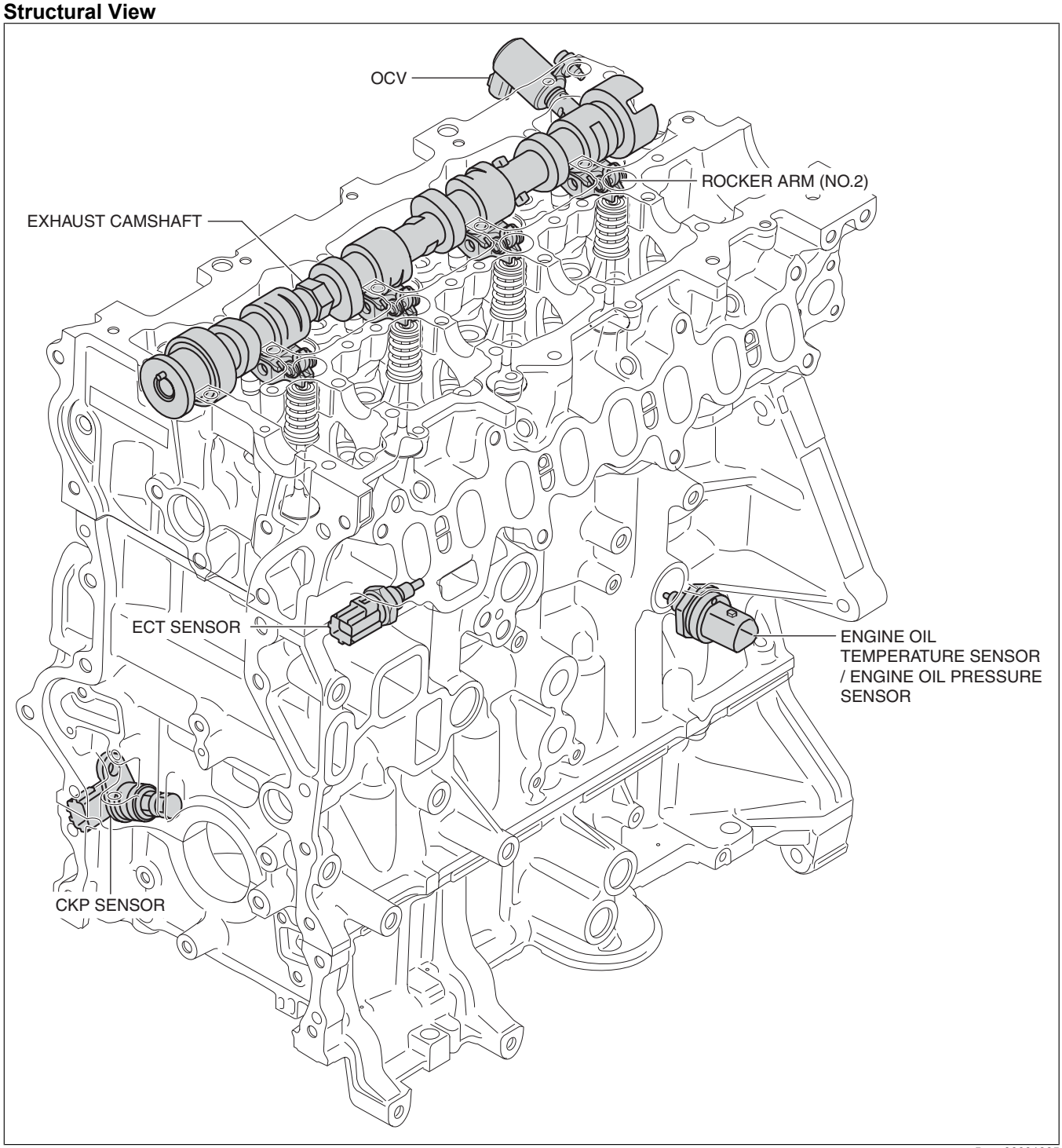
Outline

- An IDEVA has been adopted to the SKYACTIV-D 2.2 in line with the lowering of the engine compression ratio to prevent ignition instability when the engine is cold.*1
- The IDEVA re-circulates a part of the exhaust gas back into the cylinder during the intake stroke and improves the ignition stability of the engine during cold temperatures.

*1 : In the diesel engine, intake air is pressurized and fuel is injected at the point when the intake air is at high-temperature, and the fuel then self-ignites to produce combustion. Lowering the compression ratio makes it difficult for the fuel to self-ignite because the power (heating ability) to pressurize the intake air in the cylinder weakens causing misfire during cold engine starting.

Structural View



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Structure

Part name	Function
OCV	(See OIL CONTROL VALVE (OCV) [SKYACTIV-D 2.2].)
Rocker arm (No.2)	(See HYDRAULIC LASH ADJUSTER, ROCKER ARM [SKYACTIV-D 2.2].)
Exhaust camshaft	(See CAMSHAFT [SKYACTIV-D 2.2].)
CKP sensor	(See CRANKSHAFT POSITION (CKP) SENSOR [SKYACTIV-D 2.2].)
ECT sensor	(See ENGINE COOLANT TEMPERATURE (ECT) SENSOR [SKYACTIV-D 2.2].)
Engine oil temperature sensor / Engine oil pressure sensor	(See ENGINE OIL TEMPERATURE SENSOR [SKYACTIV-D 2.2].) (See ENGINE OIL PRESSURE SENSOR [SKYACTIV-D 2.2].)

Operation

1. The PCM switches the hydraulic transmission passage in the cylinder heads by operating the OCV. (See OIL CONTROL VALVE (OCV) [SKYACTIV-D 2.2].)
2. Hydraulic pressure is applied to the lock pin of the rocker arm (No.2) and the lock pin fixes the inner lever that has been pressed out. (See HYDRAULIC LASH ADJUSTER, ROCKER ARM [SKYACTIV-D 2.2].)
3. The low lift cam of the exhaust camshaft presses down the rocker arm (No.2) of the intake stroke cylinder. (See CAMSHAFT [SKYACTIV-D 2.2].)
4. The exhaust valve of the intake stroke cylinder opens slightly to allow back flow of the exhaust gas into the cylinder.