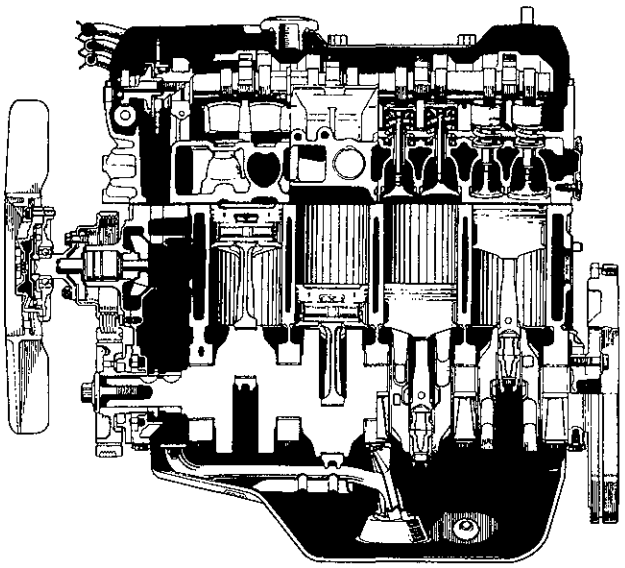
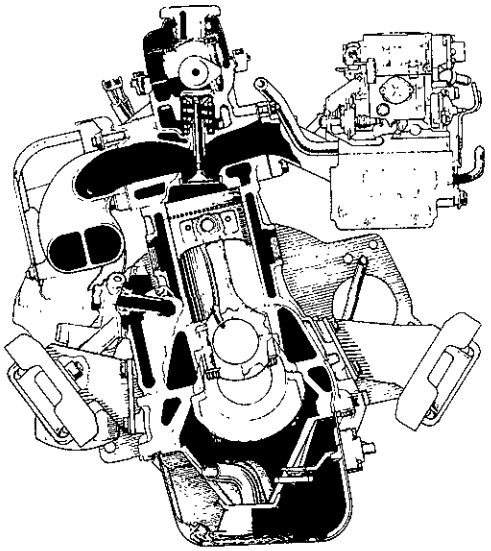
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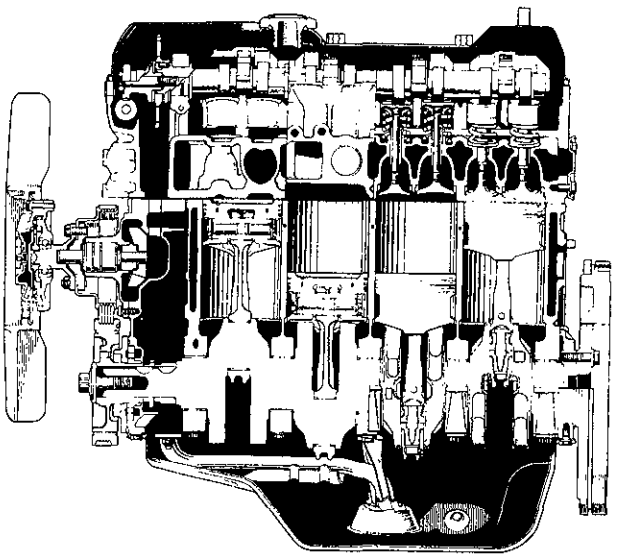
The 1RZ, 2RZ and 2RZ-E engines are 2.0 liter (1RZ) and 2.4 liter (2RZ, 2RZ-E), in-line 4-cylinder OHC 8-valve engines.

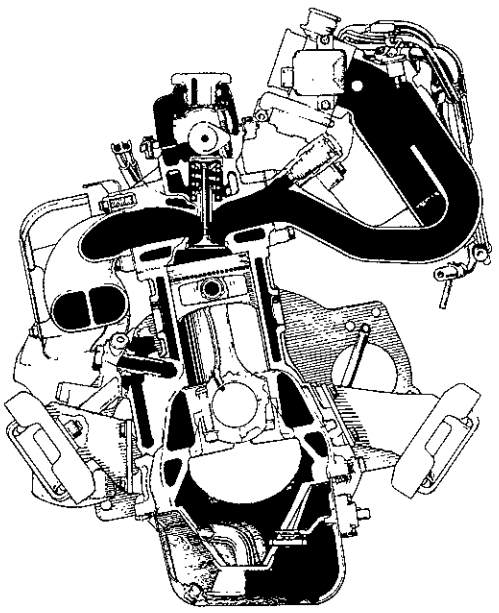
1RZ and 2RZ Engines





2RZ-E Engine





EM7754 EM7755
EM7756 EM7757

The RZ series engine is in-line 4-cylinder engine with the cylinders numbered 1-2-3-4 from the front. The crankshaft is supported by 5 bearings inside the crankcase. These bearing are made of aluminum alloy.

The crankshaft is integrated with 8 weights which are cast with it for balancing. Oil holes are made inside the crankshaft to supply oil to the connecting rods, bearings, pistons and other components.

The ignition order is 1-3-4-2. The cylinder head is made of aluminum alloy, with a cross flow type intake and exhaust layout and with wedge type combustion chambers. The spark plugs are located to the right of the combustion chamber.

For the 1RZ and 2RZ engines, coolant is introduced into the intake manifold, improving drivability during engine warm-up.

Exhaust and intake valves are equipped with springs made of special valve spring carbon steel which are capable of following for the full range of engine speeds.

The cam shaft is driven by a timing chain. The cam journal is supported at 5 places, located between the valve lifters of each cylinder and at the front of cylinder head No.1. Lubrication of the cam journal gear is accomplished by oil supplied through the oil passage in the cylinder head.

Adjustment of the valve clearance is done by placement of a valve adjusting shim above the valve lifter, allowing shim replacement without removing the camshaft.

The timing chain case is made of aluminum alloy, with a water pump and oil pump on the outside.

Pistons are made of highly temperature-resistant aluminum alloy, and a deppression is buit into the piston head to prevent interference with vlves.

Piston pins are the full-floating type, with the pins fastend to neither the connecting rods nor the piston boss, but with a snap ring fitted to both ends of each pin to prevent it from slipping out.

The No.1 compression ring is made of stainless steel and the No.2 compression ring is made of cast iron. The oil ring is made of stainless steel. The outer diameter of each piston ring is slightly larger than the diameter of the piston and the flexibility of the rings allows them to hug the cylinder walls when they are mounted on the piston. No.1 and No.2 compression rings work to prevent the leakage of gas from the cylinder and the oil ring works to scrape oil off the cylinder walls to prevent it from entering the combustion chambers.

The cylinder block is made of cast iron. It has 4 cylinders which are approximately twice the length of the piston stroke. The top of the cylinders is closed off by the cylinder head and in the lower end of the cylinders the crankshaft is installed, supported by 5 journals. In addition, the cylinder block contains a water jacket, through which coolant is pumped to cool the cylinders.

The oil pan is bolted onto the bottom of the cylinder block with bolts and nuts. The oil pan is an oil reservoir made of pressed steel sheet. A dividing plate is included inside the oil pan to keep sufficient oil in the bottom of the pan even when the vehicle is tilted. The dividing plate prevents the intake of air and allows oil circulation to be maintained even if the oil forms waves when the vehicle brakes suddenly.