

Disassembly

⚠ WARNING

Be sure to read and follow the "General Safety Information and Caution" before doing any work related with the high voltage system. Failure to follow the safety instructions may result in serious electrical injuries.

Be sure to read and follow the "High Voltage Shut-off Procedures" before doing any work related with the high voltage system. Failure to follow the safety instructions may result in serious electrical injuries.

⚠ CAUTION

Use fender covers to avoid damaging painted surfaces.

To avoid damaging the cylinder head, wait until the engine coolant temperature drops below normal temperature (20°C [68°F]) before removing it.

When handling a metal gasket, take care not to fold the gasket or damage the contact surface of the gasket.

To avoid damage, unplug the wiring connectors carefully while holding the connector portion.

NOTICE

Mark all wiring and hoses to avoid misconnection.

Turn the crankshaft damper pulley so that the No.1 piston is at top dead center.

1. Remove the engine assembly from the vehicle.
(Refer to Engine and Transaxle Assembly - "Engine and Transaxle Assembly")
2. Remove the transaxle assembly from the engine assembly.
(Refer to Double Clutch Transmission (DCT) System - "Double Clutch Transmission (DCT)")
3. Remove the flywheel.
(Refer to Cylinder Block - "Flywheel")
4. Remove the rear oil seal.
(Refer to Cylinder Block - "Rear Oil Seal")
5. Install the engine to engine stand for disassembly.
6. Remove the intake manifold.
(Refer to Intake and Exhaust System - "Intake Manifold")
7. Remove the exhaust manifold.
(Refer to Intake and Exhaust System - "Exhaust Manifold")
8. Remove the hybrid starter generator (HSG).
(Refer to Hybrid Motor System - "Hybrid Starter Generator (HSG)")
9. Remove the timing chain.
(Refer to Timing System - "Timing Chain")
10. Remove the cylinder head assembly.
(Refer to Cylinder Head Assembly - "Cylinder Head")
11. Remove the thermostat.
(Refer to Cooling System - "Thermostat")
12. Remove the EGR cooler.
(Refer to Intake and Exhaust System - "EGR Cooler")
13. Remove the A/C compressor.
(Refer to Heating, Ventilation Air conditioning - "Compressor")
14. Remove the knock sensor.
(Refer to Engine Control / Fuel System - "Knock Sensor")
15. Remove the oil pan and oil screen.
(Refer to Lubrication System - "Oil Pan")
16. Remove the ladder frame.

(Refer to Cylinder Block - "Piston and Connecting Rod")

17. Remove the piston and connecting rod assemblies.

(Refer to Cylinder Block - "Piston and Connecting Rod")

18. Remove the crankshaft.

(Refer to Cylinder Block - "Crankshaft")

19. Remove the crankshaft position sensor (CKPS).

(Refer to Engine Control / Fuel System - "Crankshaft Position Sensor (CKPS)")

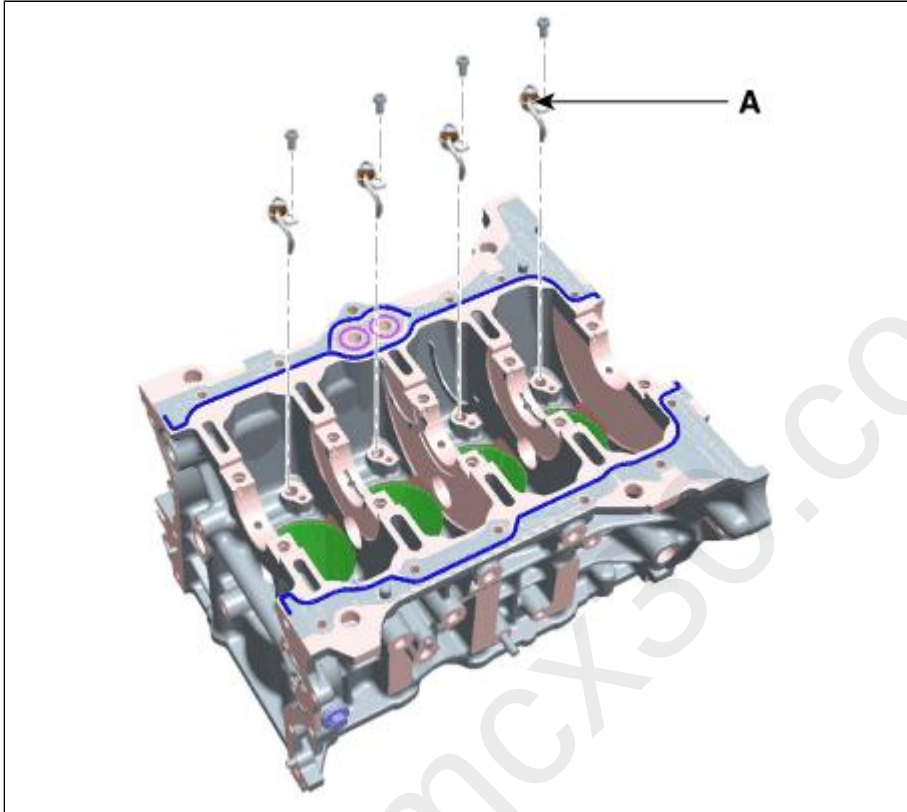
20. Remove the oil pressure switch.

(Refer to Lubrication System - "Oil Pressure Switch")

21. Remove the water jacket separator.

(Refer to Cylinder Block - "Water Jacket Separator")

22. Remove the piston cooling jet (A).



Inspection

Cylinder Block

1. Remove the gasket material.

Using a gasket scraper, remove all the gasket material from the top surface of the cylinder block.

2. Clean the cylinder block.

Using a soft brush and solvent, thoroughly clean the cylinder block.

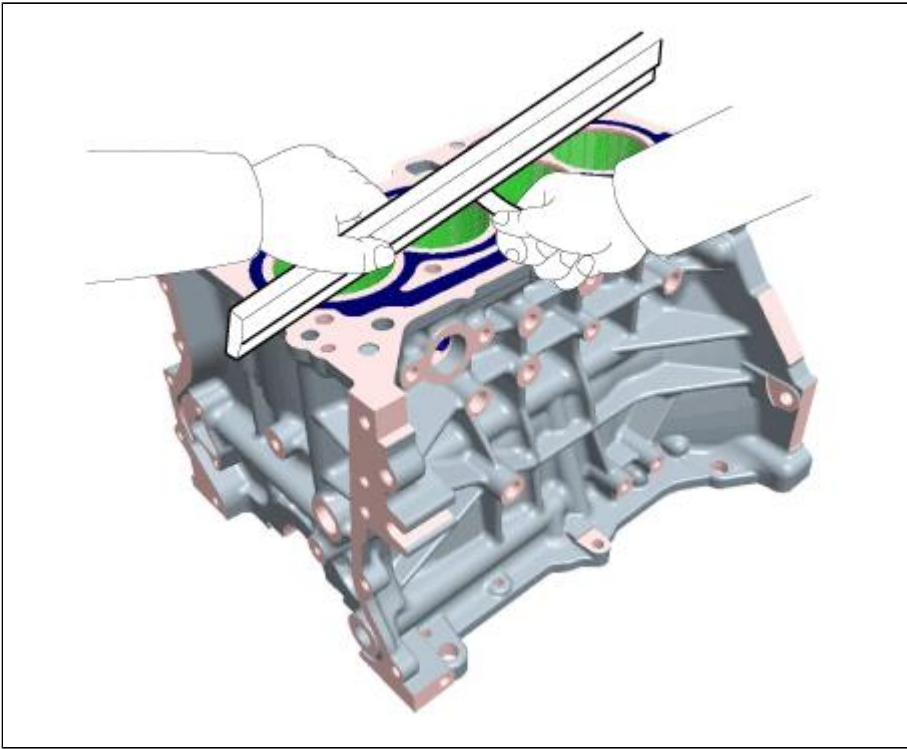
3. Inspect the top surface of the cylinder block for flatness.

Using a precision straight edge and feeler gauge, measure the surface contacting the cylinder head gasket for warpage.

Flatness of cylinder block gasket surface

Standard : Less than 0.05mm (0.002in),

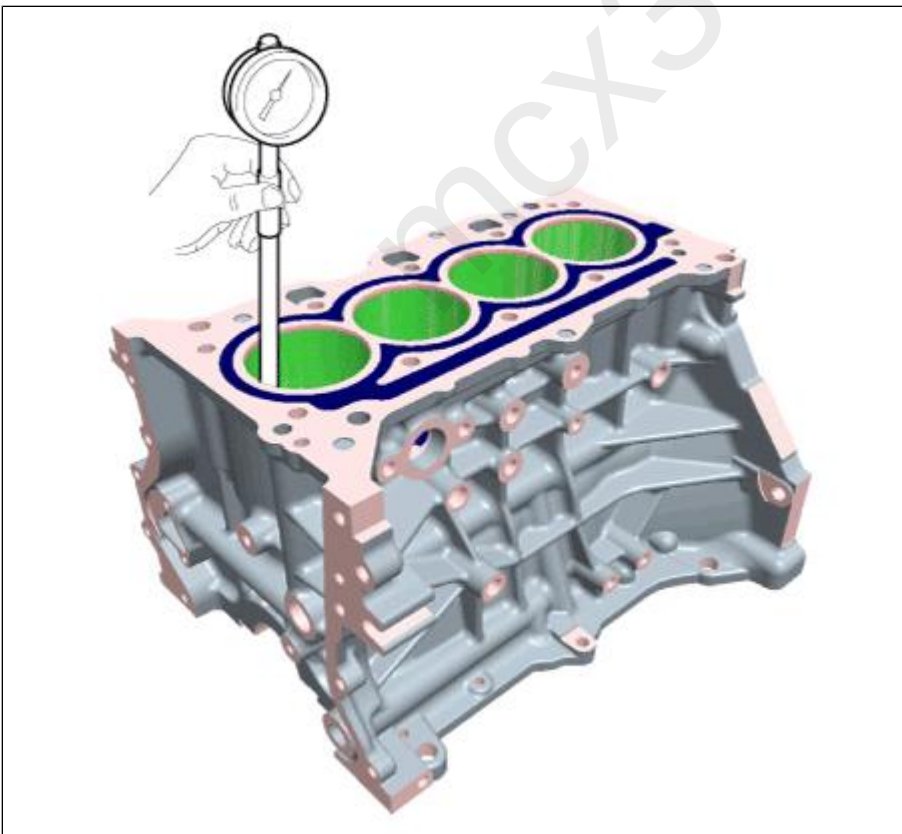
Less than 0.02mm (0.0008in) / 100 x 100 (3.937 x 3.937in)



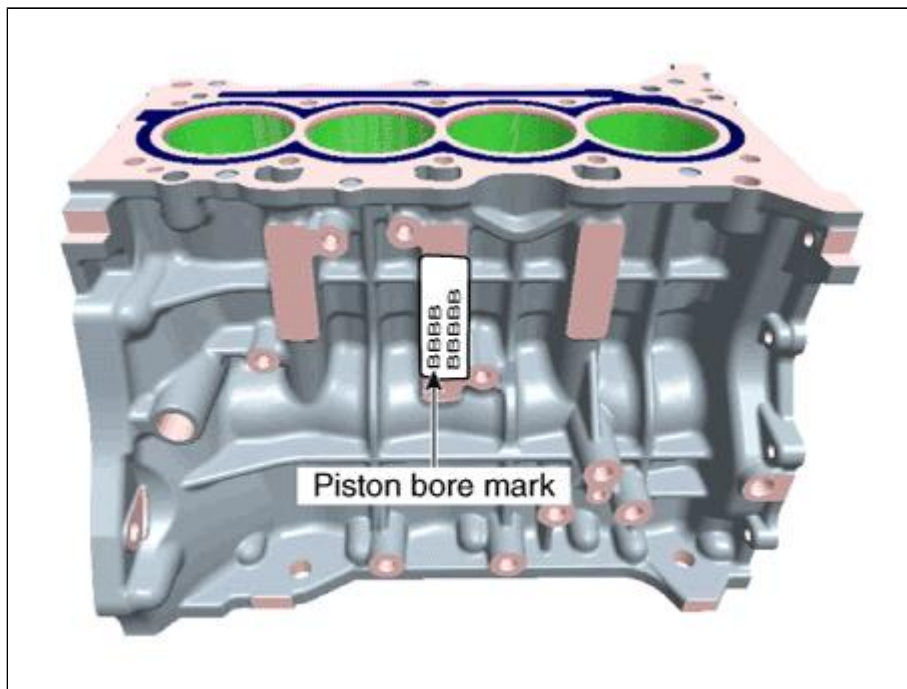
4. Inspect the cylinder bore.
Visually check the cylinder for vertical scratches.
If deep scratches are present, replace the cylinder block.
5. Inspect the cylinder bore diameter.
Using a cylinder bore gauge, measure the cylinder bore diameter at position in the thrust and axial direction.

Standard diameter :

72.00 - 72.03 mm (2.8346 - 2.8358 in)



6. Check the cylinder bore size code on the cylinder block.



Discrimination of cylinder bore size

Grade	Size code	Cylinder Bore inner Diameter
a	A	72.00 to 72.01 mm (2.8346 to 2.8350 in)
b	B	over 72.01 to 72.02 mm (over 2.8350 to 2.8354 in)
c	C	over 72.02 to 72.03 mm (over 2.8354 to 2.8358 in)

Reassembly

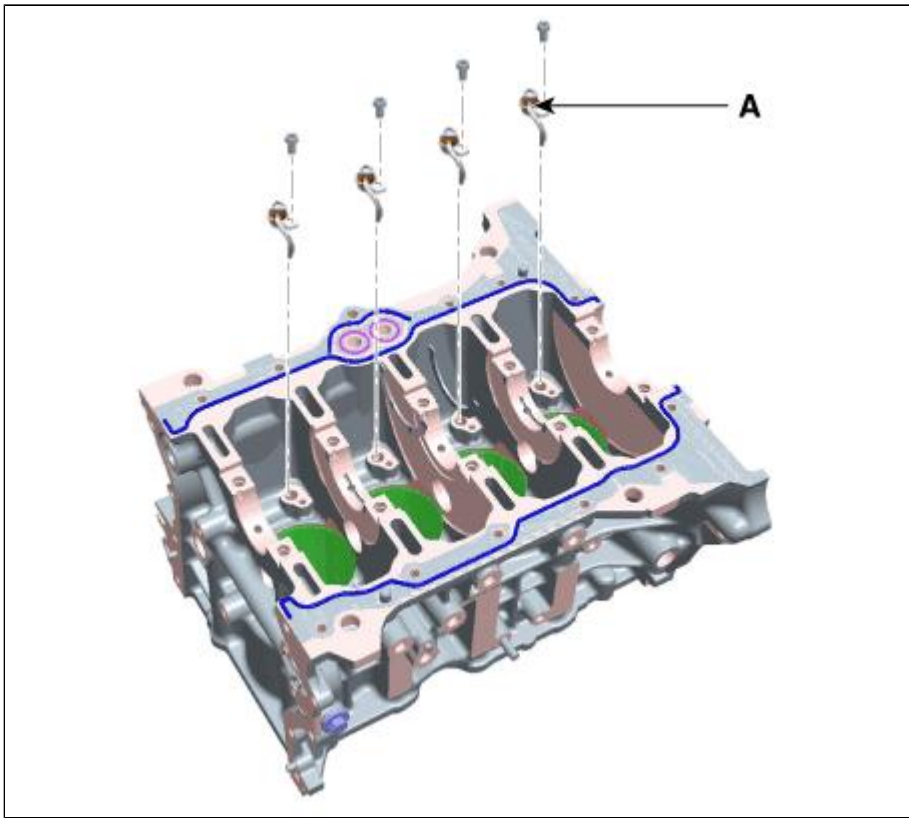
NOTICE

Thoroughly clean all parts to be assembled.
Before installing the parts, apply fresh engine oil to all sliding and rotating surfaces.
Replace all gaskets, O-rings and oil seals with new parts.

1. Install the piston cooling jet (A).

Tightening torque :

8.8 - 12.7 N.m (0.9 - 1.3 kgf.m, 6.5 - 9.4 lb-ft)



2. Assemble the other parts in the reverse order of disassembly.

Information

In case the cylinder block is replaced with a new one, select the proper crankshaft main bearing and the piston according to the crankshaft journal bore mark and the cylinder bore mark on the cylinder block.

Crankshaft main bearing selection.

(Refer to Cylinder Block Assembly - "Crankshaft")

Piston selection.

(Refer to Cylinder Block Assembly - "Piston and Connecting Rod")

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