

LUBRICATION SYSTEM

CHECK & CHANGE OF ENGINE OIL

OIL QUALITY & LEVEL CHECK

WARNING:

- Be sure to perform this inspection when the engine oil is not hot, to prevent you from getting scalded.

- Park the vehicle on a level surface.
- Pull out the oil level gauge.
- Check the engine oil for deterioration, ingress of water, discoloring or dilution.
If oil quality is poor, change the engine oil.
(As for the procedure, see "CHANGE OF ENGINE OIL AND REPLACEMENT OF OIL FILTER" section.)
- Wipe off the engine oil from the oil level gauge.
- Reinsert the oil level gauge as far as it will go.
- Pull out the oil level gauge again.
- Ensure that the engine oil level is between the "L" level and "F" level on the oil level gauge.

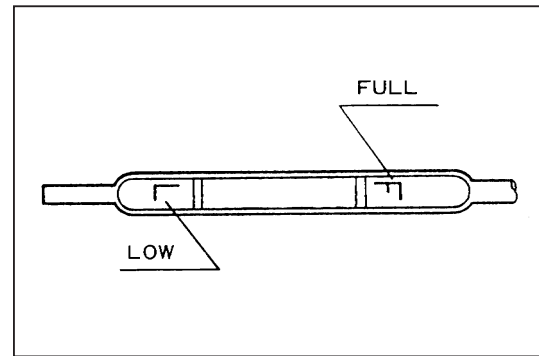
If the engine oil level is below the "L" level, replenish the specified engine oil to the "F" level after the checking of the oil quality and leakage.

CAUTION:

- Use API grade SH or higher. (As for the procedure, see "CHANGE OF ENGINE OIL AND REPLACEMENT OF OIL FILTER" section.)

NOTE:

- The amount of oil whose level is between "L" level and "F" level equals to 0.8 liter.



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CHANGE OF ENGINE OIL & REPLACEMENT OF OIL FILTER

WARNING:

- Protect your eyes by wearing safety goggles.
- Be very careful not to burn yourself with hot engine oil or hot engine components.

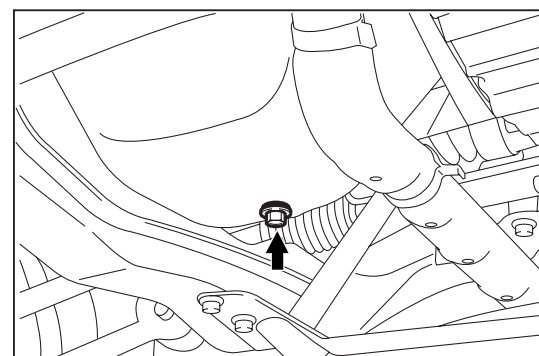
- Park the vehicle on a level surface.
- Place a suitable container under the oil drain plug.
- Remove the drain plug and gasket, and drain the engine oil into the placed container completely.
- Remove the oil filler cap.
- Place a suitable container under the oil filter.
- Slacken the oil filter with a suitable oil filter wrench or the following SST.

SST: 09228-87201-000

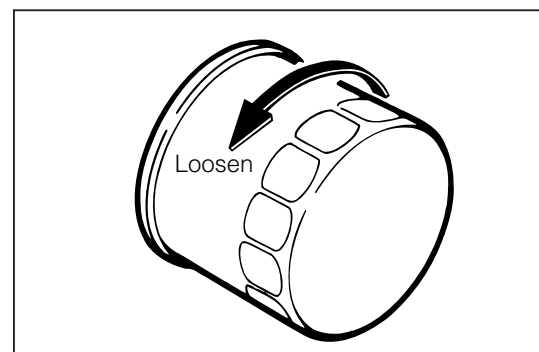
CAUTION:

- Be careful at this time, for the oil may flow out.

- Remove the oil filter by hand.

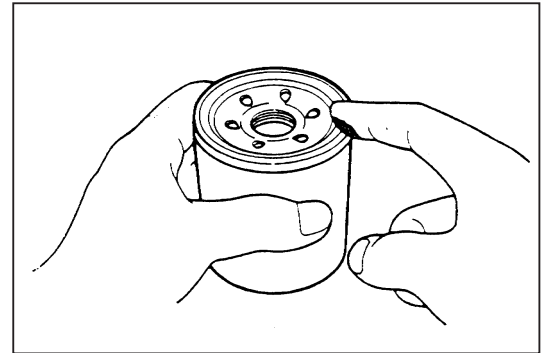


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8. Wipe off the engine oil from the oil filter attaching part of the engine.
9. Thinly apply engine oil to the O-ring of the new oil filter.
10. Screw in the oil filter by hand, until the O-ring of the oil filter contacts the oil filter installing surface.



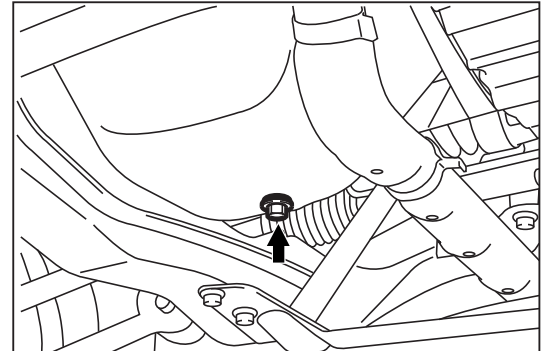
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11. Tighten the oil filter three fourths to one complete turn, using a suitable oil filter wrench or the following SST.

SST: 09228-87201-000

CAUTION:

- Do not overtighten the oil filter. Failure to observe this caution will cause oil leakage or damage of the oil pump or oil filter.



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12. Clean the drain plug. Tighten the drain plug to the specified torque with a new gasket interposed.

Tightening Torque: $24.0 \pm 4.8 \text{ N}\cdot\text{m}$

13. Pour engine oil to the engine.

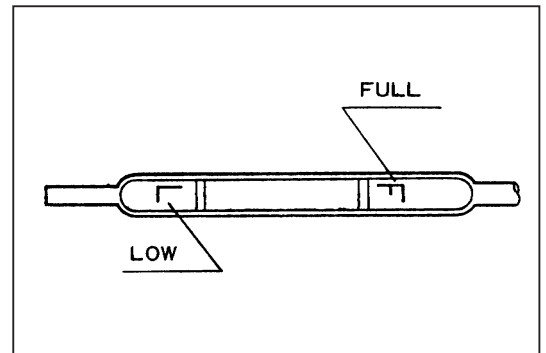
NOTE:

- Use API grade SH or higher.
- The amount of the oil whose level is between the "L" level and the "F" level equals to one liter.

Oil Capacity

With oil filter: 2.3 liters

Without oil filter: 2.1 liters



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14. Close the oil filler cap.

WARNING:

- Securely install the oil filler cap. Failure to observe this warning will cause a fire.

15. Check the oil level. (Refer to the "ENGINE OIL QUALITY & LEVEL CHECK".)

OIL PRESSURE WARNING

Check to see if the oil pressure warning lamp will be illuminated when the ignition switch is turned on.

NOTE:

- If the warning lamp will not illuminate, check to see if the bulb in the combination meter is burnt out. (Refer to the BE section.)
- If the warning lamp is illuminated when the engine has started, perform the oil pressure check. (In advance, be sure to check that the engine oil is at a sufficient level.)

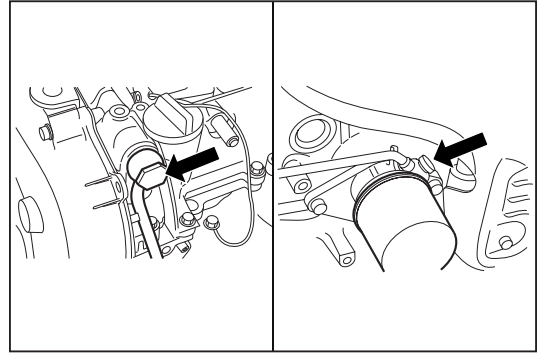


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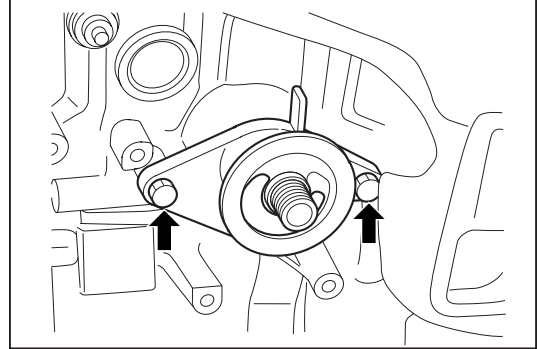
OIL FILTER BRACKET & OIL PIPE

REMOVAL

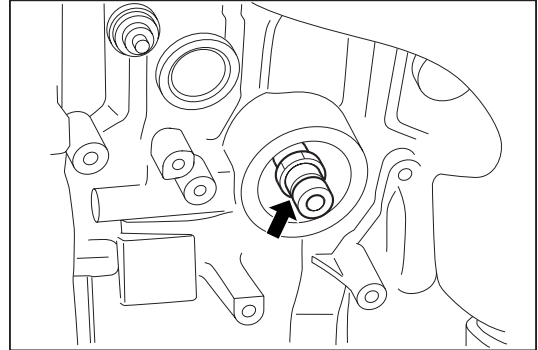
1. Remove the oil pipe from the oil filter bracket and camshaft bearing cap No. 1 by removing its attaching union bolt.
2. Remove the gasket from the oil pipe.
3. Remove the oil filter from the oil filter bracket. (Refer to the LU-2).
4. Remove the oil filter bracket from the cylinder block.
5. Remove the union bolt from the cylinder block.



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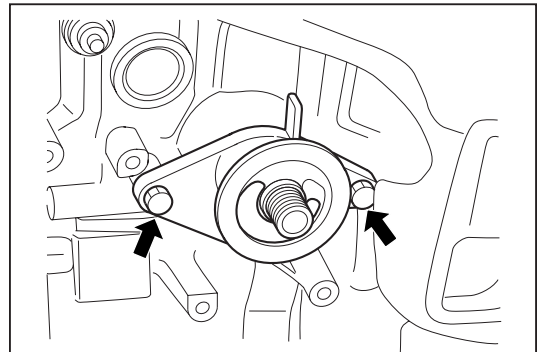
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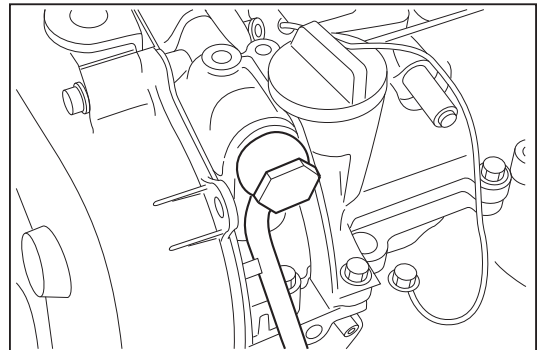
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INSTALLATION

1. Install the union bolt to the cylinder block.
Tightening Torque: 34.0 ± 5.0 N·m
2. Install the oil filter bracket to the cylinder block.
Tightening Torque: 19.0 ± 3.8 N·m
3. Install the oil filter to the oil filter bracket. (Refer to the LU-2.)
4. With the gasket interposed, install the oil pipe to the camshaft bearing cap No. 1 and oil filter bracket.



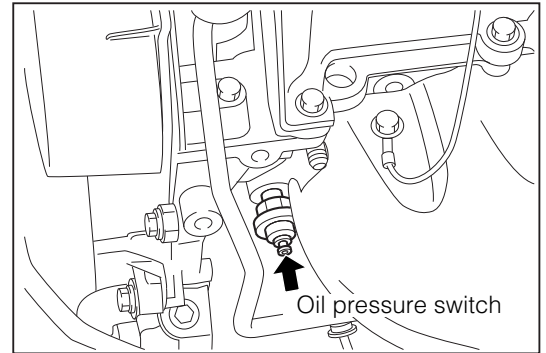
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OIL PRESSURE CHECK

1. Disconnect the ground cable terminal from the negative (–) terminal of the battery.
2. Disconnect the connector of the oil pressure switch.
3. Remove the oil pressure switch from the cylinder block.



4. Install the oil pressure gauge.

NOTE:

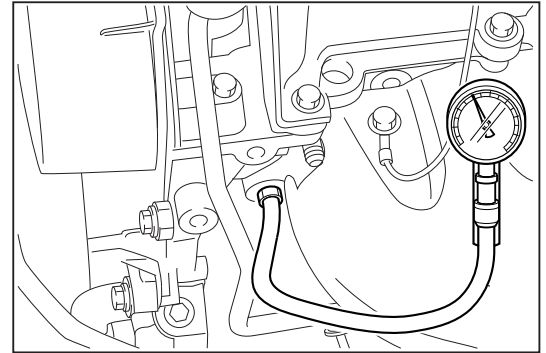
- The oil pressure gauge is available as the SST.
SST: 09990-87702-000

5. Measurement of oil pressure.

Start the engine and measure the oil pressure. Ensure that the oil pressure conforms to the specified value.

At 1000 rpm: 147 kPa

At 4000 rpm: 343 kPa



If the measured value fails to conform to the specified value, check and repair the oil pump. Also, check to see if each oil clearance is within the specified value, as required.

When the warning lamp goes on even if the oil pressure is normal, replace the oil pressure switch.

6. Remove the oil pressure gauge.
7. Installation of oil pressure switch
 - (1) Clean the oil pressure switch attaching hole of the cylinder block.

NOTE:

- Be very careful not to allow any admission of dust or the like.

- (2) Clean the threaded portion of the oil pressure switch.

- (3) Wind seal tape around the threaded portion.

- (4) Install the oil pressure switch to the cylinder block.

Tightening Torque: 13.5 ± 4.0 N·m

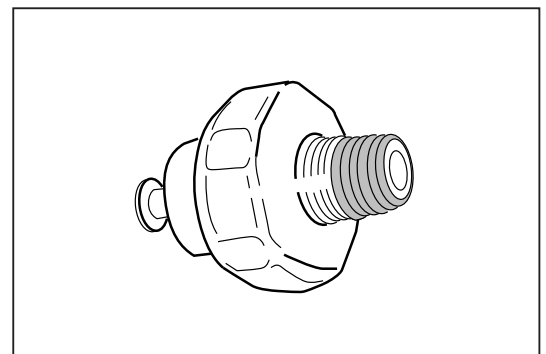
NOTE:

- A new oil pressure switch is coated with sealer.
- Therefore, when replacing the oil pressure switch with a new one, remove the sealer thoroughly before winding seal tape. Be sure to clean the threaded holes at the cylinder block side.

- (5) Connect the connector of the oil pressure switch.

- (6) Connect the ground cable terminal to the negative (–) terminal of the battery.

- (7) Start the engine and check it for oil leakage. Repair the leaky point if oil leakage exists.



SERVICE SPECIFICATIONS

	Grade	Capacity
Engine oil	API SH or higher	With oil filter 2.3 ℓ Without oil filter 2.1 ℓ
Oil pump	Compression spring free length Body clearance Tip clearance Side clearance	35.5 mm 0.10 - 0.185 mm 0.17 - 0.24 mm 0.035 - 0.070 mm
	Oil pressure at 1000 rpm at 4000 rpm	147 kPa (1.5 kgf/cm ²) 343 kPa (3.5 kgf/cm ²)

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SST

Shape	Part No.	Part name	Remarks
	09228-87201-000	Oil filter wrench	
	09990-87702-000	Oil pressure gauge	
	09608-87302-000	Axle hub & drive pinion bearing tool set	

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TIGHTENING TORQUE

Components	N·m	kgf·m
Drain plug	24.0 ± 4.8	2.5 ± 0.5
Oil pressure switch × cylinder block	13.5 ± 4.0	1.4 ± 0.4
Oil pump cover × oil pump body	7.8 - 12.7	0.8 - 1.3
Oil pump cover × oil strainer	6.4 - 9.6	0.65 - 0.98
Oil filter bracket × cylinder block	19.0 ± 3.8	1.95 ± 0.39
Oil filter bracket × oil pipe	39.0 ± 5.0	3.82 ± 0.49
Oil pipe × camshaft bearing cap	52.0 ± 5.0	5.1 ± 0.49

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