

SECTION **LU**  
ENGINE LUBRICATION SYSTEM

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E

CONTENTS

<b>SERVICE INFORMATION</b> .....	2	Lubrication Circuit .....	5	F
<b>PRECAUTIONS</b> .....	2	<b>ENGINE OIL</b> .....	6	G
Precaution for Supplemental Restraint System (SRS) "AIR BAG" and "SEAT BELT PRE-TEN- SIONER" .....	2	Inspection .....	6	
Precaution for Liquid Gasket .....	2	Changing Engine Oil .....	7	
<b>PREPARATION</b> .....	3	<b>OIL FILTER</b> .....	9	H
Special Service Tool .....	3	Removal and Installation .....	9	
Commercial Service Tool .....	3	<b>SERVICE DATA AND SPECIFICATIONS (SDS)</b> .....	10	I
<b>LUBRICATION SYSTEM</b> .....	5	Standard and Limit .....	10	

J

K

L

M

N

O

P

# PRECAUTIONS

< SERVICE INFORMATION >

## SERVICE INFORMATION

### PRECAUTIONS

#### Precaution for Supplemental Restraint System (SRS) "AIR BAG" and "SEAT BELT PRE-TENSIONER"

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The Supplemental Restraint System such as "AIR BAG" and "SEAT BELT PRE-TENSIONER", used along with a front seat belt, helps to reduce the risk or severity of injury to the driver and front passenger for certain types of collision. This system includes seat belt switch inputs and dual stage front air bag modules. The SRS system uses the seat belt switches to determine the front air bag deployment, and may only deploy one front air bag, depending on the severity of a collision and whether the front occupants are belted or unbelted. Information necessary to service the system safely is included in the SRS and SB section of this Service Manual.

#### **WARNING:**

- To avoid rendering the SRS inoperative, which could increase the risk of personal injury or death in the event of a collision which would result in air bag inflation, all maintenance must be performed by an authorized NISSAN/INFINITI dealer.
- Improper maintenance, including incorrect removal and installation of the SRS, can lead to personal injury caused by unintentional activation of the system. For removal of Spiral Cable and Air Bag Module, see the SRS section.
- Do not use electrical test equipment on any circuit related to the SRS unless instructed to in this Service Manual. SRS wiring harnesses can be identified by yellow and/or orange harnesses or harness connectors.

#### Precaution for Liquid Gasket

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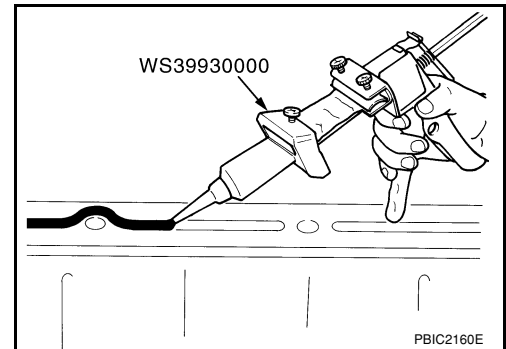
#### LIQUID GASKET APPLICATION PROCEDURE

1. Remove old liquid gasket adhering to the liquid gasket application surface and the mating surface.
  - Remove liquid gasket completely from the liquid gasket application surface, bolts, and bolt holes.
2. Wipe the liquid gasket application surface and the mating surface with white gasoline (lighting and heating use) to remove adhering moisture, grease and foreign materials.
3. Attach liquid gasket tube to the Tool.

**Use Genuine Silicone RTV Sealant or equivalent.** Refer to [GI-42](#).

**Tool number** :WS39930000 ( — )

- Within 5 minutes of liquid gasket application, install the mating component.
- If liquid gasket protrudes, wipe it off immediately.
- Do not retighten bolts or nuts after the installation.
- Wait 30 minutes or more after installation before refilling engine oil and engine coolant.



# PREPARATION

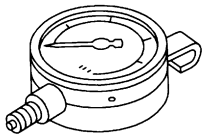
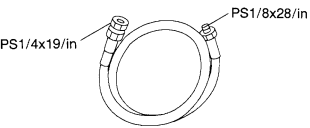
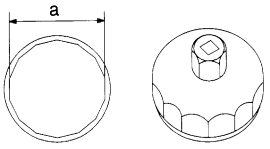
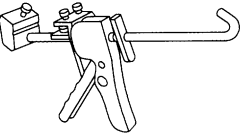
< SERVICE INFORMATION >

## PREPARATION

### Special Service Tool

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The actual shapes of Kent-Moore tools may differ from those of special service tools illustrated here.

Tool number (Kent-Moore No.) Tool name	Description
ST25051001 (J-25695-1) Oil pressure gauge   NT050	Measuring oil pressure <b>Maximum measuring range: 2,452 kPa (25 kg/cm<sup>2</sup>, 356 psi)</b>
ST25052000 (J-25695-2) Hose   S-NT559	Adapting oil pressure gauge to oil pan (upper)
KV10115801 (J-38956) Oil filter wrench   S-NT375	Removing oil filter <b>a: 64.3 mm (2.531 in)</b>
WS39930000 ( — ) Tube presser   NT052	Pressing the tube of liquid gasket

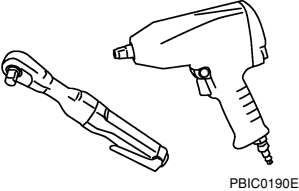
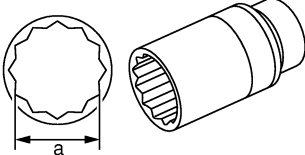
### Commercial Service Tool

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# PREPARATION

## < SERVICE INFORMATION >

Tool name	Description
<p data-bbox="164 197 272 222">Power tool</p>  <p data-bbox="850 415 922 432">PBIC0190E</p>	<p data-bbox="1011 197 1263 222">Loosening nuts and bolts</p>
<p data-bbox="164 449 289 474">Deep socket</p>  <p data-bbox="850 667 922 684">PBIC2072E</p>	<p data-bbox="1011 449 1450 506">Removing and installing oil pressure sensor <b>a: 26 mm (1.02 in)</b></p>

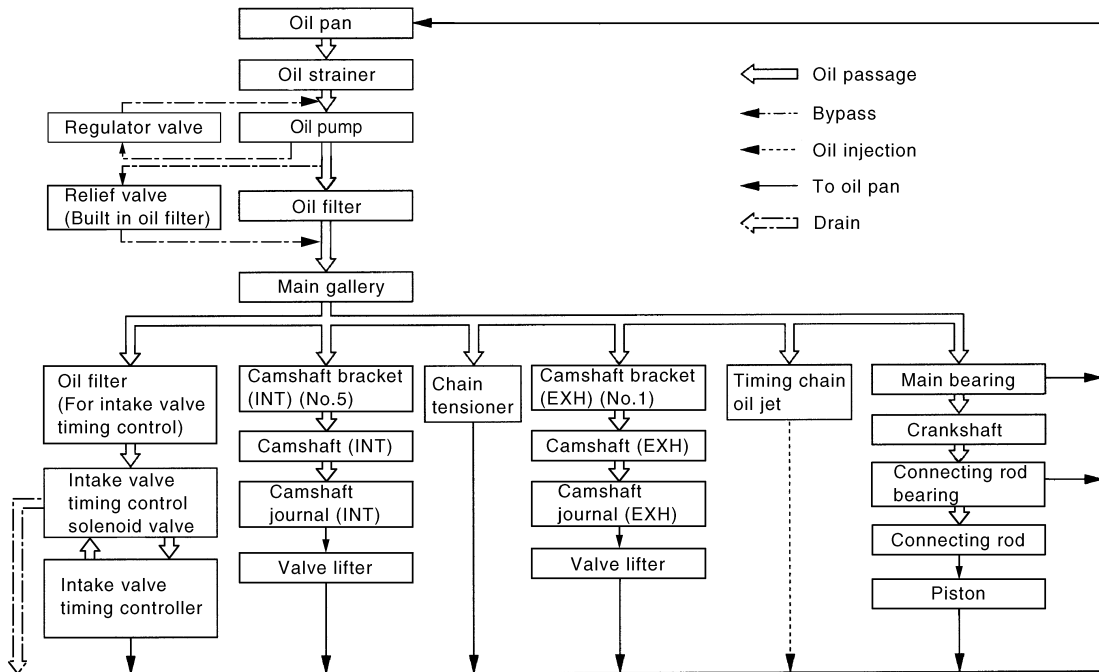
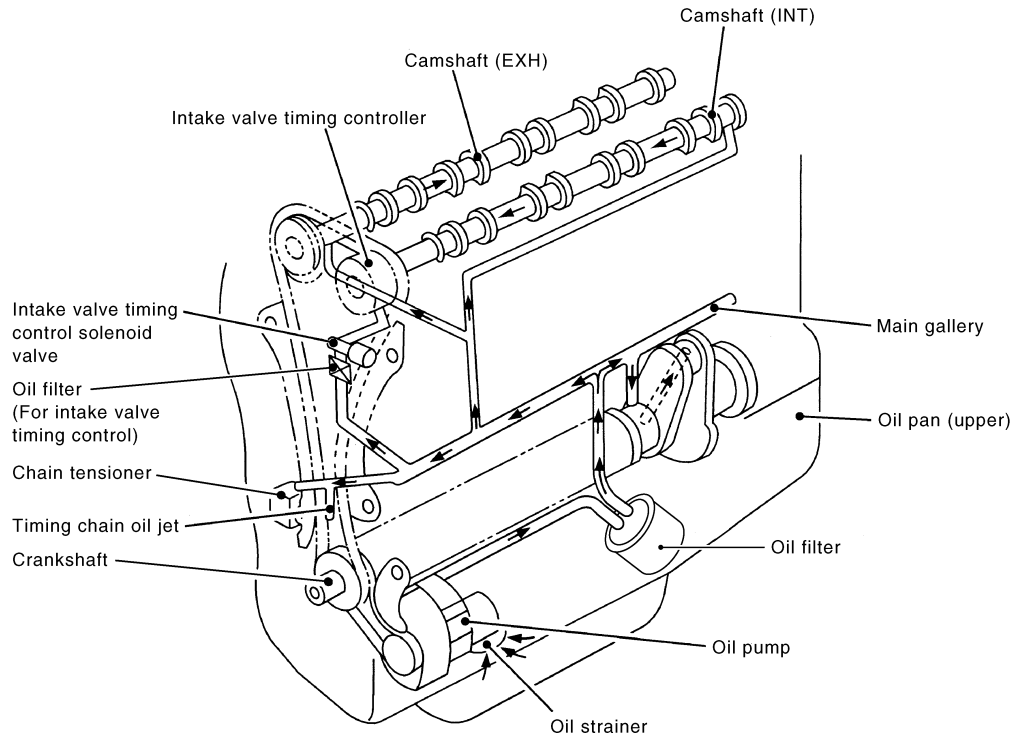
# LUBRICATION SYSTEM

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## LUBRICATION SYSTEM

### Lubrication Circuit

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# ENGINE OIL

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## ENGINE OIL

### Inspection

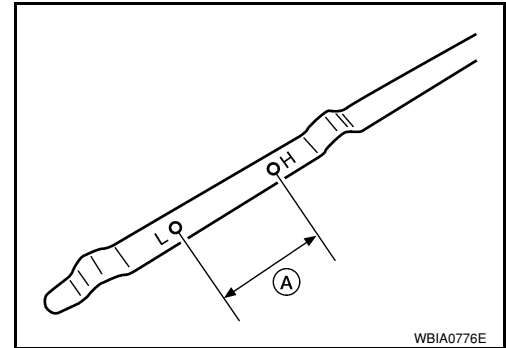
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### ENGINE OIL LEVEL

#### NOTE:

Before starting engine, park vehicle on a level surface and check the engine oil level. If engine is already started, stop it and allow 10 minutes before checking.

1. Pull out oil level gauge and wipe it clean.
2. Insert oil level gauge and make sure the engine oil level is within the range (A) as shown.
3. If it is out of range, adjust it.



### ENGINE OIL APPEARANCE

- Check engine oil for white turbidity or heavy contamination.
- If engine oil becomes turbid and white, it is highly probable that it is contaminated with engine coolant. Repair or replace damaged parts.

### ENGINE OIL LEAKAGE

Check for engine oil leakage around the following areas:

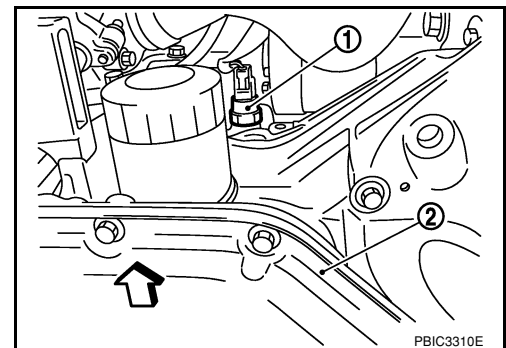
- Oil pan (upper and lower)
- Oil pan drain plug
- Oil pressure switch
- Oil filter
- Intake valve timing control solenoid valve
- Front cover
- Mating surface between cylinder block and cylinder head
- Mating surface between cylinder head and rocker cover
- Crankshaft oil seals (front and rear)
- Oil filter (for intake valve timing control)

### OIL PRESSURE CHECK

#### WARNING:

- **Be careful not to burn yourself, as engine oil may be hot.**
- **For engine oil pressure check the transaxle should be in “Park position” (A/T models) and (CVT models) or “Neutral position” (M/T models), and apply the parking brake securely.**

1. Disconnect harness connector at oil pressure switch (1), and remove oil pressure switch using a suitable tool.
  - Oil pan (lower) (2)
  - ← Front

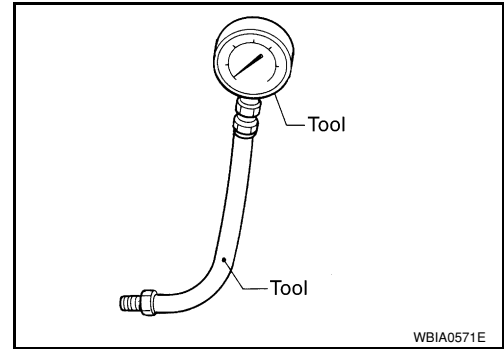


# ENGINE OIL

## < SERVICE INFORMATION >

2. Install oil pressure gauge and hose.

**Tool number** : ST25051001 (J-25695-1)  
: ST25052000 (J-25695-2)



3. Check engine oil level. Refer to [LU-6, "Inspection"](#).
4. Start engine and warm it up to normal operating temperature.
5. Check oil pressure with engine running under no-load.

**NOTE:**

When engine oil temperature is low, engine oil pressure becomes high.

Engine oil pressure [Engine oil temperature at 80°C (176°F)]

Engine speed rpm	Approximate discharge pressure kPa (bar, kg/cm <sup>2</sup> , psi)
Idle speed	More than 60 (0.60, 0.61, 9)
2,000	More than 200 (2.0, 2.0, 29)

**If difference is extreme, check oil passage and oil pump for oil leaks.**

6. After the inspections, install oil pressure switch as follows:
  - a. Remove old liquid gasket adhering to oil pressure switch and engine.
  - b. Apply liquid gasket and tighten oil pressure switch to specification.  
**Use Genuine Silicone RTV Sealant or equivalent.** Refer to [GI-42](#).

**Oil pressure switch** : 14.7 N·m (1.5 kg·m, 11 ft·lb)

- c. Check engine oil level. Refer to [LU-6, "Inspection"](#).
- d. After warming up engine, make sure there are no engine leaks of oil with running engine.

## Changing Engine Oil

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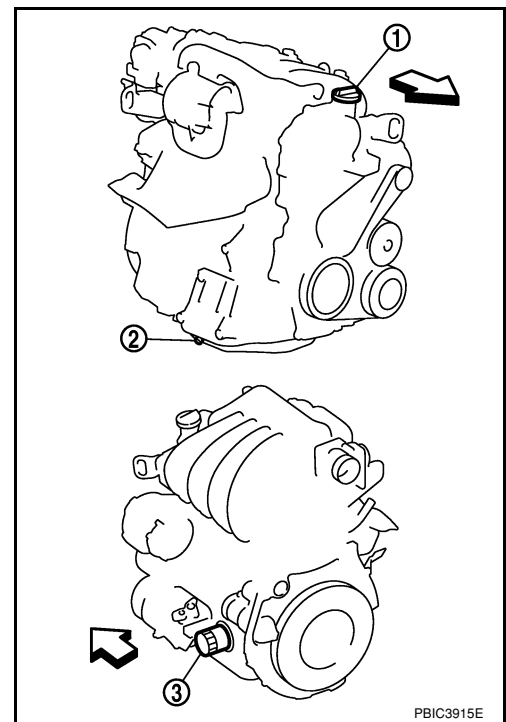
**WARNING:**

- **Be careful not to burn yourself, as engine oil may be hot.**
  - **Prolonged and repeated contact with used engine oil may cause skin cancer; try to avoid direct skin contact with used engine oil. If skin contact is made, wash thoroughly with soap or hand cleaner as soon as possible.**
1. Warm up engine, park vehicle on a level surface and check for engine oil leakage from engine components. Refer to [LU-6, "Inspection"](#).
  2. Stop engine and wait for 10 minutes.

## ENGINE OIL

### < SERVICE INFORMATION >

3. Loosen oil filler cap (1) and then remove drain plug (2).
  - Oil filter (3)
  - ← Engine front
4. Drain engine oil.
5. Install drain plug (2) with new washer. Refer to [EM-24, "Component"](#).  
**CAUTION:**  
**Be sure to clean drain plug (2) and install with new washer.**
6. Refill with new engine oil.  
Refer to [MA-10](#).  
**CAUTION:**
  - **The refill capacity depends on the engine oil temperature and drain time. Use these specifications for reference only.**
  - **Always use oil level gauge to determine the proper amount of engine oil in the engine.**
7. Warm up engine and check area around drain plug (2) and oil filter (3) for engine oil leakage.
8. Stop engine and wait for 10 minutes.
9. Check the engine oil level. Refer to [LU-6, "Inspection"](#).





# OIL FILTER

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## OIL FILTER

### Removal and Installation

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#### REMOVAL

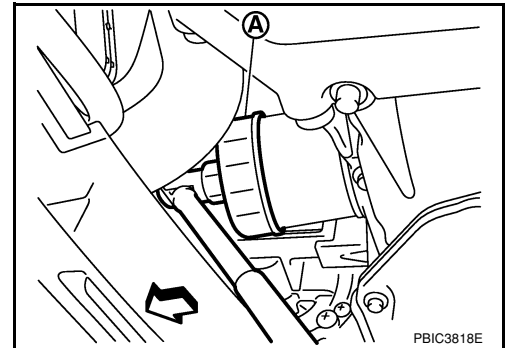
1. Remove oil filter using Tool (A).

**Tool number** : KV10115801 (J-38956)

- ⇐ Front

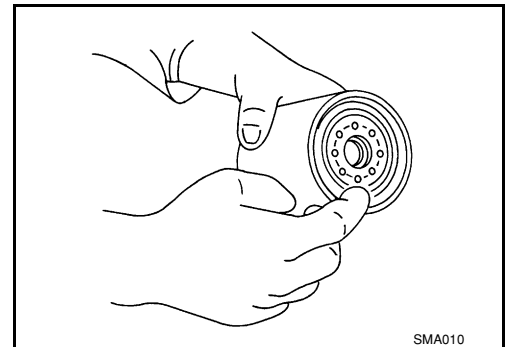
**CAUTION:**

- Oil filter is provided with relief valve. Use Genuine NISSAN Oil Filter or equivalent.
- Be careful not to get burned when engine and engine oil may be hot.
- When removing, prepare a shop cloth to absorb any engine oil leakage or spillage.
- Do not allow engine oil to adhere to drive belt.
- Completely wipe off any engine oil that adheres to engine and vehicle.



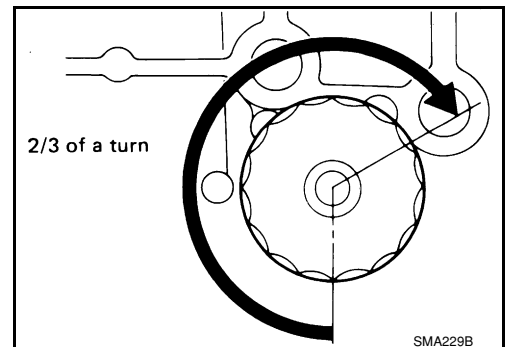
#### INSTALLATION

1. Remove foreign materials adhering to the oil filter installation surface.
2. Apply new engine oil to the oil seal contact surface of new oil filter.



3. Screw oil filter manually until it touches the installation surface, then tighten it by 2/3 turn. Or tighten to specification.

**Oil filter:** : 17.7 N·m (1.8 kg-m, 13 ft-lb)



#### INSPECTION AFTER INSTALLATION

1. Check the engine oil level. Refer to [LU-6](#).
2. Start engine, and make sure there is no leaks of engine oil.
3. Stop engine and wait for 10 minutes.
4. Check the engine oil level and adjust engine oil. Refer to [LU-6](#).

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# SERVICE DATA AND SPECIFICATIONS (SDS)

< SERVICE INFORMATION >

## SERVICE DATA AND SPECIFICATIONS (SDS)

Standard and Limit

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### OIL PRESSURE

Engine speed rpm	Approximate discharge pressure kPa (bar, kg/cm <sup>2</sup> , psi)
Idle speed 2,000	60 (0.60, 0.61, 9) 200 (2.0, 2.0, 29)

### Oil Capacity

Unit: ℓ (US qt, Imp qt)

Drain and refill	With oil filter change	Approximately 3.9 (4 1/8, 3 3/8)
	Without oil filter change	Approximately 3.7 (3 7/8, 3 1/4)
Dry engine (engine overhaul)		Approximately 4.9 (5 1/8, 4 3/8)