

**SECTION MA**  
**MAINTENANCE**

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# PREPARATION

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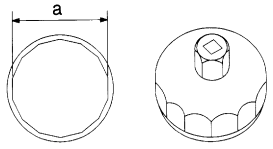
## PREPARATION

### PREPARATION

#### Special Service Tool

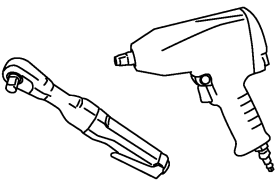
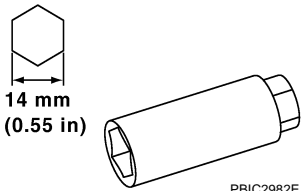
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The actual shapes of Kent-Moore tools may differ from those of special service tools illustrated here.

Tool number (Kent-Moore No.) Tool name	Description
KV10115801 (J38956) Oil filter wrench  <p style="text-align: center;">S-NT375</p>	Removing and installing oil filter <b>a: 64.3 mm (2.531 in)</b>

#### Commercial Service Tool

INFOID:000000001503759

Tool name (Kent-Moore No.)	Description
Power tool ( — )  <p style="text-align: center;">PBIC0190E</p>	Loosening nuts and bolts
Spark plug wrench ( — )  <p style="text-align: center;">PBIC2982E</p>	Removing and installing spark plug

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MA

# GENERAL MAINTENANCE

< ON-VEHICLE MAINTENANCE >

## ON-VEHICLE MAINTENANCE

### GENERAL MAINTENANCE

#### Explanation General Maintenance

INFOID:000000001503760

General maintenance includes those items which should be checked during the normal day-to-day operation of the vehicle. They are essential if the vehicle is to continue operating properly. The owners can perform checks and inspections themselves or have their **NISSAN** dealers do them.

#### OUTSIDE THE VEHICLE

The maintenance items listed here should be performed from time to time, unless otherwise specified.

Item		Reference page
<b>Tires</b>	Check the pressure with a gauge, including the spare, at least once a month and always prior to a long distance trips. Adjust to the specified pressure if necessary. Check carefully for damage, cuts or excessive wear.	<a href="#">WT-38</a>
<b>Wheel nuts</b>	When checking the tires, make sure no nuts are missing, and check for any loose nuts. Tighten if necessary.	<a href="#">WT-34</a>
<b>Windshield</b>	Clean the windshield on a regular basis. Check the windshield at least every six months for cracks or other damage. Repair as necessary.	—
<b>Tire rotation</b>	Tires should be rotated every 12,000 km (7,500 miles).	<a href="#">WT-34</a>
<b>Transmitter component in tire pressure monitoring system (TPMS)</b>	Replace grommet seal, valve core and cap of the transmitter in TPMS every tire replacement by reaching wear limit of tire.	<a href="#">WT-33</a>
<b>Wheel alignment and balance</b>	If the vehicle pulls to either side while driving on a straight and level road, or if you detect uneven or abnormal tire wear, there may be a need for wheel alignment. If the steering wheel or seat vibrates at normal highway speeds, wheel balancing may be needed.	<a href="#">FSU-6</a> and <a href="#">WT-34</a>
<b>Windshield wiper blades</b>	Check for cracks or wear if they do not wipe properly.	—
<b>Doors and engine hood</b>	Check that all doors and the engine hood operate smoothly as well as the trunk lid. Also make sure that all latches lock securely. Lubricate if necessary. Make sure that the secondary latch keeps the hood from opening when the primary latch is released. When driving in areas using road salt or other corrosive materials, check lubrication frequently.	<a href="#">MA-32</a>
<b>Lamps</b>	Make sure that the headlamps, stop lamps, tail lamps, turn signal lamps, and other lamps are all operating properly and installed securely. Also check headlamp aim. Clean the headlamps on a regular basis.	—

#### INSIDE THE VEHICLE

The maintenance items listed here should be checked on a regular basis, such as when performing periodic maintenance, cleaning the vehicle, etc.

Item		Reference page
<b>Warning lamps and chimes</b>	Make sure that all warning lamps and chimes are operating properly.	—
<b>Windshield wiper and washer</b>	Check that the wipers and washer operate properly and that the wipers do not streak.	—
<b>Windshield defroster</b>	Check that the air comes out of the defroster outlets properly and in sufficient quantity when operating the heater or air conditioner.	—
<b>Steering wheel</b>	Check that it has the specified play. Be sure to check for changes in the steering condition, such as excessive play, hard steering or strange noises. <b>Free play: Less than 35 mm (1.38 in)</b>	—
<b>Seats</b>	Check seat position controls such as seat adjusters, seatback recliner, etc. to make sure they operate smoothly and that all latches lock securely in every position. Check that the head restraints move up and down smoothly and that the locks (if equipped) hold securely in all latched positions. Check that the latches lock securely for folding-down rear seatbacks.	—

# GENERAL MAINTENANCE

## < ON-VEHICLE MAINTENANCE >

Item		Reference page	
<b>Seat belts</b>	Check that all parts of the seat belt system (e.g. buckles, anchors, adjusters and retractors) operate properly and smoothly, and are installed securely. Check the belt webbing for cuts, fraying, wear or damage.	<a href="#">MA-32</a>	A
<b>Accelerator pedal</b>	Check the pedal for smooth operation and make sure the pedal does not catch or require uneven effort. Keep the floor mats away from the pedal.	—	B
<b>Brakes</b>	Check that the brake does not pull the vehicle to one side when applied.	—	C
<b>Brake pedal</b>	Check the pedal for smooth operation and make sure it has the proper distance under it when depressed fully.	<a href="#">BR-11</a>	D
<b>Parking brake</b>	Check that the lever or pedal has the proper travel and make sure that the vehicle is held securely on a fairly steep hill when only the parking brake is applied.	<a href="#">PB-2</a>	E
<b>CVT P (Park) position mechanism</b>	On a fairly steep hill check that the vehicle is held securely with the selector lever in the P (Park) position without applying any brakes.	—	

## UNDER THE HOOD AND VEHICLE

The maintenance items listed here should be checked periodically (e.g. each time you check the engine oil or refuel).

Item		Reference page	
<b>Windshield washer fluid</b>	Check that there is adequate fluid in the tank.	—	F
<b>Engine coolant level</b>	Check the coolant level when the engine is cold.	<a href="#">MA-12</a>	G
<b>Inverter cooling level</b>	Check that the coolant level is between the “MAX” and “MIN” lines on the reservoir.	—	H
<b>Radiator and hoses</b>	Check the front of the radiator and clean off any dirt, insects, leaves, etc., that may have accumulated. Make sure the hoses have no cracks, deformation, deterioration or loose connections.	—	I
<b>Brake fluid level</b>	Make sure that the brake fluid level is between the “MAX” and “MIN” lines on the reservoir.	<a href="#">MA-23</a>	J
<b>Engine drive belts</b>	Make sure that no belt is frayed, worn, cracked or oily.	<a href="#">MA-12</a>	K
<b>Engine oil level</b>	Check the level on the oil level gauge after parking the vehicle on a level spot and turning off the engine.	<a href="#">MA-17</a>	L
<b>HEV (Hybrid Electric Vehicle) transaxle fluid</b>	Check for leaks. If you should notice any leaks, check for the cause and correct it immediately.	<a href="#">TM-23</a>	M
<b>Exhaust system</b>	Make sure there are no loose supports, cracks or holes. If the sound of the exhaust seems unusual or there is a smell of exhaust fumes, immediately locate the trouble and correct it.	<a href="#">MA-21</a>	N
<b>Underbody</b>	The underbody is frequently exposed to corrosive substances such as those used on icy roads or to control dust. It is very important to remove these substances, otherwise rust will form on the floor pan, frame, fuel lines, high voltage harness and around the exhaust system. At the end of winter, the underbody should be thoroughly flushed with plain water, being careful to clean those areas where mud and dirt can easily accumulate.	—	O
<b>Fluid leaks</b>	Check under the vehicle for fuel, oil, water or other fluid leaks after the vehicle has been parked for a while. Water dripping from the air conditioner after use is normal. If you should notice any leaks or gasoline fumes are evident, check for the cause and correct it immediately.	—	

# PERIODIC MAINTENANCE

< ON-VEHICLE MAINTENANCE >

## PERIODIC MAINTENANCE

### Introduction of Periodic Maintenance

INFOID:000000001503761

Two different maintenance schedules are provided, and should be used, depending upon the conditions in which the vehicle is mainly operated. **After 60,000 miles (96,000 km) or 48 months, continue the periodic maintenance at the same mileage/time intervals.**

Schedule 1	Follow Periodic Maintenance Schedule 1 if the driving habits frequently include one or more of the following driving conditions: <ul style="list-style-type: none"> <li>• Repeated short trips of less than 5 miles (8 km).</li> <li>• Repeated short trips of less than 10 miles (16 km) with outside temperatures remaining below freezing.</li> <li>• Operating in hot weather in stop-and-go "rush hour" traffic.</li> <li>• Extensive idling and/or low speed driving for long distances, such as police, taxi or door-to-door delivery use.</li> <li>• Driving in dusty conditions.</li> <li>• Driving on rough, muddy, or salt spread roads.</li> <li>• Towing a trailer, using a camper or a car-top carrier.</li> </ul>	Emission Control System Maintenance	<a href="#">MA-6</a>
		Chassis and Body Maintenance	<a href="#">MA-6</a>
Schedule 2	Follow Periodic Maintenance Schedule 2 if none of driving conditions shown in Schedule 1 apply to the driving habits.	Emission Control System Maintenance	<a href="#">MA-8</a>
		Chassis and Body Maintenance	<a href="#">MA-8</a>

### Schedule 1

INFOID:000000001503762

### EMISSION CONTROL SYSTEM

Abbreviations: R = Replace. I = Inspect. Correct or replace if necessary. [ ]: At the mileage intervals only

MAINTENANCE OPERATION		MAINTENANCE INTERVAL								Reference Section - Page or - Content Title
Perform at number of miles, kilometers or months, whichever comes first.	Miles x 1,000 (km x 1,000) Months	3.75 (6)	7.50 (12)	11.25 (18)	15 (24)	18.75 (30)	22.5 (36)	26.25 (42)	30 (48)	
Drive belts	NOTE (1)									<a href="#">MA-12</a>
Air cleaner filter	NOTE (2)								[R]	<a href="#">MA-16</a>
EVAP vapor lines									I*	<a href="#">MA-20</a>
Fuel lines									I*	<a href="#">MA-16</a>
Fuel filter	NOTE (3)									—
Engine coolant	NOTE (4)									<a href="#">MA-12</a>
Inverter coolant	NOTE (4)								R	<a href="#">MA-14</a>
Engine oil		R	R	R	R	R	R	R	R	<a href="#">MA-17</a>
Engine oil filter [Use genuine NISSAN oil filter or equivalent.]		R	R	R	R	R	R	R	R	<a href="#">MA-17</a>
Spark plugs (Iridium and platinum-tipped type)		Replace every 105,000 miles (169,000 km).								<a href="#">MA-19</a>
Intake & exhaust valve clearance*	NOTE (5)									<a href="#">EM-97, "Standard and Limit"</a>

MAINTENANCE OPERATION		MAINTENANCE INTERVAL								Reference Section - Page or - Content Title
Perform at number of miles, kilometers or months, whichever comes first.	Miles x 1,000 (km x 1,000) Months	33.75 (54)	37.5 (60)	41.25 (66)	45 (72)	48.75 (78)	52.5 (84)	56.25 (90)	60 (96)	
Drive belts	NOTE (1)								I*	<a href="#">MA-12</a>
Air cleaner filter	NOTE (2)								[R]	<a href="#">MA-16</a>

# PERIODIC MAINTENANCE

## < ON-VEHICLE MAINTENANCE >

MAINTENANCE OPERATION		MAINTENANCE INTERVAL								Reference Section - Page or - Content Title
Perform at number of miles, kilometers or months, whichever comes first.	Miles x 1,000 (km x 1,000) Months	33.75 (54) 27	37.5 (60) 30	41.25 (66) 33	45 (72) 36	48.75 (78) 39	52.5 (84) 42	56.25 (90) 45	60 (96) 48	
EVAP vapor lines									I*	<a href="#">MA-20</a>
Fuel lines									I*	<a href="#">MA-16</a>
Fuel filter	NOTE (3)									—
Engine coolant	NOTE (4)								R*	<a href="#">MA-12</a>
Inverter coolant	NOTE (4)								R	<a href="#">MA-14</a>
Engine oil		R	R	R	R	R	R	R	R	<a href="#">MA-17</a>
Engine oil filter [Use genuine NISSAN oil filter or equivalent.]		R	R	R	R	R	R	R	R	<a href="#">MA-17</a>
Spark plugs (Iridium and platinum-tipped type)		Replace every 105,000 miles (169,000 km).								<a href="#">MA-19</a>
Intake & exhaust valve clearance*	NOTE (5)									<a href="#">EM-97, "Standard and Limit"</a>

**NOTE:**

- (1) After 60,000 miles (96,000 km) or 48 months, inspect every 15,000 miles (24,000 km) or 12 months. Replace the drive belts if found damaged.
- (2) If operating mainly in dusty conditions, more frequent maintenance may be required.
- (3) Maintenance-free item. For service procedures, refer to FL section.
- (4) After 60,000 miles (96,000 km) or 48 months, replace every 30,000 miles (48,000 km) or 24 months.
- (5) If valve noise increases, inspect valve clearance.

\* Maintenance items and intervals with "\*" are recommended by NISSAN for reliable vehicle operation. The owner need not perform such maintenance in order to maintain the emission warranty or manufacturer recall liability. Other maintenance items and intervals are required.

## CHASSIS AND BODY

Abbreviations: R = Replace. I = Inspect. Correct or replace if necessary.

MAINTENANCE OPERATION		MAINTENANCE INTERVAL								Reference Section - Page or - Content Title
Perform at number of miles, kilometers or months, whichever comes first.	Miles x 1,000 (km x 1,000) Months	3.75 (6) 3	7.50 (12) 6	11.25 (18) 9	15 (24) 12	18.75 (30) 15	22.5 (36) 18	26.25 (42) 21	30 (48) 24	
Brake lines & cables					I				I	<a href="#">MA-21</a>
Brake pads & rotors			I		I		I		I	<a href="#">MA-28, MA-28, MA-29, MA-29</a>
HEV transaxle fluid	NOTE (1)				I				I	<a href="#">TM-23</a>
Steering gear and linkage, axle & suspension parts					I					<a href="#">MA-30</a>
Tire rotation	NOTE (2)									<a href="#">MA-22</a>
Exhaust system			I		I		I		I	<a href="#">MA-21</a>
Front drive shaft boot			I		I		I		I	<a href="#">FAX-6</a>
In-cabin microfilter					R				R	<a href="#">MA-23</a>

# PERIODIC MAINTENANCE

## < ON-VEHICLE MAINTENANCE >

MAINTENANCE OPERATION		MAINTENANCE INTERVAL								Reference Section - Page or - Content Title
		Miles x 1,000 (km x 1,000)	33.75 (54)	37.5 (60)	41.25 (66)	45 (72)	48.75 (78)	52.5 (84)	56.25 (90)	
Perform at number of miles, kilometers or months, whichever comes first.	Months	27	30	33	36	39	42	45	48	
Brake lines & cables					I				I	<a href="#">MA-23</a>
Brake pads & rotors			I		I		I		I	<a href="#">MA-28</a> , <a href="#">MA-28</a> , <a href="#">MA-29</a> , <a href="#">MA-29</a>
HEV transaxle fluid	NOTE (1)				I				I	<a href="#">TM-23</a>
Steering gear and linkage, axle & suspension parts					I					<a href="#">MA-30</a>
Tire rotation	NOTE (2)									<a href="#">MA-22</a>
Exhaust system			I		I		I		I	<a href="#">MA-21</a>
Front drive shaft boot			I		I		I		I	<a href="#">FAX-6</a>
In-cabin microfilter					R				R	<a href="#">MA-21</a>

**NOTE:**

- (1) If towing a trailer, or using a car-top carrier, or driving on rough or muddy roads, change (not just inspect) oil at every 30,000 miles (48,000 km) or 24 months.
- (2) Refer to "Tire rotation" under the "General maintenance" heading earlier in this section.

## Schedule 2

INFOID:000000001503763

## EMISSION CONTROL SYSTEM

Abbreviations: R = Replace. I = Inspect. Correct or replace if necessary. [ ]: At the mileage intervals only

MAINTENANCE OPERATION		MAINTENANCE INTERVAL								Reference Section - Page or - Content Title
		Miles x 1,000 (km x 1,000)	7.5 (12)	15 (24)	22.5 (36)	30 (48)	37.5 (60)	45 (72)	52.5 (84)	
Perform at number of miles, kilometers or months, whichever comes first.	Months	6	12	18	24	30	36	42	48	
Drive belts	NOTE (1)								I*	<a href="#">MA-12</a>
Air cleaner filter					[R]				[R]	<a href="#">MA-16</a>
EVAP vapor lines					I*				I*	<a href="#">MA-20</a>
Fuel lines					I*				I*	<a href="#">MA-16</a>
Fuel filter	NOTE (2)									—
Engine coolant	NOTE (3)								R*	<a href="#">MA-12</a>
Inverter coolant	NOTE (3)								R*	<a href="#">MA-14</a>
Engine oil		R	R	R	R	R	R	R	R	<a href="#">MA-17</a>
Engine oil filter [Use genuine NISSAN oil filter or equivalent.]		R	R	R	R	R	R	R	R	<a href="#">MA-17</a>
Spark plugs (Iridium and platinum-tipped type)		Replace every 105,000 miles (169,000 km).								<a href="#">MA-19</a>
Intake & exhaust valve clearance*	NOTE (4)									<a href="#">EM-97</a> . "Standard and Limit"

**NOTE:**

- (1) After 60,000 miles (96,000 km) or 48 months, inspect every 15,000 miles (24,000 km) or 12 months. Replace the drive belts if found damaged.
- (2) Maintenance-free item. For service procedures, refer to FL section.
- (3) After 60,000 miles (96,000 km) or 48 months, replace every 30,000 miles (48,000 km) or 24 months.
- (4) If valve noise increases, inspect valve clearance.

\* Maintenance items and intervals with "\*" are recommended by NISSAN for reliable vehicle operation. The owner need not perform such maintenance in order to maintain the emission warranty or manufacturer recall liability. Other maintenance items and intervals are required



# PERIODIC MAINTENANCE

## < ON-VEHICLE MAINTENANCE >

### CHASSIS AND BODY

Abbreviations: R = Replace. I = Inspect. Correct or replace if necessary.

MAINTENANCE OPERATION		MAINTENANCE INTERVAL								Reference Section - Page or - Content Title
		Miles x 1,000 (km x 1,000) Months	7.5 (12) 6	15 (24) 12	22.5 (36) 18	30 (48) 24	37.5 (60) 30	45 (72) 36	52.5 (84) 42	
Perform at number of miles, kilometers or months, whichever comes first.										
Brake lines and cables			I		I		I		I	<a href="#">MA-23</a>
Brake pads & rotors			I		I		I		I	<a href="#">MA-28</a> , <a href="#">MA-28</a> , <a href="#">MA-29</a> , <a href="#">MA-29</a>
HEV transaxle fluid			I		I		I		I	<a href="#">TM-23</a>
Steering gear and linkage, axle & suspension parts			I		I		I		I	<a href="#">MA-30</a>
Tire rotation	NOTE (1)									<a href="#">MA-22</a>
Exhaust system					I				I	<a href="#">MA-21</a>
Front drive shaft boot			I		I		I		I	<a href="#">FAX-6</a>
In-cabin microfilter			R		R		R		R	<a href="#">MA-21</a>

**NOTE:**

(1) Refer to "Tire rotation" under the "General maintenance" heading earlier in this section.

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# RECOMMENDED FLUIDS AND LUBRICANTS

< ON-VEHICLE MAINTENANCE >

## RECOMMENDED FLUIDS AND LUBRICANTS

### Fluids and Lubricants

INFOID:000000001503764

Description		Capacity (Approximate)			Recommended Fluids/Lubricants
		US measure	Imp measure	Liter	
Fuel		20 gal	16-5/8 gal	75.6	Unleaded gasoline with an octane rating of at least 87 AKI (RON 91)
Engine oil Drain and refill	With oil filter change	4-7/8 qt	4 qt	4.6	Engine oil with • API Certification Mark *1 • Viscosity SAE 0W-20 *2
	Without oil filter change	4-1/2 qt	3-3/4 qt	4.3	
Dry engine (Overhaul)		5-3/4 qt	4-3/4 qt	5.4	
Engine cooling system with reservoir tank		2 gal	1-3/4 gal	7.7	Genuine NISSAN Long Life Antifreeze/Coolant or equivalent
Inverter coolant with reservoir tank		3/4 gal	7/8 gal	3.2	Genuine NISSAN Long Life Antifreeze/Coolant or equivalent
HEV transaxle fluid		4-3/8 qt	3-5/8 qt	4.1	Genuine NISSAN Matic W ATF *3
Brake fluid		—	—	—	Genuine NISSAN Super Heavy Duty Brake Fluid*4 or equivalent DOT 3 (US FMVSS No. 116)
Brake grease		—	—	—	PBC (poly butyl cuprysil)
Brake pad plate grease		—	—	—	Molykote AS880N grease or equivalent
HEV transaxle grease		—	—	—	
Multi-purpose grease		—	—	—	NLGI No. 2 (Lithium soap base)
Air conditioning system refrigerant		1.10 ± 0.055 lb	0.50 ± 0.025 kg	0.50 ± 0.025 kg	HFC-134a (R-134a) *5
Air conditioning system oil		4.06 fl oz	4.22 fl oz	120 m ℓ	A/C Compressor Oil ND-OIL 11

\*1: For further details, see "Engine Oil Recommendation".

\*2: For warm and hot climates, if viscosity SAE 0W-20 oil is not available, viscosity SAE 5W-20 oil is also applicable.

\*3: Use only Genuine NISSAN Matic W ATF. Using transaxle fluid other than Genuine NISSAN Matic W ATF will damage the CVT.

\*4: Available in mainland U.S.A. through your NISSAN dealer.

\*5: For further details, see "Air conditioning specification label".

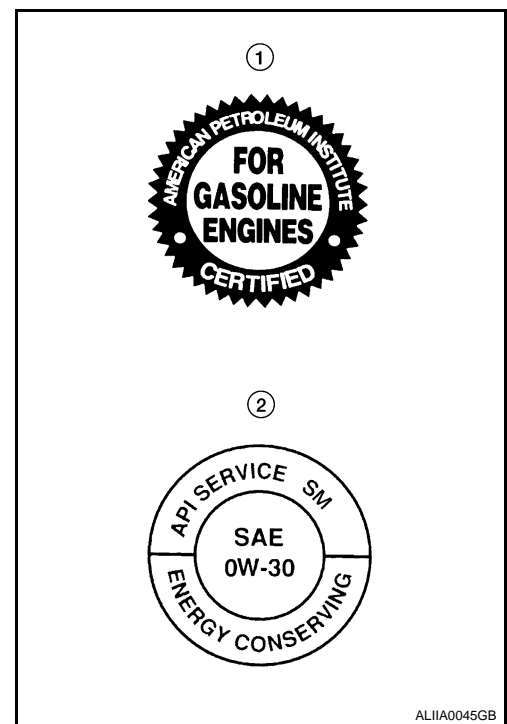
### Engine Oil Recommendation

INFOID:000000001503765

# RECOMMENDED FLUIDS AND LUBRICANTS

## < ON-VEHICLE MAINTENANCE >

NISSAN recommends the use of an energy conserving oil in order to improve fuel economy. Select only engine oils that meet the American Petroleum Institute (API) certification and International Lubricant Standardization and Approval Committee (ILSAC) certification and SAE viscosity standard (2). These oils have the API certification mark (1) on the front of the container. Oils which do not have the specified quality label should not be used as they could cause engine damage.



## ANTI-FREEZE COOLANT MIXTURE RATIO

The engine cooling system and inverter cooling are filled at the factory with a high-quality, year-round, anti-freeze coolant solution. The anti-freeze solution contains rust and corrosion inhibitors. Therefore, additional cooling system additives are not necessary.

### **CAUTION:**

**When adding or replacing coolant, be sure to use only Genuine NISSAN Long Life Antifreeze/ Coolant or equivalent with the proper mixture ratio of 50% anti-freeze and 50% demineralized water/distilled water.**

**Other types of coolant solutions may damage your cooling system.**

Outside temperature down to		Anti-freeze	Demineralized water or distilled water
°C	°F		
-35	-30	50%	50%

SMA947CA

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# ENGINE MAINTENANCE

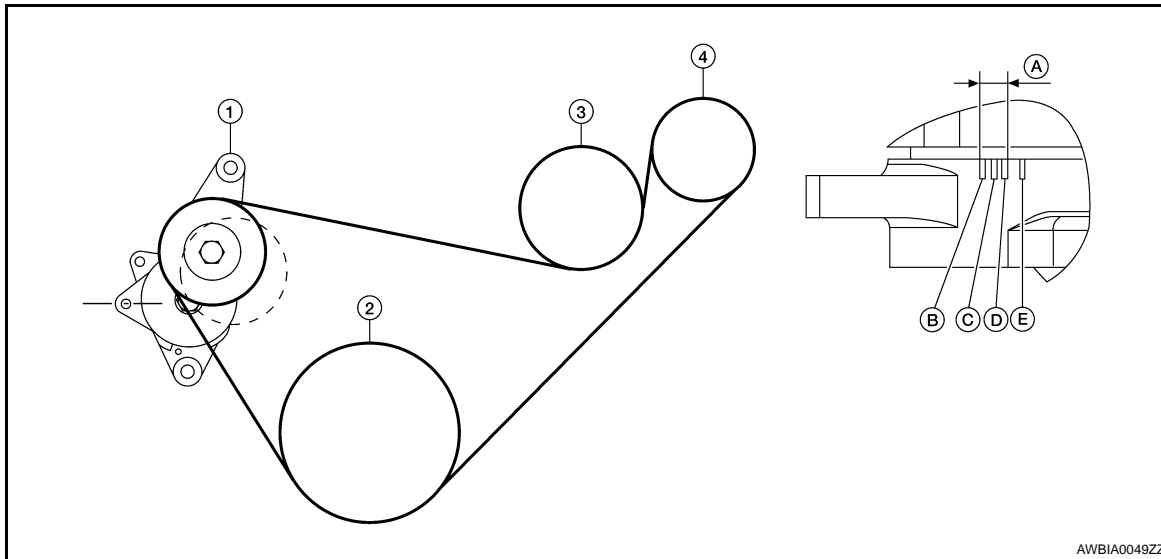
< ON-VEHICLE MAINTENANCE >

## ENGINE MAINTENANCE

### DRIVE BELTS

#### DRIVE BELTS : Checking Drive Belts

INFOID:000000001503766



AWBIA0049ZZ

- |                              |                                  |                              |
|------------------------------|----------------------------------|------------------------------|
| 1. Drive belt auto-tensioner | 2. Crankshaft                    | 3. Water pump                |
| 4. Idler pulley              | A. Water pump belt working range | B. Minimum belt length       |
| C. Nominal position          | D. Maximum belt length           | E. Maximum belt length +0.8% |
| F. View F                    |                                  |                              |

#### **WARNING:**

**Inspect the drive belt only when the Hybrid System is off.**

- Make sure that the stamp mark of drive belt auto-tensioner is within the usable range.

#### **NOTE:**

- Check the drive belt auto-tensioner indicator (notch) when the engine is cold.
- When the new drive belt is installed, the range should be "A" as shown.
- Visually check entire belt for wear, damage or cracks.
- If the indicator is out of allowable use range or belt is damaged, replace the belt.

#### DRIVE BELTS : Tension Adjustment

INFOID:000000001503767

- Belt tension is not manually adjustable, it is automatically adjusted by the drive belt auto-tensioner.

### ENGINE COOLANT

#### ENGINE COOLANT : Changing Engine Coolant

INFOID:000000001503768

#### **WARNING:**

- **To avoid being scalded, never change the coolant when the engine and inverter are hot.**
- **Wrap a thick cloth around cap and carefully remove the cap. First, turn the cap a quarter of a turn to release built-up pressure. Then push down and turn the cap all the way to remove.**

#### DRAINING ENGINE COOLANT

1. Remove the engine undercover using power tool.
2. Open the radiator drain plug at the bottom of the radiator, and remove the radiator filler cap. This is the only step required when partially draining the cooling system (radiator only).

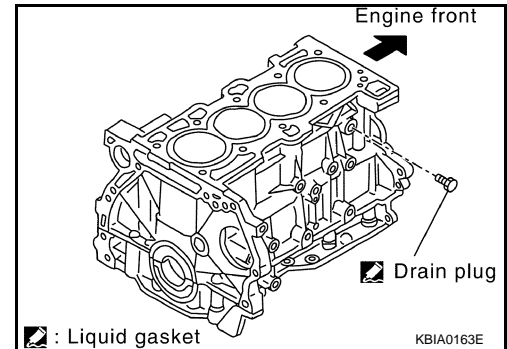
#### **CAUTION:**

**Do not to allow the coolant to contact the drive belts.**

# ENGINE MAINTENANCE

## < ON-VEHICLE MAINTENANCE >

- Follow this step for heater core removal/replacement only. Disconnect the upper heater hose at the engine side and apply moderate air pressure [103.46 kPa (15 psi, 1.055 kg/cm<sup>2</sup>) maximum air pressure] into the hose for 30 seconds to blow the excess coolant out of the heater core.
- When draining all of the coolant in the system, remove the reservoir tank and drain the coolant, then clean the reservoir tank before installation.
- When draining all of the coolant in the system for engine removal or repair, open the drain plug on the cylinder block.



- Check the drained coolant for contaminants such as rust, corrosion or discoloration. If the coolant is contaminated, flush the engine cooling system. Refer to "FLUSHING COOLING SYSTEM" .

## REFILLING ENGINE COOLANT

- Install the radiator drain plug. Install the reservoir tank and cylinder block drain plug, if removed for a total system drain or for engine removal or repair.
  - The radiator must be completely empty of coolant and water.**
  - Apply sealant to the threads of the cylinder block drain plugs. Use Genuine High Performance Thread Sealant or equivalent. Refer to [GI-15, "Recommended Chemical Products and Sealants"](#) .**

**Radiator drain plug** : Refer to [CO-14, "Removal and Installation"](#) .

**Cylinder block drain plug** : Refer to [EM-74, "Disassembly and Assembly"](#) .

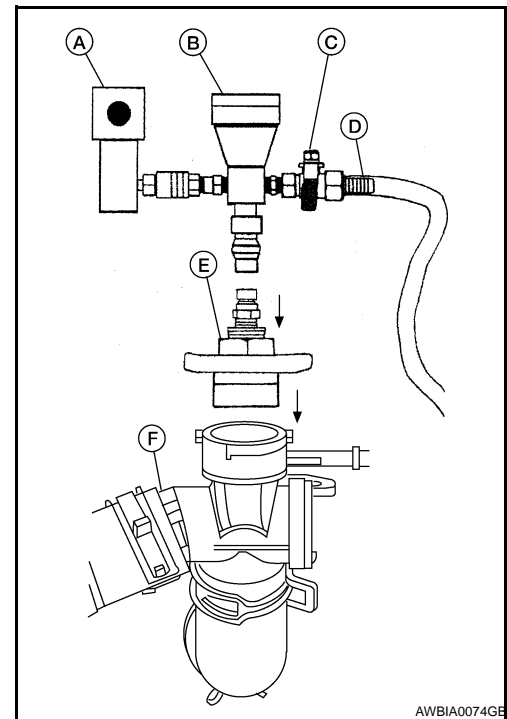
- If disconnected, reattach the upper radiator hose at the engine side.
- Set the vehicle heater controls to the full HOT and heater ON position. Push the ignition switch twice to the ON position with the Hybrid system and engine OFF as necessary to activate the heater mode.
- Install the Tool by installing the radiator cap adapter (E) onto the radiator tee opening (F). Then attach the gauge body assembly (B) with the refill hose (D) and the venturi assembly (A) to the radiator cap adapter.

**Tool number** : **KV991J0070 (J-45695)**

- A: Venturi assembly
- B: Gauge body assembly
- C: Ball valve
- D: Refill hose
- E: Radiator cap adapter
- F: Radiator tee

- Insert the refill hose (D) into the coolant mixture container that is placed at floor level. Make sure the ball valve (C) is in the closed position.
  - Use Genuine NISSAN Long Life Anti-freeze coolant or equivalent, mixed 50/50 with distilled water or demineralized water.**
  - Refer to [MA-10, "Engine Oil Recommendation"](#) .

**Engine coolant capacity (with reservoir tank)** : Refer to [MA-10, "Fluids and Lubricants"](#) .



# ENGINE MAINTENANCE

## < ON-VEHICLE MAINTENANCE >

6. Install an air hose to the venturi assembly (A), the air pressure must be within specification.

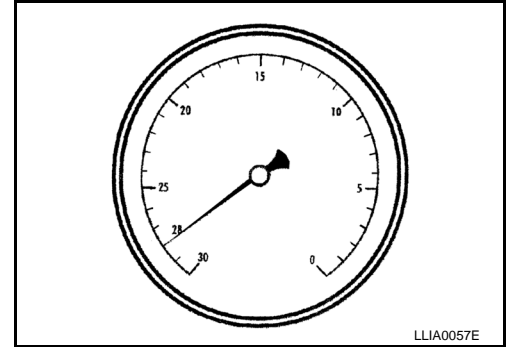
**Compressed air supply pressure : 5.7 - 8.5 kPa (5.6 - 8.4 kg/cm<sup>2</sup> , 80 - 120 psi)**

**CAUTION:**

**The compressed air supply must be equipped with an air dryer.**

7. The vacuum gauge will begin to rise and there will be an audible hissing noise. During this process open the ball valve (C) on the refill hose (D) slightly. Coolant will be visible rising in the refill hose (D). Once the refill hose (D) is full of coolant, close the ball valve (C). This will purge any air trapped in the refill hose.
8. Continue to draw the vacuum until the gauge reaches 28 inches of vacuum. The gauge may not reach 28 inches in high altitude locations, refer to the vacuum specifications based on the altitude above sea level.

<b>Altitude above sea level</b>	<b>Vacuum gauge reading</b>
<b>0 - 100 m (328 ft)</b>	<b>: 28 inches of vacuum</b>
<b>300 m (984 ft)</b>	<b>: 27 inches of vacuum</b>
<b>500 m (1,641 ft)</b>	<b>: 26 inches of vacuum</b>
<b>1,000 m (3,281 ft)</b>	<b>: 24 - 25 inches of vacuum</b>



9. When the vacuum gauge has reached the specified amount, disconnect the air hose and wait 20 seconds to see if the system loses any vacuum. If the vacuum level drops, perform any necessary repairs to the system and repeat steps 6 - 8 to bring the vacuum to the specified amount. Recheck for any leaks.
10. Place the coolant container [with the refill hose (D) inserted] at the same level as the top of the radiator. Then open the ball valve (C) on the refill hose (D) so the coolant will be drawn up to fill the cooling system. The cooling system is full when the vacuum gauge reads zero.  
**CAUTION:**  
**Do not allow the coolant container to get too low when filling, to avoid air from being drawn into the cooling system.**
11. Remove the Tool from the radiator neck opening.
12. Fill the cooling system reservoir tank to the specified level and install the radiator cap. Turn the Hybrid system ON to the engine to warm up the cooling system and top up the system as necessary.

## FLUSHING COOLING SYSTEM

1. Fill the radiator from the filler cap above the radiator upper hose and reservoir tank, with water and reinstall the filler cap above the radiator upper hose.
2. Turn the Hybrid system ON to the engine until it reaches normal operating temperature.
3. Press the engine accelerator two or three times under no-load.
4. Turn the Hybrid system off and wait until it cools down.
5. Drain the water.
6. Repeat steps 1 through 5 until clear water begins to drain from the radiator.

## INVERTER ASSEMBLY

### INVERTER ASSEMBLY : Replacement

INFOID:000000001503769

### DRAINING COOLANT

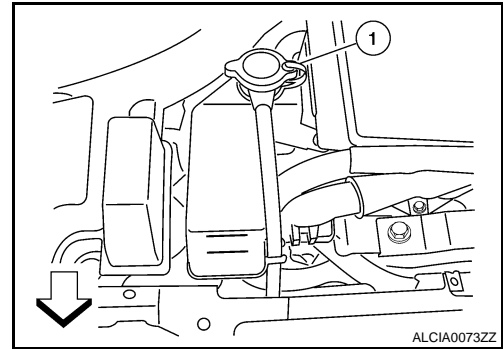
**WARNING:**

- To avoid being scalded, never change the coolant when the engine and inverter is hot.
- Never remove the inverter cooling reservoir tank cap when the engine and inverter is hot. Serious burns could occur from high pressure coolant escaping from the inverter coolant reservoir tank.
- Wrap a thick cloth around the cap. Slowly push down and turn cap a quarter turn to allow built-up pressure to escape. Carefully remove the cap by pushing down and turning it all the way.

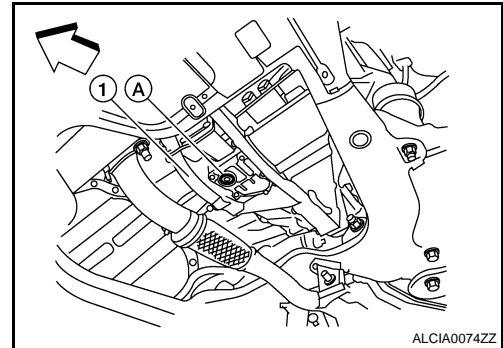
# ENGINE MAINTENANCE

## < ON-VEHICLE MAINTENANCE >

1. Remove the inverter cooling reservoir tank cap (1).
  - ⇐: Front



2. Remove the engine under cover. Refer to [EXT-12. "Removal and Installation"](#).
3. Loosen the drain plug (A) on the sub radiator (1) and drain the coolant.
  - ⇐: Front



4. Remove the coolant drain plug (A) from the transaxle (1) and drain coolant.
  - ⇐: Front
5. Install the coolant drain plug with a new gasket to the transaxle.
6. Tighten the drain plug on the sub radiator.

**Coolant drain plug : 35.3 - 43.1 N·m  
(3.6 - 4.4 kg·m, 26 - 32 ft·lb)**

**CAUTION:**  
**Do not reuse gasket.**

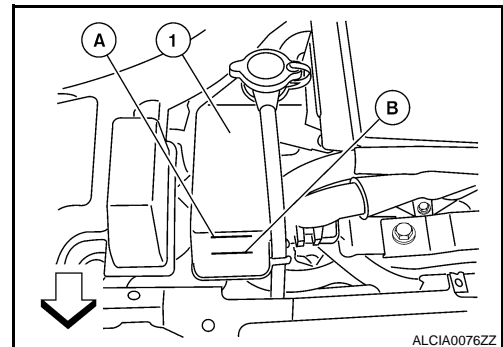
### FILLING COOLANT

1. Slowly pour coolant into the inverter cooling reservoir tank (1) until the coolant level reaches MAX (A).
  - ⇐: Front
2. Turn ignition switch ON.
3. Select "INV WATER PUMP" in "ACTIVE TEST" mode with CONSULT-III, then operate the inverter cooling system coolant pump while continuing to fill the inverter cooling reservoir tank. Keep the coolant level between MIN (B) and MAX (A).

**CAUTION:**

**Do not allow the coolant level in the reservoir tank to get too low when filling to avoid air being drawn into the Inverter cooling system.**

4. When no air bubbles can be seen in the inverter cooling reservoir tank, fill the tank until the coolant level reaches MAX.



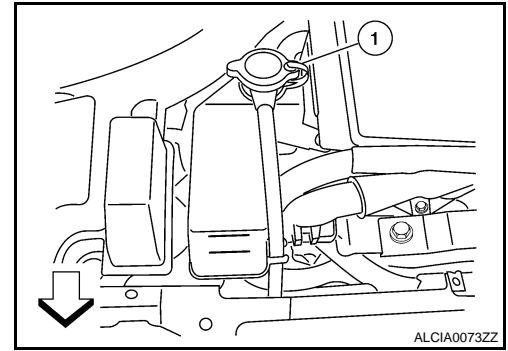
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# ENGINE MAINTENANCE

## < ON-VEHICLE MAINTENANCE >

5. Install the inverter cooling reservoir tank cap (1) and inspect the system for leaks.
  - ←: Front

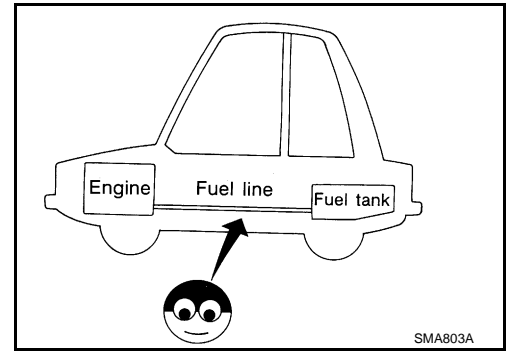


## FUEL LINES

### FUEL LINES : Inspection

Inspect fuel lines, fuel filler cap and fuel tank for improper attachment, leaks, cracks, damage, loose connections, chafing or deterioration. If necessary, repair or replace damaged parts.

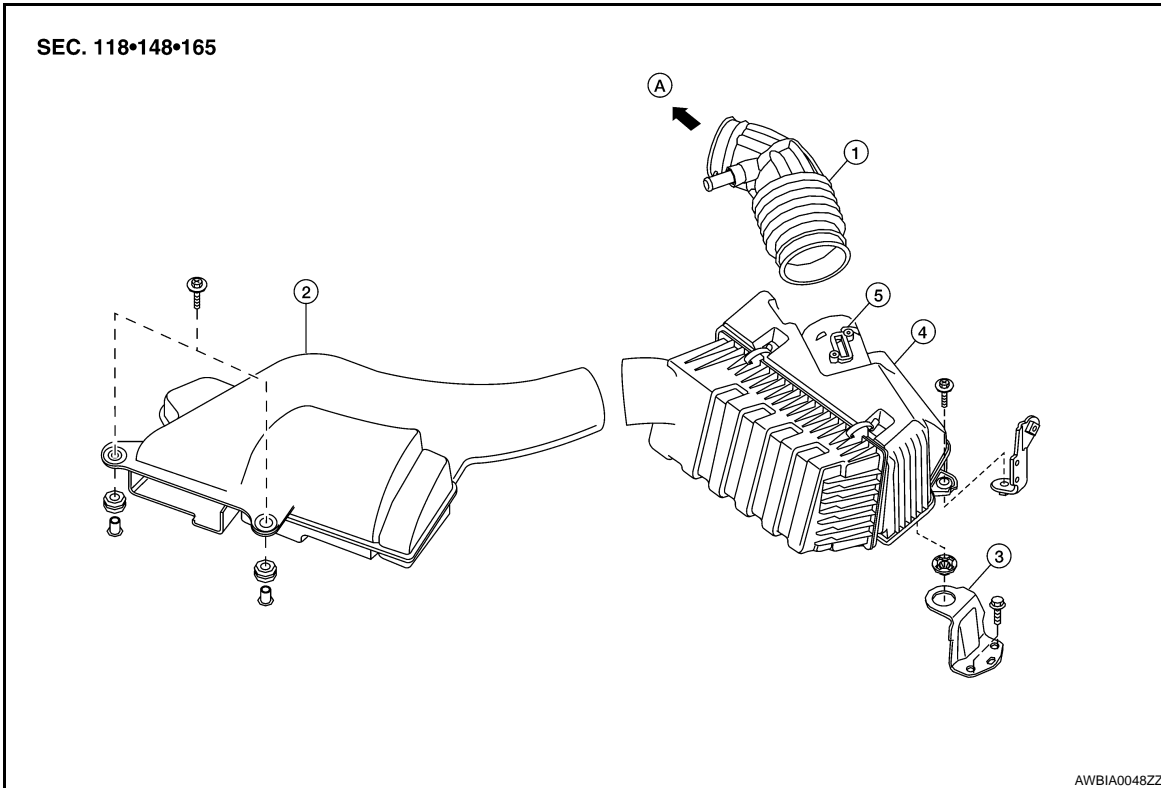
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## AIR CLEANER FILTER

### AIR CLEANER FILTER : Removal and Installation

INFOID:000000001503771



- |                         |                         |                                            |
|-------------------------|-------------------------|--------------------------------------------|
| 1. Air duct hose        | 2. Front air duct       | 3. Air cleaner mounting bracket            |
| 4. Air cleaner assembly | 5. Mass air flow sensor | A. To electronic throttle control actuator |

## REMOVAL



# ENGINE MAINTENANCE

## < ON-VEHICLE MAINTENANCE >

1. Remove front air duct.
2. Disconnect the air duct hose clamps at the electronic throttle control actuator and the air cleaner assembly.
3. Disconnect the mass air flow sensor
4. Remove mass air flow sensor from air cleaner assembly, as necessary.

### CAUTION:

Handle the mass air flow sensor with care:

- Do not shock it.
- Do not disassemble it.
- Do not touch the internal sensor.

5. Remove the air cleaner assembly.

## INSTALLATION

Installation is in the reverse order of removal.

## ENGINE OIL

### ENGINE OIL : Changing Engine Oil

INFOID:000000001503772

### WARNING:

- Be careful not to burn yourself, as the 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 oil. If skin contact is made, wash thoroughly with soap or hand cleaner as soon as possible.

1. Position the vehicle so it is level on the hoist.
2. Turn Hybrid System ON and warm up the engine, and check for oil leaks from the engine.
3. Turn Hybrid System OFF and wait for 10 minutes.
4. Remove the oil pan drain plug and oil filler cap.
5. Drain the engine oil.
6. Install the oil pan drain plug with a new washer and refill the engine with new engine oil.
  - Oil specification and viscosity. Refer to [MA-10. "Fluids and Lubricants"](#).

Oil Capacity (Approximate)

Drain and refill	With oil filter change	4.6 ℓ (4 7/8 US qt, 4 Imp qt)
	Without oil filter change	4.3 ℓ (4 1/2 US qt, 3 3/4 Imp qt)
Dry engine (engine overhaul)		5.4 ℓ (5 3/4 US qt, 4 3/4 Imp qt)

### CAUTION:

- Be sure to clean the drain plug and install using a new washer.

**Oil pan drain plug : 34.3 N·m (3.5 kg-m, 25 ft-lb)**

- The refill capacity depends on the oil temperature and drain time. Use these specifications for reference only. Always use the dipstick to determine when the proper amount of oil is in the engine.

7. Turn Hybrid System ON and warm up the engine and check the area around the drain plug and oil filter for oil leakage.
8. Turn the Hybrid System OFF and wait for 10 minutes.
9. Check the oil level using the dipstick.

### CAUTION:

Do not overfill the engine oil.

## OIL FILTER

### OIL FILTER : Removal and Installation

INFOID:000000001503773

## REMOVAL

# ENGINE MAINTENANCE

## < ON-VEHICLE MAINTENANCE >

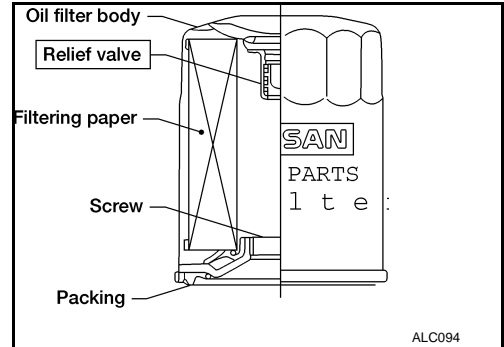
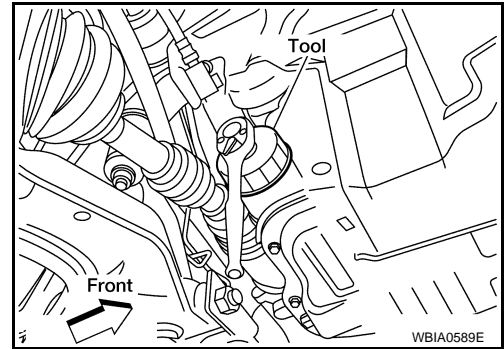
1. Remove the oil filter using Tool.

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

### CAUTION:

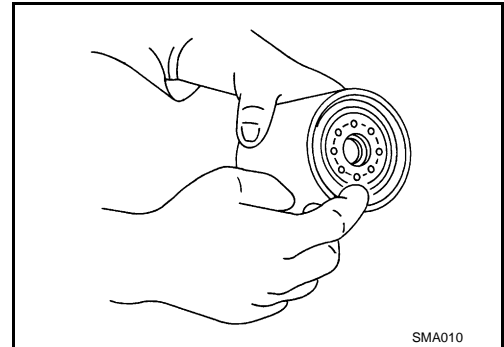
- Be careful not to get burned when the engine and engine oil are hot.
- When removing, prepare a shop cloth to absorb any oil leakage or spillage.
- Do not allow engine oil to adhere to the drive belts.
- Completely wipe off any oil that adheres to the engine and the vehicle.

- The oil filter has a built in pressure relief valve. Use a genuine NISSAN oil filter or equivalent



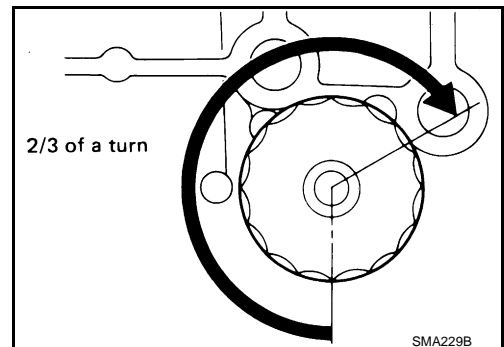
## INSTALLATION

1. Clean off any foreign materials adhering to the oil filter installation surface.
2. Apply engine oil to the oil seal surface of the new oil filter.



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

**Oil filter** : 17.6 N-m (1.8 kg-m, 13 ft-lb)



4. Check oil level and add engine oil as necessary. Refer to [LU-8, "Inspection"](#).
5. Turn the Hybrid System ON and after warming up the engine, check for oil leaks.

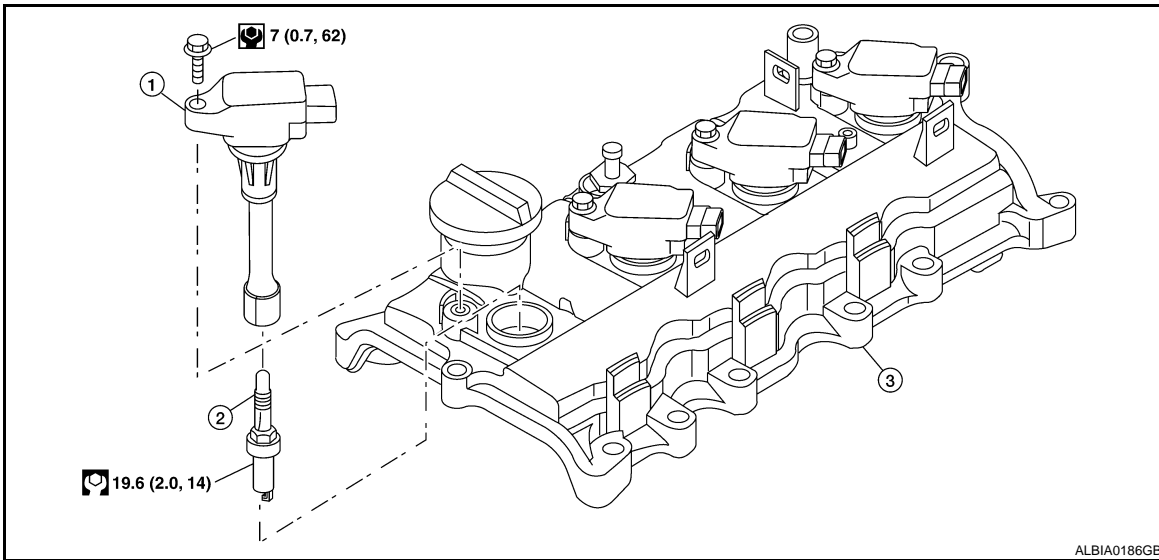
## SPARK PLUG (PLATINUM-TIPPED TYPE)

# ENGINE MAINTENANCE

< ON-VEHICLE MAINTENANCE >

## SPARK PLUG (PLATINUM-TIPPED TYPE) : Removal and Installation

INFOID:000000001503774



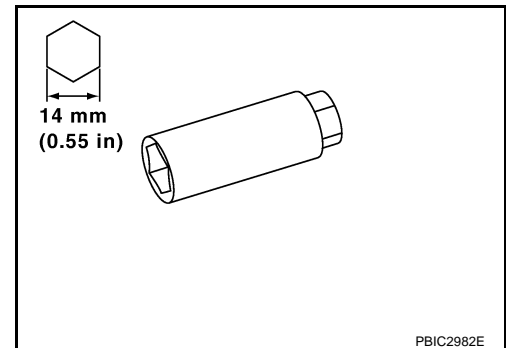
1. Ignition coil

2. Spark plug

3. Rocker cover

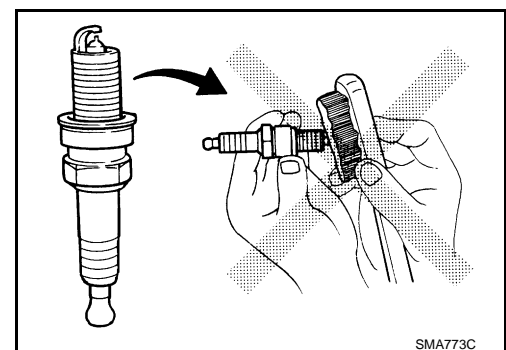
### REMOVAL

1. Remove the ignition coil. Refer to [EM-33, "Removal and Installation"](#).
2. Remove the spark plug with a suitable spark plug wrench.



### INSPECTION AFTER REMOVAL

- Do not use a wire brush for cleaning the spark plugs. Replace as necessary.



- If plug is covered with carbon, a spark plug cleaner may be used.

**Cleaner air pressure** : less than 588 kPa (6 kg/cm<sup>2</sup>, 85 psi)

**Cleaning time** : less than 20 seconds

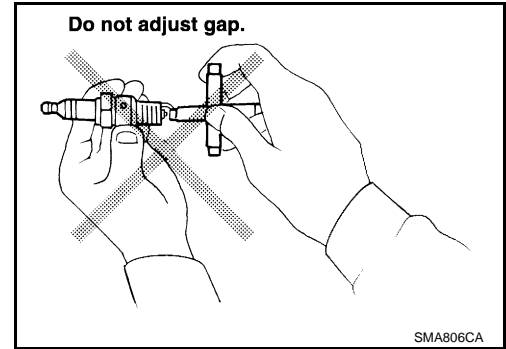
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# ENGINE MAINTENANCE

## < ON-VEHICLE MAINTENANCE >

- Checking and adjusting plug gap is not required between change intervals. If the gap is out of specification, replace the spark plug.

**Gap (nominal) : 1.1 mm (0.043 in)**



## INSTALLATION

Installation is in the reverse order of removal.

Temperature range	NGK
Standard type	DILKAR6A-11
Gap (nominal)	1.1 mm (0.043 in)

## EVAP VAPOR LINES

### EVAP VAPOR LINES : Inspection

INFOID:000000001503775

1. Visually inspect EVAP vapor lines for improper attachment and for cracks, damage, loose connections, chafing and deterioration.
2. Inspect fuel tank filler cap vacuum relief valve for clogging, sticking, etc.

# CHASSIS AND BODY MAINTENANCE

< ON-VEHICLE MAINTENANCE >

## CHASSIS AND BODY MAINTENANCE

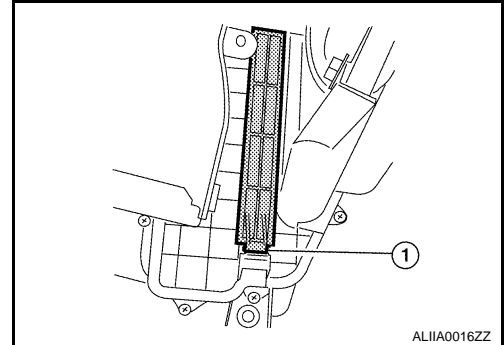
### IN-CABIN MICROFILTER

#### IN-CABIN MICROFILTER : Removal and Installation

INFOID:000000001503776

##### REMOVAL

1. Remove the glove box assembly. Refer to [IP-11. "Removal and Installation"](#).
2. Remove the console side finisher (RH). Refer to [IP-11. "Removal and Installation"](#).
3. Disengage the filter cover tab (1) to remove the filter cover.
4. Remove the in-cabin microfilter from the blower unit by using the pull tab on the bottom of the filter.



##### INSTALLATION

Installation is in the reverse order of removal.

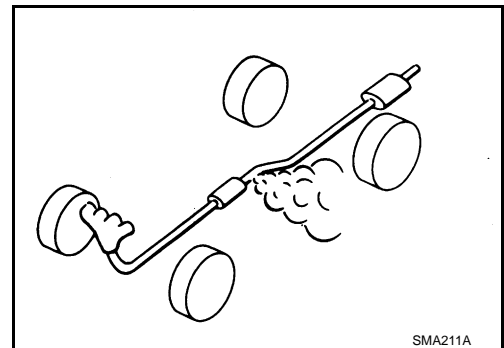
### EXHAUST SYSTEM

#### EXHAUST SYSTEM : Inspection

INFOID:000000001503777

Check exhaust pipes, muffler and mounting for improper attachment, leaks, cracks, damage, chafing or deterioration.

- If anything is found, repair or replace damaged parts.



### CVT FLUID

#### CVT FLUID : Lubrication Mechanism

INFOID:000000001503778

- This transaxle is lubricated by a trochoid type oil pump placed on the main shaft.
- Furthermore, it uses a final gear with an oil sling type lubrication mechanism. This construction minimizes the drive torque of the oil pump, which reduces the drive loss.

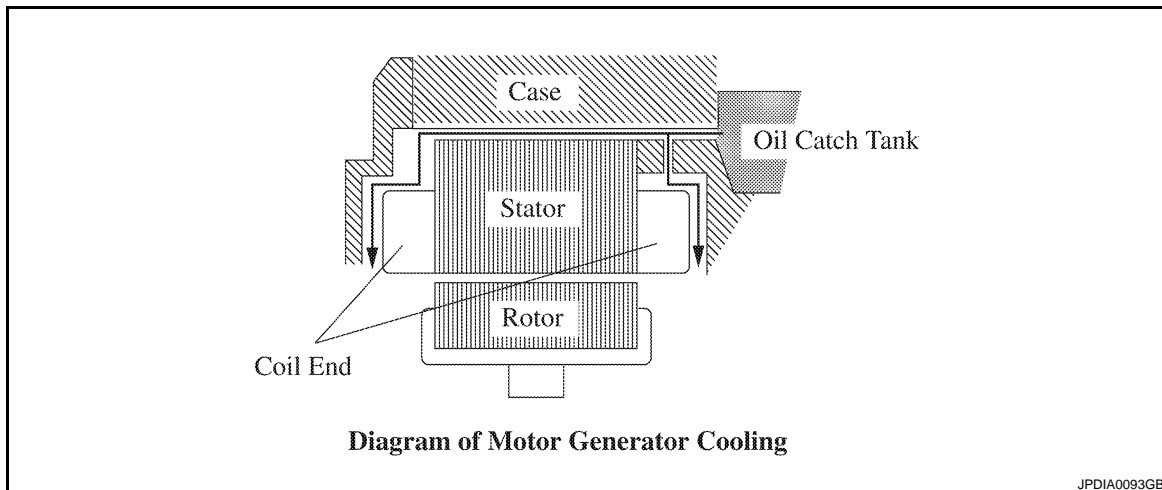
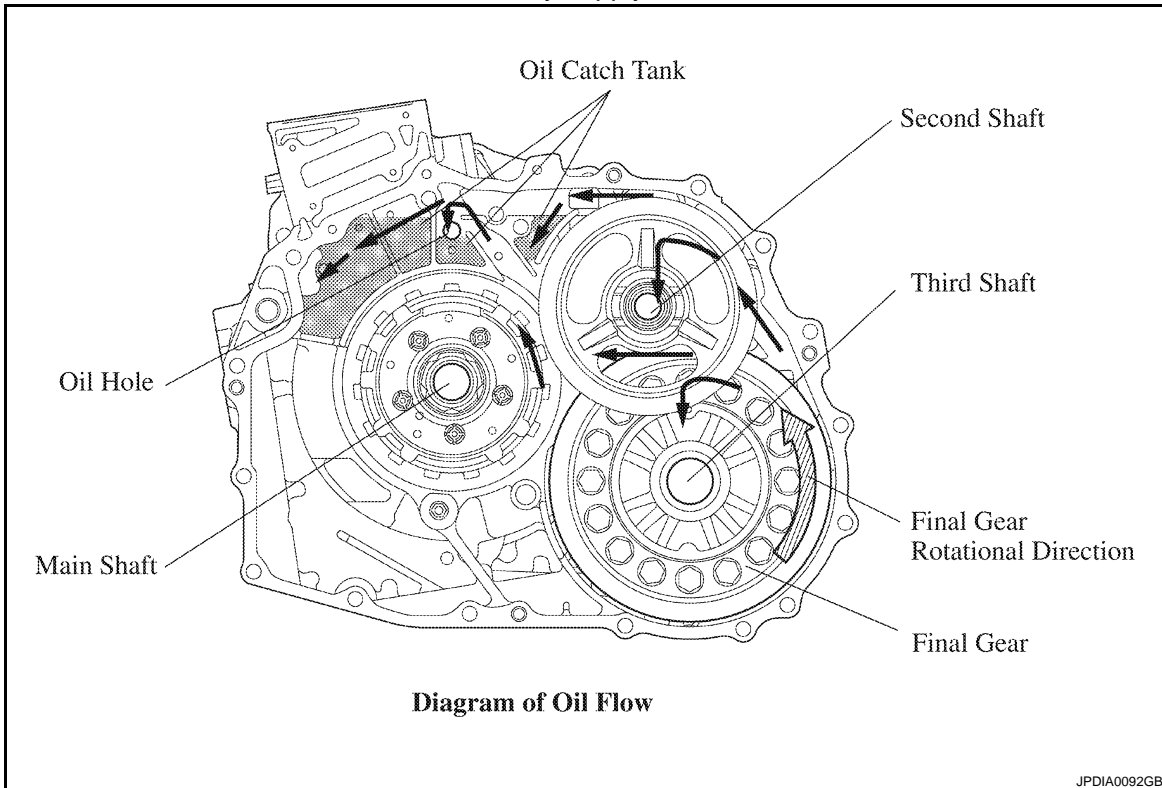
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# CHASSIS AND BODY MAINTENANCE

## < ON-VEHICLE MAINTENANCE >

- An oil catch tank is used in this transaxle in order to supply oil in a stable manner. The oil catch tank temporarily stores the oil that is slung up, and supplies oil to each gear train from there. Furthermore, oil holes are provided in the oil catch tanks in order to efficiently supply oil to MG1 and MG2.



## WHEELS

### WHEELS : Inspection

INFOID:000000001503779

#### ALUMINUM WHEEL

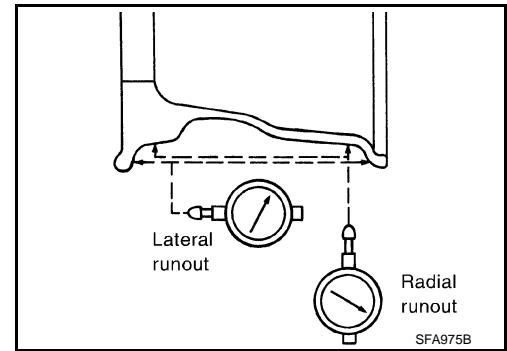
1. Check tires for wear and improper inflation.
2. Check wheels for deformation, cracks and other damage. If deformed, remove wheel and check wheel runout.
  - a. Remove tire from aluminum wheel and mount on a tire balance machine.

# CHASSIS AND BODY MAINTENANCE

## < ON-VEHICLE MAINTENANCE >

b. Set dial indicator as shown in the figure.

**Wheel runout (Dial indicator value):**  
Refer to [WT-38](#).

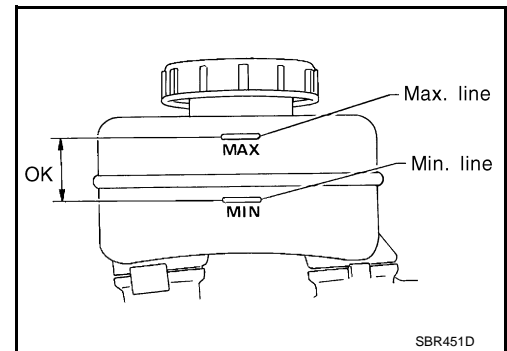


## BRAKE FLUID LEVEL AND LEAKS

### BRAKE FLUID LEVEL AND LEAKS : Inspection

- If fluid level is extremely low, check brake system for leaks.

INFOID:000000001503780

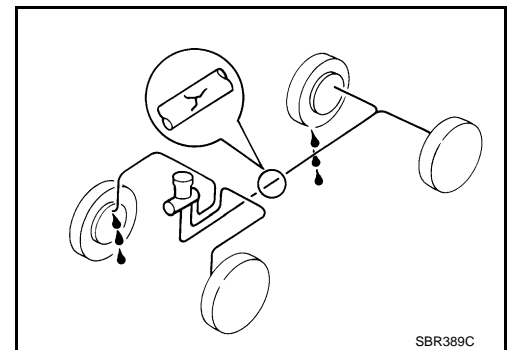


## BRAKE LINES AND CABLES

### BRAKE LINES AND CABLES : Inspection

- Check brake fluid lines and parking brake cables for improper attachment, leaks, chafing, abrasions, deterioration, etc.

INFOID:000000001503781



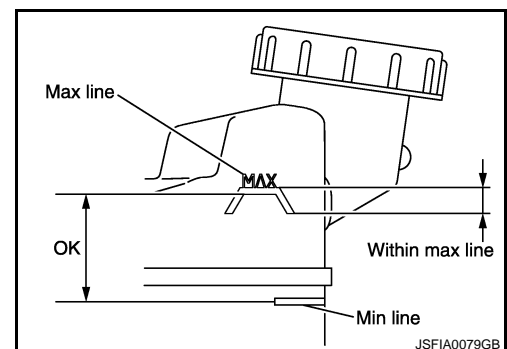
## BRAKE FLUID

### BRAKE FLUID : Inspection

#### BRAKE FLUID LEVEL

- Make sure that a brake fluid level in reservoir tank is within the standard (between MAX and MIN lines).
- Visually check around reservoir tank for fluid leakage.
- If the level is excessively low, check brake system for leakage.
- Release parking brake and see if brake warning lamp goes off. If not, check brake system for fluid leakage.

INFOID:000000001503782



## BRAKE LINE

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MA

# CHASSIS AND BODY MAINTENANCE

## < ON-VEHICLE MAINTENANCE >

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### **CAUTION:**

If leakage occurs around joints, retighten or, if necessary, replace damaged parts.

Check brake line (tubes and hoses) for cracks, deterioration or other damage. Replace any damaged parts.

### BRAKE FLUID : Refilling

INFOID:000000001503783

#### REFILLING

### **CAUTION:**

- Refill with new brake fluid “DOT 3”.
- Never reuse drained brake fluid.

Make sure there is no foreign material in the reservoir tank, and refill with new brake fluid.

### BRAKE FLUID : Bleeding Brake System

INFOID:000000001503784

### **CAUTION:**

- If any DTC is indicated, erase the indicated DTC.
- After the procedure of air bleed, perform initialization of linear solenoid valve. Refer to [BRC-7, "PERFORM INITIALIZATION OF LINEAR SOLENOID VALVE AND CALIBRATION : Description"](#).

### **NOTE:**

The brake warning buzzer may be activated during the air bleed procedure. The work can be continued, as it is normal.

#### AIR RELEASE OF STATIC PRESSURE SYSTEM (FRONT WHEEL)

### **CAUTION:**

- Monitor the fluid level in the reservoir tank during the air bleeding.
- Always use new brake fluid for refilling. Never reuse the drained brake fluid.

1. Turn ignition switch OFF.
2. Connect CONSULT-III.
3. Turn ignition switch (READY).
4. When performing air bleed of the static pressure system and suction drain system, remove 2 relays for brake actuator motor beforehand.
5. Connect a vinyl tube to the bleeder valve of the front brake.
6. When performing air bleed, following conditions are required.
  - ABS relay No.1 and No.2: ON
  - Parking brake: ON
  - Shift position: P range
  - Vehicle speed: 0 km/h (0 MPH)
  - Normal power supply voltage
  - Normal communication with HV
  - No failure of brake system (except following items)
    - Motor relay
    - Accumulator
    - Fluid level switch
    - Calibration for each sensors and linear solenoid
    - Test mode diag code
7. Select “AIR REL INHIBIT” in “ACTIVE TEST”.
8. Loosen the bleeder valve and bleed air with the brake pedal depressed.

### **NOTE:**

Air bleeding is allowed to start from either right or left.

9. After a complete air bleeding, tighten bleeder valve to the specified torque.
10. Check that the fluid level in the reservoir tank is within the specified range after air bleeding.

#### AIR RELEASE OF SUCTION DRAIN SYSTEM

### **CAUTION:**

- Monitor the fluid level in the reservoir tank during the air bleeding.
- Perform the air bleed procedure within 30 seconds after the transmission of the signal from CONSULT-III. When the air bleed is performed afterward, the re-transmission of the signal from CONSULT-III is needed.

### **NOTE:**



# CHASSIS AND BODY MAINTENANCE

## < ON-VEHICLE MAINTENANCE >

Air bleed from the bleeder valve is not necessary since this operation is to return brake fluid (air).

1. Turn ignition switch OFF. A
2. Connect CONSULT-III.
3. Turn ignition switch (READY).
4. When performing air bleed, following conditions are required. B
  - ABS relay No.1 and No.2: ON
  - Parking brake: ON
  - Shift position: P range C
  - Vehicle speed: 0 km/h (0 MPH)
  - Normal power supply voltage
  - Normal communication with HV D
  - No failure of brake system (except following items)
    - Motor relay E
    - Accumulator
    - Fluid level switch
    - Calibration for each sensors and linear solenoid
    - Test mode diag code
5. Select "AIR REL DRAIN" in "ACTIVE TEST". F
6. Step on the brake pedal and return brake fluid to reservoir tank.
7. Ensure that no air (bubble) is contained in the brake fluid circulated from reservoir tank. G

### AIR RELEASE OF REAR WHEEL SYSTEM

#### **CAUTION:**

- **Monitor the fluid level in the reservoir tank during the air bleeding.**
- **Always use new brake fluid for refilling. Never reuse the drained brake fluid.** H

1. Turn ignition switch OFF.
2. Connect 2 motor relays.
3. Connect CONSULT-III.
4. Turn ignition switch (READY). I
  - NOTE:**
  - If CONSULT-III is freezed, erase the DTC. J
5. Confirm accumulator pressure level by using "DATA MONITOR" in CONSULT-III.
- a. Select "ACC PRESS SEN" in "DATA MONITOR". K
- b. Ensure that this voltage is over 3.42 V.
- c. If voltage is under 3.42 V, then step on the brake pedal several time.
6. When performing air bleed, following conditions must be met. L
  - ABS relay No.1 and No.2: ON
  - Parking brake: ON
  - Shift position: P range
  - Vehicle speed: 0 km/h (0 MPH) M
  - Normal power supply voltage
  - Normal communication with HV
  - ABS motor relay No.1 and No.2 are set
  - No failure of brake system (except following items)
    - Motor relay N
    - Accumulator
    - Fluid level switch O
    - Calibration for each sensors and linear solenoid
    - Test mode diag code
7. Connect a vinyl tube to the bleeder valve of the rear brake. MA
8. Select "AIR REL INHIBIT" in "ACTIVE TEST".
9. Loosen the bleeder valve and bleed air with the brake pedal depressed.
10. Ensure that there is no air leakage from the bleeder.
11. After a complete air bleeding, tighten bleeder valve to the specified torque.
12. Check that the fluid level in the reservoir tank is within the specified range after air bleeding.

# CHASSIS AND BODY MAINTENANCE

## < ON-VEHICLE MAINTENANCE >

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### AIR RELEASE OF POWER SUPPLY SYSTEM

#### **CAUTION:**

- Monitor the fluid level in the reservoir tank during the air bleeding.
- Always use new brake fluid for refilling. Never reuse the drained brake fluid.
- Perform the air bleed procedure within 10 seconds after the transmission of the signal from CONSULT-III. When the air bleed is performed afterward, the re-transmission of the signal from CONSULT-III is needed.

#### **NOTE:**

- No need to step on the brake pedal.
  - Air bleeding is necessary for the front left brake only.
1. Turn ignition switch OFF.
  2. Connect CONSULT-III.
  3. Turn ignition switch (READY).
  4. Connect a vinyl tube to the bleeder valve of the front left brake.
  5. When performing air bleed, following conditions must be met.
    - ABS relay No.1 and No.2: ON
    - Parking brake: ON
    - Shift position: P range
    - Vehicle speed: 0 km/h (0 MPH)
    - Normal power supply voltage
    - Normal communication with HV
    - ABS motor relay No.1 and No.2 are set
    - No failure of brake system (except following items)
      - Motor relay
      - Accumulator
      - Fluid level switch
      - Calibration for each sensors and linear solenoid
      - Test mode diag code
  6. Select "AIR REL PWR SPLY 2" in "ACTIVE TEST".
  7. Loosen the bleeder valve.
  8. Ensure that there is no air leakage from the bleeder.
  9. After a complete air bleeding, tighten bleeder valve to the specified torque.

### AIR RELEASE OF STROKE SIMULATOR SYSTEM

#### Air Bleed of Stroke Simulator System 1

#### **CAUTION:**

**Perform the air bleed procedure within 30 seconds after the transmission of the signal from CONSULT-III. When the air bleed is performed afterward, the re-transmission of the signal from CONSULT-III is needed.**

#### **NOTE:**

- Air bleed from the bleeder is not necessary in this stage.
  - This process is performed to send air contained in the stroke simulator to piping. Pedal operation only and no need of air bleed from the bleeder.
1. Turn ignition switch OFF.
  2. Connect CONSULT-III.
  3. Turn ignition switch (READY).
  4. When performing air bleed, following conditions must be met.
    - ABS relay No.1 and No.2: ON
    - Parking brake: ON
    - Shift position: P range
    - Vehicle speed: 0 km/h (0 MPH)
    - Normal power supply voltage
    - Normal communication with HV
    - ABS motor relay No.1 and No.2 are set
    - No failure of brake system (except following items)
      - Motor relay
      - Accumulator

# CHASSIS AND BODY MAINTENANCE

## < ON-VEHICLE MAINTENANCE >

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- Fluid level switch
- Calibration for each sensors and linear solenoid
- Test mode diag code

5. Select "AIR REL STROKE SIM" in "ACTIVE TEST".
6. Step on the brake pedal 20 times with its stroke fully within continuously 20 to 30 seconds.

### Air Release of Stroke Simulator System 2

#### **NOTE:**

Air bleeding is necessary for the front left brake only.

1. Connect a vinyl tube to the bleeder valve of the front left brake.
2. When performing air bleed, following conditions must be met.
  - ABS relay No.1 and No.2: ON
  - Parking brake: ON
  - Shift position: P range
  - Vehicle speed: 0 km/h (0 MPH)
  - Normal power supply voltage
  - Normal communication with HV
  - ABS motor relay No.1 and No.2 are set
  - No failure of brake system (except following items)
    - Motor relay
    - Accumulator
    - Fluid level switch
    - Calibration for each sensors and linear solenoid
    - Test mode diag code
3. Select "AIR REL INHIBIT" in "ACTIVE TEST".
4. Loosen the bleeder valve and bleed air with the brake pedal depressed.
5. Ensure that there is no air from the bleeder.
6. Tighten the bleeder valve to the specified torque.
7. Return to previous step "Air Release of Stroke Simulator System 1". Repeat "Air Release of Stroke Simulator System 1" and "Air Release of Stroke Simulator System 2" at least 3 times.

### AIR RELEASE OF HIGH-PRESSURE LINE

#### **CAUTION:**

**Be careful with fluid level in the reservoir tank because a large amount of brake fluid flows back to the reservoir tank.**

#### **NOTE:**

Air bleed from the bleeder is not necessary in this stage.

1. Turn ignition switch OFF.
2. Connect CONSULT-III.
3. Turn ignition switch (READY).
4. When performing air bleed, following conditions must be met.
  - ABS relay No.1 and No.2: ON
  - Parking brake: ON
  - Shift position: P range
  - Vehicle speed: 0 km/h (0 MPH)
  - Normal power supply voltage
  - Normal communication with HV
  - ABS motor relay No.1 and No.2 are set
  - No failure of brake system (except following items)
    - Motor relay
    - Accumulator
    - Fluid level switch
    - Calibration for each sensors and linear solenoid
    - Test mode diag code
5. Select "ACC 0 DOWN" in "ACTIVE TEST".

#### **NOTE:**

Return air remaining in the high-pressure line to reservoir tank and open atmosphere.

6. Repeat 5 times to ensure the circulation of brake fluid since visual judgment of completion is difficult.

# CHASSIS AND BODY MAINTENANCE

## < ON-VEHICLE MAINTENANCE >

7. Fill the brake fluid to the MAX line after completing this operation, with "ACC 0 DOWN" condition.

### DISC BRAKE

#### DISC BRAKE : Front Brake Pad

INFOID:000000001503785

#### DISC BRAKE : Inspection

INFOID:000000001503786

#### PAD WEAR

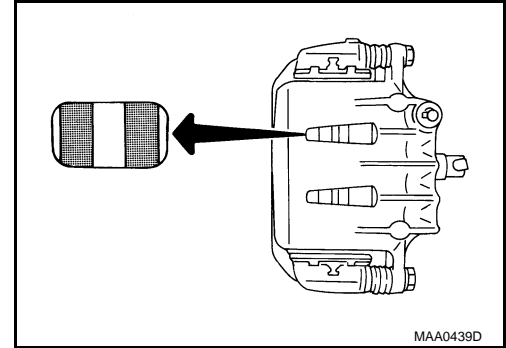
Check pad thickness from an inspection hole on cylinder body.  
Check using a scale if necessary.

#### Standard

**Standard thickness** : Refer to [BR-37, "Front Disc Brake"](#)

#### Limit

**Wear limit thickness** : Refer to [BR-37, "Front Disc Brake"](#)



#### DISC BRAKE : Front Brake Rotor

INFOID:000000001503787

#### DISC BRAKE : Inspection

INFOID:000000001503788

#### VISUAL

Check surface of disc rotor for uneven wear, cracks, and serious damage. Replace if there are.

#### RUNOUT

1. Fix disc rotor to wheel hub using wheel nuts (2 or more positions).
2. Inspect runout using a dial gauge. [Measured at 10 mm (0.39 in) inside the disc edge.]

**Runout limit** : **0.035 mm (0.0014 in)**  
**(with it attached to the vehicle)**

#### NOTE:

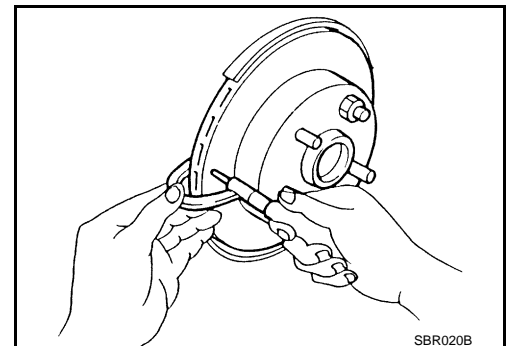
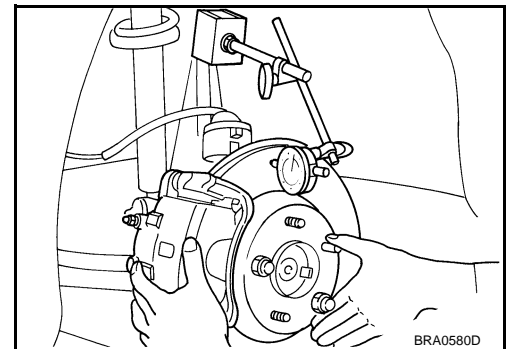
Before measuring, make sure that wheel bearing axial end play is within the specification. Refer to [FAX-24, "Wheel Bearing"](#).

3. When runout exceeds limit value, displace mounting positions of disc rotor by one hole. And then find a position of the minimum value for runout.
4. Replace or lathe disc rotor if runout is outside the specified value after performing the above operation.

#### THICKNESS

Check thickness of the disc rotor using a micrometer. Replace disc rotor if thickness is under the wear limit.

**Standard thickness** : **26.0 mm (1.024 in)**  
**Wear limit** : **24.0 mm (0.945 in)**  
**Thickness variation** : **0.015 mm (0.0006 in)**  
**(Measured at 8 positions)**



# CHASSIS AND BODY MAINTENANCE

< ON-VEHICLE MAINTENANCE >

## DISC BRAKE : Rear Brake Pad

INFOID:000000001503789

## DISC BRAKE : Inspection

INFOID:000000001503790

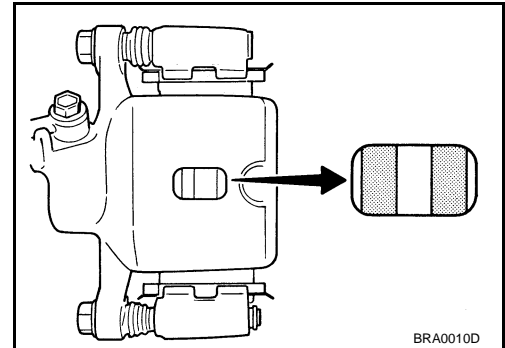
### PAD WEAR

- Check pad thickness from an inspection hole on cylinder body. Check using a scale if necessary.

#### Standard

**Standard thickness : 8.5 mm (0.335 in)**

**Repair limit thickness : 1.0 mm (0.039 in)**



## DISC BRAKE : Rear Brake Rotor

INFOID:000000001503791

## DISC BRAKE : Inspection

INFOID:000000001503792

### VISUAL

Check surface of disc rotor for uneven wear, cracks, and serious damage. Replace if there are.

### RUNOUT

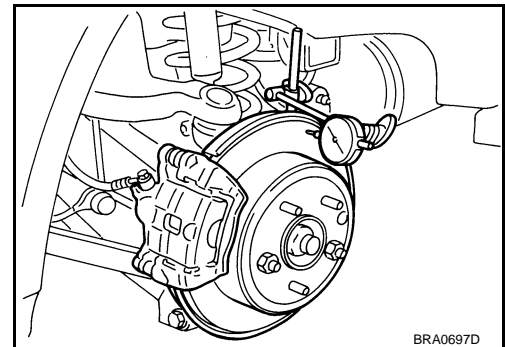
1. Fix disc rotor to wheel hub using wheel nuts (2 or more positions).
2. Inspect runout using dial gauge. [Measured at 10 mm (0.39 in) inside disc edge.]

**Runout limit : 0.05 mm (0.002 in)**  
**(With it attached to the vehicle)**

#### NOTE:

Before measuring, make sure that wheel bearing axial end play is within the specification. Refer to [RAX-8, "Wheel Bearing \(Rear\)"](#).

3. When runout exceeds limit value, displace mounting positions of disc rotor by one hole. And then find a position of the minimum value for runout.
4. Replace disc rotor if it is outside repair limit after performing the above operation.



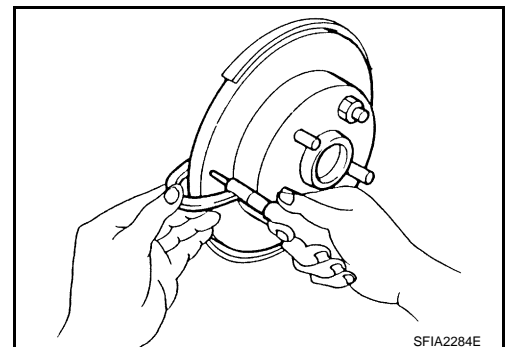
### THICKNESS

Check the thickness of the disc rotor using a micrometer. Replace disc rotor if the thickness is under the wear limit.

**Standard thickness : 9.0 mm (0.354 in)**

**Wear limit : 8.0 mm (0.315 in)**

**Thickness variation : 0.015 mm (0.0006 in)**  
**(Measured at 8 positions)**



## STEERING GEAR AND LINKAGE

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# CHASSIS AND BODY MAINTENANCE

< ON-VEHICLE MAINTENANCE >

## STEERING GEAR AND LINKAGE : Inspection

INFOID:000000001503793

### INSPECTION AFTER DISASSEMBLY

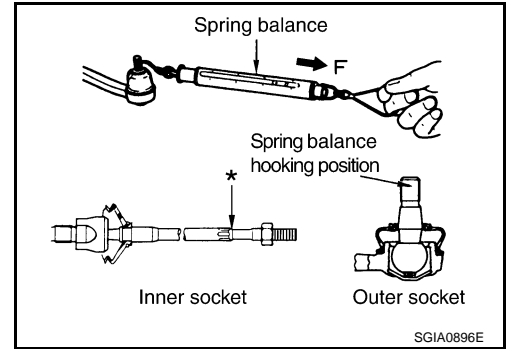
Boot

Check boot for cracks. Replace if there are.

Outer Socket and Inner Socket

#### 1. Ball joint swinging torque

- Hook a spring balance at the point shown in the figure and pull the spring balance. Make sure that the spring balance reads the specified value when ball stud and inner socket start to move. Replace outer socket and steering gear assembly if they are outside the standard.



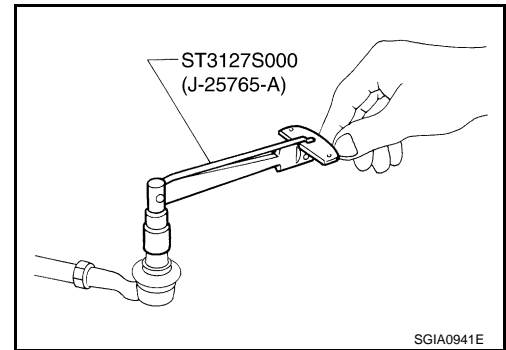
Items	Outer socket	Inner socket
Measuring point of spring balance	Stud cotter pin mounting hole	Measuring point at * mark shown in the figure
Swinging torque	0.1 - 2.9 N·m (0.01 - 0.29 kg·m, 1.0 - 25 in·lb)	0.1 - 7.8 N·m (0.01 - 0.79 kg·m, 1.0 - 69 in·lb)
Spring balance measurement	1.4 - 42.7 N (0.14 - 4.4 kg, 12 - 31 lb)	0.8 - 64 N (0.082 - 6.5 kg, 0.18 - 14.4 lb)

#### 2. Ball joint rotating torque

- Make sure that the reading is within the following specified range using Tool. Replace outer socket if the reading is outside the specified value.

Tool number : ST3127S000 (J-25765-A)

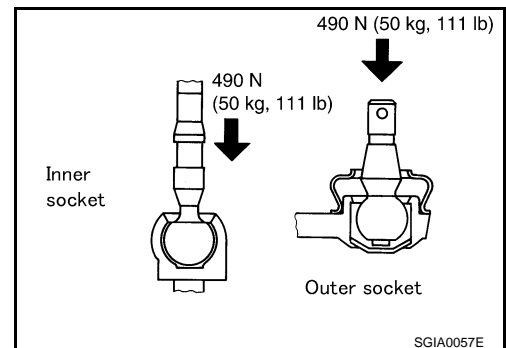
Outer socket rotating torque	0.3 - 2.9 N·m (0.03 - 0.29 kg·m, 3.0 - 25 in·lb)
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#### 3. Ball joint axial end play

- Apply an axial load of 490 N (50 kg-f, 111 lb-f) to ball stud using a dial gauge. Measure amount of stud movement, and then make sure that the value is within the following specified range. Replace outer socket and inner socket if the measured value is outside the standard.

Outer socket	0.5 mm (0.020 in) or less
Inner socket	0.2 mm (0.008 in) or less



# CHASSIS AND BODY MAINTENANCE

< ON-VEHICLE MAINTENANCE >

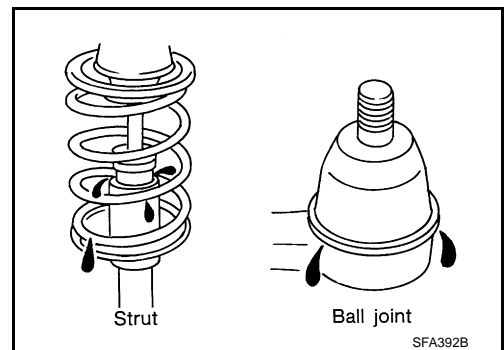
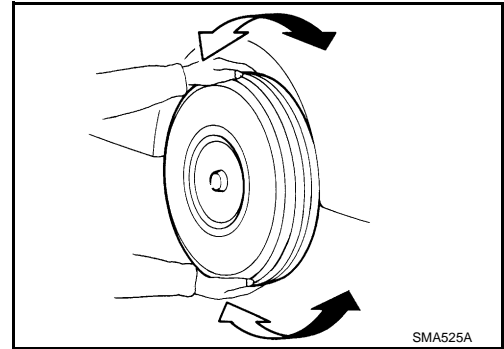
## AXLE AND SUSPENSION PARTS

### AXLE AND SUSPENSION PARTS : Inspection

INFOID:000000001503794

Check front and rear axle and suspension parts for excessive play, cracks, wear or other damage.

- Shake each wheel to check for excessive play.
- Check wheel bearings for smooth operation.
- Check axle and suspension nuts and bolts for looseness.
- Check strut (shock absorber) for oil leakage or other damage.
- Check suspension ball joint for grease leakage and ball joint dust cover for cracks or other damage.

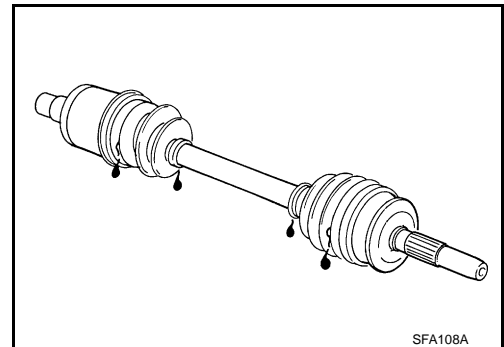


## DRIVE SHAFT

### DRIVE SHAFT : Inspection

INFOID:000000001503795

Check boot and drive shaft for cracks, wear, damage and grease leakage.



## LOCKS, HINGES AND HOOD LATCH

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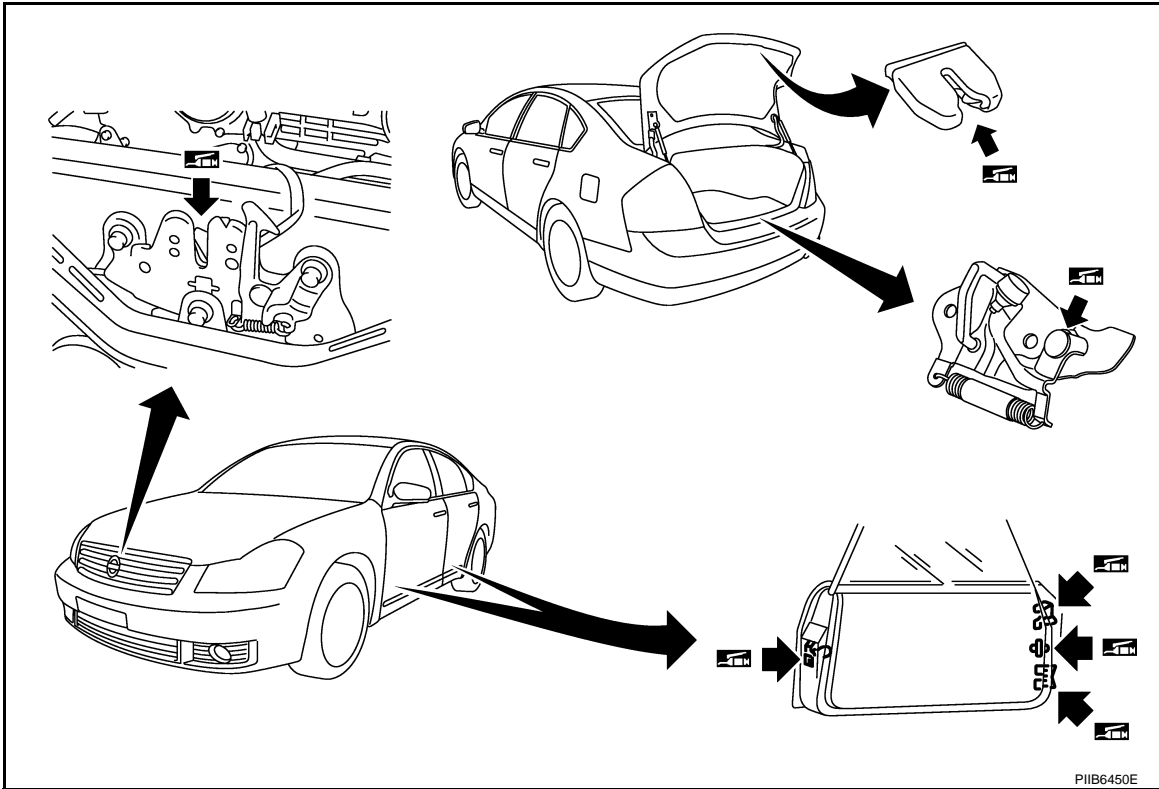
MA

## CHASSIS AND BODY MAINTENANCE

< ON-VEHICLE MAINTENANCE >

### LOCKS, HINGES AND HOOD LATCH : Lubricating

INFOID:000000001503796



### SEAT BELT, BUCKLES, RETRACTORS, ANCHORS AND ADJUSTERS

### SEAT BELT, BUCKLES, RETRACTORS, ANCHORS AND ADJUSTERS : Inspection

INFOID:000000001503797

#### CAUTION:

- After any collision, inspect all seat belt assemblies, including retractors and other attached hardware (i.e. anchor bolt, guide rail set). Nissan recommends to replace all seat belt assemblies in use during a collision, unless not damaged and properly operating after minor collision. Also inspect seat belt assemblies not in use during a collision, and replace if damaged or improperly operating.

Seat belt pre-tensioner should be replaced even if the seat belts are not in use during a frontal collision where the driver and passenger air bags are deployed.

- If any component of seat belt assembly is questionable, do not repair.

Replace as seat belt assembly.

- If webbing is cut, frayed, or damaged, replace belt assembly.
- Never oil tongue and buckle.
- Use a genuine NISSAN seat belt assembly.

For details, refer to [SB-3. "Inspection"](#) in SB section.

- Check anchors for loose mounting
- Check belts for damage
- Check retractor for smooth operation
- Check function of buckles and tongues when buckled and released