

# SECTION MA

## MAINTENANCE

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# PREPARATION

< PREPARATION >

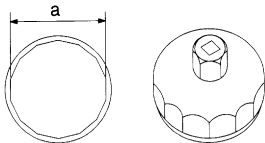
## PREPARATION

### PREPARATION

#### Special Service Tool

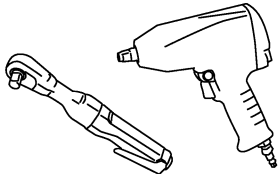
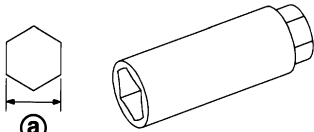
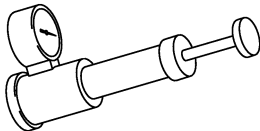
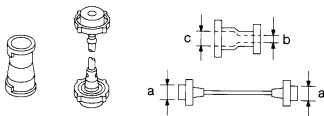
INFOID:0000000012354311

The actual shapes of TechMate tools may differ from those of special service tools illustrated here.

Tool number (TechMate No.) Tool name	Description
KV10115801 (J-38956) Oil filter wrench	Removing and installing oil filter <b>a: 64.3 mm (2.531 in)</b>
 <p style="text-align: center;">S-NT375</p>	

#### Commercial Service Tool

INFOID:0000000012354312

Tool name	Description
Power tool	Loosening nuts and bolts
 <p style="text-align: center;">PBIC0190E</p>	
Spark plug wrench	Removing and installing spark plug <b>a : 14 mm (0.55 in)</b>
 <p style="text-align: center;">JPBA0399ZZ</p>	
Radiator cap tester	Checking radiator and radiator cap (reservoir tank cap)
 <p style="text-align: center;">PBIC1982E</p>	
Radiator cap tester adapter	Adapting radiator cap tester to radiator cap (reservoir tank cap) and water inlet filler neck <b>a: 28 (1.10) dia.</b> <b>b: 31.4 (1.236) dia.</b> <b>c: 41.3 (1.626) dia.</b> Unit: mm (in)
 <p style="text-align: center;">S-NT564</p>	

# GENERAL MAINTENANCE

< PERIODIC MAINTENANCE >

## PERIODIC MAINTENANCE

### GENERAL MAINTENANCE FOR NORTH AMERICA

#### FOR NORTH AMERICA : Explanation of General Maintenance

INFOID:000000012354313

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 **INFINITI** retailer 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 often and always prior to long distance trips. Adjust the pressure in all tires, including the spare, to the pressure specified. Check carefully for damage, cuts or excessive wear.	<a href="#">WT-70</a>
<b>Wheel nuts</b>	When checking the tires, make sure no nuts are missing, and check for any loose nuts. Tighten if necessary.	—
<b>Tire rotation</b>	Tires should be rotated every 5,000 miles (8,000 km). If the vehicle is equipped with different sized tires in the front and rear, tires cannot be rotated.	<a href="#">MA-47</a>
<b>Tire Pressure Monitoring System (TPMS) transmitter components</b>	Replace the TPMS transmitter grommet seal, valve core and cap when the tires are replaced due to wear or age.	<a href="#">WT-67</a>
<b>Wheel alignment and balance</b>	If the vehicle should pull 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. For additional information regarding tires, refer to "Important Tire Safety Information" (US) or "Tire Safety Information" (Canada) in the INFINITI Warranty Information Booklet.	<a href="#">FSU-8</a> (2WD) <a href="#">FSU-28</a> (AWD) <a href="#">RSU-6</a> <a href="#">MA-47</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>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 properly. 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-54</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. 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>	—

## GENERAL MAINTENANCE

### < PERIODIC MAINTENANCE >

Item		Reference page
<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.	—
<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-54</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>Brakes</b>	Check that the brake does not pull the vehicle to one side when applied.	—
<b>Brake pedal and booster</b>	Check the pedal for smooth operation and make sure it has the proper distance under it when depressed fully. Check the brake booster function. Be sure to keep the floor mats away from the pedal.	<a href="#">BR-10</a> <a href="#">BR-16</a>
<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-4</a>
<b>Automatic transmission “Park” mechanism</b>	Check that the lock release button on the selector lever operates properly and smoothly. 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.	—
<b>Engine coolant level</b>	Check the coolant level when the engine is cold.	<a href="#">CO-10</a> (VQ37) <a href="#">CO-39</a> (VK56)
<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.	<a href="#">MA-25</a> (VQ37) <a href="#">MA-36</a> (VK56)
<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-49</a>
<b>Battery</b>	Check the fluid level in each cell. It should be between the “MAX” and “MIN” lines. Vehicles operated in high temperatures or under severe conditions require frequent checks of the battery fluid level.	<a href="#">PG-157</a>
<b>Engine drive belts</b>	Make sure that no belt is frayed, worn, cracked or oily.	<a href="#">MA-20</a> (VQ37) <a href="#">MA-31</a> (VK56)
<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="#">LU-9</a> (VQ37) <a href="#">LU-33</a> (VK56)
<b>Power steering fluid level and lines</b>	Check the level when the fluid is cold, with the engine off. Check the lines for proper attachment, leaks, cracks, etc.	<a href="#">MA-52</a>
<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-41</a>
<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 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.	—
<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.	—

### FOR MEXICO

# GENERAL MAINTENANCE

< PERIODIC MAINTENANCE >

## FOR MEXICO : General Maintenance

INFOID:000000012354314

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 the checks and inspections themselves or they can have their **INFINITI** 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>Doors and hood</b>	Check that all doors and the hood operate smoothly as well as the back door, trunk lid and hatch. 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-54</a>
<b>Lamps</b>	Clean the headlamps on a regular basis. Make sure that the headlamps, stop lamps, tail lamps, turn signal lamps, and other lamps are all operating properly and installed securely. Also check the aim of the headlamps.	—
<b>Tires</b>	Check the pressure with a gauge often and always prior to long distance trips. Adjust the pressure in all tires, including the spare, to the pressure specified. Check carefully for damage, cuts or excessive wear.	<a href="#">WT-70</a>
<b>Tire rotation</b>	In the case that Two-Wheel Drive (2WD) and front and rear tires are same size; tires should be rotated every 10,000 km (6,000 miles). Tires marked with directional indicators can only be rotated between front and rear. Make sure that the directional indicators point in the direction of wheel rotation after the tire rotation is completed. In the case that Four-Wheel Drive and All Wheel Drive (4WD/AWD) and front and rear tires are same size; tires should be rotated every 5,000 km (3,000 miles). Tires marked with directional indicators can only be rotated between front and rear. Make sure that the directional indicators point in the direction of wheel rotation after the tire rotation is completed. In the case that front tires are different size from rear tires; tires cannot be rotated. The timing for tire rotation may vary according to your driving habits and the road surface conditions.	<a href="#">MA-47</a>
<b>Tire Pressure Monitoring System (TPMS) transmitter components (if so equipped)</b>	Replace the TPMS transmitter grommet seal, valve core and cap when the tires are replaced due to wear or age.	<a href="#">WT-67</a>
<b>Wheel alignment and balance</b>	If the vehicle should pull 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-8</a> <a href="#">RSU-6</a> <a href="#">MA-47</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>Wiper blades</b>	Check for cracks or wear if not functioning correctly. Replace as necessary.	—

### 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>Accelerator pedal</b>	Check the pedal for smooth operation and make sure that the pedal does not catch or require uneven effort. Keep the floor mats away from the pedal.	—
<b>Brake pedal</b>	Check the pedal for smooth operation and make sure that it is the proper distance from the floor mat when depressed fully. Check the brake booster function. Be sure to keep the floor mats away from the pedal.	<a href="#">BR-10</a>
<b>Parking brake</b>	Check the parking brake operation regularly. Check that the lever (if so equipped) or the pedal (if so equipped) has the proper travel. Also make sure that the vehicle is held securely on a fairly steep hill when only the parking brake is applied.	<a href="#">PB-4</a>
<b>Seat belts</b>	Check that all parts of the seat belt system (for example, 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-54</a>

## GENERAL MAINTENANCE

### < PERIODIC MAINTENANCE >

Item		Reference page
<b>Steering wheel</b>	Check for changes in the steering condition, such as excessive play, hard steering or strange noises. Check that it has the specified play. <b>Free play: Less than 35 mm (1.38 in)</b>	—
<b>Warning lamps and chimes</b>	Make sure that all warning lamps and chimes are operating properly.	—
<b>Windshield defogger</b>	Check that the air comes out of the defogger outlets properly and in good quantity when operating the heater or air conditioner.	—
<b>Windshield wiper and washer</b>	Check that the wipers and washer operate properly and that the wipers do not streak.	—

### UNDER THE HOOD AND VEHICLE

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

Item		Reference page
<b>Battery (except for maintenance free batteries)</b>	Check the fluid level in each cell. It should be between the UPPER and LOWER lines. Vehicles operated in high temperatures or under severe conditions require frequent checks of the battery fluid level.	<a href="#">PG-157</a>
<b>Brake (and clutch) fluid level(s)</b>	For Manual Transmission (MT) model; make sure that the brake and clutch fluid levels are between the MAX and MIN lines on the reservoirs. Except for Manual Transmission (MT) model; make sure that the brake fluid level is between the MAX and MIN lines on the reservoir.	<a href="#">MA-49</a>
<b>Engine coolant level</b>	Check the coolant level when the engine is cold. Make sure that the coolant level is between the MAX and MIN lines on the reservoir.	<a href="#">CO-10</a> (VQ37) <a href="#">CO-39</a> (VK56)
<b>Engine drive belt(s)</b>	Make sure that drive belt(s) is not frayed, worn, cracked or oily.	<a href="#">MA-20</a> (VQ37) <a href="#">MA-31</a> (VK56)
<b>Engine oil level</b>	Check the level after parking the vehicle (on a level ground) and turning off the engine.	<a href="#">LU-9</a> (VQ37) <a href="#">LU-33</a> (VK56)
<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 if fuel fumes are evident, check for cause and have it corrected immediately.	—
<b>Power steering fluid level and lines</b>	Check the level when the fluid is cold with the engine off. Check the lines for proper attachment, leaks, cracks, etc.	<a href="#">MA-52</a>
<b>Windshield washer fluid</b>	Check that there is adequate fluid in the reservoir.	—



# PERIODIC MAINTENANCE

< PERIODIC MAINTENANCE >

## PERIODIC MAINTENANCE FOR NORTH AMERICA

### FOR NORTH AMERICA : Introduction of Periodic Maintenance

INFOID:0000000012354315

The following tables show the normal maintenance schedule. Depending upon weather and atmospheric conditions, varying road surfaces, individual driving habits and vehicle usage, additional or more frequent maintenance may be required.

**Periodic maintenance beyond the last period shown on the tables requires similar maintenance.**

#### Emission Control System Maintenance

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

MAINTENANCE OPERATION		MAINTENANCE INTERVAL								
Perform at number of miles, kilometers or months, whichever comes first.	Miles x 1,000 (km x 1,000)	5	10	15	20	25	30	35	40	45
	Months	(8)	(16)	(24)	(32)	(40)	(48)	(56)	(64)	(72)
		6	12	18	24	30	36	42	48	54
Drive belt	NOTE (1)								I*	
Air cleaner filter	NOTE (2)						R			
EVAP vapor lines					I*				I*	
Fuel lines					I*				I*	
Fuel filter	NOTE (3)									
Engine coolant*	NOTE (4)(5)									
Engine oil		R	R	R	R	R	R	R	R	R
Engine oil filter (Use genuine NISSAN engine oil filter or equivalent)		R	R	R	R	R	R	R	R	R
Spark plugs (Iridium-tipped type)		Replace every 105,000 miles (168,000 km)								
Intake and exhaust valve clearance*	NOTE (6)									

MAINTENANCE OPERATION		MAINTENANCE INTERVAL								
Perform at number of miles, kilometers or months, whichever comes first.	Miles x 1,000 (km x 1,000)	50	55	60	65	70	75	80	85	90
	Months	(80)	(88)	(96)	(104)	(112)	(120)	(128)	(136)	(144)
		60	66	72	78	84	90	96	102	108
Drive belt	NOTE (1)	I*		I*		I*		I*		I*
Air cleaner filter	NOTE (2)			R						R
EVAP vapor lines				I*				I*		
Fuel lines				I*				I*		
Fuel filter	NOTE (3)									
Engine coolant*	NOTE (4)(5)									
Engine oil		R	R	R	R	R	R	R	R	R
Engine oil filter (Use genuine NISSAN engine oil filter or equivalent)		R	R	R	R	R	R	R	R	R
Spark plugs (Iridium-tipped type)		Replace every 105,000 miles (168,000 km)								
Intake and exhaust valve clearance*	NOTE (6)									

MAINTENANCE OPERATION		MAINTENANCE INTERVAL						Reference Page
Perform at number of miles, kilometers or months, whichever comes first.	Miles x 1,000 (km x 1,000)	95	100	105	110	115	120	
	Months	(152)	(160)	(168)	(176)	(184)	(192)	
		114	120	126	132	138	144	
Drive belt	NOTE (1)		I*		I*		I*	MA-20(VQ37) MA-31(VK56)
Air cleaner filter	NOTE (2)						R	MA-25(VQ37) MA-36(VK56)

# PERIODIC MAINTENANCE

## < PERIODIC MAINTENANCE >

MAINTENANCE OPERATION		MAINTENANCE INTERVAL						Reference Page
Perform at number of miles, kilometers or months, whichever comes first.	Miles x 1,000 (km x 1,000) Months	95 (152) 114	100 (160) 120	105 (168) 126	110 (176) 132	115 (184) 138	120 (192) 144	
EVAP vapor lines			I*				I*	<a href="#">MA-30</a> (VQ37) <a href="#">MA-40</a> (VK56)
Fuel lines			I*				I*	<a href="#">MA-25</a> (VQ37) <a href="#">MA-36</a> (VK56)
Fuel filter	NOTE (3)							—
Engine coolant*	NOTE (4)(5)							<a href="#">MA-20</a> (VQ37) <a href="#">MA-32</a> (VK56)
Engine oil		R	R	R	R	R	R	<a href="#">MA-26</a> (VQ37) <a href="#">MA-37</a> (VK56)
Engine oil filter (Use genuine NISSAN engine oil filter or equivalent)		R	R	R	R	R	R	<a href="#">MA-27</a> (VQ37) <a href="#">MA-38</a> (VK56)
Spark plugs (Iridium-tipped type)		Replace every 105,000 miles (168,000 km)						<a href="#">MA-29</a> (VQ37) <a href="#">MA-39</a> (VK56)
Intake and exhaust valve clearance*	NOTE (6)							<a href="#">EM-13</a> (VQ37) <a href="#">EM-175</a> (VK56)

### NOTE:

- (1) After 40,000 miles (64,000 km) or 48 months, inspect every 10,000 miles (16,000 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 the FL section.
- (4) First replacement interval is 105,000 miles (168,000 km) or 84 months. After first replacement, replace every 75,000 miles (120,000 km) or 60 months.
- (5) Use only Genuine NISSAN Long Life Antifreeze/Coolant (blue) or equivalent with proper mixture ratio of 50% anti-freeze and 50% demineralized or distilled water. Mixing any other type of coolant or the use of non-distilled water will reduce the life expectancy of the factory fill coolant.
- (6) Periodic maintenance is not required. However, if valve noise increases, inspect valve clearance.

\* Maintenance items and intervals with "\*" are recommended by INFINITI 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 Maintenance

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

MAINTENANCE OPERATION		MAINTENANCE INTERVAL								
Perform at number of miles, kilometers or months, whichever comes first.	Miles x 1,000 (km x 1,000) Months	5 (8) 6	10 (16) 12	15 (24) 18	20 (32) 24	25 (40) 30	30 (48) 36	35 (56) 42	40 (64) 48	45 (72) 54
Brake lines & cables			I		I		I		I	
Brake pads & rotors★			I		I		I		I	
Brake fluid★					R				R	
Automatic transmission fluid	NOTE (1)									
Transfer fluid & differential gear oil	NOTE (2)		I		I		I		I	
Steering gear & linkage, axle & suspension parts★					I				I	
Tire rotation	NOTE (3)									
Propeller shaft & drive shaft boots (AWD models)★			I		I		I		I	
Exhaust system★					I				I	

# PERIODIC MAINTENANCE

< PERIODIC MAINTENANCE >

MAINTENANCE OPERATION		MAINTENANCE INTERVAL								
Perform at number of miles, kilometers or months, whichever comes first.	Miles x 1,000 (km x 1,000) Months	5 (8) 6	10 (16) 12	15 (24) 18	20 (32) 24	25 (40) 30	30 (48) 36	35 (56) 42	40 (64) 48	45 (72) 54
In-cabin microfilter				R			R			R
I-key battery				R			R			R

MAINTENANCE OPERATION		MAINTENANCE INTERVAL								
Perform at number of miles, kilometers or months, whichever comes first.	Miles x 1,000 (km x 1,000) Months	50 (80) 60	55 (88) 66	60 (96) 72	65 (104) 78	70 (112) 84	75 (120) 90	80 (128) 96	85 (136) 102	90 (144) 108
Brake lines & cables		I		I		I		I		I
Brake pads & rotors★		I		I		I		I		I
Brake fluid★				R				R		
Automatic transmission fluid	NOTE (1)									
Transfer fluid & differential gear oil	NOTE (2)	I		I		I		I		I
Steering gear & linkage, axle & suspension parts★				I				I		
Tire rotation	NOTE (3)									
Propeller shaft & drive shaft boots (AWD models)★		I		I		I		I		I
Exhaust system★				I				I		
In-cabin microfilter				R			R			R
I-key battery				R			R			R

MAINTENANCE OPERATION		MAINTENANCE INTERVAL						Reference Page
Perform at number of miles, kilometers or months, whichever comes first.	Miles x 1,000 (km x 1,000) Months	95 (152) 114	100 (160) 120	105 (168) 126	110 (176) 132	115 (184) 138	120 (192) 144	
Brake lines & cables			I		I		I	<a href="#">MA-49</a>
Brake pads & rotors★			I		I		I	<a href="#">MA-50</a> <a href="#">BR-17</a> <a href="#">BR-19</a>
Brake fluid★			R				R	<a href="#">MA-49</a>
Automatic transmission fluid	NOTE (1)							<a href="#">MA-41</a>
Transfer fluid & differential gear oil	NOTE (2)		I		I		I	<a href="#">MA-41</a> <a href="#">MA-44</a> <a href="#">MA-45</a> <a href="#">MA-46</a>
Steering gear & linkage, axle & suspension parts★			I				I	<a href="#">MA-51</a> <a href="#">MA-52</a>
Tire rotation	NOTE (3)							<a href="#">MA-5</a> <a href="#">MA-47</a>
Propeller shaft & drive shaft boots (AWD models)★			I		I		I	<a href="#">MA-42</a> <a href="#">MA-42</a> <a href="#">MA-43</a> <a href="#">MA-53</a>
Exhaust system★			I				I	<a href="#">MA-41</a>
In-cabin microfilter				R			R	<a href="#">VTL-19</a>
I-key battery				R			R	<a href="#">DLK-236</a>

NOTE:

## PERIODIC MAINTENANCE

### < PERIODIC MAINTENANCE >

- Maintenance items with “★” should be performed more frequently according to “Maintenance Under Severe Driving Conditions”.
- (1) Automatic transmission fluid maintenance-free.
- (2) If towing a trailer, using a camper or car-top carrier, or driving on rough or muddy roads, change (not just inspect) oil at every 20,000 miles (32,000 km) or 24 months.
- (3) Refer to “Tire rotation” under the “GENERAL MAINTENANCE” heading earlier in this section.

### MAINTENANCE UNDER SEVERE DRIVING CONDITIONS

The maintenance intervals shown on the preceding pages are for normal operating conditions. If the vehicle is mainly operated under severe driving conditions as shown below, more frequent maintenance must be performed on the following items as shown in the table.

#### Severe driving conditions

- Repeated short trips of less than 5 miles (8 km).
- Repeated short trips of less than 10 miles (16 km) with outside temperatures remaining below freezing.
- Operating in hot weather in stop-and-go “rush hour” traffic.
- Extensive idling and/or low speed driving for long distances, such as police, taxi or door-to-door delivery use.
- Driving in dusty conditions.
- Driving on rough, muddy, or salt spread roads.
- Towing a trailer, using a camper or a car-top carrier.

Maintenance operation: Inspect = Inspect and correct or replace as necessary.

Maintenance item	Maintenance operation	Maintenance interval	Reference page
Brake fluid	Replace	Every 10,000 miles (16,000 km) or 12 months	<a href="#">MA-49</a>
Brake pads & rotors	Inspect	Every 5,000 miles (8,000 km) or 6 months	<a href="#">MA-50</a> <a href="#">BR-17</a> <a href="#">BR-19</a>
Steering gear & linkage, axle & suspension parts	Inspect	Every 5,000 miles (8,000 km) or 6 months	<a href="#">MA-51</a> <a href="#">MA-52</a>
Propeller shaft & drive shaft boots (AWD models)	Inspect	Every 5,000 miles (8,000 km) or 6 months	<a href="#">MA-42</a> <a href="#">MA-42</a> <a href="#">MA-43</a> <a href="#">MA-53</a>
Exhaust system	Inspect	Every 5,000 miles (8,000 km) or 6 months	<a href="#">MA-41</a>

## FOR MEXICO

### FOR MEXICO : Periodic Maintenance

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The following tables show the normal maintenance schedule. Depending upon weather and atmospheric conditions, varying road surfaces, individual driving habits and vehicle usage, additional or more frequent maintenance may be required.

**Periodic maintenance beyond the last period shown on the tables requires similar maintenance.**

### ENGINE AND EMISSION CONTROL MAINTENANCE

Abbreviations: I = Inspect and correct or replace as necessary, R = Replace, E = Check and correct the engine coolant mixture ratio.

MAINTENANCE OPERATION		MAINTENANCE INTERVAL								Reference page
Perform at a kilometers (miles) or month interval, whichever comes first.	km × 1,000	12	24	36	48	60	72	84	96	
	(Miles × 1,000)	(7.5)	(15)	(22.5)	(30)	(37.5)	(45)	(52.5)	(60)	
	Months	6	12	18	24	30	36	42	48	
Underhood and under vehicle										
Intake & exhaust valve clearance	See NOTE (1)									<a href="#">EM-13</a> (VQ37) <a href="#">EM-175</a> (VK56)
Drive belt	See NOTE (2)				I				I	<a href="#">MA-20</a> (VQ37) <a href="#">MA-31</a> (VK56)

# PERIODIC MAINTENANCE

## < PERIODIC MAINTENANCE >

MAINTENANCE OPERATION		MAINTENANCE INTERVAL								Reference page
Perform at a kilometers (miles) or month interval, whichever comes first.	km × 1,000 (Miles × 1,000) Months	12 (7.5) 6	24 (15) 12	36 (22.5) 18	48 (30) 24	60 (37.5) 30	72 (45) 36	84 (52.5) 42	96 (60) 48	
Engine oil (Use recommended oil.)★		R	R	R	R	R	R	R	R	<a href="#">MA-26</a> (VQ37) <a href="#">MA-37</a> (VK56)
Engine oil filter (Use genuine NISSAN engine oil filter or equivalent)★		R	R	R	R	R	R	R	R	<a href="#">MA-27</a> (VQ37) <a href="#">MA-38</a> (VK56)
Engine coolant	See NOTE (3)				E				E	<a href="#">MA-20</a> (VQ37) <a href="#">MA-32</a> (VK56)
Cooling system					I				I	<a href="#">CO-10</a> (VQ37) <a href="#">CO-39</a> (VK56) <a href="#">MA-23</a> (VQ37) <a href="#">MA-35</a> (VK56) <a href="#">MA-25</a> (VQ37) <a href="#">MA-36</a> (VK56)
Fuel lines					I				I	<a href="#">MA-25</a> (VQ37) <a href="#">MA-36</a> (VK56)
Air cleaner filter (Viscous paper type)★		Replace every 36,000 km (22,500 miles) or 24 months								<a href="#">MA-25</a> (VQ37) <a href="#">MA-36</a> (VK56)
Fuel filter (In-tank type)	See NOTE (4)									—
Spark plugs (Iridium-tipped type)	See NOTE (5)	Replace every 96,000 km (60,000 miles)								<a href="#">MA-29</a> (VQ37) <a href="#">MA-39</a> (VK56)
EVAP vapor lines (With carbon canister)					I				I	<a href="#">MA-30</a> (VQ37) <a href="#">MA-40</a> (VK56)

### NOTE:

- Maintenance items with “★” should be performed more frequently according to “Maintenance Under Severe Driving Conditions”.
- (1) Periodic maintenance is not required. However, if valve noise increases, check valve clearance.
- (2) Replace the drive belts if found damaged or if the auto belt tensioner reading reaches the maximum limit.
- (3) Use Genuine NISSAN Engine Coolant (blue) or equivalent in its quality, in order to avoid possible aluminium corrosion within the engine cooling system caused by the use of non-genuine engine coolant. Check and correct the engine coolant mixture ratio every 48,000 km (30,000 miles) or 24 months. First replacement interval is 168,000 km (105,000 miles) or 96 months. After first replacement, replace every 84,000 km (52,500 miles) or 48 months.
- (4) Maintenance-free item.
- (5) Replace spark plug when the spark plug gap exceeds 1.4 mm (0.055 in) even if within specified periodic replacement mileage.

## CHASSIS AND BODY MAINTENANCE

Abbreviations: I = Inspect and correct or replace as necessary, R = Replace.

MAINTENANCE OPERATION		MAINTENANCE INTERVAL								Reference page
Perform at a kilometers (miles) or month interval, whichever comes first.	km × 1,000	12	24	36	48	60	72	84	96	
	(Miles × 1,000)	(7.5)	(15)	(22.5)	(30)	(37.5)	(45)	(52.5)	(60)	
	Months	6	12	18	24	30	36	42	48	
Underhood and under vehicle										
Brake line & cables			I		I		I		I	<a href="#">MA-49</a>
Brake fluid (For level & leaks)			I		I		I		I	<a href="#">MA-49</a>
Brake fluid★					R				R	<a href="#">MA-49</a>
Exhaust system					I				I	<a href="#">MA-41</a>
Power steering fluid & lines (For level & leaks)			I		I		I		I	<a href="#">MA-52</a>

# PERIODIC MAINTENANCE

## < PERIODIC MAINTENANCE >

MAINTENANCE OPERATION		MAINTENANCE INTERVAL								Reference page
Perform at a kilometers (miles) or month interval, whichever comes first.	km × 1,000 (Miles × 1,000) Months	12 (7.5) 6	24 (15) 12	36 (22.5) 18	48 (30) 24	60 (37.5) 30	72 (45) 36	84 (52.5) 42	96 (60) 48	
Automatic transmission fluid	See NOTE (1)									<a href="#">MA-41</a>
Differential gear oil (For level & leaks)★			I		I		I		I	<a href="#">MA-45</a> <a href="#">MA-46</a>
Steering gear & linkage, axle & suspension parts★					I				I	<a href="#">MA-51</a> <a href="#">MA-52</a>
Outside and inside										
Wheel alignment (If necessary, balance wheels)			I		I		I		I	<a href="#">FSU-8</a> <a href="#">RSU-6</a> <a href="#">MA-47</a>
Brake pads, rotors, drums & linings★			I		I		I		I	<a href="#">MA-50</a> <a href="#">BR-17</a> <a href="#">BR-19</a>
Foot brake & parking brake (For free play, stroke & operation)			I		I		I		I	<a href="#">BR-10</a> <a href="#">PB-4</a>
Air conditioner filter★			R		R		R		R	<a href="#">VTL-19</a>

### NOTE:

- Maintenance items with “★” should be performed more frequently according to “Maintenance Under Severe Driving Conditions”.
- (1) Automatic transmission fluid is maintenance-free.

## MAINTENANCE UNDER SEVERE DRIVING CONDITIONS

The maintenance intervals shown on the preceding pages are for normal operating conditions. If the vehicle is mainly operated under severe driving conditions as shown below, more frequent maintenance must be performed on the following items as shown in the table.

### Severe driving conditions

A — Driving under dusty conditions

B — Driving repeatedly short distances

C — Towing a trailer or caravan

D — Extensive idling

E — Driving in extremely adverse weather conditions or in areas where ambient temperatures are either extremely low or extremely high

F — Driving in high humidity or mountainous areas

G — Driving in areas using salt or other corrosive areas

H — Driving on rough and/or muddy roads or in the desert

I — Driving with frequent use of braking or in mountainous areas

J — Frequent driving in water

Maintenance operation: Inspect = Check and correct or replace as necessary

Driving condition										Maintenance item	Maintenance operation	Reference page	Maintenance interval
A	.	.	.	.	.	.	.	.	.	Air cleaner filter (Viscous paper type)	Replace	More frequently	<a href="#">MA-25</a> (VQ37) <a href="#">MA-36</a> (VK56)
A	B	C	D	.	.	.	.	.	.	Engine oil & engine oil filter	Replace	Every 6,000 km (3,750 miles) or 3 months	<a href="#">MA-26</a> (VQ37) <a href="#">MA-37</a> (VK56) <a href="#">MA-27</a> (VQ37) <a href="#">MA-38</a> (VK56)
.	.	.	.	.	F	.	.	.	.	Brake fluid	Replace	Every 24,000 km (15,000 miles) or 12 months	<a href="#">MA-49</a>

# PERIODIC MAINTENANCE

< PERIODIC MAINTENANCE >

.	.	C	.	.	.	.	H	.	.	Differential gear oil	Replace	Every 36,000 km (22,500 miles) or 24 months	<a href="#">MA-45</a> <a href="#">MA-46</a>
.	.	.	.	.	.	G	H	.	.	Steering gear & linkage, axle & suspension parts	Inspect	Every 24,000 km (15,000 miles) or 12 months	<a href="#">MA-51</a> <a href="#">MA-52</a>
A	.	C	.	.	.	G	H	I	.	Brake pads, rotors, drums & linings	Inspect	Every 12,000 km (7,500 miles) or 6 months	<a href="#">MA-50</a> <a href="#">BR-17</a> <a href="#">BR-19</a>
A	.	.	.	.	.	.	.	.	.	Air conditioner filter	Replace	More frequently	<a href="#">VTL-19</a>

A

B

C

D

E

F

G

H

I

J

K

L

M

N

O

MA

# RECOMMENDED FLUIDS AND LUBRICANTS

< PERIODIC MAINTENANCE >

## RECOMMENDED FLUIDS AND LUBRICANTS FOR NORTH AMERICA

### FOR NORTH AMERICA : Fluids and Lubricants

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The following are approximate capacities. The actual refill capacities may be slightly different. When refilling, follow the procedures described elsewhere in this manual.

Fluid types			Capacity (Approximate)			Recommended Fluids/Lubricants	
			US measure	Imp measure	Liter		
Engine oil Drain and refill	With oil filter change	VQ37VHR	5-1/8 qt	4-1/4 qt	4.9	<ul style="list-style-type: none"><li>• Genuine NISSAN engine oil or equivalent<sup>*1</sup></li><li>• Engine oil with API Certification Mark<sup>*2</sup>, Viscosity SAE 5W-30</li></ul> <p><sup>*1</sup>: INFINITI recommends Genuine NISSAN Ester Engine Oil available at an INFINITI retailer.</p> <p><sup>*2</sup>: For additional information, see “Engine Oil Recommendation”.</p>	
		VK56VD (2WD)	6-3/8 qt	5-2/8 qt	6.0		
		VK56VD (AWD)	6-4/8 qt	5-3/8 qt	6.1		
	Without oil fil- ter change	VQ37VHR	4-7/8 qt	4 qt	4.6		
		VK56VD (2WD)	6 qt	5 qt	5.7		
		VK56VD (AWD)	6-1/8 qt	5-1/8 qt	5.8		
Dry engine (Overhaul)		VQ37VHR	6 qt	5 qt	5.7	<ul style="list-style-type: none"><li>• Pre-diluted Genuine NISSAN Long Life Antifreeze/ Coolant (blue) or equivalent</li></ul>	
		VK56VD	7-5/8 qt	6-3/8 qt	7.2		
Engine coolant	With reservoir tank	VQ37VHR (Pressurized radiator reservoir tank)	9-1/2 qt	7-7/8 qt	9.0		
		VQ37VHR (Non-pressurized ra- diator reservoir tank)	8-7/8 qt	7-3/8 qt	8.4		
		VK56VD	11-4/8 qt	9-5/8 qt	10.9		
	Reservoir tank		7/8 qt	3/4 qt	0.8		
Automatic transmission fluid		VQ37VHR	9-3/4 qt <sup>*4</sup>	8-1/8 qt <sup>*4</sup>	9.2 <sup>*4</sup>	<ul style="list-style-type: none"><li>• Genuine NISSAN Matic S ATF</li><li>• Using automatic transmission fluid other than Genuine NISSAN Matic S ATF will cause deterioration in driveability and automatic transmission durability, and may damage the automatic transmission, which is not covered by the INFINITI new vehicle limited warranty.</li></ul>	
		VK56VD	10-5/8 qt <sup>*1</sup>	8-3/4 qt <sup>*1</sup>	10.0 <sup>*1</sup>		
Differential gear oil	Front		1-3/8 pt	1-1/8 pt	0.65	<ul style="list-style-type: none"><li>• Genuine NISSAN Differential Oil Hypoid Super GL-5 80W-90 or equivalent conventional (non-synthetic) oil.</li><li>• API GL-5 synthetic gear oil, Viscosity SAE 75W-90</li></ul>	
	Rear	VQ37VHR	3 pt	2-1/2 pt	1.40		
		VK56VD	2-3/8 pt	2 pt	1.15		
Transfer fluid			2-1/8 pt	1-3/4 pt	1.0	<ul style="list-style-type: none"><li>• Genuine NISSAN Matic J ATF</li><li>• Using transfer fluid other than Genuine NISSAN Matic J ATF will cause deterioration in driveability and transfer durability, and may damage the transfer, which is not covered by the INFINITI new vehicle limited warranty.</li></ul>	



# RECOMMENDED FLUIDS AND LUBRICANTS

## < PERIODIC MAINTENANCE >

Fluid types	Capacity (Approximate)			Recommended Fluids/Lubricants
	US measure	Imp measure	Liter	
Power steering fluid (PSF)	1-1/8 qt	7/8 qt	1.0	<ul style="list-style-type: none"> <li>Genuine NISSAN PSF or equivalent</li> <li>DEXRON™ VI type ATF may also be used</li> </ul>
Brake fluid	—	—	—	<ul style="list-style-type: none"> <li>Genuine NISSAN Super Heavy Duty Brake Fluid*<sup>3</sup> or equivalent DOT 3 (US FMVSS No. 116)</li> <li>*<sup>3</sup>: Available in mainland U.S.A. through an INFINITI retailer.</li> </ul>
Multi-purpose grease	—	—	—	<ul style="list-style-type: none"> <li>NLGI No. 2 (Lithium soap base)</li> </ul>
Windshield washer fluid	—	—	—	<ul style="list-style-type: none"> <li>Genuine NISSAN Windshield Washer Concentrate Cleaner &amp; Antifreeze or equivalent</li> </ul>
Fuel recommendation	—	—	—	Refer to <a href="#">GI-28, "Fuel"</a> .

\*4: The fluid capacity is the reference value.

## FOR NORTH AMERICA : Engine Oil Recommendation

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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. These oils have the API certification mark 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.



1. API certification mark

2. API service symbol

## FOR NORTH AMERICA : Anti-Freeze Coolant Mixture Ratio

INFOID:0000000012354319

The engine cooling system is filled at the factory with a pre-diluted mixture of 50% Genuine NISSAN Long Life Antifreeze/Coolant (blue) and 50% water to provide year-round anti-freeze and coolant protection. The anti-freeze solution contains rust and corrosion inhibitors. Additional engine cooling system additives are not necessary.

### **WARNING:**

- Never remove the radiator or coolant reservoir cap when the engine is hot. Wait until the engine and radiator cool down. Serious burns could be caused by high pressure fluid escaping from the radiator.
- The radiator is equipped with a pressure type radiator cap. To prevent engine damage, use only a genuine NISSAN radiator cap.

### **CAUTION:**

- When adding or replacing coolant, be sure to use only Genuine NISSAN Long Life Antifreeze/Coolant (blue) or equivalent. Genuine NISSAN Long Life Antifreeze/Coolant (blue) is pre-diluted to provide antifreeze protection to -34°F (-37°C). If additional freeze protection is needed due to weather where you operate your vehicle, add Genuine NISSAN Long Life Antifreeze/Coolant (blue) concentrate following the directions on the container. If an equivalent coolant other than Genuine NISSAN Long Life Antifreeze/Coolant (blue) is used, follow the coolant manufacturer's instructions to maintain minimum antifreeze protection to -34°F (-37°C). The use of other types of coolant solutions other

## RECOMMENDED FLUIDS AND LUBRICANTS

### < PERIODIC MAINTENANCE >

- than Genuine NISSAN Long Life Antifreeze/Coolant (blue) or equivalent may damage the engine cooling system.
- Mixing any other type of coolant other than Genuine NISSAN Long Life Antifreeze/Coolant (blue), including Genuine NISSAN Long Life Antifreeze/Coolant (green), or the use of non-distilled water will reduce the life expectancy of the factory-fill coolant.

### FOR MEXICO

### FOR MEXICO : Fluids and Lubricants

INFOID:000000012354320

The following are approximate capacities. The actual refill capacities may be slightly different. When refilling, follow the procedures described elsewhere in this manual.

Fluid types			Capacity (Approximate)		Recommended Fluids/Lubricants	
			Liter	Imp measure		
Engine oil Drain and refill	With oil filter change	VQ37VHR	4.9	4-1/4 qt	• Nippon oil (Genuine NISSAN engine oil, API grade SM, Viscosity SAE 5W-30)	
		VK56VD	6.0	5-2/8 qt		
	Without oil filter change	VQ37VHR	4.6	4 qt		
		VK56VD	5.7	5 qt		
Dry engine (engine overhaul)		VQ37VHR	5.7	5 qt		
		VK56VD	7.2	6-3/8 qt		
Engine coolant (with reservoir)		VQ37VHR	8.4	7-3/8 qt	• Genuine NISSAN Engine Coolant (blue) or equivalent • Use Genuine NISSAN Engine Coolant or equivalent in its quality, in order to avoid possible aluminum corrosion within the engine cooling system caused by the use of non-genuine engine coolant. Note that any repairs for the incidents within the engine cooling system while using non-genuine engine coolant may not be covered by the warranty even if such incidents occurred during the warranty period.	
		VK56VD	10.9	9-5/8 qt		
Reservoir tank		VQ37VHR	0.8	3/4 qt		
		VK56VD	0.8	3/4 qt		
Automatic transmission fluid		VQ37VHR	9.2 <sup>*1</sup>	8-1/8 qt <sup>*1</sup>		• Genuine NISSAN Matic S ATF • Using automatic transmission fluid other than Genuine NISSAN Matic S ATF will cause deterioration in driveability and automatic transmission durability, and may damage the automatic transmission, which is not covered by warranty.
		VK56VD	10.0 <sup>*1</sup>	8-3/4 qt <sup>*1</sup>		
Differential gear oil		VQ37VHR	1.40	2-1/2 pt		• Genuine NISSAN Differential Oil Hypoid Super-S GL-5 synthetic 75W-90 or equivalent
		VK56VD	1.15	2 pt		
Power steering fluid (PSF)			1.0	7/8 qt		• Genuine NISSAN PSF or equivalent • DEXRON™ VI type ATF may also be used.
Brake fluid			—	—		• Genuine NISSAN Brake Fluid, or equivalent DOT 3 or DOT 4 (US FMVSS No.116) • Never mix different types of fluid (DOT 3 and DOT 4)
Multi-purpose grease			—	—	• NLGI No. 2 (Lithium soap base)	

\*1: The fluid capacity is the reference value.

## RECOMMENDED FLUIDS AND LUBRICANTS

< PERIODIC MAINTENANCE >

### FOR MEXICO : Engine Coolant Mixture Ratio

INFOID:0000000012354321

The engine cooling system is filled at the factory with a high-quality, year-round and extended life engine coolant. The high quality engine coolant contains the specific solutions effective for the anti-corrosion and the anti-freeze function. Therefore, additional cooling system additives are not necessary.

#### CAUTION:

- When adding or replacing coolant, be sure to use only Genuine NISSAN Engine Coolant or equivalent in its quality with the proper mixture ratio. See the examples shown right.

The use of other types of engine coolant may damage the engine cooling system.

- When checking the engine coolant mixture ratio by the coolant hydrometer, use the chart below to correct your hydrometer reading (specific gravity) according to coolant temperature.

SMA089D

Mixed coolant specific gravity

Unit: specific gravity

Engine coolant mixture ratio	Coolant temperature °C (°F)			
	15 (59)	25 (77)	35 (95)	45 (113)
30%	1.046 - 1.050	1.042 - 1.046	1.038 - 1.042	1.033 - 1.038
50%	1.076 - 1.080	1.070 - 1.076	1.065 - 1.071	1.059 - 1.065

#### WARNING:

Never remove the radiator cap when the engine is hot. Serious burns could be caused by high pressure fluid escaping from the radiator. Wait until the engine and radiator cool down.

## ENGINE MAINTENANCE (VQ37VHR)

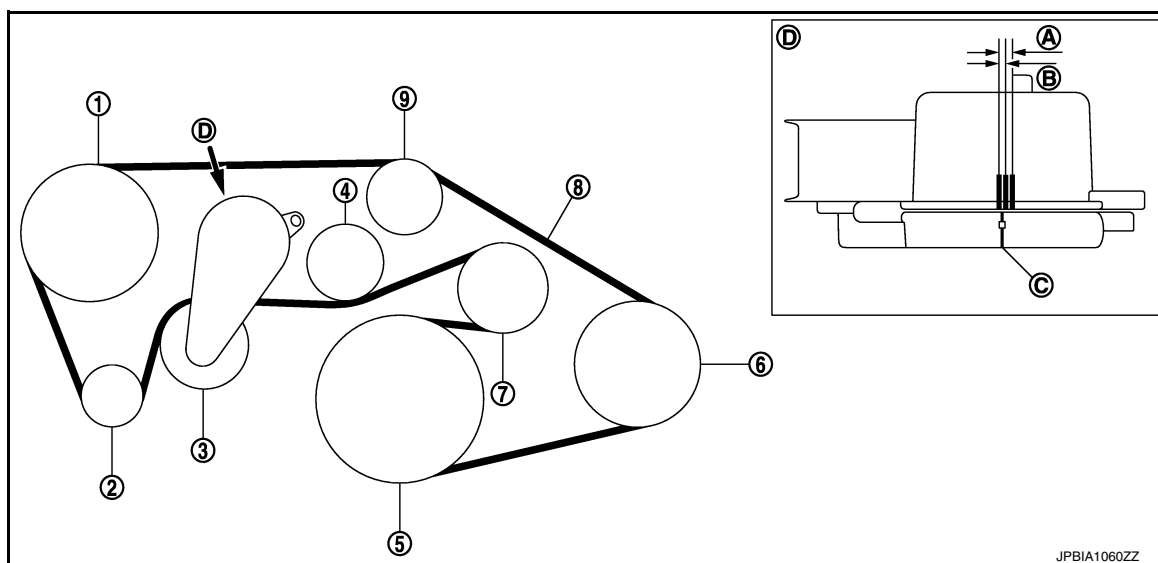
< PERIODIC MAINTENANCE >

### ENGINE MAINTENANCE (VQ37VHR)

#### DRIVE BELT

##### DRIVE BELT : Exploded View

INFOID:0000000012354322



- |                            |   |                              |
|----------------------------|---|------------------------------|
| 1. Power steering oil pump | 2. Alternator                             | 3. Drive belt auto-tensioner |
| 4. Idler pulley            | 5. Crankshaft pulley                      | 6. A/C compressor            |
| 7. Idler pulley            | 8. Drive belt                             | 9. Idler pulley              |
| A. Possible use range      | B. Range when new drive belt is installed | C. Indicator                 |
| D. View D                  |   |                              |

##### DRIVE BELT : Checking

INFOID:0000000012354323

#### **WARNING:**

**Be sure to perform the this step when engine is stopped.**

- Check that the indicator (C) (notch on fixed side) of drive belt auto-tensioner is within the possible use range (A).

#### **NOTE:**

- Check the drive belt auto-tensioner indication when the engine is cold.
- When new drive belt is installed, the indicator (notch on fixed side) should be within the range (B) in the figure.
- Visually check the entire drive belt for wear, damage or crack.
- If the indicator (notch on fixed side) is out of the possible use range or belt is damaged, replace drive belt.

##### DRIVE BELT : Tension Adjustment

INFOID:0000000012354324

Refer to [EM-155. "Drive Belt"](#).

#### ENGINE COOLANT

##### ENGINE COOLANT : Draining

INFOID:0000000012354325

#### **WARNING:**

- To avoid being scalded, never change engine coolant when the engine is hot.
- Wrap a thick cloth around radiator cap and carefully remove radiator cap. First, turn radiator cap a quarter of a turn to release built-up pressure. Then turn radiator cap all the way.
- Never spill engine coolant on drive belt.

1. Connect drain hose.

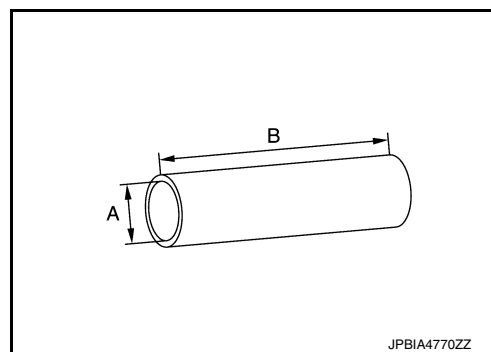
#### **NOTE:**

# ENGINE MAINTENANCE (VQ37VHR)

## < PERIODIC MAINTENANCE >

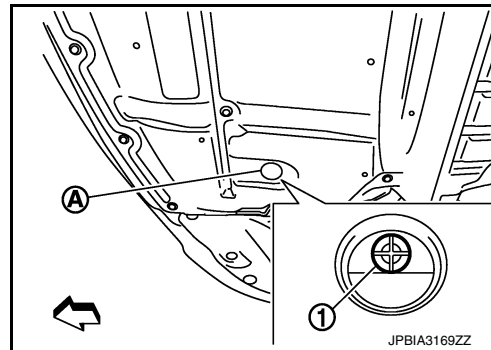
Use a general-purpose hose with the dimensions shown in the figure.

- A :  $\phi$  15 - 16 mm (0.59 - 0.63 in)  
B : 145 mm (5.17 in)



2. Open radiator drain plug (1) at the bottom of radiator, and then remove radiator cap.

- A : Radiator drain plug hole  
↶ : Vehicle front



**When draining all of engine coolant in the system, open water drain plugs on cylinder block. Refer to [EM-86, "Setting"](#).**

3. Remove reservoir tank if necessary, and drain engine coolant and clean reservoir tank before installing.  
4. Check drained engine coolant for contaminants such as rust, corrosion or discoloration. If contaminated, flush the engine cooling system. Refer to [CO-13, "Flushing"](#).  
5. Disconnect drain hose.

## ENGINE COOLANT : Refilling

INFOID:0000000012354326

### CAUTION:

- Do not reuse O-rings.
- Do not put additive such as waterleak preventive, since it may cause cooling waterway clogging.
- When refilling use Genuine NISSAN Long Life Antifreeze/Coolant (blue) or equivalent in its quality mixed with water (distilled or demineralized). Refer to [MA-16, "FOR NORTH AMERICA : Fluids and Lubricants"](#) (FOR NORTH AMERICA), [MA-18, "FOR MEXICO : Fluids and Lubricants"](#) (FOR MEXICO).

1. Remove air cleaner case (LH) and air duct (inlet). Refer to [EM-29, "Exploded View"](#).  
2. Install reservoir tank if removed, and radiator drain plug.

### CAUTION:

**Be sure to clean drain plug and install with new O-ring.**

**Tightening torque** : Refer to [CO-16, "Exploded View"](#).

**If water drain plugs on cylinder block are removed, close and tighten them. Refer to [EM-86, "Setting"](#).**

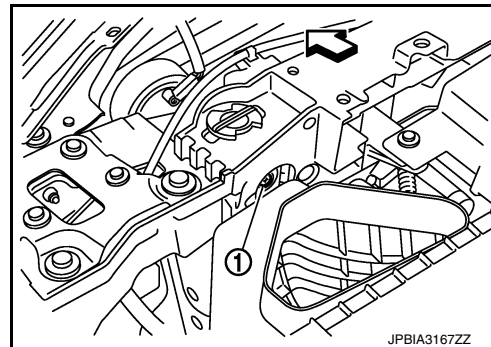
3. Check that each hose clamp has been firmly tightened.

## ENGINE MAINTENANCE (VQ37VHR)

### < PERIODIC MAINTENANCE >

4. Remove air relief plug (1) on radiator left side.

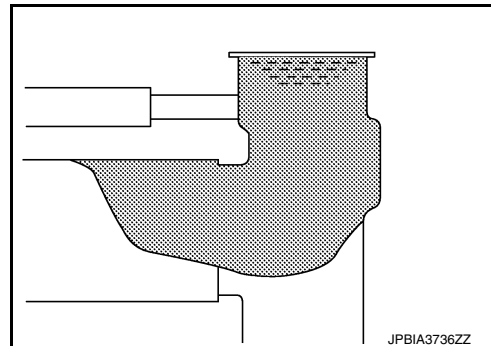
⇐ : Vehicle front



5. Fill up the radiator with cooling water.  
**Pour engine coolant through engine coolant filler neck slowly of less than 2 ℓ (2-1/8 US qt, 1-3/4 Imp qt) a minute to allow air in system to escape.**

Engine coolant capacity  
(With reservoir tank at  
"MAX" level)

: Refer to [CO-31](#),  
["Periodical Maintenance  
e Specification"](#).



Reservoir tank engine coolant capacity  
(At "MAX" level)

: Refer to [CO-31](#),  
["Periodical Maintenance Specification"](#)

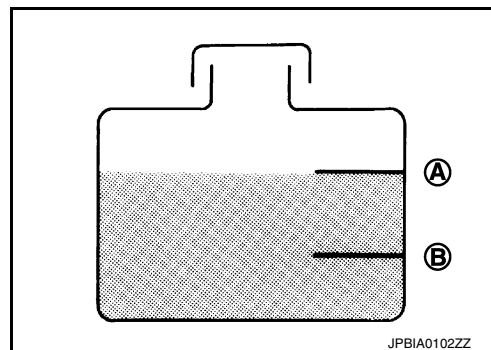
A : MAX

B : MIN

6. When engine coolant overflows air relief hole on radiator, install air relief plug with new O-ring.

**CAUTION:**  
**Do not reuse O-rings.**

Tightening torque : Refer to [CO-16](#), ["Exploded View"](#).



7. Refill reservoir tank to "MAX" level line with engine coolant.
8. Install air cleaner case (LH) and air duct (inlet). Refer to [EM-29](#), ["Exploded View"](#).
9. Install radiator cap and reservoir tank cap.
10. Warm up engine until opening thermostat. Standard for warming-up time is approximately 10 minutes at 3,000 rpm.
- Check thermostat opening condition by touching radiator hose (lower) to see a flow of warm water.
- CAUTION:**  
**Watch water temperature gauge so as not to overheat engine.**
11. Stop the engine and cool down to less than approximately 50°C (122°F).
- Cool down using fan to reduce the time.
  - If necessary, refill radiator up to filler neck with engine coolant.
  - Remove the radiator cap to check the fluid level. If the fluid level is low, refill with cooling water and repeat the steps from Step 7.
12. Refill reservoir tank to "MAX" level line with engine coolant.
13. Check cooling system for leakage with engine running.
14. Check flow noise, according to the following steps.

**CAUTION:**

**To check flow noise, turn OFF the radio and close the windows, doors, and the hood.**

# ENGINE MAINTENANCE (VQ37VHR)

## < PERIODIC MAINTENANCE >

- Allow the engine to become cold [approximately 50°C (122°F) or less].
- Start the engine, maintain 1000 rpm for approximately 30 seconds, and increase the engine speed from 1000 to 3000 rpm. Repeat this cycle three times.
- Check that flow noise can be heard from the heater core during the Step b operation.
- If flow noise can be heard, repeat from Step 12 of Refilling to Step c of Flow Noise Verification Method.
- Check that the reservoir tank cap is tightened.

## ENGINE COOLANT : Flushing

INFOID:0000000012354327

- Install reservoir tank if removed, and radiator drain plug.

### CAUTION:

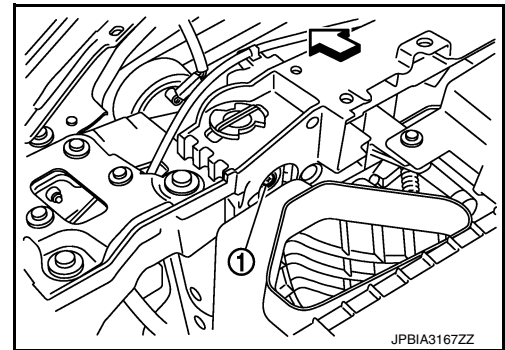
Be sure to clean drain plug and install with new O-ring.

**Tightening torque** : Refer to [CO-16, "Exploded View"](#).

If water drain plugs on cylinder block are removed, close and tighten them. Refer to [EM-86, "Setting"](#).

- Remove air relief plug (1) on radiator.

⇐ : Vehicle front



- Fill radiator with water until water spills from the air relief holes, then close air relief plugs. Fill radiator and reservoir tank with water and reinstall radiator cap.

**Tightening torque** : Refer to [CO-16, "Exploded View"](#).

- Run the engine and warm it up to normal operating temperature.
- Rev the engine two or three times under no-load.
- Stop the engine and wait until it cools down.
- Drain water from the system. Refer to [CO-11, "Draining"](#).
- Repeat steps 1 through 7 until clear water begins to drain from radiator.
- Check that the reservoir tank cap is tightened.

## RADIATOR CAP

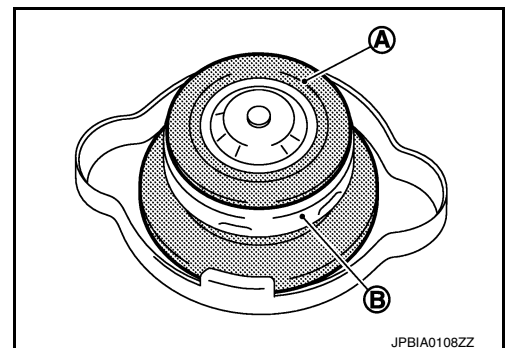
### RADIATOR CAP : Inspection

INFOID:0000000012354328

- Check valve seat (A) of radiator cap.

B : Metal plunger

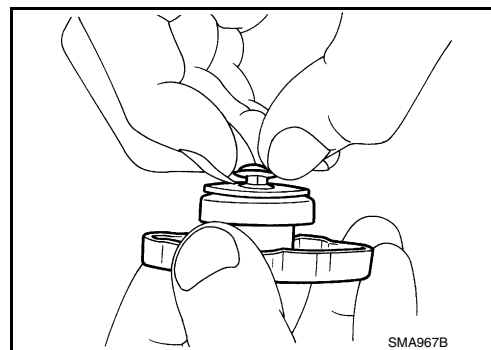
- Check if valve seat is swollen to the extent that the edge of the plunger (B) cannot be seen when watching it vertically from the top.
- Check if valve seat has no soil and damage.



## ENGINE MAINTENANCE (VQ37VHR)

### < PERIODIC MAINTENANCE >

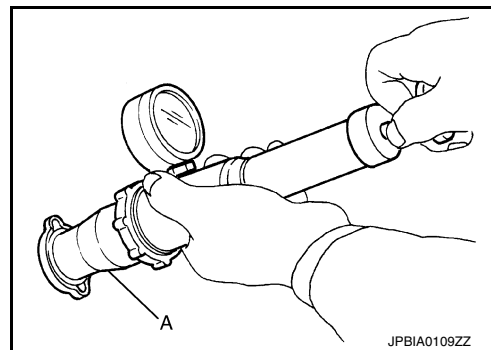
- Pull negative-pressure valve to open it, and check that it close completely when released.
- Check that there is no dirt or damage on the valve seat of radiator cap negative-pressure valve.
- Check that there are no unusualness in the opening and closing conditions of negative-pressure valve.



- Check radiator cap relief pressure.

**Standard and limit** : Refer to [CO-31, "Radiator"](#).

- When connecting radiator cap to the radiator cap tester and the radiator cap tester adapter (commercial service tool) (A), apply engine coolant to the cap seal surface.



- Replace radiator cap if there is an unusualness related to the above three.

#### **CAUTION:**

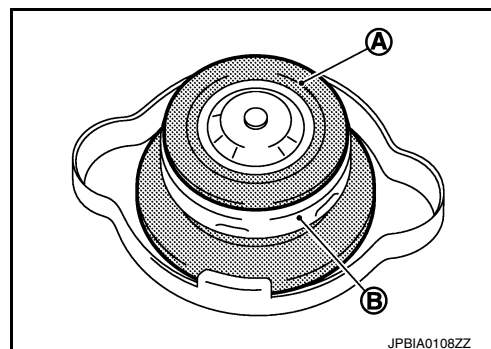
**When installing radiator cap, thoroughly wipe out the water outlet (front) filler neck to remove any waxy residue or foreign material.**

### RESERVOIR TANK CAP

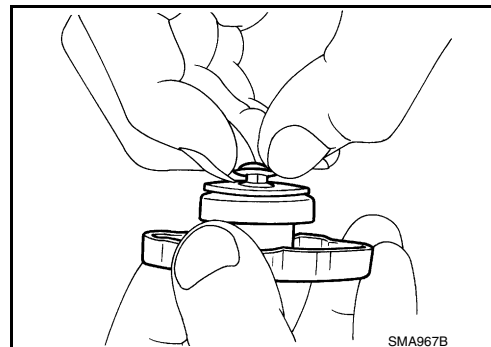
#### RESERVOIR TANK CAP : Inspection

INFOID:0000000012354329

- Check valve seat of reservoir tank cap.
- Check if valve seat (A) is swollen to the extent that the edge of the metal plunger (B) cannot be seen when watching it vertically from the top.
- Check if valve seat has no soil and damage.



- Pull negative-pressure valve to open it, and check that it close completely when released.
- Check that there is no dirt or damage on the valve seat of reservoir tank cap negative-pressure valve.
- Check that there are no unusualness in the opening and closing conditions of negative-pressure valve.



- Check reservoir tank cap relief pressure.

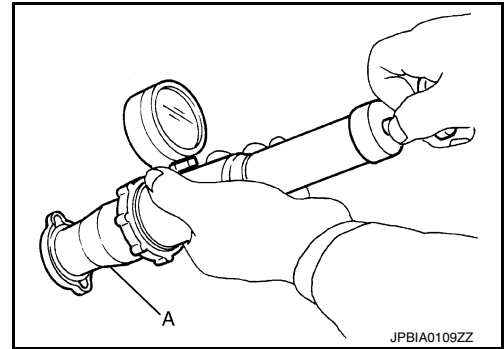


# ENGINE MAINTENANCE (VQ37VHR)

## < PERIODIC MAINTENANCE >

- When connecting reservoir tank cap to the radiator cap tester (commercial service tool) and the radiator cap tester adapter (commercial service tool) (A), apply engine coolant to the cap seal surface.

**Standard and limit** : Refer to [CO-31, "Radiator"](#).



- Replace reservoir tank cap if there is an unusualness related to the above three.

### **CAUTION:**

**When installing reservoir tank cap, thoroughly wipe out the reservoir tank filler neck to remove any waxy residue or foreign material.**

## RADIATOR

### RADIATOR : Inspection

INFOID:0000000012354330

Check radiator for mud or clogging. If necessary, clean radiator as follows:

- Be careful not to bend or damage radiator fins.
  - When radiator is cleaned without removal, remove all surrounding parts such as radiator cooling fan assembly and horns. Then tape harness and connectors to prevent water from entering.
1. Apply water by hose to the back side of the radiator core vertically downward.
  2. Apply water again to all radiator core surfaces once per minute.
  3. Stop washing if any stains no longer flow out from radiator.
  4. Blow air into the back side of radiator core vertically downward.
    - Use compressed air lower than 490 kPa (5 kg/cm<sup>2</sup>, 71 psi) and keep distance more than 30 cm (11.8 in).
  5. Blow air again into all the radiator core surfaces once per minute until no water sprays out.

## FUEL LINES

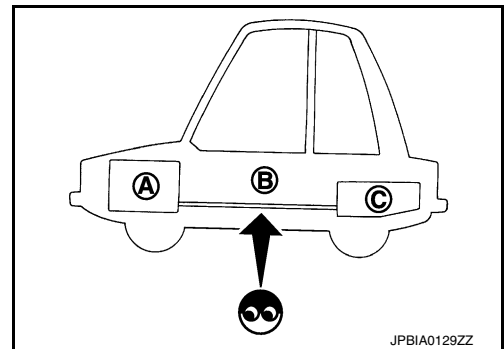
### FUEL LINES : Inspection

INFOID:0000000012354331

Inspect fuel lines, fuel filler cap and fuel tank for improper attachment, leakage, cracks, damage, loose connections, chafing or deterioration.

- A : Engine  
B : Fuel line  
C : Fuel tank

If necessary, repair or replace damaged parts.



## AIR CLEANER FILTER

### AIR CLEANER FILTER : Removal and Installation

INFOID:0000000012354332

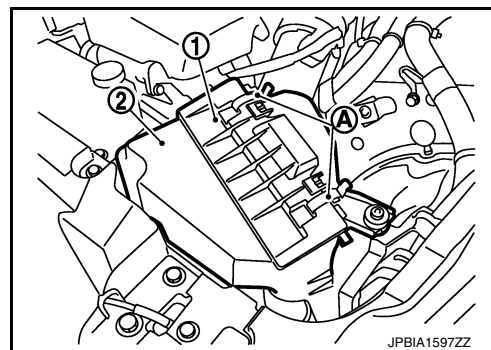
#### REMOVAL

# ENGINE MAINTENANCE (VQ37VHR)

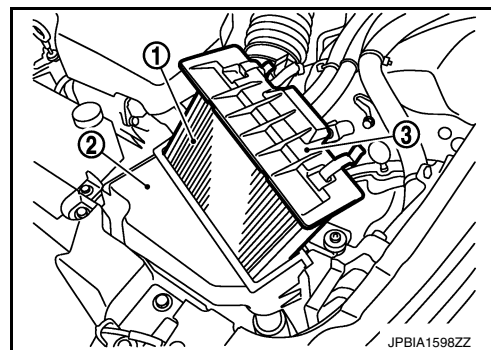
## < PERIODIC MAINTENANCE >

### 1. Unhook clips (A).

- 1 : Holder
- 2 : Air cleaner case



### 2. Remove holder (3) from air cleaner case (2), and then remove air cleaner filter (1) from holder.



## INSTALLATION

Note the following, and install in the reverse order of removal.

- Install the air cleaner filter by aligning the seal with the notch of air cleaner case.

## AIR CLEANER FILTER : Inspection (Viscous Paper Type)

INFOID:0000000012354333

## INSPECTION AFTER REMOVAL

Examine with eyes that there is no stain, clogging, or damage on air cleaner element.

- Remove dusts (such as dead leaves) on air cleaner element surface and inside cleaner case.
- If clogging or damage is observed, replace the air cleaner element.

### **CAUTION:**

**Never clean the viscous paper type air cleaner element by blowing as there is a risk of deterioration of its performance**

## MAINTENANCE INTERVAL

Refer to [MA-9, "FOR NORTH AMERICA : Introduction of Periodic Maintenance"](#) (FOR NORTH AMERICA) or [MA-12, "FOR MEXICO : Periodic Maintenance"](#) (FOR MEXICO).

## ENGINE OIL

### ENGINE OIL : Draining

INFOID:0000000012354334

### **WARNING:**

- **Never get 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 the engine, and check for engine oil leakage from engine components. Refer to [LU-9, "Inspection"](#).
2. Stop the engine and wait for 10 minutes.
3. Loosen oil filler cap.
4. Remove undercover with power tool.
5. Remove drain plug and then drain engine oil.

# ENGINE MAINTENANCE (VQ37VHR)

## < PERIODIC MAINTENANCE >

### ENGINE OIL : Refilling

INFOID:0000000012354335

1. Install drain plug with new washer. Refer to [EM-48, "Exploded View"](#).

#### **CAUTION:**

Be sure to clean drain plug and install with new washer.

**Tightening torque** : Refer to [EM-48, "Exploded View"](#).

2. Refill with new engine oil.

**Engine oil specification and viscosity:** Refer to [MA-16, "FOR NORTH AMERICA : Fluids and Lubricants"](#) (FOR NORTH AMERICA) or [MA-18, "FOR MEXICO : Fluids and Lubricants"](#) (FOR MEXICO).

**Engine oil capacity** : Refer to [LU-26, "Periodical Maintenance Specification"](#).

#### **CAUTION:**

- When filling engine oil, do not pull out oil level gauge.
- 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 engine.

3. Warm up the engine and check area around drain plug and oil filter for engine oil leakage.
4. Stop the engine and wait for 10 minutes.
5. Check the engine oil level. Refer to [LU-9, "Inspection"](#).

### OIL FILTER

#### OIL FILTER : Removal and Installation

INFOID:0000000012354336

##### REMOVAL

#### **CAUTION:**

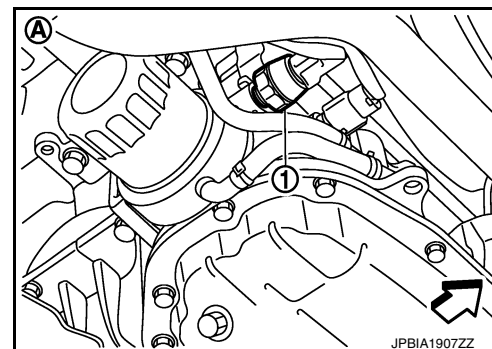
- Oil filter is provided with relief valve. Use genuine NISSAN oil filter or equivalent.
- Never get burned when engine and engine oil may be hot.
- When removing, prepare a shop cloth to absorb any engine oil leakage or spillage.
- Never allow engine oil to adhere to drive belt.
- Completely wipe off any engine oil that adheres to engine and vehicle.

1. Remove engine undercover with power tool.
2. Using oil filter wrench [SST: KV10115801 (J-38956)] (B), remove oil filter.

##### WITH OIL COOLER MODELS

- 2WD models

- 1 : Oil pressure switch  
A : Vehicle under view  
⇐ : Engine front

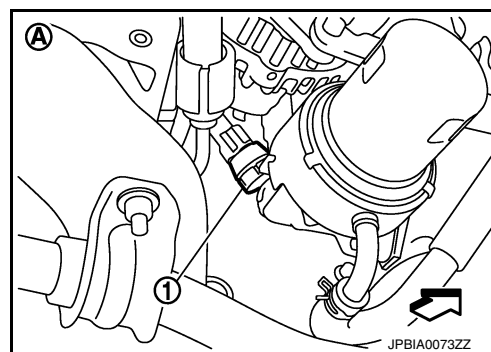


# ENGINE MAINTENANCE (VQ37VHR)

## < PERIODIC MAINTENANCE >

- AWD models

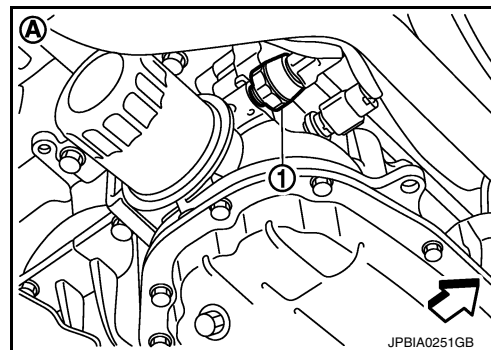
- 1 : Oil pressure switch  
A : Vehicle under view  
⇐ : Engine front



### WITHOUT OIL COOLER MODELS

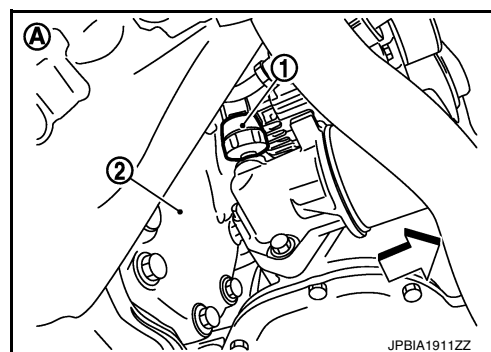
- 2WD models

- 1 : Oil pressure switch  
A : Vehicle under view  
⇐ : Engine front



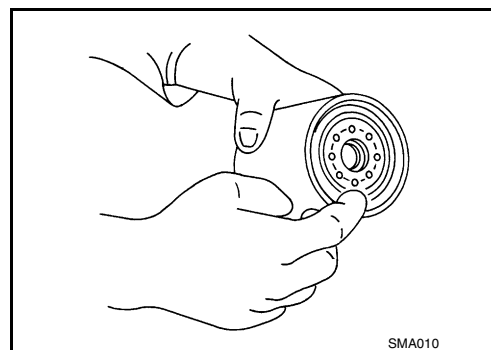
- AWD models

- 1 : Oil pressure switch  
2 : Front final drive  
A : Vehicle under view  
⇐ : Engine front



## INSTALLATION

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



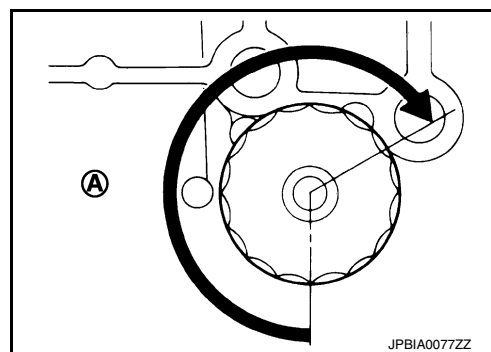
# ENGINE MAINTENANCE (VQ37VHR)

## < PERIODIC MAINTENANCE >

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

### Oil filter:

: 17.7 N·m (1.8 kg-m, 13 ft-lb)



INFOID:000000012354337

## OIL FILTER : Inspection

### INSPECTION AFTER INSTALLATION

1. Check the engine oil level. Refer to [LU-9. "Inspection"](#).
2. Start the engine, and check there is no leak of engine oil.
3. Stop the engine and wait for 10 minutes.
4. Check the engine oil level, and adjust the level. Refer to [LU-9. "Inspection"](#).

## SPARK PLUG

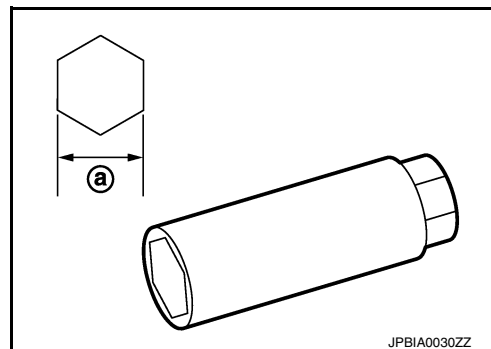
### SPARK PLUG : Removal and Installation

INFOID:000000012354338

#### REMOVAL

1. Remove engine cover with power tool. Refer to [EM-27. "Exploded View"](#).
2. Remove air cleaner case and air duct (RH and LH). Refer to [EM-29. "Exploded View"](#).
3. Remove electric throttle control actuator. Refer to [EM-31. "Exploded View"](#).
4. Remove ignition coil. Refer to [EM-54. "Removal and Installation"](#).
5. Remove spark plug with a spark plug wrench (commercial service tool).

a : 14 mm (0.55 in)



#### INSTALLATION

Installation is the reverse order of removal.

### SPARK PLUG : Inspection

INFOID:000000012354339

#### INSPECTION AFTER REMOVAL

Use the standard type spark plug for normal condition.

Spark plug (Standard type) : Refer to [EM-155. "Spark Plug"](#).

**CAUTION:**

## ENGINE MAINTENANCE (VQ37VHR)

### < PERIODIC MAINTENANCE >

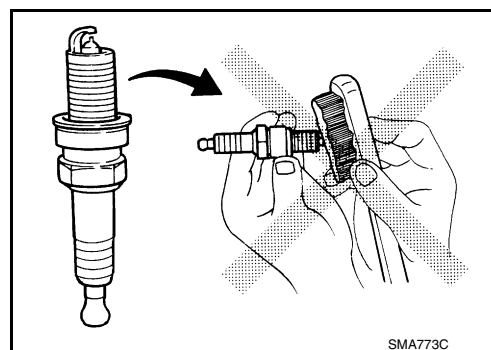
- Never drop or shock spark plug.
- Never use a wire brush for cleaning.
- If plug tip is covered with carbon, use spark plug cleaner to clean.

#### Cleaner air pressure

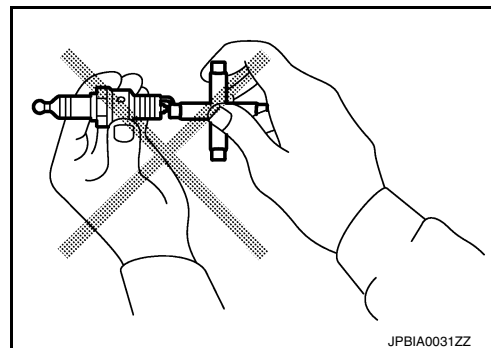
: Less than 588 kPa (6 kg/cm<sup>2</sup>, 85 psi)

#### Cleaning time

: Less than 20 seconds



- Check and adjustment of plug gap is not required between change intervals.



## EVAP VAPOR LINES

### EVAP VAPOR LINES : Inspection

INFOID:0000000012354340

1. Visually inspect EVAP vapor lines for improper attachment and for cracks, damage, loose connections, chafing and deterioration.
  - For USA and Canada, refer to [EC-556, "Inspection"](#).
  - For Mexico, refer to [EC-975, "Inspection"](#).
2. Inspect fuel tank filler cap vacuum relief valve for clogging, sticking, etc.
  - For USA and Canada, refer to [EC-380, "Component Inspection"](#).
  - For Mexico, refer to [EC-975, "Inspection"](#).

# ENGINE MAINTENANCE (VK56VD)

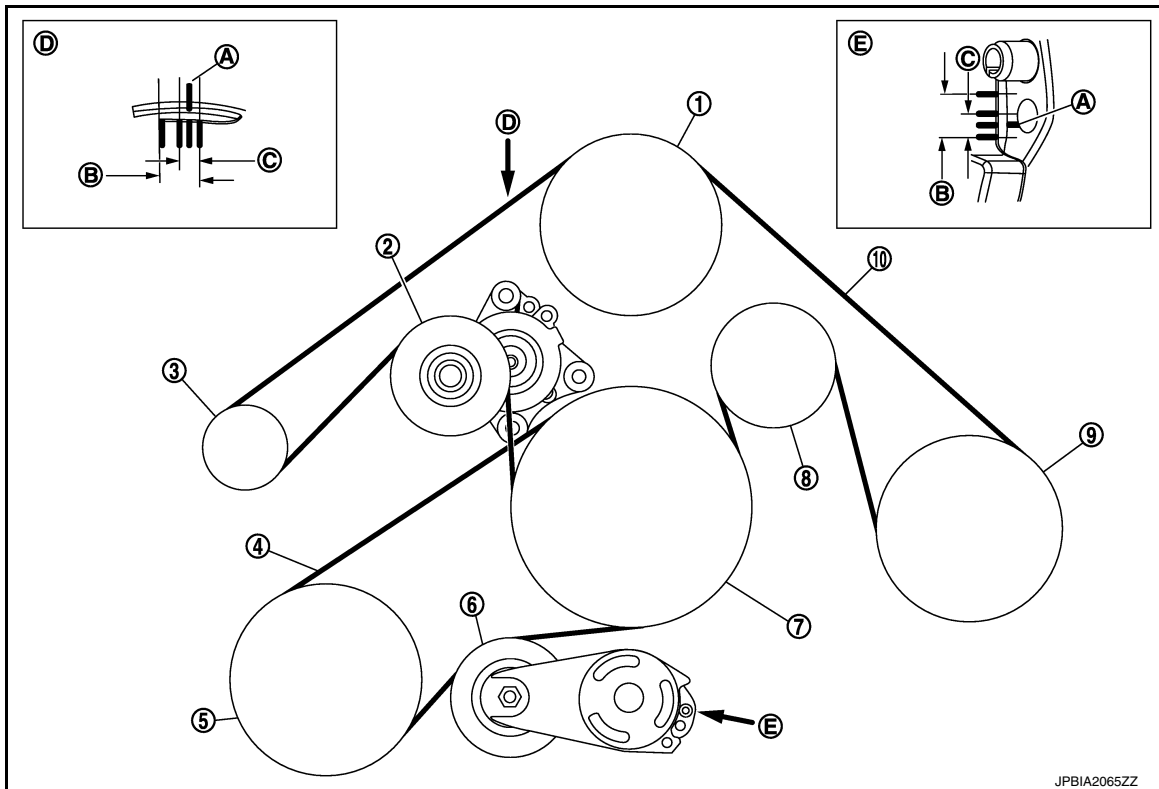
< PERIODIC MAINTENANCE >

## ENGINE MAINTENANCE (VK56VD)

### DRIVE BELT

#### DRIVE BELT : Exploded View

INFOID:000000012354341



- |  |  |  |
|--|--|--|
| 1. Water pump                                      | 2. Auto-tensioner (for alternator, water pump and A/C compressor belt) | 3. Alternator  |
| 4. Power steering oil pump belt                    | 5. Power steering oil pump   | 6. Auto-tensioner (for power steering oil pump belt) |
| 7. Crankshaft pulley                               | 8. Idler pulley  | 9. A/C compressor                                    |
| 10. Alternator, water pump and A/C compressor belt |  |  |
| A. Indicator                                       | B. Possible use range  | C. Range when new drive belt is installed            |
| D. View D  | E. View E  |  |

#### DRIVE BELT : Checking

INFOID:000000012354342

#### **WARNING:**

**Be sure to perform the these steps when engine is stopped.**

- Remove air duct (inlet) when inspecting alternator, water pump and A/C compressor belt.
- Remove engine undercover with power tool when inspecting power steering oil pump belt.
- Check that the indicator (A) (notch on fixed side) of each auto-tensioner is within the possible use range (B).

#### **NOTE:**

- Check the each auto-tensioners indication when the engine is cold.
- When new drive belts is installed, the indicator (notch on fixed side) should be within the range (C) in the figure.
- Visually check all drive belts for wear, damage or cracks.
- If the indicator (notch on fixed side) is out of the possible use range or drive belts are damaged, replace drive belts.

# ENGINE MAINTENANCE (VK56VD)

## < PERIODIC MAINTENANCE >

### DRIVE BELT : Tension Adjustment

INFOID:0000000012354343

Refer to [EM-309, "Drive Belts"](#).

### ENGINE COOLANT

#### ENGINE COOLANT : Draining

INFOID:0000000012354344

#### **WARNING:**

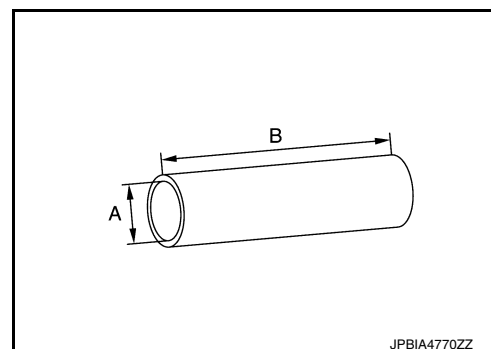
- Never change engine coolant when the engine is hot to avoid being scalded.
- Wrap a thick cloth around radiator cap and carefully remove radiator cap. First, turn radiator cap a quarter of a turn to release built-up pressure. Then turn radiator cap all the way.
- Never spill engine coolant on drive belt.

1. Connect drain hose.

#### **NOTE:**

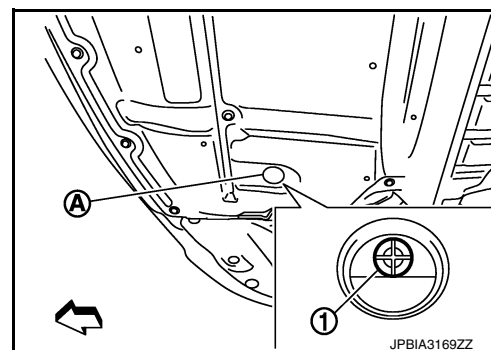
Use a general-purpose hose with the dimensions shown in the figure.

- A :  $\phi$  15 - 16 mm (0.59 - 0.63 in)  
B : 145 mm (5.17 in)



2. Open radiator drain plug (1) at the bottom of radiator, and then remove radiator cap.

- A : Radiator drain plug hole  
↶ : Vehicle front



When draining all of engine coolant in the system, open water drain plug on cylinder block. Refer to [EM-283, "Disassembly and Assembly"](#).

3. Remove reservoir tank if necessary, and drain engine coolant and clean reservoir tank before installing.
4. Check drained engine coolant for contaminants such as rust, corrosion or discoloration. If contaminated, flush the engine cooling system. Refer to [CO-42, "Flushing"](#).
5. Disconnect drain hose.

#### ENGINE COOLANT : Refilling

INFOID:0000000012354345

#### **CAUTION:**

- Do not put additive such as waterleak preventive, since it may cause cooling waterway clogging.
- When refilling use Genuine NISSAN Long Life Antifreeze/Coolant (blue) or equivalent in its quality mixed with water (distilled or demineralized). Refer to [MA-16, "FOR NORTH AMERICA : Fluids and Lubricants"](#) (FOR NORTH AMERICA), [MA-18, "FOR MEXICO : Fluids and Lubricants"](#) (FOR MEXICO).

1. Remove air cleaner case (LH) and air duct (inlet). Refer to [EM-192, "Exploded View"](#).
2. Install reservoir tank if removed, and radiator drain plug.

#### **CAUTION:**

Be sure to clean drain plug and install with new O-ring.



# ENGINE MAINTENANCE (VK56VD)

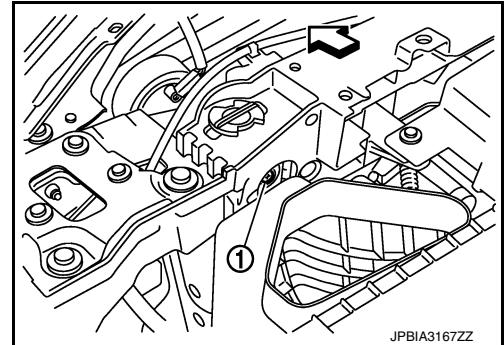
## < PERIODIC MAINTENANCE >

 : 1.2 N·m (0.12 kg-m, 11 in-lb)

If water drain plug on cylinder block is removed, close and tighten it. Refer to [EM-283, "Disassembly and Assembly"](#).

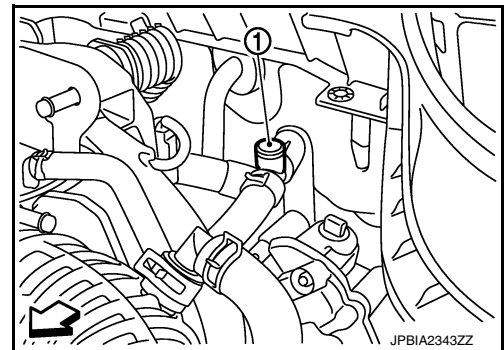
3. Check that each hose clamp is firmly tightened.
4. Remove air relief plug (1) on radiator left side.

↩ : Vehicle front



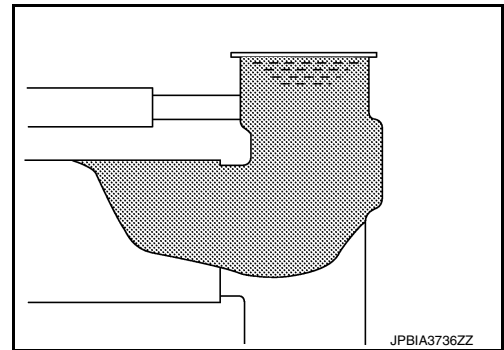
5. Remove air relief plug (1) on heater hose side.

↩ : Vehicle front



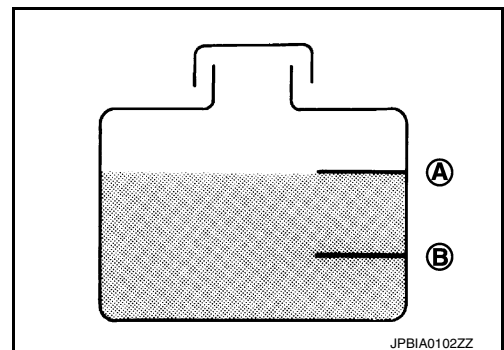
6. Fill up the radiator with cooling water.  
**Pour engine coolant through engine coolant filler neck slowly of less than 2 ℓ (2-1/8 US qt, 1-3/4 Imp qt) a minute to allow air in system to escape.**

**Engine coolant capacity (With reservoir tank at "MAX" level)** : Refer to [CO-56, "Periodical Maintenance Specification"](#).



**Reservoir tank engine coolant capacity (At "MAX" level)** : Refer to [CO-56, "Periodical Maintenance Specification"](#).

A : MAX  
B : MIN



7. When engine coolant overflows air relief hole on radiator, install air relief plug with new O-ring.

 : 1.2 N·m (0.12 kg-m, 11 in-lb)

8. Refill reservoir tank to "MAX" level line with engine coolant.

## ENGINE MAINTENANCE (VK56VD)

### < PERIODIC MAINTENANCE >

9. When engine coolant overflows air relief hole on heater hose, install air relief plug with new O-ring. Then refill radiator with engine coolant.

**CAUTION:**

**Do not reuse O-rings.**

 : 1.2 N·m (0.12 kg-m, 11 in-lb)

10. Install air cleaner case (LH) and air duct (inlet).
11. Install radiator cap.
12. Warm up engine until opening thermostat. Standard for warming-up time is approximately 10 minutes at 3,000 rpm.
- Check thermostat opening condition by touching radiator hose (lower) to see a flow of warm water.
- CAUTION:**
- Watch water temperature gauge so as not to overheat engine.**
13. Stop the engine and cool down to less than approximately 50°C (122°F).
- Cool down using fan to reduce the time.
  - If necessary, refill radiator up to filler neck with engine coolant.
  - Remove the radiator cap to check the fluid level. If the fluid level is low, refill with cooling water and repeat the steps from Step 8.
14. Refill reservoir tank to "MAX" level line with engine coolant.
15. Check cooling system for leakage with engine running.
16. Check flow noise, according to the following steps.

**CAUTION:**

**To check flow noise, turn OFF the radio and close the windows, doors, and the hood.**

- Allow the engine to become cold (approximately 50°C or less).
- Start the engine, maintain 1000 rpm for approximately 30 seconds, and increase the engine speed from 1000 to 3000 rpm. Repeat this cycle three times.
- Check that flow noise can be heard from the heater core during the Step b operation.
- If flow noise can be heard, repeat from Step 12 of Refilling to Step c of Flow Noise Verification Method.
- Check that the reservoir tank cap is tightened.

### ENGINE COOLANT : Flushing

INFOID:0000000012354346

1. Install reservoir tank if removed, and radiator drain plug.

**CAUTION:**

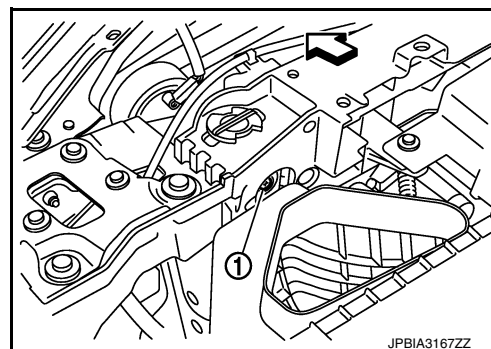
**Be sure to clean drain plug and install with new O-ring.**

 : 1.2 N·m (0.12 kg-m, 11 in-lb)

**If water drain plug on cylinder block is removed, close and tighten it. Refer to [EM-283, "Disassembly and Assembly"](#).**

2. Remove air relief plug (1) on radiator.

 : Vehicle front



3. Fill water inlet with water until water spills from the air relief holes, then close air relief plugs. Fill water inlet and reservoir tank with water and reinstall radiator cap.

# ENGINE MAINTENANCE (VK56VD)

## < PERIODIC MAINTENANCE >

 : 1.2 N·m (0.12 kg-m, 11 in-lb)

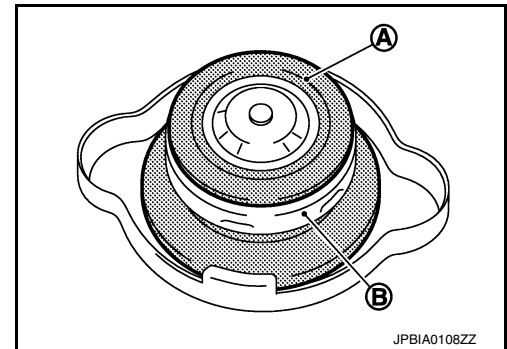
4. Run the engine and warm it up to normal operating temperature.
5. Rev the engine two or three times under no-load.
6. Stop the engine and wait until it cools down.
7. Drain water from the system. Refer to [CO-39, "Draining"](#).
8. Repeat steps 1 through 7 until clear water begins to drain from radiator.
9. Check that the reservoir tank cap is tightened.

## RADIATOR CAP

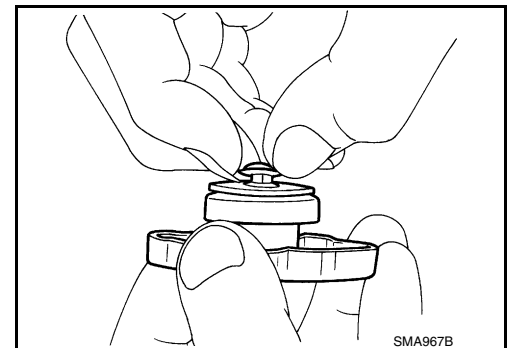
### RADIATOR CAP : Inspection

INFOID:0000000012354347

- Check valve seat of radiator cap.
- Check if valve seat (A) is swollen to the extent that the edge of the metal plunger (B) cannot be seen when watching it vertically from the top.
- Check if valve seat has no soil and damage.

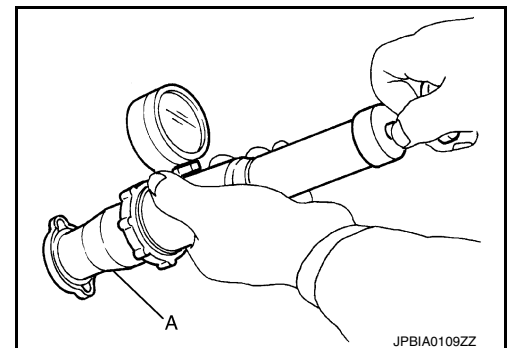


- Pull negative-pressure valve to open it, and check that it close completely when released.
- Check that there is no dirt or damage on the valve seat of radiator cap negative-pressure valve.
- Check that there are no unusualness in the opening and closing conditions of negative-pressure valve.



- Check radiator cap relief pressure.
- When connecting radiator cap to the radiator cap tester (commercial service tool) and the radiator cap tester adapter (commercial service tool) (A), apply engine coolant to the cap seal surface.

**Standard and limit** : Refer to [CO-56, "Radiator"](#).



- Replace radiator cap if there is an unusualness related to the above three.

### **CAUTION:**

**When installing radiator cap, thoroughly wipe out the water inlet filler neck to remove any waxy residue or foreign material.**

## RADIATOR

# ENGINE MAINTENANCE (VK56VD)

## < PERIODIC MAINTENANCE >

### RADIATOR : Inspection

INFOID:0000000012354348

Check radiator for mud or clogging. If necessary, clean radiator as per the following:

- Be careful not to bend or damage radiator fins.
  - When radiator is cleaned without removal, remove all surrounding parts such as radiator cooling fan assembly and horns. Then tape harness and connectors to prevent water from entering.
1. Apply water by hose to the back side of the radiator core vertically downward.
  2. Apply water again to all radiator core surfaces once per minute.
  3. Stop washing if any stains no longer flow out from radiator.
  4. Blow air into the back side of radiator core vertically downward.
    - Use compressed air lower than 490 kPa (5 kg/cm<sup>2</sup>, 71 psi) and keep distance more than 30 cm (11.8 in).
  5. Blow air again into all the radiator core surfaces once per minute until no water sprays out.

### FUEL LINES

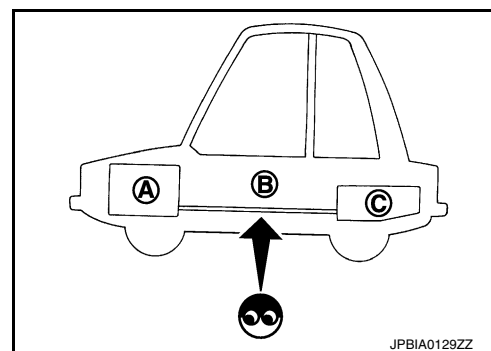
#### FUEL LINES : Inspection

INFOID:0000000012354349

Inspect fuel lines, fuel filler cap and fuel tank for improper attachment, leakage, cracks, damage, loose connections, chafing or deterioration.

- A : Engine  
B : Fuel line  
C : Fuel tank

If necessary, repair or replace damaged parts.



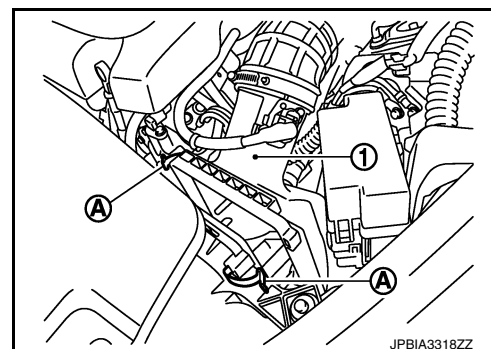
### AIR CLEANER FILTER

#### AIR CLEANER FILTER : Removal and Installation

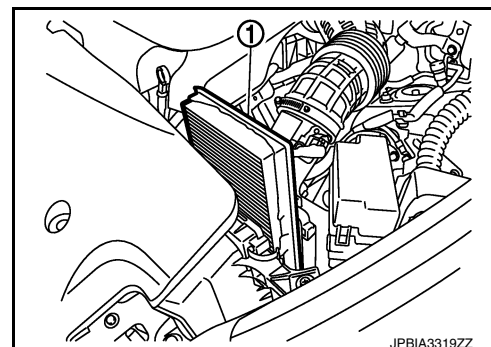
INFOID:0000000012354350

##### REMOVAL

1. Unhook clips (A), and move the air cleaner cover assembly (1).



2. Remove air cleaner filter (1).



##### INSTALLATION

# ENGINE MAINTENANCE (VK56VD)

## < PERIODIC MAINTENANCE >

Note the following item, and install in the reverse order of removal.

- Install the air cleaner filter by aligning the seal with the notch of air cleaner case.

### AIR CLEANER FILTER : Inspection (Viscous Paper Type)

INFOID:0000000012354351

#### INSPECTION AFTER REMOVAL

Examine with eyes that there is no stain, clogging, or damage on air cleaner element.

- Remove dusts (such as dead leaves) on air cleaner element surface and inside cleaner case.
- If clogging or damage is observed, replace the air cleaner element.

#### CAUTION:

**Never clean the viscous paper type air cleaner element by blowing as there is a risk of deterioration of its performance**

#### MAINTENANCE INTERVAL

Refer to [MA-9, "FOR NORTH AMERICA : Introduction of Periodic Maintenance"](#) (FOR NORTH AMERICA) or [MA-12, "FOR MEXICO : Periodic Maintenance"](#) (FOR MEXICO).

## ENGINE OIL

### ENGINE OIL : Draining

INFOID:0000000012354352

#### WARNING:

- **Be careful not to get burned, 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 the engine, and check for engine oil leakage from engine components. Refer to [LU-33, "Inspection"](#).
2. Stop the engine and wait for 15 minutes.
3. Loosen oil filler cap.
4. Remove drain plug and then drain engine oil.

### ENGINE OIL : Refilling

INFOID:0000000012354353

1. Install drain plug with new washer.

#### CAUTION:

**Be sure to clean drain plug and install with new washer.**

#### Tightening torque

**2WD models** : Refer to [EM-212, "2WD : Exploded View"](#).

**AWD models** : Refer to [EM-215, "AWD : Exploded View"](#).

2. Refill with new engine oil.

**Engine oil specification and viscosity:** Refer to [MA-16, "FOR NORTH AMERICA : Fluids and Lubricants"](#) (FOR NORTH AMERICA) or [MA-18, "FOR MEXICO : Fluids and Lubricants"](#) (FOR MEXICO).

**Engine oil capacity** : Refer to [LU-41, "Periodical Maintenance Specification"](#).

#### 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 engine.**
3. Warm up the engine and check area around drain plug and oil filter for engine oil leakage.
  4. Stop the engine and wait for 15 minutes.
  5. Check the engine oil level. Refer to [LU-33, "Inspection"](#).

## OIL FILTER

# ENGINE MAINTENANCE (VK56VD)

## < PERIODIC MAINTENANCE >

### OIL FILTER : Removal and Installation

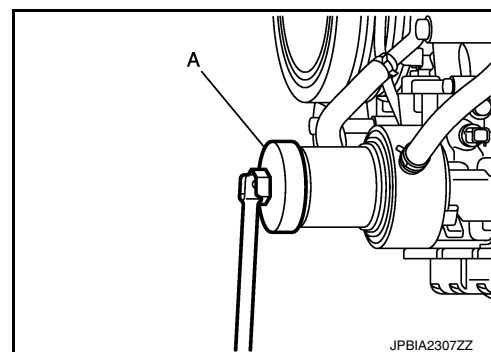
INFOID:0000000012354354

#### REMOVAL

##### CAUTION:

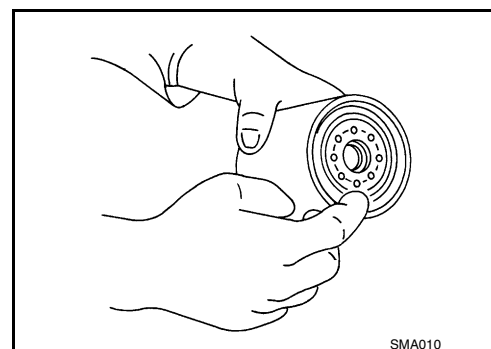
- Oil filter is provided with relief valve. Use genuine NISSAN oil filter or an equivalent.
- Be careful not to get burned when engine and engine oil may be hot.
- When removing, prepare a shop cloth to absorb any engine oil leakage or spillage.
- Never allow engine oil to adhere to drive belts.
- Completely wipe off any engine oil that adheres to engine and vehicle.

1. Remove engine undercover with power tool.
2. Using oil filter wrench [SST: KV10115801 (J38956)] (A), remove oil filter.



#### INSTALLATION

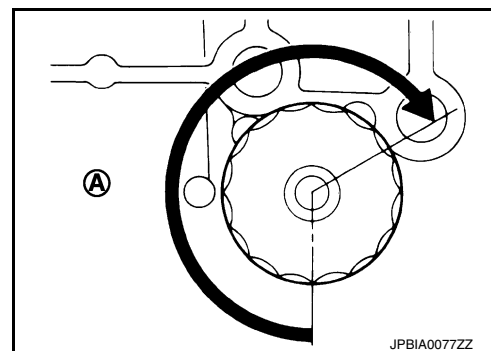
1. Remove foreign matter adhering to oil filter installation surface.
2. Apply engine oil to the oil seal contact surface of new oil filter.



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

##### Oil filter:

: 17.7 N·m (1.8 kg-m, 13 ft-lb)



### OIL FILTER : Inspection

INFOID:0000000012354355

#### INSPECTION AFTER INSTALLATION

1. Check the engine oil level. Refer to [LU-33, "Inspection"](#).
2. Start the engine, and check there is no leakage of engine oil.
3. Stop the engine and wait for 15 minutes.
4. Check the engine oil level, and adjust the level. Refer to [LU-33, "Inspection"](#).

### SPARK PLUG

# ENGINE MAINTENANCE (VK56VD)

## < PERIODIC MAINTENANCE >

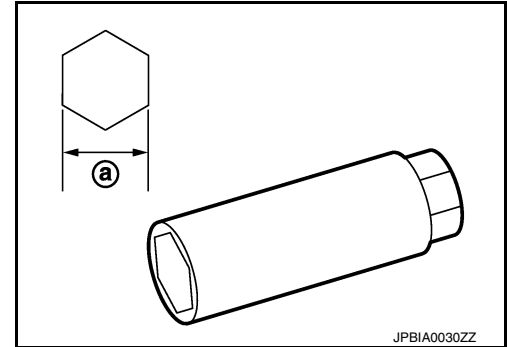
### SPARK PLUG : Removal and Installation

INFOID:000000012354356

#### REMOVAL

1. Remove engine cover. Refer to [EM-189, "Exploded View"](#).
2. Remove air duct.
3. Remove the harness bracket. (bank 2 side)
4. Remove ignition coil. Refer to [EM-194, "Exploded View"](#).
5. Remove spark plug with a spark plug wrench (commercial service tool).

a : 14 mm (0.55 in)



#### INSTALLATION

Installation is the reverse order of removal.

#### SPARK PLUG : Inspection

INFOID:000000012354357

#### INSPECTION AFTER REMOVAL

Use the standard type spark plug for normal condition.

**Spark plug (Standard type) : Refer to [EM-309, "Spark Plug"](#).**

#### CAUTION:

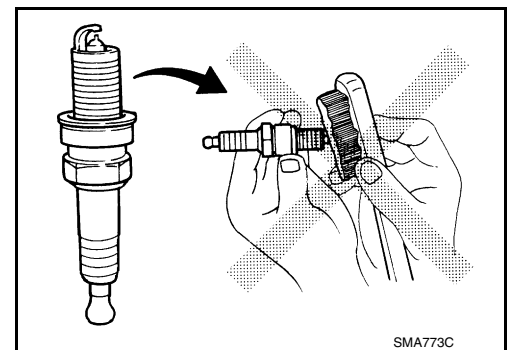
- Never drop or impact spark plug.
- Never use a wire brush for cleaning.
- If plug tip is covered with carbon, use spark plug cleaner to clean.

**Cleaner air pressure**

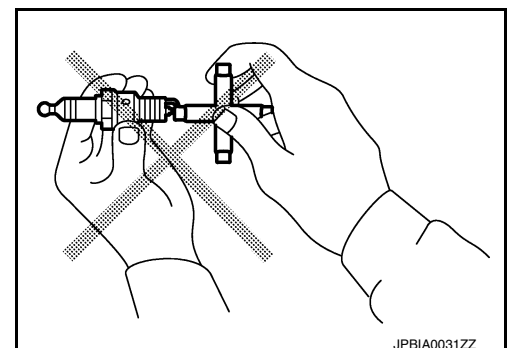
**: Less than 588 kPa (6 kg/cm<sup>2</sup>, 85 psi)**

**Cleaning time**

**: Less than 20 seconds**



- Measure spark plug gap. When it exceeds the limit, replace spark plug even if it is within the specified replacement mileage. Refer to [EM-309, "Spark Plug"](#).
- Spark plug gap adjustment is not required between replacement intervals.



#### EVAP VAPOR LINES

## ENGINE MAINTENANCE (VK56VD)

### < PERIODIC MAINTENANCE >

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#### EVAP VAPOR LINES : Inspection

INFOID:0000000012354358

1. Visually inspect EVAP vapor lines for improper attachment and for cracks, damage, loose connections, chafing and deterioration.
  - For USA and Canada, refer to [EC-1565, "Inspection"](#).
  - For Mexico, refer to [EC-2026, "Inspection"](#).
2. Inspect fuel tank filler cap vacuum relief valve for clogging, sticking, etc.
  - For USA and Canada, refer to [EC-1375, "Component Inspection \(Fuel Filler Cap\)"](#).
  - For Mexico, refer to [EC-2026, "Inspection"](#).



# CHASSIS MAINTENANCE

< PERIODIC MAINTENANCE >

## CHASSIS MAINTENANCE

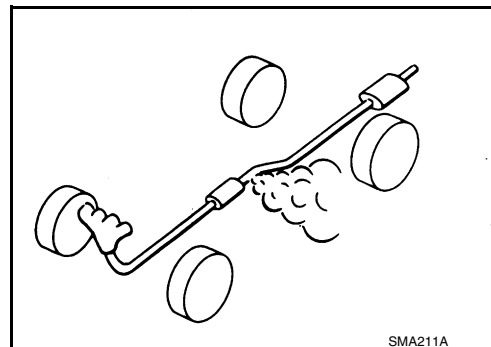
### EXHAUST SYSTEM

#### EXHAUST SYSTEM : Inspection

INFOID:0000000012354359

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

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



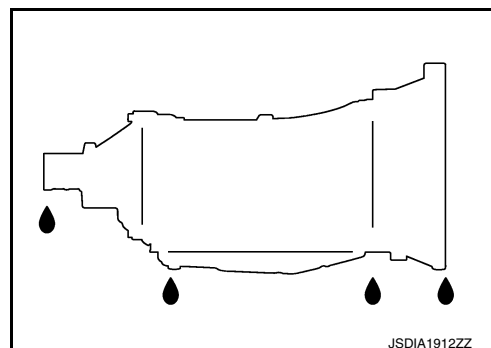
### A/T FLUID

#### A/T FLUID : Inspection

INFOID:0000000012354360

#### FLUID LEAKAGE

- Check transaxle surrounding area (oil seal and plug etc.) for fluid leakage.
- If anything is found, repair or replace damaged parts and adjust A/T fluid level. Refer to [TM-184, "Adjustment"](#).



### TRANSFER FLUID

#### TRANSFER FLUID : Inspection

INFOID:0000000012354361

#### FLUID LEAKAGE

Check transfer surrounding area (oil seal, drain plug, and filler plug etc.) for fluid leakage. Repair or replace parts causing fluid leakage, if necessary.

#### FLUID LEVEL

If there is no fluid leakage, the fluid level is judged as normal.

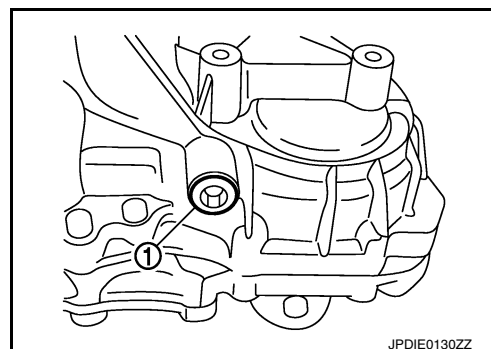
#### TRANSFER FLUID : Draining

INFOID:0000000012354362

1. Run the vehicle to warm up the transfer unit sufficiently.
2. Stop the engine, and remove the drain plug (1) to drain the transfer fluid.
3. Set a new gasket onto the drain plug, and install it on the transfer and tighten to the specified torque. Refer to [DLN-69, "Exploded View"](#).

**CAUTION:**

**Never reuse gasket.**



# CHASSIS MAINTENANCE

## < PERIODIC MAINTENANCE >

### TRANSFER FLUID : Refilling

INFOID:000000012354363

1. Remove filler plug (1) and gasket. Then fill fluid up to mounting hole for the filler plug.

**Fluid and viscosity**

: Refer to [MA-16, "FOR NORTH AMERICA : Fluids and Lubricants"](#).

**Fluid capacity**

: Refer to [DLN-88, "General Specifications"](#).

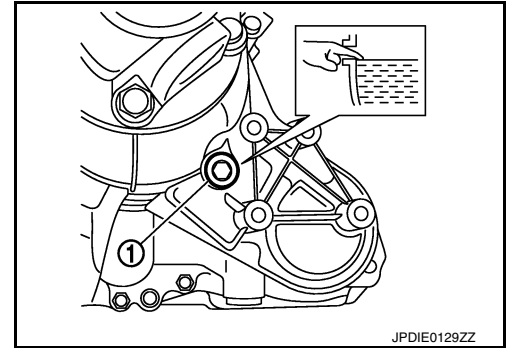
#### **CAUTION:**

**Carefully fill the fluid. (Fill up for approximately 3 minutes.)**

2. Leave the vehicle for 3 minutes, and check the fluid level again.
3. Set a new gasket onto filler plug, and install it on transfer and tighten to the specified torque. Refer to [DLN-69, "Exploded View"](#).

#### **CAUTION:**

**Never reuse gasket.**



### FRONT PROPELLER SHAFT: 2S56A

### FRONT PROPELLER SHAFT: 2S56A : Inspection

INFOID:000000012354364

#### APPEARANCE AND NOISE

- Check the propeller shaft tube surface for dents or cracks. If damaged, replace propeller shaft assembly.
- If center bearing is noisy or damaged, replace propeller shaft assembly.

#### VIBRATION

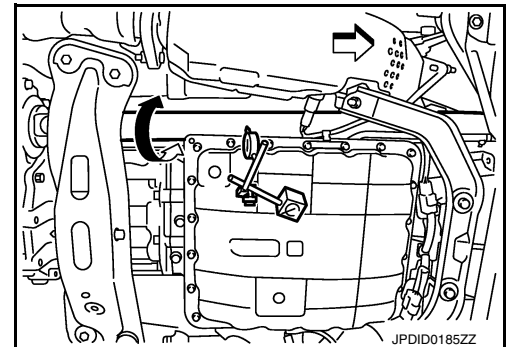
If vibration is present at high speed, inspect propeller shaft runout first.

1. With a dial indicator, measure propeller shaft runout at runout measuring points by rotating final drive companion flange with hands.

↔: Vehicle front

**Propeller shaft runout**

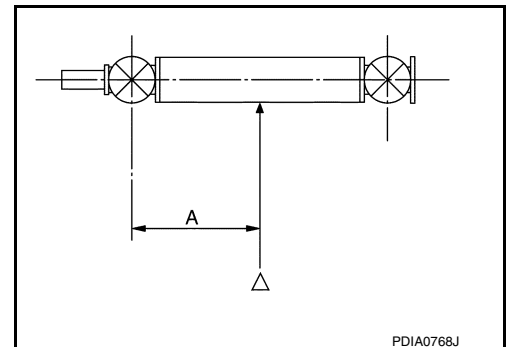
: Refer to [DLN-99, "Propeller Shaft Runout"](#).



- Propeller shaft runout measuring point (Point "A")

**Dimension A**      **VQ37VHR** : 381.5 mm (15.02 in)  
                             **VK56VD** : 386.5 mm (15.22 in)

2. If runout still exceeds specifications, separate propeller shaft at final drive companion flange; then change the phase between companion flange and propeller shaft by the one bolt hole at a time and install propeller shaft.
3. If runout is more than the limit value, remove and check propeller shaft.
4. Check the vibration by driving vehicle.



### REAR PROPELLER SHAFT: 3S80A-R

### REAR PROPELLER SHAFT: 3S80A-R : Inspection

INFOID:000000012354365

#### APPEARANCE AND NOISE

- Check the propeller shaft tube surface for dents or cracks. If damaged, replace propeller shaft assembly.

# CHASSIS MAINTENANCE

## < PERIODIC MAINTENANCE >

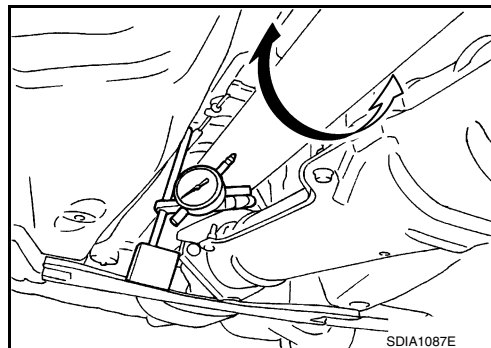
- If center bearing is noisy or damaged, replace propeller shaft assembly.

### VIBRATION

If vibration is present at high speed, inspect propeller shaft runout first.

1. With a dial indicator, measure propeller shaft runout at runout measuring points by rotating final drive companion flange with hands.

**Propeller shaft runout** : Refer to [DLN-108, "Propeller Shaft Runout"](#).

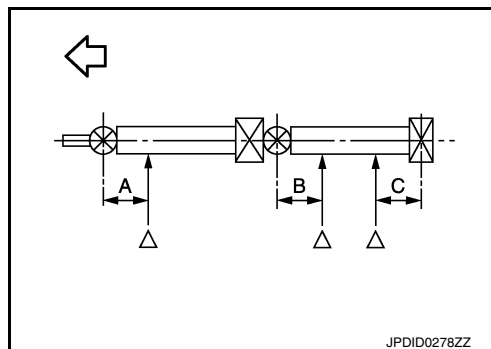


- Propeller shaft runout measuring point (Point "Δ")

←: Vehicle front

**Dimension**

<b>A</b>	: 172 mm (6.77 in)
<b>B</b>	: 172 mm (6.77 in)
<b>C</b>	: 172 mm (6.77 in)



2. If runout still exceeds specifications, separate propeller shaft at final drive companion flange; then change the phase between companion flange and propeller shaft by the one bolt hole at a time and install propeller shaft.
3. If runout is more than the limit value, remove and check propeller shaft.
4. Check the vibration by driving vehicle.

## REAR PROPELLER SHAFT: 3F80A-R

### REAR PROPELLER SHAFT: 3F80A-R : Inspection

INFOID:0000000012354366

### APPEARANCE AND NOISE

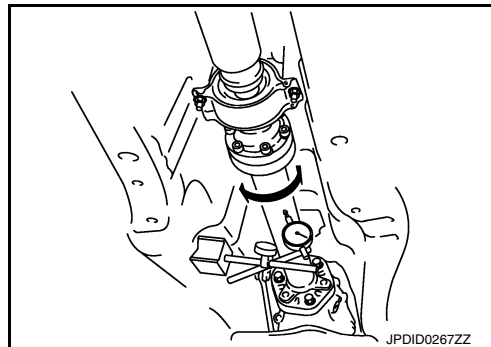
- Check the propeller shaft tube surface for dents or cracks. If damaged, replace propeller shaft assembly.
- If center bearing is noisy or damaged, replace propeller shaft assembly.

### VIBRATION

If vibration is present at high speed, inspect propeller shaft runout first.

1. With a dial indicator, measure propeller shaft runout at runout measuring points by rotating final drive companion flange with hands.

**Propeller shaft runout** : Refer to [DLN-117, "Propeller Shaft Runout"](#).



# CHASSIS MAINTENANCE

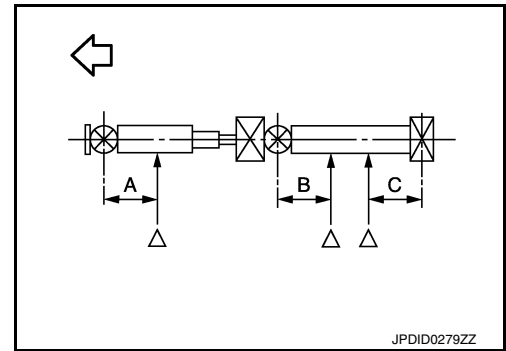
## < PERIODIC MAINTENANCE >

- Propeller shaft runout measuring point (Point “△”)

↔: Vehicle front

Dimension	A	: 192 mm (7.56 in)
	B	: 172 mm (6.77 in)
	C	: 172 mm (6.77 in)

2. If runout still exceeds specifications, separate propeller shaft at final drive companion flange or transfer companion flange; then change the phase between companion flange and propeller shaft by the one bolt hole at a time and install propeller shaft.
3. If runout is more than the limit value, remove and check propeller shaft.
4. Check the vibration by driving vehicle.



## FRONT DIFFERENTIAL GEAR OIL: F160A

### FRONT DIFFERENTIAL GEAR OIL: F160A : Inspection

INFOID:0000000012354367

#### OIL LEAKAGE

Make sure that oil is not leaking from final drive assembly or around it.

#### OIL LEVEL

- Remove filler plug (1) and check oil level from filler plug mounting hole as shown in the figure.

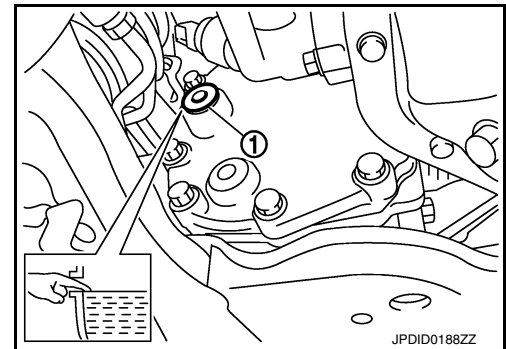
#### CAUTION:

**Never start engine while checking oil level.**

- Set a gasket on filler plug and install it on final drive assembly. Refer to [DLN-138, "Exploded View"](#).

#### CAUTION:

**Never reuse gasket.**



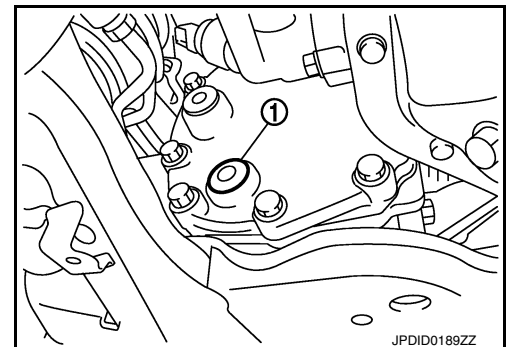
### FRONT DIFFERENTIAL GEAR OIL: F160A : Draining

INFOID:0000000012354368

1. Stop engine.
2. Remove drain plug (1) and drain gear oil.
3. Set a gasket on drain plug and install it to final drive assembly and tighten to the specified torque. Refer to [DLN-138, "Exploded View"](#).

#### CAUTION:

**Never reuse gasket.**



# CHASSIS MAINTENANCE

< PERIODIC MAINTENANCE >

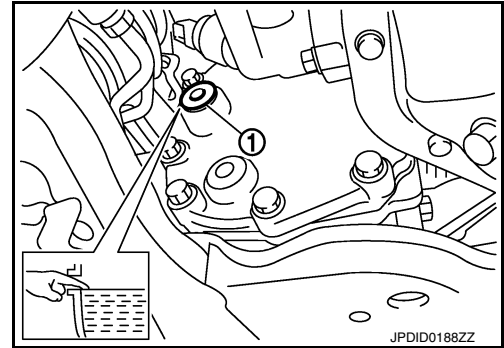
## FRONT DIFFERENTIAL GEAR OIL: F160A : Refilling

INFOID:0000000012354369

1. Remove filler plug (1). Fill with new gear oil until oil level reaches the specified level near filler plug mounting hole.

**Oil grade and Viscosity** : Refer to [MA-16, "FOR NORTH AMERICA : Fluids and Lubricants"](#).

**Oil capacity** : Refer to [DLN-163, "General Specifications"](#).



2. After refilling oil, check oil level. Set a gasket to filler plug, then install it to final drive assembly. Refer to [DLN-138, "Exploded View"](#).

**CAUTION:**

**Never reuse gasket.**

## REAR DIFFERENTIAL GEAR OIL: R200

## REAR DIFFERENTIAL GEAR OIL: R200 : Inspection

INFOID:0000000012354370

### OIL LEAKAGE

- Make sure that oil is not leaking from final drive assembly or around it.

### OIL LEVEL

- Remove filler plug (1) and check oil level from filler plug mounting hole as shown in the figure.

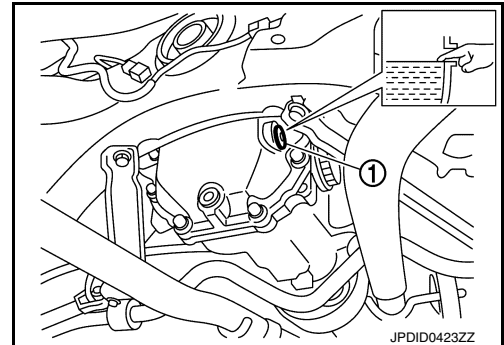
**CAUTION:**

**Never start engine while checking oil level.**

- Set a gasket on filler plug and install it on final drive assembly. Refer to [DLN-180, "Exploded View"](#).

**CAUTION:**

**Never reuse gasket.**



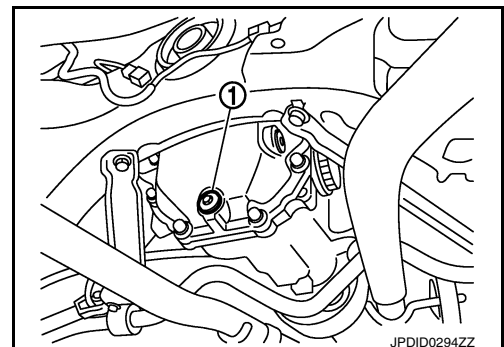
## REAR DIFFERENTIAL GEAR OIL: R200 : Draining

INFOID:0000000012354371

1. Stop engine.
2. Remove drain plug (1) and drain gear oil.
3. Set a gasket on drain plug and install it to final drive assembly and tighten to the specified torque. Refer to [DLN-180, "Exploded View"](#).

**CAUTION:**

**Never reuse gasket.**



# CHASSIS MAINTENANCE

## < PERIODIC MAINTENANCE >

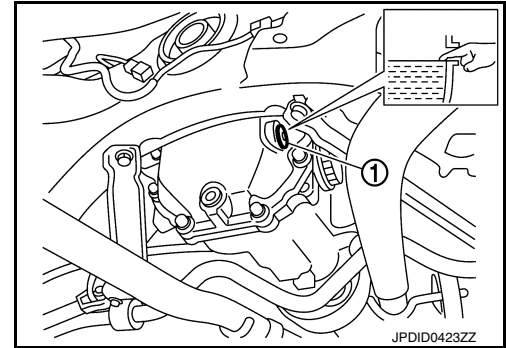
### REAR DIFFERENTIAL GEAR OIL: R200 : Refilling

INFOID:000000012354372

1. Remove filler plug (1). Fill with new gear oil until oil level reaches the specified level near filler plug mounting hole.

**Oil grade and viscosity** : Refer to [MA-16, "FOR NORTH AMERICA : Fluids and Lubricants"](#) (For North America), [MA-18, "FOR MEXICO : Fluids and Lubricants"](#) (For Mexico).

**Oil capacity** : Refer to [DLN-201, "General Specifications"](#).



2. After refilling oil, check oil level. Set a gasket to filler plug, then install it to final drive assembly. Refer to [DLN-180, "Exploded View"](#).

#### **CAUTION:**

**Never reuse gasket.**

### REAR DIFFERENTIAL GEAR OIL: R208

### REAR DIFFERENTIAL GEAR OIL: R208 : Inspection

INFOID:000000012354373

#### OIL LEAKAGE

- Make sure that oil is not leaking from final drive assembly or around it.

#### OIL LEVEL

- Remove filler plug (1) and check oil level from filler plug mounting hole as shown in the figure.

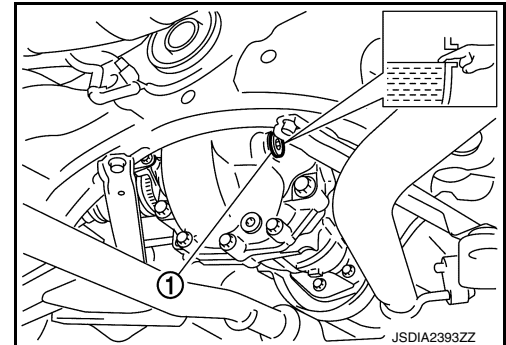
#### **CAUTION:**

**Never start engine while checking oil level.**

- Set a gasket on filler plug and install it on final drive assembly. Refer to [DLN-218, "Exploded View"](#).

#### **CAUTION:**

**Never reuse gasket.**



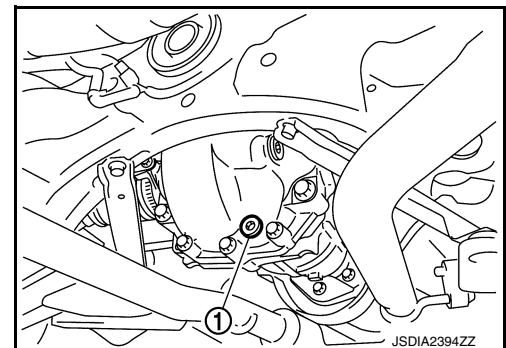
### REAR DIFFERENTIAL GEAR OIL: R208 : Draining

INFOID:000000012354374

1. Stop engine.
2. Remove drain plug (1) and drain gear oil.
3. Set a gasket on drain plug and install it to final drive assembly and tighten to the specified torque. Refer to [DLN-218, "Exploded View"](#).

#### **CAUTION:**

**Never reuse gasket.**



# CHASSIS MAINTENANCE

## < PERIODIC MAINTENANCE >

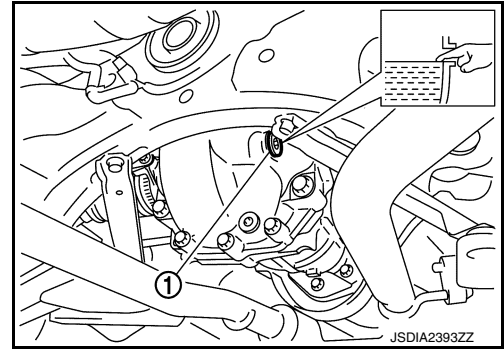
### REAR DIFFERENTIAL GEAR OIL: R208 : Refilling

INFOID:0000000012354375

1. Remove filler plug (1). Fill with new gear oil until oil level reaches the specified level near filler plug mounting hole.

**Oil grade and viscosity** : Refer to [MA-16, "FOR NORTH AMERICA : Fluids and Lubricants"](#) (For North America), [MA-18, "FOR MEXICO : Fluids and Lubricants"](#) (For Mexico).

**Oil capacity** : Refer to [DLN-236, "General Specifications"](#).



2. After refilling oil, check oil level. Set a gasket to filler plug, then install it to final drive assembly. Refer to [DLN-218, "Exploded View"](#).

#### **CAUTION:**

**Never reuse gasket.**

### WHEELS (BONDING WEIGHT TYPE)

### WHEELS (BONDING WEIGHT TYPE) : Adjustment

INFOID:0000000013051741

### BALANCING WHEELS (BONDING WEIGHT TYPE)

#### Preparation Before Adjustment

Using releasing agent, remove double-faced adhesive tape from the road wheel.

#### **CAUTION:**

- **Be careful not to scratch the road wheel during removal.**
- **After removing double-faced adhesive tape, wipe clean traces of releasing agent from the road wheel.**

#### Wheel Balance Adjustment

- The details of the adjustment procedure are different for each model of wheel balancer. Therefore, refer to each instruction manual.
- If a tire balance machine has adhesion balance weight mode settings and drive-in weight mode setting, select and adjust a drive-in weight mode suitable for road wheels.

1. Set road wheel on tire balance machine using the center hole as a guide. Start the tire balance machine.
2. When inner and outer unbalance values are shown on the tire balance machine indicator, multiply outer unbalance value by  $5/3$  to determine balance weight that should be used. Select the outer balance weight with a value closest to the calculated value above and install to the designated outer position of, or at the designated angle in relation to the road wheel.

#### **CAUTION:**

- **Never install the inner balance weight before installing the outer balance weight.**
- **Before installing the balance weight, always to clean the mating surface of the road wheel.**

- a. Indicated unbalance value  $\times 5/3$  = balance weight to be installed  
**Calculation example:**

$23 \text{ g (0.81 oz)} \times 5/3 = 38.33 \text{ g (1.35 oz)} \Rightarrow 37.5 \text{ g (1.32 oz)}$  balance weight (closer to calculated balance weight value)

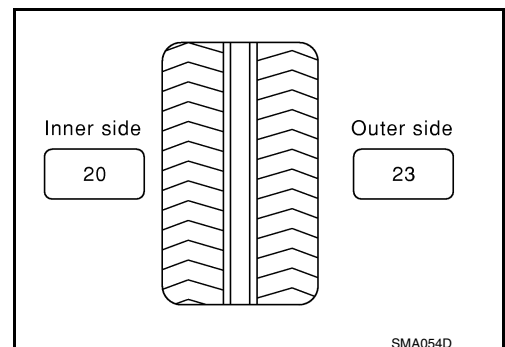
#### **NOTE:**

Note that balance weight value must be closer to the calculated balance weight value.

#### **Example:**

$36.2 \Rightarrow 35 \text{ g (1.23 oz)}$

$36.3 \Rightarrow 37.5 \text{ g (1.32 oz)}$



- b. Installed balance weight in the position.



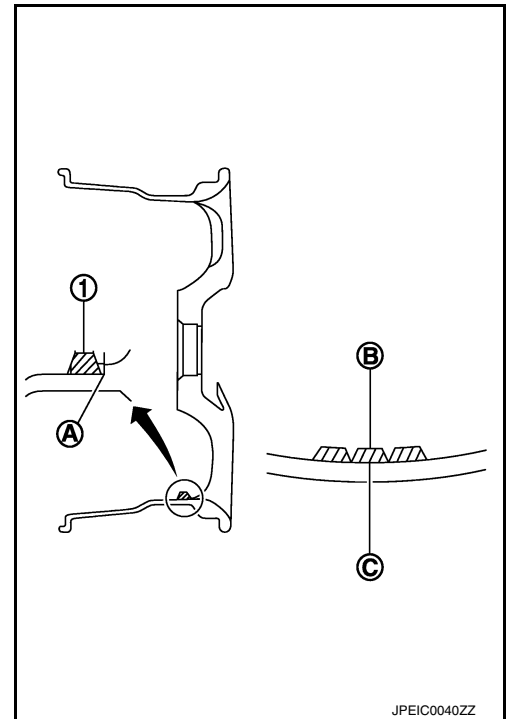
# CHASSIS MAINTENANCE

## < PERIODIC MAINTENANCE >

- When installing balance weight (1) to road wheels, set it into the grooved area (A) on the inner wall of the road wheel as shown in the figure so that the balance weight center (B) is aligned with the tire balance machine indication position (angle) (C).

### CAUTION:

- Always use genuine NISSAN adhesion balance weights.
- Balance weights are non-reusable; always replace with new ones.
- Never install three or more sheets of balance weight.



- c. If calculated balance weight value exceeds 50 g (1.76 oz), install two balance weight sheets in line with each other as shown in the figure.

### CAUTION:

**Never install one balance weight sheet on top of another.**

3. Start the tire balance machine again.  
4. Install drive-in balance weight on inner side of road wheel in the tire balance machine indication position (angle).

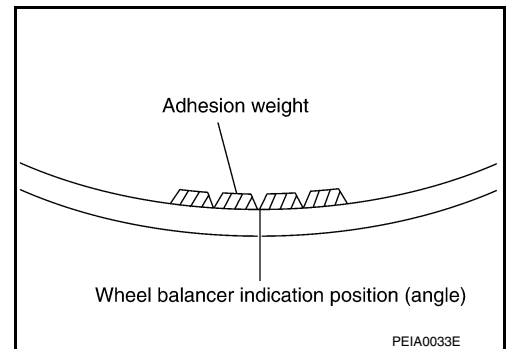
### CAUTION:

**Never install three or more balance weight.**

5. Start the tire balance machine. Check that the inner and outer residual unbalance value is within the allowable unbalance value.

### CAUTION:

**If either residual unbalance value exceeds limit, repeat installation procedures.**



### Allowable unbalance value

Dynamic (At flange) : Refer to [WT-70, "Road Wheel"](#).

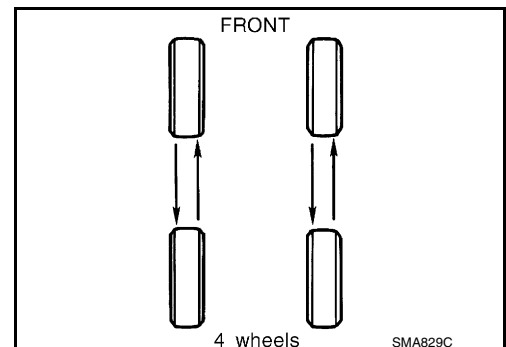
Static (At flange) : Refer to [WT-70, "Road Wheel"](#).

## TIRE ROTATION

- Follow the maintenance schedule for tire rotation service intervals. Refer to [MA-5, "FOR NORTH AMERICA : Explanation of General Maintenance"](#).
- When installing the wheel, tighten wheel nuts to the specified torque. Refer to [WT-64, "Exploded View"](#).

### CAUTION:

- Do not include the T-type spare tire when rotating the tires.
  - When installing wheels, tighten them diagonally by dividing the work two to three times in order to prevent the wheels from developing any distortion.
  - Be careful not to tighten wheel nut at torque exceeding the criteria.
  - Use NISSAN genuine wheel nuts for aluminum wheels.
- Perform the ID registration, after tire rotation. Refer to [WT-31, "Description"](#).





# CHASSIS MAINTENANCE

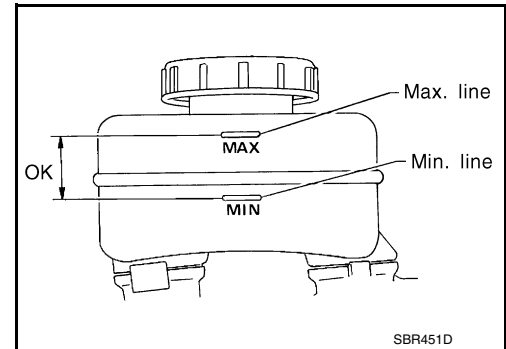
< PERIODIC MAINTENANCE >

## BRAKE FLUID LEVEL AND LEAKS

### BRAKE FLUID LEVEL AND LEAKS : Inspection

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

INFOID:0000000012354377

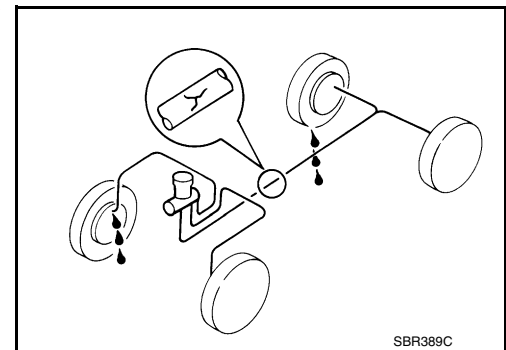


## BRAKE LINES AND CABLES

### BRAKE LINES AND CABLES : Inspection

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

INFOID:0000000012354378



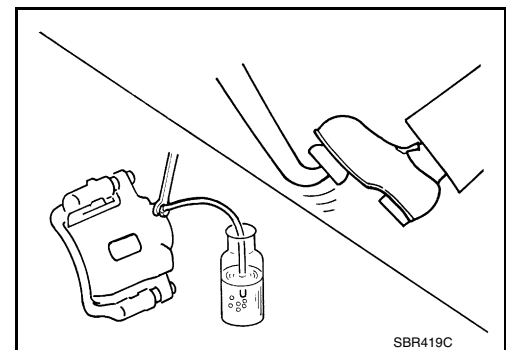
## BRAKE FLUID

### BRAKE FLUID : Changing

INFOID:0000000012354379

#### FOR NORTH AMERICA

1. Drain brake fluid from each bleed valve.
2. Refill until new brake fluid comes out from each bleed valve. Use same procedure as in bleeding hydraulic system to refill brake fluid.  
Refer to [BR-14. "Bleeding Brake System"](#).
  - Refill with recommended Genuine NISSAN Super Heavy Duty Brake Fluid or equivalent DOT 3 (US FMVSS No. 116).  
Refer to [MA-16. "FOR NORTH AMERICA : Fluids and Lubricants"](#).
  - Never reuse drained brake fluid.
  - Be careful not to splash brake fluid on painted areas.

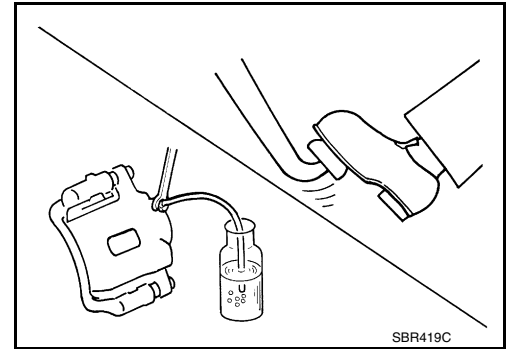


#### FOR MEXICO

# CHASSIS MAINTENANCE

## < PERIODIC MAINTENANCE >

1. Drain brake fluid from each bleed valve.
2. Refill until new brake fluid comes out from each bleed valve.  
Use same procedure as in bleeding hydraulic system to refill brake fluid.  
Refer to [BR-14, "Bleeding Brake System"](#).
  - Refill with recommended Genuine NISSAN Brake Fluid or equivalent DOT 3 or DOT4 (US FMVSS No. 116).  
Refer to [MA-18, "FOR MEXICO : Fluids and Lubricants"](#).
  - Never reuse drained brake fluid.
  - Be careful not to splash brake fluid on painted areas.



## DISC BRAKE

### DISC BRAKE : Inspection

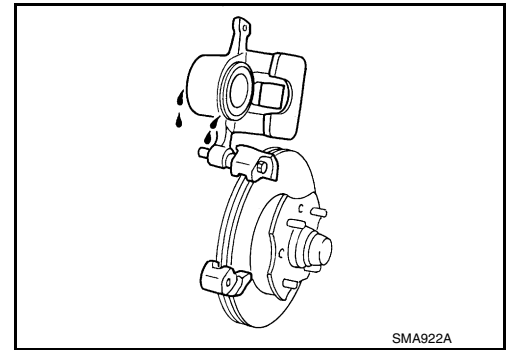
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#### DISC ROTOR

Check condition, wear, and damage.

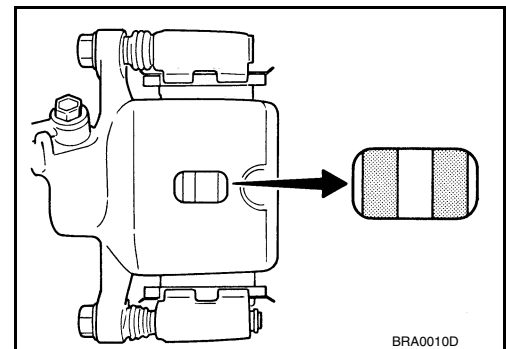
#### CALIPER

- Check for leakage.



#### BRAKE PAD

- Check for wear or damage.



## DISC BRAKE : Front Disc Brake

INFOID:0000000012354381

### 2 PISTON TYPE

Unit: mm (in)

Item		Limit
Brake pad	Wear thickness	2.0 (0.079)
	Wear thickness	26.0 (1.024)
Disc rotor	Thickness variation (measured at 8 positions)*	0.015 (0.0006)
	Runout (with it attached to the vehicle)	0.035 (0.0014)

\* To check if rotor imbalance, rotor runout or rotor deformation exists.

### 4 PISTON TYPE

# CHASSIS MAINTENANCE

## < PERIODIC MAINTENANCE >

Unit mm (in)

Item		Limit
Brake pad	Wear thickness	2.0 (0.079)
	Wear thickness	30.0 (1.181)
Disc rotor	Thickness variation (measured at 8 positions)*	0.015 (0.0006)
	Runout (with it attached to the vehicle)	0.035 (0.0014)

\* To check if rotor imbalance, rotor runout or rotor deformation exists.

## DISC BRAKE : Rear Disc Brake

INFOID:0000000012354382

### 1 PISTON TYPE

Unit: mm (in)

Item		Limit
Brake pad	Wear thickness	2.0 (0.079)
	Wear thickness	14.0 (0.551)
Disc rotor	Thickness variation (measured at 8 positions)*	0.015 (0.0006)
	Runout (with it attached to the vehicle)	0.055 (0.0022)

\* To check if rotor imbalance, rotor runout or rotor deformation exists.

### 2 PISTON TYPE

Unit: mm (in)

Item		Limit
Brake pad	Wear thickness	2.0 (0.079)
	Wear thickness	18.0 (0.709)
Disc rotor	Thickness variation (measured at 8 positions)*	0.015 (0.0006)
	Runout (with it attached to the vehicle)	0.055 (0.0022)

\* To check if rotor imbalance, rotor runout or rotor deformation exists.

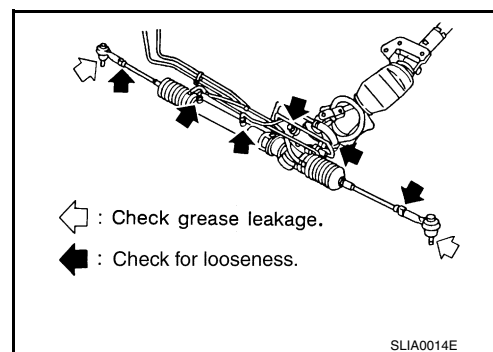
## STEERING GEAR AND LINKAGE

### STEERING GEAR AND LINKAGE : Inspection

INFOID:0000000012354383

#### STEERING GEAR

- Check gear housing and boots for looseness, damage and grease leakage.
- Check connection with steering column for looseness.



#### STEERING LINKAGE

Check ball joint, dust cover and other component parts for looseness, wear, damage and grease leakage.

#### POWER STEERING FLUID AND LINES

# CHASSIS MAINTENANCE

## < PERIODIC MAINTENANCE >

### POWER STEERING FLUID AND LINES : Inspection

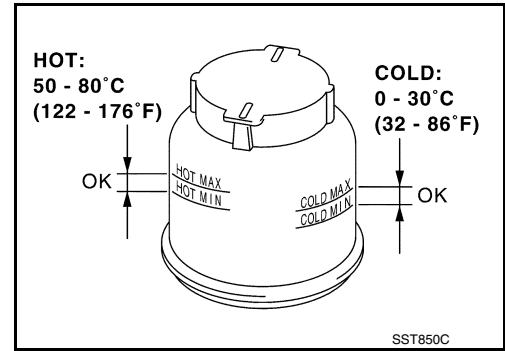
INFOID:0000000012354384

Check fluid level in reservoir tank with engine off.

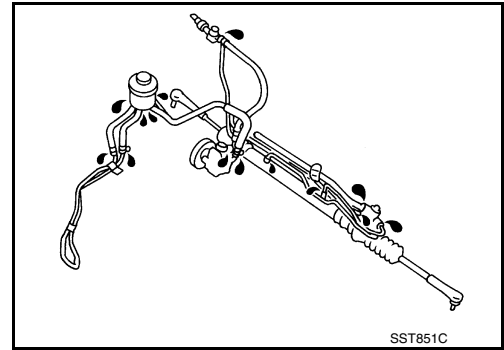
Use "HOT" range at fluid temperatures of 50 to 80°C (122 to 176°F) or "COLD" range at fluid temperatures of 0 to 30°C (32 to 86°F).

#### CAUTION:

- Do not overfill.
- Recommended fluid is Genuine NISSAN PSF or equivalent.
- For North America, refer to [MA-16, "FOR NORTH AMERICA : Fluids and Lubricants"](#).
- For Mexico, refer to [MA-18, "FOR MEXICO : Fluids and Lubri-cants"](#).



- Check lines for improper attachment, leaks, cracks, damage, loose connections, chafing and deterioration.
- Check rack boots for accumulation of power steering fluid.



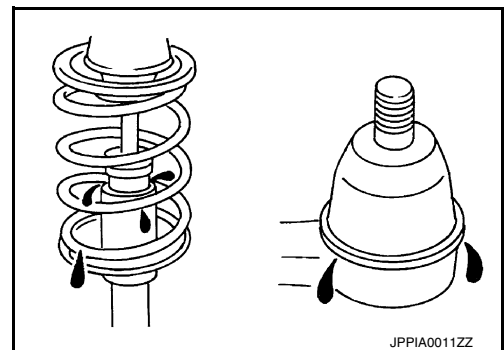
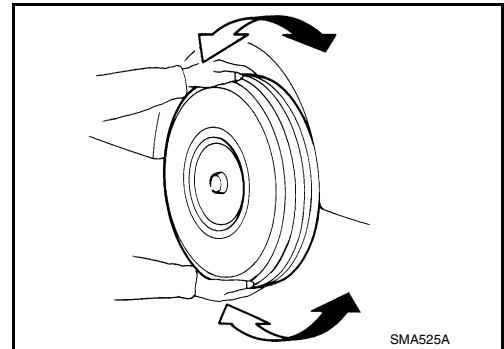
## AXLE AND SUSPENSION PARTS

### AXLE AND SUSPENSION PARTS : Inspection

INFOID:0000000012354385

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

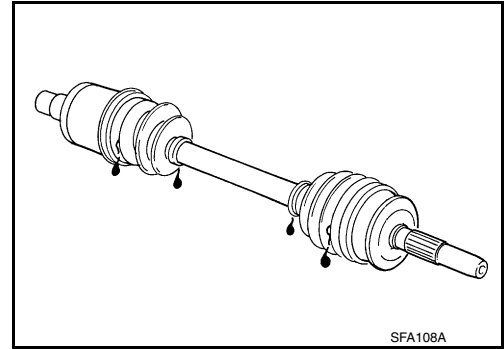
# CHASSIS MAINTENANCE

< PERIODIC MAINTENANCE >

## DRIVE SHAFT : Inspection

INFOID:0000000012354386

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



SFA108A

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## BODY MAINTENANCE

< PERIODIC MAINTENANCE >

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### BODY MAINTENANCE

#### LOCKS, HINGES AND HOOD LATCH

##### LOCKS, HINGES AND HOOD LATCH : Lubricating

INFOID:0000000012354387

For hood and hood lock control illustration.

- Hood: Refer to [DLK-178, "Exploded View"](#).
- Hood lock control: Refer to [DLK-205, "Exploded View"](#).

For door and door lock illustration.

- Front door: Refer to [DLK-188, "Exploded View"](#).
- Front door lock: Refer to [DLK-210, "Exploded View"](#).
- Rear door: Refer to [DLK-193, "Exploded View"](#).
- Rear door lock: Refer to [DLK-214, "Exploded View"](#).

For trunk lid and trunk lid lock illustration.

- Trunk lid: Refer to [DLK-198, "Exploded View"](#).
- Trunk lid lock: Refer to [DLK-221, "Exploded View"](#).

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

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

INFOID:0000000012354388

For front seat belt illustration. Refer to [SB-7, "SEAT BELT RETRACTOR : Exploded View"](#).

For rear seat belt illustration. Refer to [SB-15, "SEAT BELT RETRACTOR : Exploded View"](#).

#### **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-5, "SEAT BELT RETRACTOR : Inspection"](#), [SB-13, "SEAT BELT RETRACTOR : 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

## SERVICE DATA AND SPECIFICATIONS (SDS)

< SERVICE DATA AND SPECIFICATIONS (SDS)

### SERVICE DATA AND SPECIFICATIONS (SDS)

SERVICE DATA AND SPECIFICATIONS (SDS)

DRIVE BELTS (VQ37VHR)

DRIVE BELTS (VQ37VHR) : Drive Belt

INFOID:0000000012354389

DRIVE BELT

Tension of drive belt	Belt tension is not necessary, as it is automatically adjusted by drive belt auto-tensioner.
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DRIVE BELTS (VK56VD)

DRIVE BELTS (VK56VD) : Drive Belts

INFOID:0000000012354390

DRIVE BELT

Tension of drive belts	Belt tension is not necessary, as it is automatically adjusted by drive belt auto-tensioner.
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ENGINE COOLANT (VQ37VHR)

ENGINE COOLANT (VQ37VHR) : Periodical Maintenance Specification

INFOID:0000000012354391

ENGINE COOLANT CAPACITY (APPROXIMATE)

Unit: ℓ (US qt, Imp qt)

Engine coolant capacity [With reservoir tank ("MAX" level)]	Models with pressurized radiator reservoir tank	9 (9-1/2, 7-7/8)
	Models with non-pressurized radiator reservoir tank	8.4 (8-7/8, 7-3/8)
Reservoir tank engine coolant capacity (At "MAX" level)	0.8 (7/8, 3/4)	

ENGINE COOLANT (VK56VD)

ENGINE COOLANT (VK56VD) : Periodical Maintenance Specification

INFOID:0000000012354392

ENGINE COOLANT CAPACITY (APPROXIMATELY)

Unit: ℓ (US qt, Imp qt)

Engine coolant capacity [With reservoir tank ("MAX" level)]	10.9 (11-4/8, 9-5/8)
Reservoir tank engine coolant capacity (At "MAX" level)	0.8 (7/8, 3/4)

ENGINE OIL (VQ37VHR)

ENGINE OIL (VQ37VHR) : Periodical Maintenance Specification

INFOID:0000000012354393

ENGINE OIL CAPACITY (APPROXIMATE)

Unit: ℓ (US qt, Imp qt)

Drain and refill	With oil filter change	4.9 (5-1/8, 4-1/4)
	Without oil filter change	4.6 (4-7/8, 4)
Dry engine (Overhaul)		5.7 (6, 5)

ENGINE OIL (VK56VD)

ENGINE OIL (VK56VD) : Periodical Maintenance Specification

INFOID:0000000012354394

ENGINE OIL CAPACITY (APPROXIMATELY)

## SERVICE DATA AND SPECIFICATIONS (SDS)

### < SERVICE DATA AND SPECIFICATIONS (SDS)

Unit: ℓ (US qt, Imp qt)

Drain and refill	With oil filter change	2WD	6.0 (6-3/8, 5-2/8)
		AWD	6.1 (6-4/8, 5-3/8)
	Without oil filter change	2WD	5.7 (6, 5)
		AWD	5.8 (6-1/8, 5-1/8)
Dry engine (Overhaul)			7.2 (7-5/8, 6-3/8)

### SPARK PLUG (VQ37VHR)

#### SPARK PLUG (VQ37VHR) : Spark Plug

INFOID:0000000012354395

#### SPARK PLUG

Unit: mm (in)

Make	DENSO
Standard type	FXE24HR11
Gap (Nominal)	1.1 (0.043)

### SPARK PLUG (VK56VD)

#### SPARK PLUG (VK56VD) : Spark Plug

INFOID:0000000012354396

#### SPARK PLUG

Unit: mm (in)

Make		NGK
Standard type		DILKAR7B11
Gap	Standard	1.1 (0.043)
	Limit	1.25 (0.049)

### ROAD WHEEL

#### ROAD WHEEL : Road Wheel

INFOID:0000000012354397

#### CONVENTIONAL

Item		Limit
Runout	Axial runout	Less than 0.3 mm (0.012 in)
	Radial runout	
Allowable unbalance	Dynamic (At flange)	Less than 5 g (0.17 oz) (one side)
	Static (At flange)	Less than 10 g (0.35 oz)

### EMERGENCY (ALUMINUM WHEEL)

Item		Limit
Runout	Axial runout	Less than 1.5 mm (0.059 in)
	Radial runout	

### EMERGENCY (STEEL WHEEL)

Item		Limit
Runout	Axial runout (Average)	Less than 1.5 mm (0.059 in)
	Radial runout (Average)	