

SECTION **MA**
 MAINTENANCE

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PRECAUTIONS

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PRECAUTION

PRECAUTIONS

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

INFOID:000000012517946

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

WARNING:

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

PRECAUTIONS WHEN USING POWER TOOLS (AIR OR ELECTRIC) AND HAMMERS

WARNING:

- When working near the Airbag Diagnosis Sensor Unit or other Airbag System sensors with the Ignition ON or engine running, DO NOT use air or electric power tools or strike near the sensor(s) with a hammer. Heavy vibration could activate the sensor(s) and deploy the air bag(s), possibly causing serious injury.
- When using air or electric power tools or hammers, always switch the Ignition OFF, disconnect the battery and wait at least three minutes before performing any service.

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PREPARATION

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PREPARATION

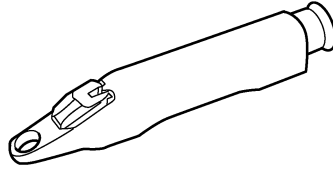
PREPARATION

Special Service Tool

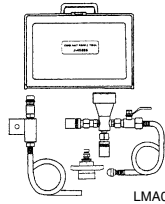
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The actual shape of the tools may differ from those illustrated here.

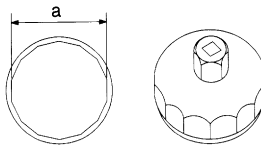
Tool number (TechMate No.) Tool name	Description
KV991J0010 (J-23688) Engine coolant refractometer	Checking concentration of ethylene glycol in engine coolant
KV991J0070 (J-45695) Coolant refill tool	Filling cooling system
KV10115801 (J-38956) Oil filter wrench	Removing and installing oil filter a: 64.3 mm (2.531 in)



WBIA0539E



LMA053



S-NT375

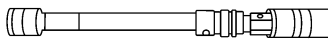
Commercial Service Tool

INFOID:000000012517948

Tool name	Description
Power tool	Loosening nuts, screws and bolts
Spark plug wrench	Removing and installing spark plug



PIIB1407E



AWBIA1785ZZ

GENERAL MAINTENANCE

< PERIODIC MAINTENANCE >

PERIODIC MAINTENANCE

GENERAL MAINTENANCE FOR USA AND CANADA

FOR USA AND CANADA : General Maintenance

INFOID:000000012517949

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 owner can perform these checks and inspections themselves or have their NISSAN dealers perform them.

OUTSIDE THE VEHICLE

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

Item		Reference page
Tires	Check the pressure with a gauge often and always prior to a long distance trip. Adjust the pressure in all tires, including the spare, to the pressure specified. Check carefully for damage, cuts or excessive wear.	WT-62
Wheel nuts	When checking the tires, make sure no nuts are missing, and check for any loose nuts. Tighten if necessary.	WT-62
Tire rotation	Tires should be rotated every 5,000 miles (8,000 km).	WT-62
Tire Pressure Monitoring System (TPMS) transmitter components	Replace the TPMS transmitter grommet seat, valve core and cap when the tires are replaced due to wear or age.	WT-65
Wheel alignment and balance	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 NISSAN Warranty Information Booklet.	WT-62
Windshield	Clean the windshield on a regular basis. Check the windshield at least every six months for cracks or other damage. Repair as necessary.	—
Windshield wiper blades	Check for cracks or wear if they do not wipe properly.	—
Doors and engine hood	Check that all doors and the engine hood operate smoothly as well as the back doors. Also make sure that all latches lock securely. Lubricate if necessary. Make sure that the secondary latch keeps the engine hood from opening when the primary latch is released. When driving in areas using road salt or other corrosive materials, check lubrication frequently.	MA-51
Lamps	Make sure that the headlamps, stop lamps, tail lamps, turn signal lamps, and other lamps are all operating properly and installed securely. Also check head lamp aim. Clean the head lamps on a regular basis.	EXL-119

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
Warning lamps and chimes	Make sure that all warning lamps and chimes are operating properly.	—
Windshield wiper and washer	Check that the wipers and washer operate properly and that the wipers do not streak.	—
Windshield defroster	Check that the air comes out of the defroster outlets properly and in sufficient quantity when operating the heater or air conditioner.	—
Steering wheel	Check that it has the specified play. Check for changes in the steering condition, such as excessive play, hard steering or strange noises. Free play: Less than 35 mm (1.38 in)	FSU-8

GENERAL MAINTENANCE

< PERIODIC MAINTENANCE >

Item		Reference page
Seats	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.	—
Seat belts	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.	MA-51
Accelerator pedal	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.	—
Brakes	Check that the brake does not pull the vehicle to one side when applied.	—
Brake pedal and booster	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.	BR-10 , BR-17
Parking brake	Check that the lever or the 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.	PB-4
Automatic transmission “Park” mechanism	Check that the lock release button on the shift selector operates properly and smoothly. On a fairly steep hill check that the vehicle is held securely with the shift selector 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
Windshield washer fluid	Check that there is adequate fluid in the tank.	—
Engine coolant level	Check the coolant level when the engine is cold.	MA-20 (VQ40DE) MA-30 (VK56DE)
Radiator and hoses	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.	—
Brake fluid level	Make sure that the brake fluid level is between the “MAX” and “MIN” lines on the reservoir.	MA-48
Battery	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.	—
Engine drive belts	Make sure that no belt is frayed, worn, cracked or oily.	EM-13 (VQ40DE) EM-153 (VK56DE)
Engine oil level	Check the level on the oil level gauge after parking the vehicle on a level spot and turning off the engine.	LU-8 (VQ40DE) LU-25 (VK56DE)
Power steering fluid level and lines	Check the level on the dipstick with the engine off. Check the lines for improper attachment, leaks, cracks, etc.	MA-49
Automatic transmission fluid level	Check the level on the fluid level gauge after putting the shift selector in P (Park) position with the engine idling.	MA-41
Exhaust system	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.	MA-41
Underbody	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.	—
Fluid leaks	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.	—

GENERAL MAINTENANCE

< PERIODIC MAINTENANCE >

FOR MEXICO

FOR MEXICO : General Maintenance

INFOID:000000012517950

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 **NISSAN** dealers do them.

OUTSIDE THE VEHICLE

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

Item	Reference page	
Doors and hood	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.	MA-51
Lamps	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.	—
Tires	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.	WT-61
Tire rotation	In the case that Two-Wheel Drive (2WD) and front and rear tires are same size; tire 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; tire 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; tire cannot be rotated. The timing for tire rotation may vary according to your driving habits and the road surface conditions.	WT-61
Tire Pressure Monitoring System (TPMS) transmitter components (if so equipped)	Replace the TPMS transmitter grommet seal, valve core and cap when the tires are replaced due to wear or age.	WT-61
Wheel alignment and balance	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.	WT-62
Windshield	Clean the windshield on a regular basis. Check the windshield at least every six months for cracks or other damage. Repair as necessary.	—
Wiper blades	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	
Accelerator pedal	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.	—
Brake pedal	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.	BR-10
Parking brake	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.	PB-4

GENERAL MAINTENANCE

< PERIODIC MAINTENANCE >

Item		Reference page
Seat belts	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.	MA-51
Steering wheel	Check for changes in the steering condition, such as excessive play, hard steering or strange noises. Check that it has the specified play. Free play: Less than 35 mm (1.38 in)	—
Warning lamps and chimes	Make sure that all warning lamps and chimes are operating properly.	—
Windshield defogger	Check that the air comes out of the defogger outlets properly and in good quantity when operating the heater or air conditioner.	—
Windshield wiper and washer	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
Battery (except for maintenance free batteries)	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.	PG-89
Brake (and clutch) fluid level(s)	For Manual Transmission (MT) model; make sure that the brake and clutch fluid levels are between the MAX and MIN lines on the reservoir(s). Except for Manual Transmission (MT) model; make sure that the brake fluid level is between the MAX and MIN lines on the reservoir.	MA-48
Coolant level	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.	MA-20 (VQ40DE) MA-30 (VK56DE)
Engine drive belt(s)	Make sure that drive belt(s) is not frayed, worn, cracked or oily.	MA-20 (VQ40DE) MA-30 (VK56DE)
Engine oil level	Check the level after parking the vehicle (on a level ground) and turning off the engine.	MA-25 (VQ40DE) MA-36 (VK56DE)
Fluid leaks	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.	—
Power steering fluid level and lines	Check the level when the fluid is cold with the engine off. Check the lines for proper attachment, leaks, cracks, etc.	ST-6
Windshield washer fluid	Check that there is adequate fluid in the reservoir.	—

PERIODIC MAINTENANCE

< PERIODIC MAINTENANCE >

PERIODIC MAINTENANCE FOR USA AND CANADA

FOR USA AND CANADA : Introduction of Periodic Maintenance

INFOID:000000012517951

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)
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		R	R	R	R	R	R	R	R	R
Spark plugs (Iridium - tipped type)	NOTE (6)	Replace every 105,000 miles (168,000 km)								
Intake and exhaust valve clearance*	NOTE (7)									

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)
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		R	R	R	R	R	R	R	R	R
Spark plugs (Iridium - tipped type)	NOTE (6)	Replace every 105,000 miles (168,000 km)								
Intake and exhaust valve clearance*	NOTE (7)									

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)	
Drive belt	NOTE (1)		I*		I*		I*	MA-20 (VQ40DE) MA-30 (VK56DE)
Air cleaner filter	NOTE (2)						R	MA-25 (VQ40DE) MA-36 (VK56DE)

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PERIODIC MAINTENANCE

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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*	MA-29 (VQ40DE) MA-40 (VK56DE)
Fuel lines			I*				I*	MA-24 (VQ40DE) MA-35 (VK56DE)
Fuel filter	NOTE (3)							—
Engine coolant*	NOTE (4)(5)							MA-20 (VQ40DE) MA-30 (VK56DE)
Engine oil		R	R	R	R	R	R	MA-25 (VQ40DE) MA-36 (VK56DE)
Engine oil filter		R	R	R	R	R	R	MA-27 (VQ40DE) MA-38 (VK56DE)
Spark plugs (Iridium - tipped type)	NOTE (6)	Replace every 105,000 miles (168,000 km)						MA-28 (VQ40DE) MA-39 (VK56DE)
Intake and exhaust valve clearance*	NOTE (7)							EX-4

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) Replace spark plug when the plug gap exceeds 1.25 mm (0.049 in) even if within specified periodic replacement mileage.
- (7) Periodic maintenance is not required. However, if valve noise increases, inspect valve clearance.

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

Chassis and Body 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)									
Differential gear oil	NOTE (2)		I		I		I		I	
Steering gear & linkage, axle & suspension parts★					I				I	
Tire rotation	NOTE (3)									
Propeller shaft★			I		I		I		I	
Exhaust system★					I				I	
In-cabin microfilter				R			R			R
I-key battery				R			R			R

PERIODIC MAINTENANCE

< PERIODIC MAINTENANCE >

MAINTENANCE OPERATION		MAINTENANCE INTERVAL								
		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
Perform at number of miles, kilometers or months, whichever comes first.										
Brake lines & cables			I		I		I		I	
Brake pads & rotors★			I		I		I		I	
Brake fluid★					R				R	
Automatic transmission fluid	NOTE (1)									
Differential gear oil	NOTE (2)		I		I		I		I	
Steering gear & linkage, axle & suspension parts★					I				I	
Tire rotation	NOTE (3)									
Propeller shaft★			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	
		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
Perform at number of miles, kilometers or months, whichever comes first.									
Brake lines & cables				I		I		I	MA-48
Brake pads & rotors★				I		I		I	MA-48 MA-49
Brake fluid★				R				R	MA-48
Automatic transmission fluid	NOTE (1)								MA-41
Differential gear oil	NOTE (2)			I		I		I	MA-45 MA-45
Steering gear & linkage, axle & suspension parts★				I				I	MA-49 MA-50
Tire rotation	NOTE (3)								MA-50
Propeller shaft★				I		I		I	MA-43 MA-44
Exhaust system★				I				I	MA-41
In-cabin microfilter						R		R	VTL-4
I-key battery						R		R	VTL-4

NOTE:

- 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 car-top carrier, or driving on rough or muddy roads, change (not just inspect) oil/fluid at every 30,000 miles (48,000 km) or 24 months. If using rear differential gear oil, you will cause deterioration in driveability and may damage the rear differential. Please review the NISSAN new vehicle limited warranty.
- (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

PERIODIC MAINTENANCE

< PERIODIC MAINTENANCE >

- 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	MA-48
Brake pads & rotors	Inspect	Every 5,000 miles (8,000 km) or 6 months	MA-48 MA-49
Steering gear & linkage, axle & suspension parts	Inspect	Every 5,000 miles (8,000 km) or 6 months	MA-49 MA-50
Propeller shaft	Inspect	Every 5,000 miles (8,000 km) or 6 months	MA-43 MA-44
Exhaust system	Inspect	Every 5,000 miles (8,000 km) or 6 months	MA-41

FOR MEXICO

FOR MEXICO : Introduction of Periodic Maintenance

INFOID:000000012517952

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								Refer- ence page
	km x 1,000 (Miles x 1,000) Months	10 (6)	20 (12)	30 (18)	40 (24)	50 (30)	60 (36)	70 (42)	80 (48)	
Engine compartment and under vehicle										
Intake & exhaust valve clearance	NOTE (1)									MA-41
Drive belts	NOTE (2)				I				I	MA-20 (VQ40DE)
Engine oil (Use recommended oil.)★		R	R	R	R	R	R	R	R	MA-25 (VQ40DE)
Engine oil filter (Use Genuine NISSAN engine oil filter or equivalent.)★		R	R	R	R	R	R	R	R	MA-27 (VQ40DE)
Engine coolant	NOTE (3)				E				E	MA-20 (VQ40DE)
Cooling system					I				I	MA-21 (VQ40DE)
Fuel lines					I				I	MA-24 (VQ40DE)
Air cleaner filter (Viscous paper type)★					R				R	MA-25 (VQ40DE)
Fuel filter (In tank type)	NOTE (4)									—

PERIODIC MAINTENANCE

< PERIODIC MAINTENANCE >

MAINTENANCE OPERATION		MAINTENANCE INTERVAL								Reference page
	km x 1,000 (Miles x 1,000) Months	10 (6) 6	20 (12) 12	30 (18) 18	40 (24) 24	50 (30) 30	60 (36) 36	70 (42) 42	80 (48) 48	
Perform either at number of kilometers (miles) or months, whichever comes first.										
Spark plugs (Iridium-tipped type)	NOTE (5)	Replace every 100,000 km (60,000 miles)								MA-28 (VQ40DE)
EVAP vapor lines (With carbon canister)					I				I	MA-29 (VQ40DE)

NOTE:

- (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 40,000 km (24,000 miles) or 24 months. First replacement interval is 160,000 km (96,000 miles) or 96 months. After first replacement, replace every 80,000 km (48,000 miles) or 48 months.
- (4) Fuel filter is maintenance-free. For service procedures, refer to FL section.
- (5) Replace spark plug when the plug gap exceeds 1.25 mm (0.049 in) even if within the specified periodic replacement mileage.

* : Maintenance items with “★” should be performed more frequently according to “Maintenance Under Severe Driving Conditions”.

CHASSIS AND BODY MAINTENANCE

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

MAINTENANCE OPERATION		MAINTENANCE INTERVAL								Reference page
	km x 1,000 (Miles x 1,000) Months	10 (6) 6	20 (12) 12	30 (18) 18	40 (24) 24	50 (30) 30	60 (36) 36	70 (42) 42	80 (48) 48	
Underhood and under vehicle										
Brake fluid (For level & leaks)			I		I		I		I	MA-48
Brake fluid★					R				R	MA-48
Power steering fluid & lines (For level & leaks)			I		I		I		I	MA-49
Brake line & cable			I		I		I		I	MA-48
Exhaust system					I				I	MA-41
Automatic transmission fluid	NOTE (1)									MA-17
Differential gear oil (For level & leaks)★			I		I		I		I	MA-45
Steering gear & linkage, axle & suspension parts★					I				I	MA-49
Drive shaft boots and propeller shaft★			I		I		I		I	MA-43 , MA-44
Outside and inside										
Wheel alignment (If necessary, rotate & balance wheels)			I		I		I		I	MA-46
Brake pads, rotors, drums & linings★			I		I		I		I	MA-48
Foot brake & parking brake (For free play, stroke & operation)			I		I		I		I	MA-49

NOTE:

* : Maintenance items with “★” should be performed more frequently according to “Maintenance Under Severe Driving Conditions”.

- (1) Automatic transmission fluid is maintenance-free.

PERIODIC MAINTENANCE

< PERIODIC MAINTENANCE >

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 materials

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

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

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

Driving condition									Maintenance item	Maintenance operation	Maintenance interval	Reference page
A	.	.	.	.	.	.	.	.	Air cleaner filter	Replace	More frequently	MA-25
A	B	C	D	.	.	.	.	.	Engine oil & engine oil filter	Replace	Every 5,000 km (3,000 miles) or 3 months	MA-25 , MA-27
.	.	.	.	.	F	.	.	.	Brake fluid	Replace	Every 20,000 km (12,000 miles) or 12 months	MA-48
.	.	C	.	.	.	.	H	.	Differential gear oil	Replace	Every 40,000 km (24,000 miles) or 24 months	MA-45 (Rear)
.	.	.	.	.	.	G	H	.	Steering gear & linkage, axle & suspension parts	Inspect	Every 20,000 km (12,000 miles) or 12 months	MA-50
.	.	.	.	.	.	G	H	.	Drive shaft boots and propeller shaft	Inspect	Every 10,000 km (6,000 miles) or 6 months	MA-43 , MA-44
A	.	C	.	.	.	G	H	I	Brake pads, rotors, drums & linings	Inspect	Every 10,000 km (6,000 miles) or 6 months	MA-48

RECOMMENDED FLUIDS AND LUBRICANTS

< PERIODIC MAINTENANCE >

RECOMMENDED FLUIDS AND LUBRICANTS FOR USA AND CANADA

FOR USA AND CANADA : Fluids and Lubricants

INFOID:000000012517953

FOR VQ40DE ENGINE EQUIPPED MODELS

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

Fluid types		Capacity (Approximate)			Recommended Fluids/Lubricants
		Metric	US measure	Imp measure	
Fuel		105.8 ℓ	28 gal	23-1/4 gal	<ul style="list-style-type: none"> Unleaded gasoline with an octane rating of at least 87 AKI (RON 91) For further details, refer to GL-34, "Fuel".
Engine oil Drain and refill	With oil filter change	5.1 ℓ	5-3/8 qt	4-1/2 qt	<ul style="list-style-type: none"> Genuine NISSAN engine oil or equivalent NISSAN recommends Genuine NISSAN Ester Oil available at a NISSAN dealer. Engine oil with API Certification Mark *1, Viscosity SAE 5W-30 <p>*1: For additional information, refer to MA-17, "FOR USA AND CANADA : Engine Oil Recommendation".</p>
	Without oil filter change	4.8 ℓ	5-1/8 qt	4-1/4 qt	
	Dry engine (engine overhaul)	6.3 ℓ	6-5/8 qt	5-1/2 qt	
Engine coolant	(With reservoir at MAX level)	12.7 ℓ	13-3/8 qt	11-1/8 qt	<ul style="list-style-type: none"> Pre-diluted Genuine NISSAN Long Life Anti freeze/Coolant (blue) or equivalent
Automatic transmission fluid (ATF)		10.6 ℓ	11-1/4 qt	9-3/8 qt	<ul style="list-style-type: none"> Genuine NISSAN Matic S ATF If Genuine NISSAN Matic S ATF is not available, Genuine Matic J ATF may also be used. Used automatic transmission fluid other than Genuine NISSAN Matic S ATF or Matic J ATF will cause deterioration in driveability and automatic transmission durability, and may damage the automatic transmission, which is not covered by the NISSAN new vehicle limited warranty.
Rear differential gear oil		2.6 ℓ	5-1/2 pt	4-5/8 pt	<ul style="list-style-type: none"> API GL-5 synthetic gear oil, Viscosity SAE 75W-90
Power steering fluid (PSF)		1.4 ℓ	3 pt	2-1/2 pt	<ul style="list-style-type: none"> Genuine NISSAN PSF or equivalent DEXRON™ VI type ATF may also be used.
Brake fluid		—	—	—	<ul style="list-style-type: none"> Genuine NISSAN Super Heavy Duty Brake Fluid *2 or equivalent, DOT 3 (US FMVSS No. 116) <p>*2: Available in mainland U.S.A. through a NISSAN dealer.</p>
Multi-purpose grease		—	—	—	<ul style="list-style-type: none"> NLGI No. 2 (lithium soap base)
Windshield washer fluid		4.5 ℓ	4-3/4 qt	4 qt	<ul style="list-style-type: none"> Genuine NISSAN Windshield Washer Concentrate Cleaner & Anti-freeze or equivalent
Air conditioning system refrigerant	With rear A/C	1.20 ± 0.05 kg	2.64 ± 0.11 lb	2.64 ± 0.11 lb	<ul style="list-style-type: none"> HFC-134a (R-134a) For further details, see "Air conditioner specification label".
	Without rear A/C	0.85 ± 0.05 kg	1.87 ± 0.11 lb	1.87 ± 0.11 lb	
Air conditioning system oil	With rear A/C	230 m ℓ	7.8 fl oz	8.1 fl oz	<ul style="list-style-type: none"> A/C System Oil Type S (DH-PS) For further details, see "Air conditioner specification label".
	Without rear A/C	180 m ℓ	6.1 fl oz	6.3 fl oz	

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RECOMMENDED FLUIDS AND LUBRICANTS

< PERIODIC MAINTENANCE >

FOR VK56DE ENGINE EQUIPPED MODELS

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

Fluid types		Capacity (Approximate)			Recommended Fluids/Lubricants
		Metric	US measure	Imp measure	
Fuel		105.8 ℓ	28 gal	23-1/4 gal	<ul style="list-style-type: none"> Unleaded gasoline with an octane rating of at least 87 AKI (RON 91) For further details, refer to GI-34, "Fuel".
Engine oil Drain and refill	With oil filter change	6.5 ℓ	6-7/8 qt	5-3/4 qt	<ul style="list-style-type: none"> Genuine NISSAN engine oil or equivalent Engine oil with API Certification Mark *1, Viscosity SAE 5W-30 *2 <p>*1: For additional information, refer to MA-17, "FOR USA AND CANADA : Engine Oil Recommendation".</p> <p>*2: As an alternative to this recommended oil, SAE 5W-30 or SAE 10W-30 conventional petroleum based oils may be used and meet all specifications and requirements necessary to maintain the New Vehicle Limited Warranty.</p>
	Without oil filter change	6.2 ℓ	6-1/2 qt	5-1/2 qt	
	Dry engine (engine overhaul)	7.6 ℓ	8 qt	6-3/4 qt	
Engine Coolant	With reservoir at MAX level	12.7 ℓ	13-3/8 qt	11-1/8 qt	<ul style="list-style-type: none"> Pre-diluted Genuine NISSAN Long Life Anti freeze/Coolant (blue) or equivalent
Automatic transmission fluid (ATF)		10.6 ℓ	11-1/4 qt	9-3/8 qt	<ul style="list-style-type: none"> Genuine NISSAN Matic S ATF If Genuine NISSAN Matic S ATF is not available, Genuine Matic J ATF may also be used. Used automatic transmission fluid other than Genuine NISSAN Matic S ATF or Matic J ATF will cause deterioration in driveability and automatic transmission durability, and may damage the automatic transmission, which is not covered by the NISSAN new vehicle limited warranty.
Rear differential gear oil		2.6 ℓ	5-1/2 pt	4-5/8 pt	<ul style="list-style-type: none"> API GL-5 synthetic gear oil, Viscosity SAE 75W-90
Power steering fluid (PSF)		1.4 ℓ	3 pt	2-1/2 pt	<ul style="list-style-type: none"> Genuine NISSAN PSF or equivalent DEXRON™ VI type ATF may also be used.
Brake fluid		—	—	—	<ul style="list-style-type: none"> Genuine NISSAN Super Heavy Duty Brake Fluid *3 or equivalent, DOT 3 (US FMVSS No. 116) <p>*3: Available in mainland U.S.A. through a NISSAN dealer.</p>
Multi-purpose grease		—	—	—	<ul style="list-style-type: none"> NLGI No. 2 (lithium soap base)
Windshield washer fluid		4.5 ℓ	4-3/4 qt	4 qt	<ul style="list-style-type: none"> Genuine NISSAN Windshield Washer Concentrate Cleaner & Anti-freeze or equivalent
Air conditioning system refrigerant	With rear A/C	1.20 ± 0.05 kg	2.64 ± 0.11 lb	2.64 ± 0.11 lb	<ul style="list-style-type: none"> HFC-134a (R-134a) For further details, see "Air conditioner specification label".
	Without rear A/C	0.85 ± 0.05 kg	1.87 ± 0.11 lb	1.87 ± 0.11 lb	
Air conditioning system oil	With rear A/C	230 m ℓ	7.8 fl oz	8.1 fl oz	<ul style="list-style-type: none"> A/C System Oil Type S (DH-PS) For further details, see "Air conditioner specification label".
	Without rear A/C	180 m ℓ	6.1 fl oz	6.3 fl oz	

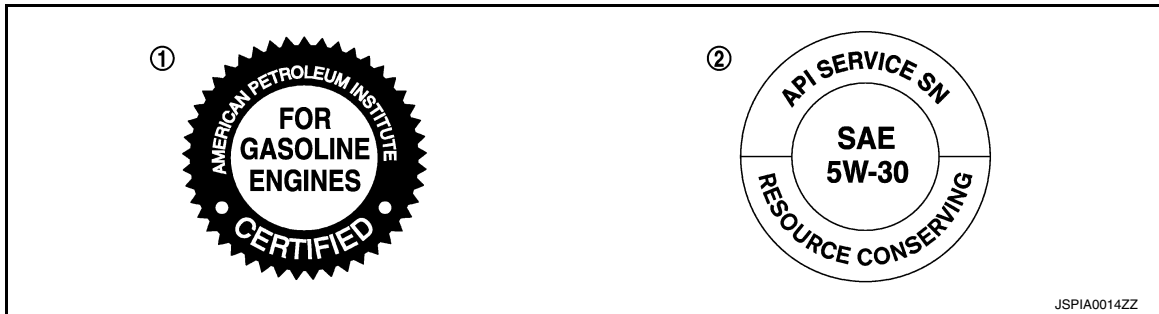
RECOMMENDED FLUIDS AND LUBRICANTS

< PERIODIC MAINTENANCE >

FOR USA AND CANADA : Engine Oil Recommendation

INFOID:000000012517954

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 USA AND CANADA : Engine Coolant Recommendation

INFOID:000000012517955

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 cooling system additives are not necessary.

WARNING:

- Do not 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 the vehicle is operated, 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 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 filled coolant.

FOR MEXICO

FOR MEXICO : Fluids and Lubricants

INFOID:000000012517956

FOR VQ40DE ENGINE EQUIPPED MODELS

NOTE:

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

RECOMMENDED FLUIDS AND LUBRICANTS

< PERIODIC MAINTENANCE >

Fluid types		Capacity (Approximate)			Recommended Fluids/Lubricants
		Metric	US measure	Imp measure	
Fuel		105.8 ℓ	28 gal	23-1/4 gal	<ul style="list-style-type: none"> Unleaded gasoline with an octane rating of at least 87 AKI (RON 91)
Engine oil Drain and refill	With oil filter change	5.1 ℓ	5-3/8 qt	4-1/2 qt	<ul style="list-style-type: none"> Genuine NISSAN engine oil API grade SL, SM or SN ILSAC grade GF-3, GF-4 or GF-5 For SAE Viscosity Number, refer to MA-18, "FOR MEXICO : SAE Viscosity Number".
	Without oil filter change	4.8 ℓ	5-1/8 qt	4-1/4 qt	
	Dry engine (engine overhaul)	6.3 ℓ	6-5/8 qt	5-1/2 qt	
Cooling system	(With reservoir at MAX level)	12.7 ℓ	13-3/8 qt	11-1/8 qt	<ul style="list-style-type: none"> Genuine NISSAN Engine Coolant (blue) or equivalent Use Genuine NISSAN Engine Coolant or equivalent in its quality, in order to avoid possible aluminium corrosion within the engine cooling system caused by the use of non-genuine NISSAN engine coolant. Note that any repairs for the incidents within the engine cooling system while using non-genuine NISSAN engine coolant may not be covered by the warranty even if such incidents occurred during the warranty period.
Automatic transmission fluid (ATF)		10.6 ℓ	11-1/4 qt	9-3/8 qt	<ul style="list-style-type: none"> Genuine NISSAN Matic S ATF If Genuine NISSAN Matic S ATF is not available, Genuine Matic J ATF may also be used. Used automatic transmission fluid other than Genuine NISSAN Matic S ATF or Matic J ATF will cause deterioration in driveability and automatic transmission durability, and may damage the automatic transmission, which is not covered by the NISSAN new vehicle limited warranty.
Rear differential gear oil		2.6 ℓ	5-1/2 pt	4-5/8 pt	<ul style="list-style-type: none"> Genuine NISSAN Differential Oil Hypoid Super-S GL-5 synthetic 75W-90 or equivalent
Power steering fluid (PSF)		1.4 ℓ	3 pt	2-1/2 pt	<ul style="list-style-type: none"> Genuine NISSAN PSF or equivalent DEXRON™ VI type ATF may also be used.
Brake fluid		—	—	—	<ul style="list-style-type: none"> Genuine NISSAN Brake Fluid, or equivalent DOT 3 or DOT 4 (US FMVSS No. 116) Never mix different types of fluids (DOT 3 and DOT 4)
Multi-purpose grease		—	—	—	<ul style="list-style-type: none"> NLGI No. 2 (lithium soap base)
Windshield washer fluid		4.5 ℓ	4-3/4 qt	4 qt	<ul style="list-style-type: none"> Windshield washer fluid
Air conditing system refrigerant	Without rear A/C	0.85 ± 0.05 kg	1.87 ± 0.11 lb	1.87 ± 0.11 lb	<ul style="list-style-type: none"> HFC-134a (R-134a) For further details, see "Air conditioner specification label".
Air conditioning system oil	Without rear A/C	180 m ℓ	6.1 fl oz	6.3 fl oz	<ul style="list-style-type: none"> A/C System Oil Type S (DH-PS) For further details, see "Air conditioner specification label".

FOR MEXICO : SAE Viscosity Number

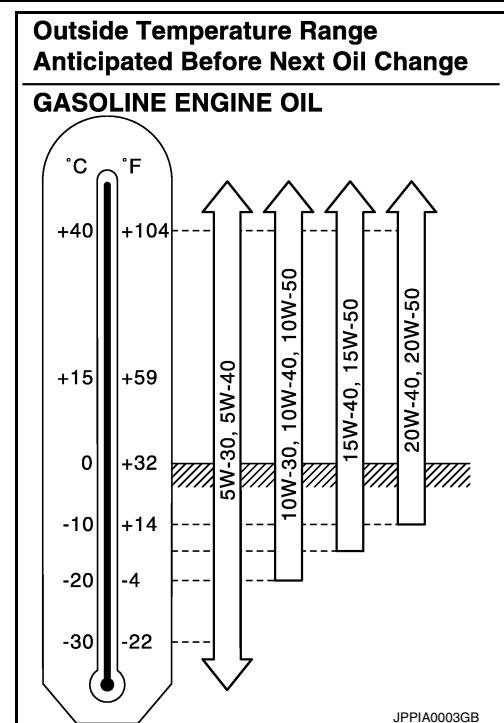
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GASOLINE ENGINE OIL

RECOMMENDED FLUIDS AND LUBRICANTS

< PERIODIC MAINTENANCE >

- 10W-30 is preferable.
5W-30 is also preferable and will improve fuel economy.
If 10W-30 or 5W-30 is not available, select the viscosity from the chart, that is suitable for the outside temperature range.



FOR MEXICO : Engine Coolant Mixture Ratio

INFOID:000000012517958

MIXTURE RATIO

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

Protection for outside temperature down to:		Genuine NISSAN Engine Coolant or equivalent	Demineralized water or distilled water
°C	°F		
-15°	5°	30%	70%
-35°	-30°	50%	50%

CAUTION:

- When adding or replacing coolant, be sure to use only **Genuine NISSAN Engine Coolant or equivalent in quality with the proper mixture ratio as specified.**
- **Other types of coolant solutions may damage your cooling system.**

When checking the engine coolant mixture ratio with the coolant hydrometer, use the chart below to correct the hydrometer reading (specific gravity) according to the coolant temperature as shown in the table.

Mixed Coolant Specific Gravity

Engine coolant mixture ratio	Coolant temperature °C (°F)			
	15° (59°)	25° (77°)	35° (95°)	45° (113°)
	Specific gravity			
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:

Do not 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 (VQ40DE)

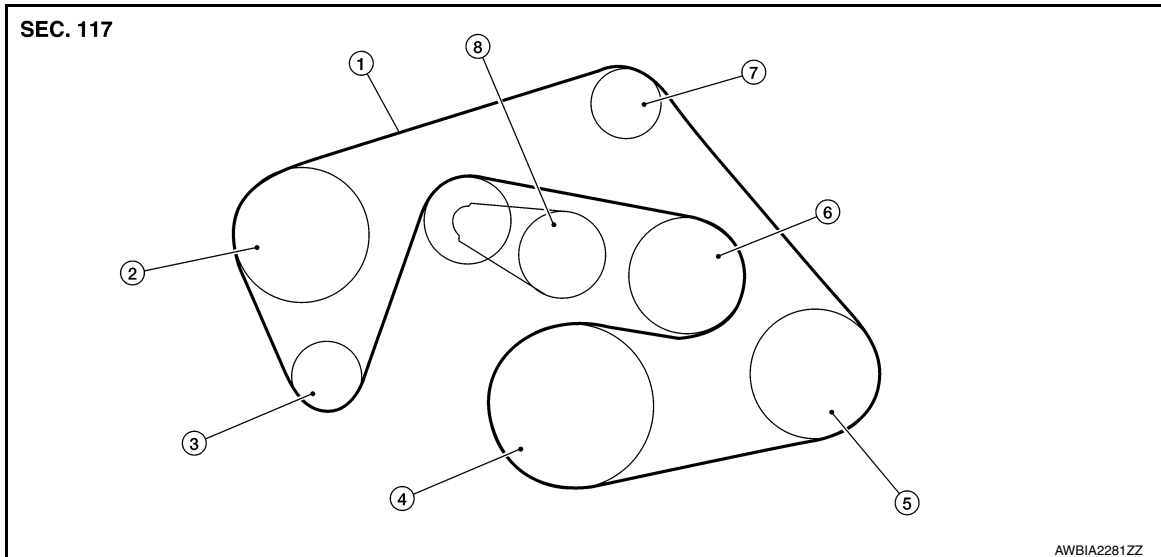
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ENGINE MAINTENANCE (VQ40DE)

DRIVE BELTS

DRIVE BELTS : Exploded View

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- | | | |
|----------------------|-----------------------------------|-----------------------|
| 1. Drive belt | 2. Power steering oil pump pulley | 3. Generator pulley |
| 4. Crankshaft pulley | 5. A/C compressor | 6. Cooling fan pulley |
| 7. Idler pulley | 8. Drive belt tensioner | |

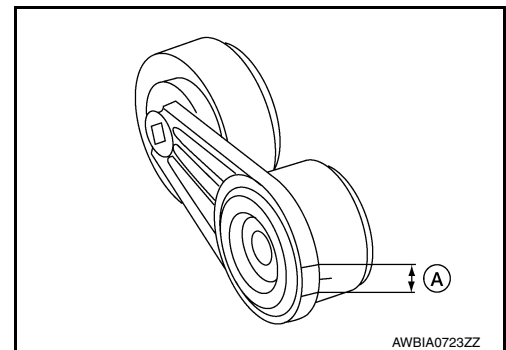
DRIVE BELTS : Checking Drive Belts

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WARNING:

Be sure to perform when the engine is stopped.

1. Remove air duct and resonator assembly when inspecting drive belt. Refer to [EM-24, "Removal and Installation"](#).
2. Make sure that the auto-tensioner indicator is within the allowable working range (A) as shown.
3. Visually check entire belt for wear, damage or cracks.
4. If the indicator is out of the allowable range or drive belt is damaged, replace the drive belt. Refer to [EM-13, "Removal and Installation"](#).



DRIVE BELTS : Adjustment

INFOID:000000012517961

There is no manual drive belt tension adjustment. The drive belt tension is automatically adjusted by the drive belt auto-tensioner.

ENGINE COOLANT

ENGINE COOLANT : System Inspection

INFOID:000000012517962

WARNING:

- Do not remove the radiator/reservoir cap when the engine is hot. Serious burns could occur from high pressure fluid escaping from the radiator or reservoir.
- Wrap a thick cloth around the cap. Slowly push down and turn it a quarter turn to allow built-up pressure to escape. Carefully remove the cap by pushing down and turning it all the way.

ENGINE MAINTENANCE (VQ40DE)

< PERIODIC MAINTENANCE >

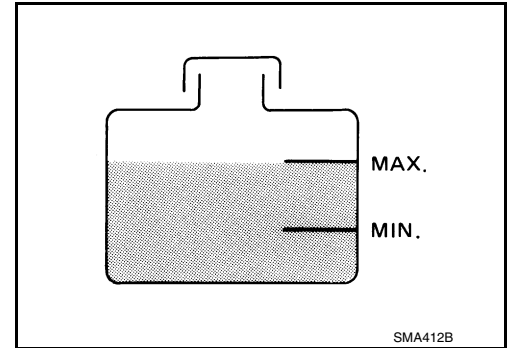
CHECKING COOLING SYSTEM HOSES

Check hoses for the following:

- Improper attachment
- Leaks
- Cracks
- Damage
- Loose connections
- Chafing
- Deterioration

CHECKING RESERVOIR LEVEL

- Check if the engine coolant reservoir tank level is within MIN to MAX when the engine is cool.
- Adjust engine coolant level as necessary.



ENGINE COOLANT : Changing Engine Coolant

INFOID:000000012517963

WARNING:

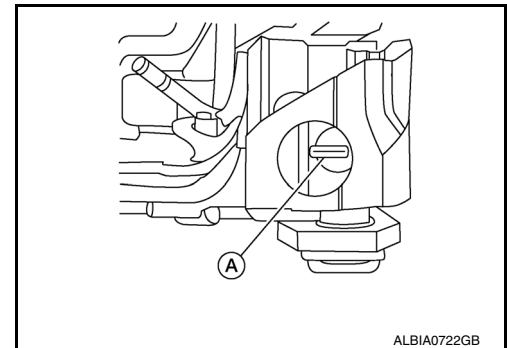
- Do not remove the radiator or reservoir cap when the engine is hot. Serious burns could occur from high pressure fluid escaping from the radiator or reservoir.
- Wrap a thick cloth around the cap to carefully remove the cap. First, turn the cap a quarter of a turn to release any built-up pressure, then turn the cap all the way to remove it.

DRAINING ENGINE COOLANT

1. Turn ignition switch ON and set temperature control lever all the way to HOT position or the highest temperature position. Wait 10 seconds and turn ignition switch OFF.
2. Remove the front under cover. Refer to [EXT-38, "Removal and Installation"](#).
3. Open the radiator drain plug (A) at the bottom of the radiator, and remove the reservoir cap. This is the only step required when partially draining the cooling system.

CAUTION:

Do not allow the coolant to contact the drive belts.



4. If it is necessary to drain the cylinder block when draining all of the coolant in the system, complete the remaining steps.
 - a. Remove the front under cover using power tool. Refer to [EXT-38, "Removal and Installation"](#).

ENGINE MAINTENANCE (VQ40DE)

< PERIODIC MAINTENANCE >

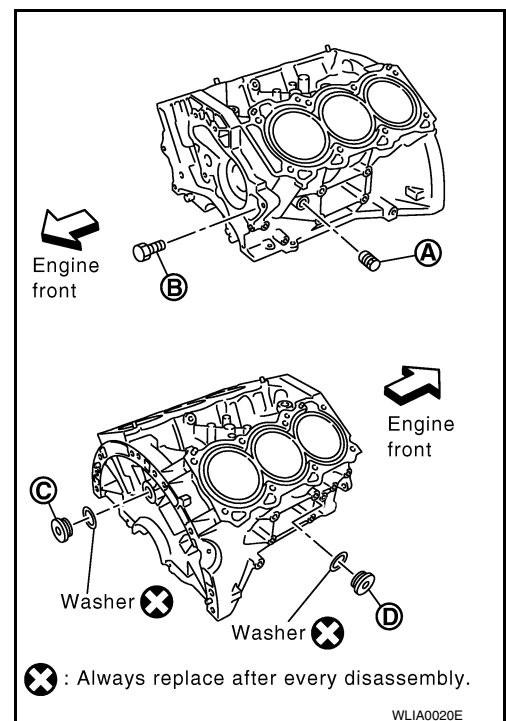
- b. Drain the cylinder block by removing the cylinder block drain plugs (A), (B), (C), (D) as shown and block heater (if equipped).

NOTE:

For Canada, the drain plug (D) is replaced with a block heater.

CAUTION:

Do not reuse the copper sealing washers.



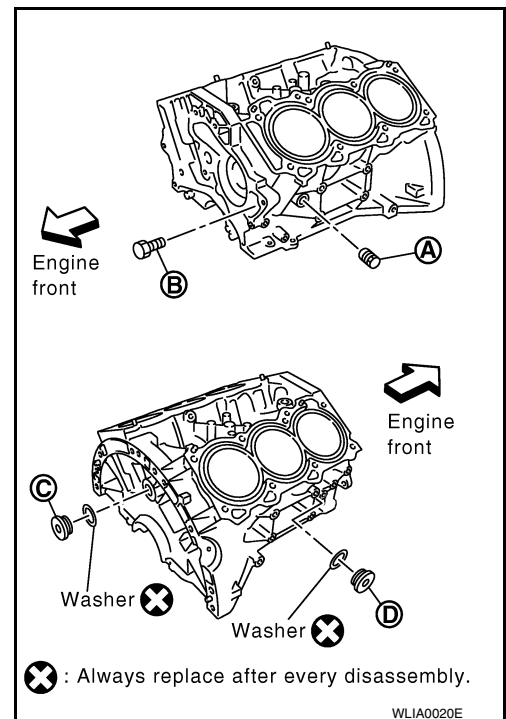
5. Remove the reservoir tank to drain the engine coolant, then clean the reservoir tank before installing it.
6. Check the drained coolant for contaminants such as rust, corrosion or discoloration. If the coolant is contaminated, flush the engine cooling system. Follow the "Flushing Cooling System" procedure.

REFILLING ENGINE COOLANT

1. Close the radiator drain plug. Install the reservoir tank, cylinder block drain plugs (A), (B), (C), (D) and block heater (if equipped) if removed for a total system drain or for engine removal or repair.
- The radiator must be completely empty of coolant and water.
 - Apply sealant to the thread of water drain plugs (A) and (B).
Use Genuine RTV Silicone Sealant or equivalent. Refer to [GI-21, "Recommended Chemical Products and Sealants"](#).
 - Apply sealant to the thread of plugs (C).
Use Genuine High Strength Thread Locking Sealant or equivalent. Refer to [GI-21, "Recommended Chemical Products and Sealants"](#).
 - Apply sealant to the thread of plug (D).
Use Anaerobic Liquid Gasket or equivalent. Refer to [GI-21, "Recommended Chemical Products and Sealants"](#).
 - For Canada, the drain plug (D) is replaced with a block heater.
Use Three Bond TB1110B or equivalent. Refer to [GI-21, "Recommended Chemical Products and Sealants"](#).

CAUTION:

Do not reuse copper sealing washers.



Tighten each plug as specified below.

ENGINE MAINTENANCE (VQ40DE)

< PERIODIC MAINTENANCE >

Block Plug and Block Heater Installation

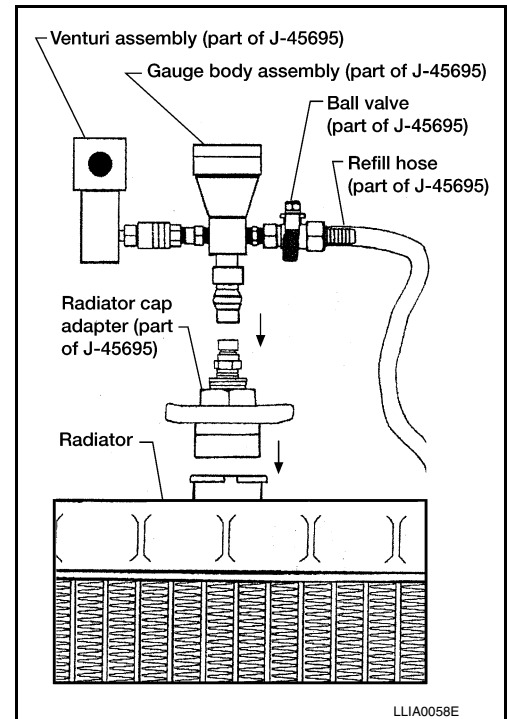
Part	Washer	Tightening Torque
A	No	19.6 N·m (2.0 kg-m, 14 ft-lb)
B	Reuse	9.8 N·m (1.0 kg-m, 87 in-lb)
	New	6.0 N·m (0.61 kg-m, 53 in-lb)
C	Yes	116 N·m (12 kg-m, 86 ft-lb)
D	Plug	62 N·m (6.3 kg-m, 46 ft-lb)
	Block heater	73.5 N·m (7.5 kg-m, 54 ft-lb)

- Set the vehicle heater controls to the full HOT and heater ON position. Turn the vehicle ignition ON with the engine OFF as necessary to activate the heater mode.
- Remove the vented reservoir cap and replace it with a non-vented reservoir cap before filling the cooling system.
- Install the Tool by installing the radiator cap adapter onto the radiator neck opening. Then attach the gauge body assembly with the refill tube and the venturi assembly to the radiator cap adapter.

Tool number : KV991J0070 (J-45695)

- Insert the refill hose into the coolant mixture container that is placed at floor level. Make sure the ball valve is in the closed position.
 - Use recommended coolant or equivalent. Refer to [MA-15, "FOR USA AND CANADA : Fluids and Lubricants"](#) (United States and Canada) or [MA-17, "FOR MEXICO : Fluids and Lubricants"](#) (Mexico).

Cooling system capacity (with reservoir at (MAX) line) : Refer to [MA-15, "FOR USA AND CANADA : Fluids and Lubricants"](#) (United States and Canada) or [MA-17, "FOR MEXICO : Fluids and Lubricants"](#) (Mexico).



CAUTION:

Do not use any cooling system additives such as radiator sealer. Additives may clog the cooling system and cause damage to the engine, transmission and/or cooling system.

- Install an air hose to the venturi assembly, the air pressure must be within specification.

Compressed air supply pressure : 549 - 824 kPa (5.6 - 8.4 kg/cm², 80 - 119 psi)

CAUTION:

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

- The vacuum gauge will begin to rise and there will be an audible hissing noise. During this process open the ball valve on the refill hose slightly. Rising coolant will be visible in the refill hose. After the refill hose is full of coolant, close the ball valve. This will purge air trapped in the refill hose.

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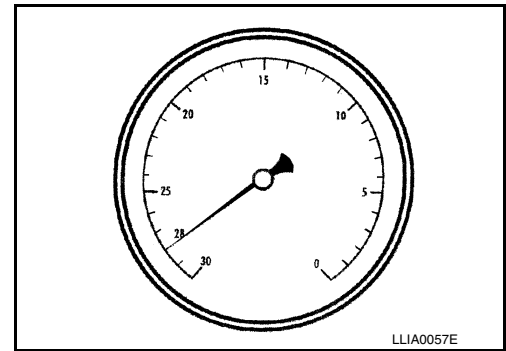
MA

ENGINE MAINTENANCE (VQ40DE)

< PERIODIC MAINTENANCE >

8. Continue to draw the vacuum until the gauge reaches 28 inches of vacuum. The gauge may not reach 28 inches in high altitude locations. Refer to the following table for expected vacuum readings.

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



9. When the vacuum gauge has reached the specified amount, disconnect the air hose and wait 20 seconds to see if the system loses vacuum. If the vacuum level drops, perform necessary repairs to the system and repeat steps 6 - 8 to bring the vacuum to the specified amount. Recheck for leaks.
10. Place the coolant container (with the refill hose inserted) at the same level as the top of the radiator. Then open the ball valve on the refill hose so the coolant will be drawn up to fill the cooling system. The cooling system is full when the vacuum gauge reads zero.

CAUTION:

Do not allow the coolant container to get too low when filling to avoid air from being drawn into the cooling system.

11. Remove the Tool from the radiator neck opening and install the radiator cap.
12. Remove the non-vented reservoir cap.
13. Fill the cooling system reservoir tank to the specified level. Run the engine to warm up the cooling system and top up the system as necessary before installing the vented reservoir cap.
14. Install the front under cover. Refer to [EXT-16, "Removal and Installation - Front Bumper"](#).

FLUSHING COOLING SYSTEM

1. Drain the water from the engine cooling system. Refer to [MA-21, "ENGINE COOLANT : Changing Engine Coolant"](#).
2. Fill the radiator and the reservoir tank (to the (MAX) line), with water. Reinstall the radiator cap and leave the vented reservoir cap off.
3. Run the engine until it reaches normal operating temperature.
4. Press the engine accelerator two or three times under no-load.
5. Stop the engine and wait until it cools down.
6. Drain the water from the engine cooling system. Refer to [MA-21, "ENGINE COOLANT : Changing Engine Coolant"](#).
7. Repeat steps 2 through 6 until clear water begins to drain from the radiator.

FUEL LINES

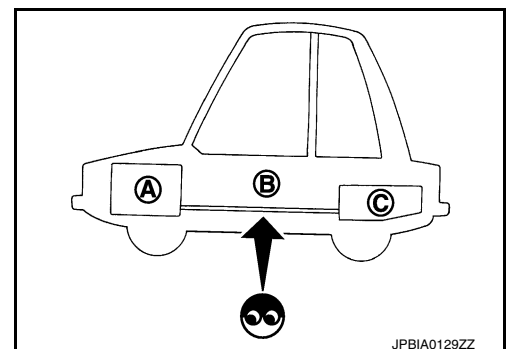
FUEL LINES : Checking Fuel Line

INFOID:000000012517964

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

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

If necessary, repair or replace damaged parts.



FUEL FILTER

ENGINE MAINTENANCE (VQ40DE)

< PERIODIC MAINTENANCE >

FUEL FILTER : Changing Fuel Filter

INFOID:000000012517965

The fuel filter is part of the fuel level sensor unit, fuel filter and fuel pump assembly. Refer to [FL-11, "Removal and Installation"](#).

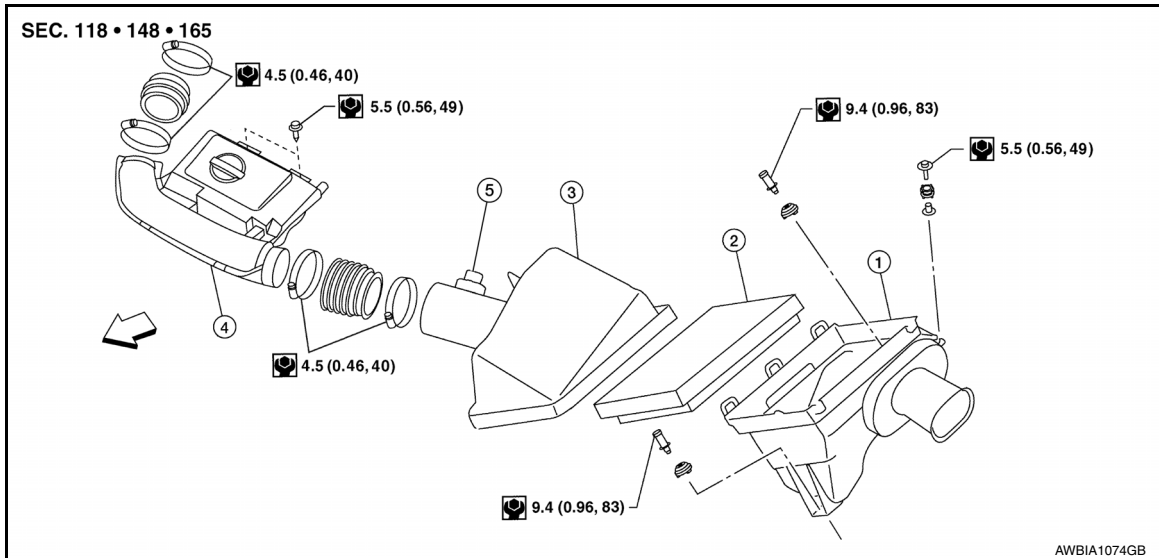
WARNING:

Before replacing the fuel filter, release the fuel pressure from the fuel system. Refer to [EC-146, "Work Procedure"](#).

AIR CLEANER FILTER

AIR CLEANER FILTER : Exploded View

INFOID:000000012517966



- | | | |
|-----------------------------|-----------------------|-----------------------------|
| 1. Air cleaner case (lower) | 2. Air cleaner filter | 3. Air cleaner case (upper) |
| 4. Air duct and resonator | 5. MAF/IAT sensor | ⇐ Front |

AIR CLEANER FILTER : Removal and Installation

INFOID:000000012517967

REMOVAL

NOTE:

Replace the air filter per the periodic maintenance schedule. Refer to [MA-9, "FOR USA AND CANADA : Introduction of Periodic Maintenance"](#) (United States and Canada) or [MA-12, "FOR MEXICO : Introduction of Periodic Maintenance"](#) (Mexico).

1. Disconnect air duct and resonator from the air cleaner case (upper).
2. Disconnect the harness connector from MAF/IAT sensor.
3. Unhook clips, and lift air cleaner case (upper).
4. Remove the air cleaner filter from the air cleaner case (lower).

INSTALLATION

Installation is in the reverse order of removal.

ENGINE OIL

ENGINE OIL : Inspection

INFOID:000000012517968

OIL LEVEL

- Before starting the engine make sure the vehicle is parked on a flat and level surface, then check the oil level. If the engine is already running, turn it off and allow 10 minutes before checking.
- Pull out oil level gauge and wipe clean.

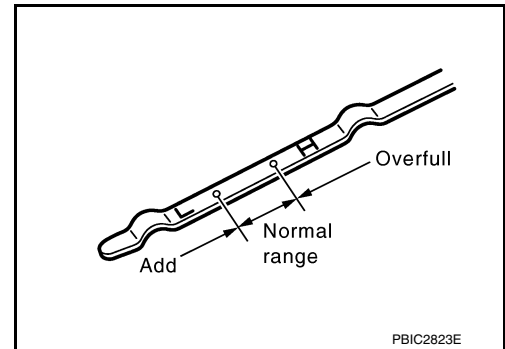
ENGINE MAINTENANCE (VQ40DE)

< PERIODIC MAINTENANCE >

- Insert oil level gauge.
- Check that the oil level is within the low (L) and high (H) range as indicated on the dipstick.
- If the engine oil level is out of range, add oil as necessary. Refer to [MA-17, "FOR USA AND CANADA : Engine Oil Recommendation"](#) (United States and Canada) or [MA-17, "FOR MEXICO : Fluids and Lubricants"](#) (Mexico).

CAUTION:

Do not overfill the engine with oil.



ENGINE OIL : Changing Engine Oil

INFOID:000000012517969

WARNING:

- **Be careful not to burn yourself, as the engine and engine oil may be hot.**
- **Prolonged and repeated contact with used engine oil may cause skin cancer; try to avoid direct skin contact with used oil. If skin contact is made, wash thoroughly with soap or hand cleaner as soon as possible.**

1. Warm up the engine, and check for oil leaks.
2. Stop the engine and wait for at least 10 minutes.
3. Loosen oil filler cap, then remove the oil drain plug.
4. Drain engine oil.
5. Install the oil drain plug with a new washer.

CAUTION:

- **Clean the oil drain plug and install with a new washer.**
- **Do not reuse copper sealing washer.**

Oil drain plug : Refer to [EM-34, "Removal and Installation"](#).

6. Refill the engine with new specified engine oil.

CAUTION:

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

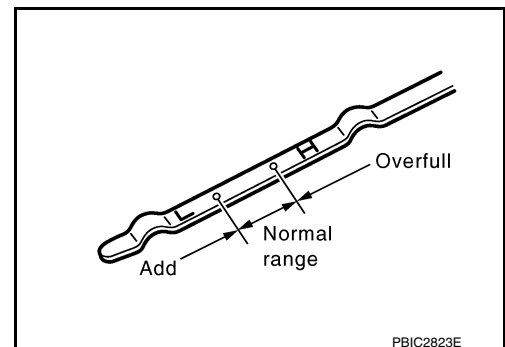
Oil grade and viscosity : Refer to [MA-15, "FOR USA AND CANADA : Fluids and Lubricants"](#) (United States and Canada) or [MA-17, "FOR MEXICO : Fluids and Lubricants"](#) (Mexico).

Oil capacity : Refer to [LU-35, "Standard and Limit"](#).

7. Warm up the engine and check the area around the oil drain plug and oil filter for oil leaks.
8. Stop the engine and wait for 10 minutes.
9. Check the oil level using the oil level gauge as shown. Add oil as necessary and install the oil filler cap. Refer to [MA-25, "ENGINE OIL : Inspection"](#).

CAUTION:

Do not overfill the engine with oil.



OIL FILTER

ENGINE MAINTENANCE (VQ40DE)

< PERIODIC MAINTENANCE >

OIL FILTER : Removal and Installation

INFOID:000000012517970

REMOVAL

1. Remove the front under cover using power tool. Refer to [EXT-38. "Removal and Installation"](#).
2. Drain engine oil. Refer to [LU-9. "Changing Engine Oil"](#).
3. Remove the oil filter using Tool as shown.

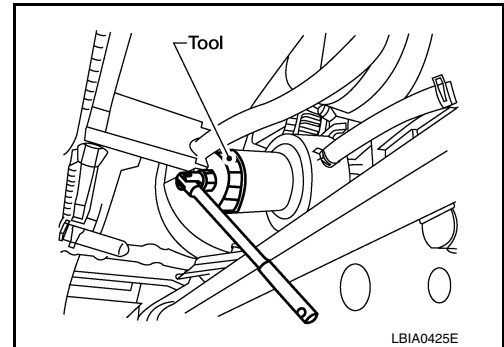
Tool number : KV10115801 (J-38956)

WARNING:

Be careful not to burn yourself, as the engine and engine oil may be hot.

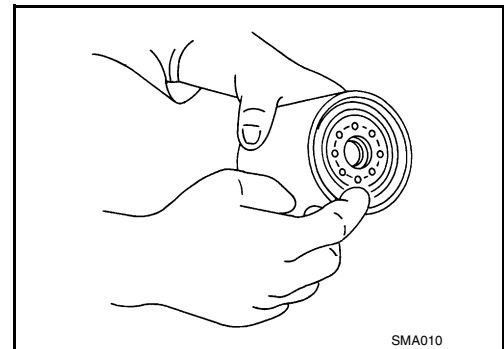
CAUTION:

- Oil filter is equipped with a pressure relief valve.
- Use Genuine NISSAN Oil Filter or equivalent.
- When removing, prepare a shop cloth to absorb any engine oil leaks or spills.
- Do not allow engine oil to adhere to drive belts.
- Completely wipe off engine oil that adheres to the engine and the vehicle.



INSTALLATION

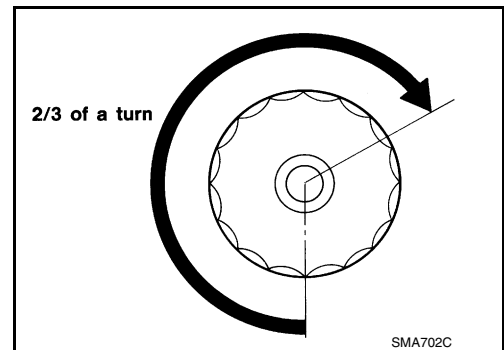
1. Remove foreign materials adhering to the oil filter seal mating surface.
2. Apply clean engine oil to the new oil filter seal as shown.



3. Screw on the oil filter manually until it touches the seal mating surface and then tighten it an additional 2/3 turn using Tool as shown; or to specification.

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

Tool number : KV10115801 (J-38956)



4. Refill engine with new engine oil. Refer to [LU-9. "Changing Engine Oil"](#).
5. Inspect the engine for oil leaks. Refer to [LU-8. "Inspection"](#).
6. Install the front under cover. Refer to [EXT-38. "Removal and Installation"](#).

INSPECTION AFTER INSTALLATION

1. Check the engine oil level. Refer to [LU-8. "Inspection"](#).
2. Start the engine and check for engine oil leaks.
3. Stop the engine and wait for 10 minutes.
4. Check the engine oil level and add engine oil as required.

SPARK PLUG

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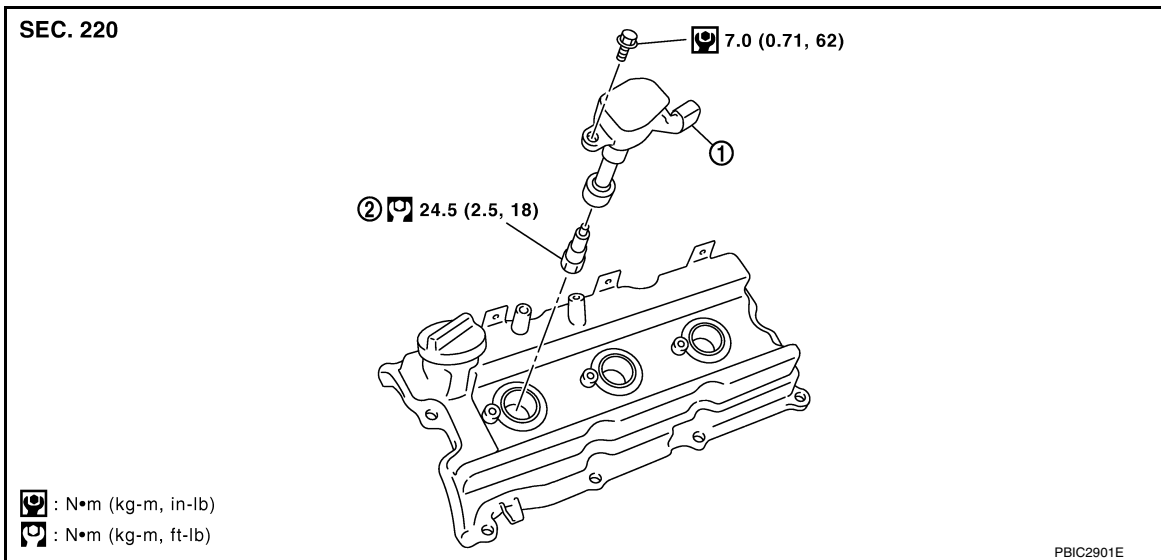
MA

ENGINE MAINTENANCE (VQ40DE)

< PERIODIC MAINTENANCE >

SPARK PLUG : Exploded View

INFOID:000000012517971



1. Ignition coil

2. Spark plug

SPARK PLUG : Removal and Installation

INFOID:000000012517972

REMOVAL

1. Remove the ignition coil. Refer to [EM-40, "Removal and Installation"](#).

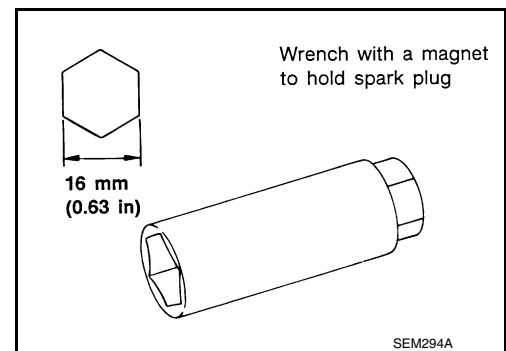
CAUTION:

Do not drop or shock the ignition coil.

2. Remove the spark plug using a suitable tool.

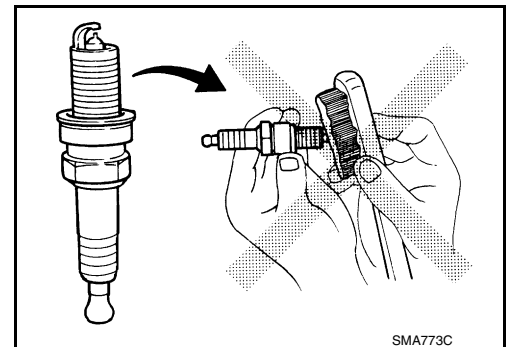
CAUTION:

Do not drop or shock the spark plug.



INSPECTION AFTER REMOVAL

- Do not use a wire brush for cleaning.



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

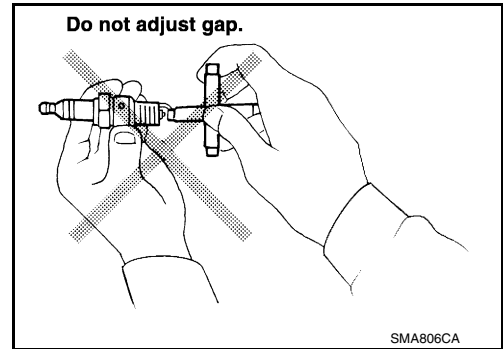
ENGINE MAINTENANCE (VQ40DE)

< PERIODIC MAINTENANCE >

Cleaner air pressure : Less than 588 kPa (6 kg/cm², 85 psi)

Cleaning time : Less than 20 seconds

- Checking and adjusting spark plug gap is not required between change intervals. Do not adjust the gap, replace the spark plug as necessary if out of specification.



INSTALLATION

Installation is in the reverse order of removal.

CAUTION:

Do not drop or shock the spark plug.

Make	NGK
Standard type*	DILFR5A-11
Gap (nominal)	1.1 mm (0.043 in)

*: Always check with the Parts Department for the latest parts information.

EVAP VAPOR LINES

EVAP VAPOR LINES : Checking EVAP Vapor Line

INFOID:000000012517973

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

ENGINE MAINTENANCE (VK56DE)

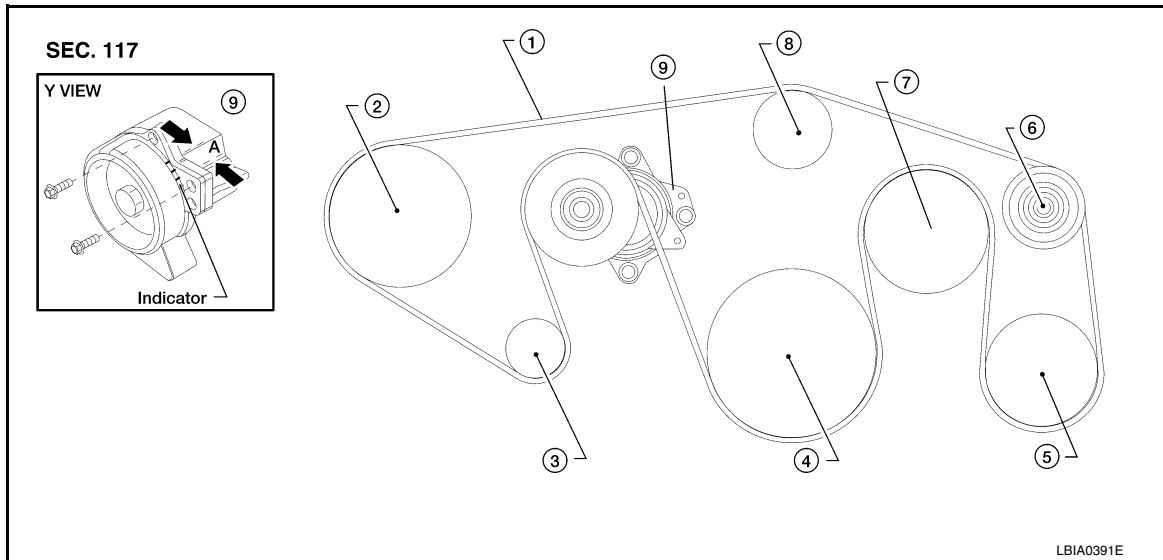
< PERIODIC MAINTENANCE >

ENGINE MAINTENANCE (VK56DE)

DRIVE BELTS

DRIVE BELTS : Checking Drive Belts

INFOID:000000012517974



- | | | |
|----------------------------|-------------------------------|---------------------|
| 1. Drive belt | 2. Power steering pump pulley | 3. Generator pulley |
| 4. Crankshaft pulley | 5. A/C compressor | 6. Idler pulley |
| 7. Cooling fan pulley | 8. Water pump pulley | 9. Auto-tensioner |
| A. Allowable working range | | |

WARNING:

Be sure to perform when the engine is stopped.

1. Remove the engine room cover using power tool (if equipped). Refer to [EM-164, "Removal and Installation"](#).
2. Remove air duct and resonator assembly when inspecting drive belt.
3. Make sure that the single line indicator of the auto-tensioner is between the three lines (which is the allowable working range).

NOTE:

- Check the drive belt auto-tensioner indication when the engine is cold.
 - The indicator notch is located on the moving side of the drive belt auto-tensioner.
4. Visually check entire belt for wear, damage or cracks.
 5. Replace the belt if the indicator is out of the allowable working range or the belt is damaged. Refer to [MA-30](#).

DRIVE BELT TENSION

The drive belt tension is automatically adjusted by the auto-tensioner; therefore, manually adjusting the belt tension is unnecessary.

ENGINE COOLANT

ENGINE COOLANT : Inspection

INFOID:000000012517975

WARNING:

- **Do not remove the radiator/reservoir cap when the engine is hot. Serious burns could occur from high pressure fluid escaping from the radiator or reservoir.**
- **Wrap a thick cloth around the cap. Slowly push down and turn it a quarter-turn to allow built-up pressure to escape. Carefully remove the cap by turning it all the way.**

CHECKING COOLING SYSTEM HOSES

Check hoses for the following:

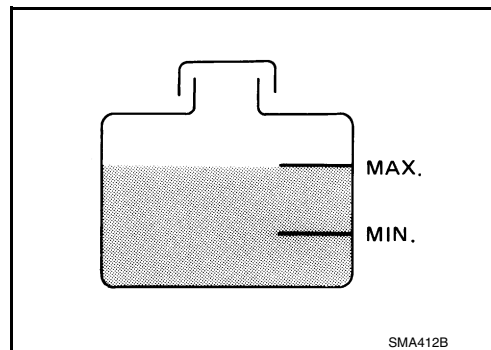
ENGINE MAINTENANCE (VK56DE)

< PERIODIC MAINTENANCE >

- Improper attachment
- Leaks
- Cracks
- Damage
- Loose connections
- Chafing
- Deterioration

LEVEL CHECK

- Check if the engine coolant reservoir tank level is within MIN to MAX level when engine is cool.
- Adjust engine coolant level as necessary.



CHECKING COOLING SYSTEM FOR LEAKS

WARNING:

- Do not remove the radiator/reservoir cap when the engine is hot. Serious burns could occur from high pressure fluid escaping from the radiator or reservoir.
- Wrap a thick cloth around the cap. Slowly push down and turn it a quarter-turn to allow built-up pressure to escape. Carefully remove the cap by turning it all the way.
- To check for leaks, apply pressure to the cooling system at the reservoir filler neck using suitable tool (A).

Testing pressure : Refer to [CO-60, "Standard and Limit"](#).

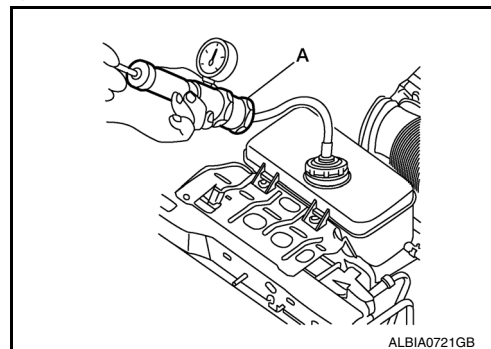
CAUTION:

Higher pressure than specified may cause radiator damage.

NOTE:

In case the engine coolant decreases, replenish cooling system with engine coolant.

- If any concerns are found, repair or replace damaged parts.

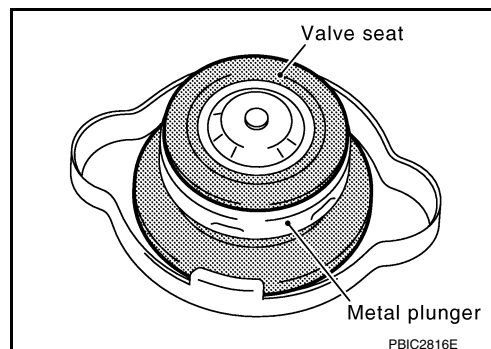


CHECKING RESERVOIR CAP

1. Inspect the reservoir cap.
 - Replace the cap if the metal plunger cannot be seen around the edge of the black rubber gasket.
 - Replace the cap if deposits of waxy residue or other foreign material are on the black rubber gasket or the metal retainer.

CAUTION:

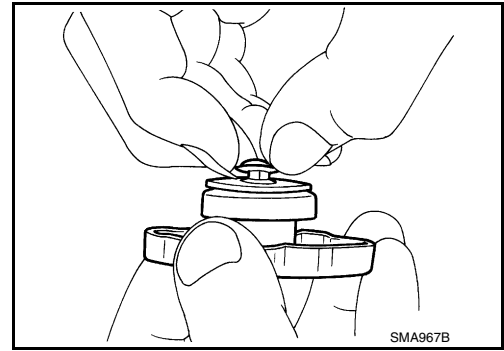
Thoroughly wipe out the reservoir filler neck to remove any waxy residue or foreign material.



ENGINE MAINTENANCE (VK56DE)

< PERIODIC MAINTENANCE >

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

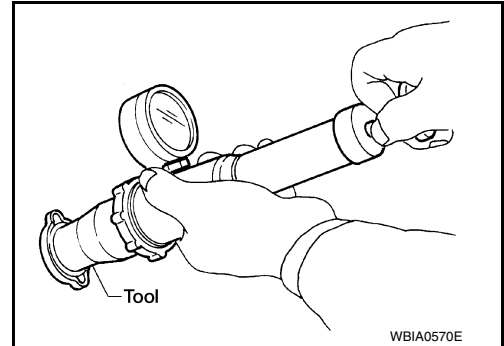


3. Check reservoir cap relief pressure using suitable tool.

Standard : Refer to [CO-60, "Standard and Limit"](#).

NOTE:

- Apply engine coolant to the cap seal surface.
- Replace the reservoir cap if there is any damage in the negative-pressure valve, or if the open-valve pressure is outside of the limit.



CHECKING RADIATOR CAP

Inspect the radiator cap.

CAUTION:

Thoroughly wipe out the radiator filler neck to remove any waxy residue or foreign material.

- Replace the radiator cap if deposits of waxy residue or foreign materials are on the black rubber gasket or the metal retainer.

ENGINE COOLANT : Changing Engine Coolant

INFOID:0000000012517976

WARNING:

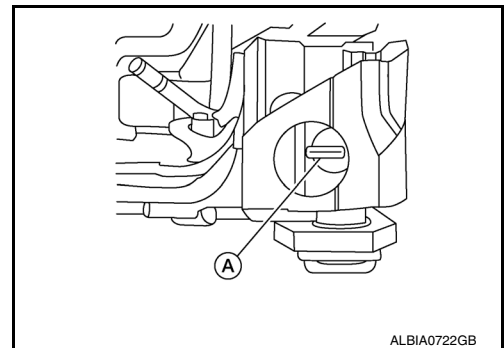
- **Do not remove the radiator cap when the engine is hot. Serious burns could occur from high pressure engine coolant escaping from the radiator.**
- **Wrap a thick cloth around the cap to carefully remove the cap. First, turn the cap a quarter of a turn to release any built-up pressure, then turn the cap all the way to remove it.**

DRAINING ENGINE COOLANT

1. Turn ignition switch ON and set temperature control lever all the way to HOT position or the highest temperature position. Wait 10 seconds and turn ignition switch OFF.
2. Remove the front under cover. Refer to [EXT-38, "Removal and Installation"](#).
3. Open the radiator drain plug (A) at the bottom of the radiator, and remove the reservoir cap. This is the only step required when partially draining the cooling system.

CAUTION:

Do not allow the coolant to contact the drive belts.



4. If it is necessary to drain the cylinder block when draining all of the coolant in the system, complete the remaining steps.
 - a. Remove the front under cover using power tool. Refer to [EXT-16, "Removal and Installation - Front Bumper"](#).

ENGINE MAINTENANCE (VK56DE)

< PERIODIC MAINTENANCE >

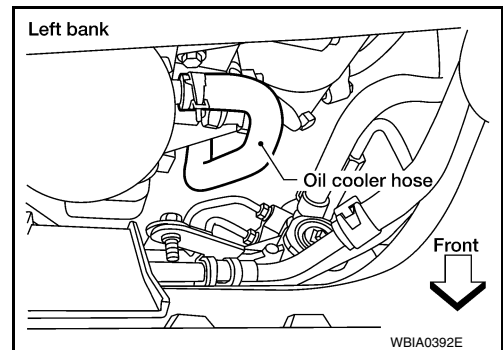
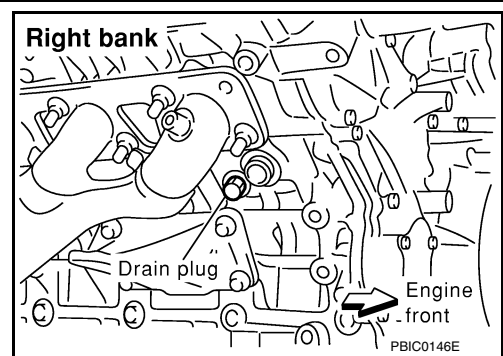
- b. Remove the cylinder block drain plug (RH) to drain the right bank and the oil cooler hose to drain the left bank as shown.

NOTE:

For Canada, the drain plug as shown is replaced with a block heater.

CAUTION:

Do not reuse the copper sealing washers.



6. Remove the reservoir tank to drain the engine coolant, then clean the reservoir tank before installing it.
7. Check the drained coolant for contaminants such as rust, corrosion or discoloration. If the coolant is contaminated, flush the engine cooling system. Follow the "Flushing Cooling System" procedure.

REFILLING ENGINE COOLANT

1. Close the radiator drain plug. Install the reservoir tank, cylinder block drain plug and the oil cooler hose, if removed for a total system drain. Refer to [EM-230, "Exploded View"](#).
- The radiator must be completely empty of coolant and water.
 - Apply sealant to the threads of the cylinder block drain plug. Use Genuine High Performance Thread Sealant or equivalent. Refer to [GI-21, "Recommended Chemical Products and Sealants"](#).

CAUTION:

Do not reuse the copper sealing washers.

2. Set the vehicle heater controls to the full HOT and heater ON position. Turn the vehicle ignition ON with the engine OFF as necessary to activate the heater mode.
3. Remove the vented reservoir cap and replace it with a non-vented reservoir cap before filling the cooling system.

ENGINE MAINTENANCE (VK56DE)

< PERIODIC MAINTENANCE >

- Install the Tool by installing the radiator cap adapter onto the radiator neck opening. Then attach the gauge body assembly with the refill tube and the venturi assembly to the radiator cap adapter.

Tool number : KV991J0070 (J-45695)

- Insert the refill hose into the coolant mixture container that is placed at floor level. Make sure the ball valve is in the closed position.
 - Use recommended coolant or equivalent. Refer to [MA-15](#). "[FOR USA AND CANADA : Fluids and Lubricants](#)".

Cooling system capacity (with reservoir at (MAX) line) : Refer to [CO-60](#), "[Standard and Limit](#)".

CAUTION:

Do not use any cooling system additives such as radiator sealer. Additives may clog the cooling system and cause damage to the engine, transmission and/or cooling system.

- Install an air hose to the venturi assembly. The air pressure must be within specification.

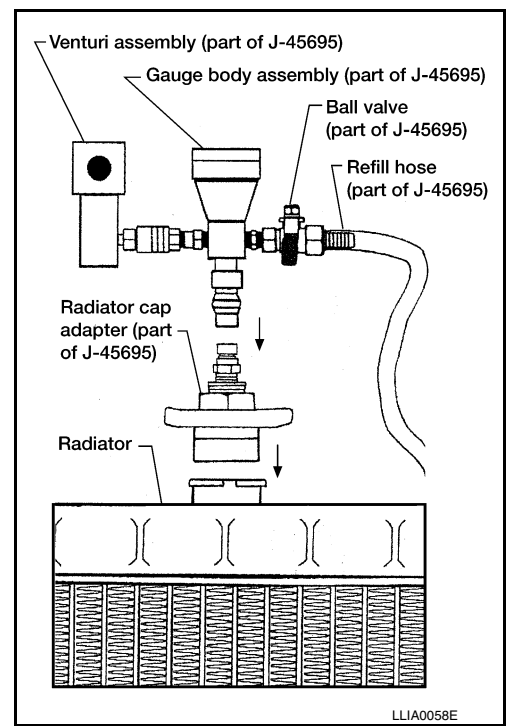
Compressed air supply pressure : 549 - 824 kPa (5.6 - 8.4 kg/cm², 80 - 119 psi)

CAUTION:

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

- The vacuum gauge will begin to rise and there will be an audible hissing noise. During this process, open the ball valve on the refill hose slightly. Rising coolant will be visible in the refill hose. After the refill hose is full of coolant, close the ball valve. This will purge any air trapped in the refill hose.
- Continue to draw the vacuum until the gauge reaches 28 inches of vacuum. The gauge may not reach 28 inches in high altitude locations. Refer to the following table for expected vacuum reading.

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



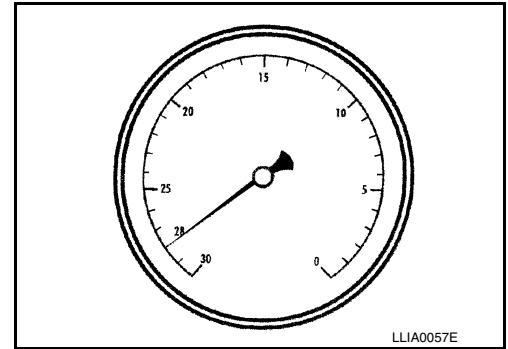
LLIA0058E

- When the vacuum gauge has reached the specified amount, disconnect the air hose and wait 20 seconds to see if the system loses any vacuum. If the vacuum level drops, perform any necessary repairs to the system and repeat steps 6 - 8 to bring the vacuum to the specified amount. Recheck for leaks.
- Place the coolant container (with the refill hose inserted) at the same level as the top of the radiator. Then open the ball valve on the refill hose so the coolant will be drawn up to fill the cooling system. The cooling system is full when the vacuum gauge reads zero.

CAUTION:

Do not allow the coolant container to get too low when filling to avoid air from being drawn into the cooling system.

- Remove the Tool from the radiator neck opening and install the radiator cap.
- Remove the non-vented reservoir cap.
- Fill the cooling system reservoir tank to the specified level. Run the engine to warm up the cooling system and top up the system as necessary before installing the vented reservoir cap.
- Install the front under cover. Refer to [EXT-16](#), "[Removal and Installation - Front Bumper](#)".



LLIA0057E

ENGINE MAINTENANCE (VK56DE)

< PERIODIC MAINTENANCE >

FLUSHING COOLING SYSTEM

1. Drain the water from the engine cooling system. Refer to [MA-32. "ENGINE COOLANT : Changing Engine Coolant"](#).
2. Fill the radiator and the reservoir tank (to the (MAX) line), with water. Reinstall the radiator cap and leave the vented reservoir cap off.
3. Run the engine until it reaches normal operating temperature.
4. Press the engine accelerator two or three times under no-load.
5. Stop the engine and wait until it cools down.
6. Drain the water from the engine cooling system. Refer to [MA-32. "ENGINE COOLANT : Changing Engine Coolant"](#).
7. Repeat steps 2 through 6 until clear water begins to drain from the radiator.

FUEL LINES

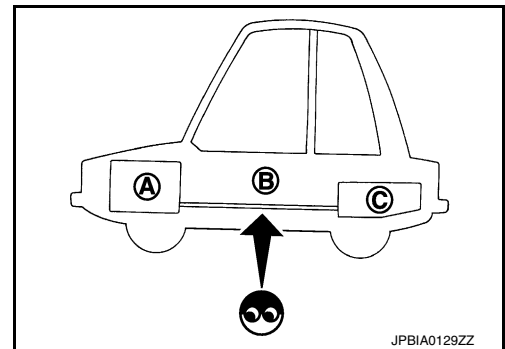
FUEL LINES : Checking Fuel Line

INFOID:000000012517977

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

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

If necessary, repair or replace damaged parts.



FUEL FILTER

FUEL FILTER : Changing Fuel Filter

INFOID:000000012517978

The fuel filter is part of the fuel level sensor unit, fuel filter and fuel pump assembly. Refer to [FL-11. "Removal and Installation"](#).

WARNING:

Before replacing the fuel filter, release the fuel pressure from the fuel system. Refer to [EC-596. "Work Procedure"](#).

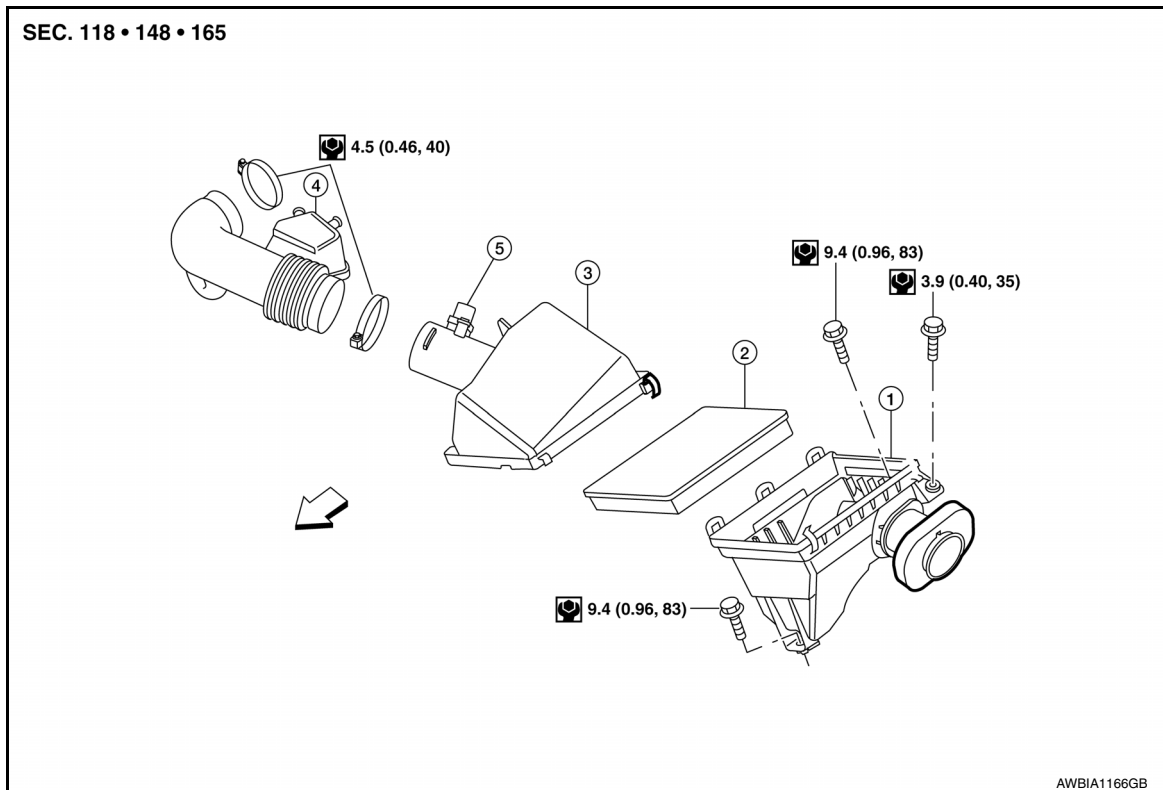
AIR CLEANER FILTER

ENGINE MAINTENANCE (VK56DE)

< PERIODIC MAINTENANCE >

AIR CLEANER FILTER : Exploded View

INFOID:000000012517979



- | | | |
|-----------------------------|-----------------------|-----------------------------|
| 1. Air cleaner case (lower) | 2. Air cleaner filter | 3. Air cleaner case (upper) |
| 4. Air duct and resonator | 5. MAF/IAT sensor | ⇐ Front |

AIR CLEANER FILTER : Removal and Installation

INFOID:000000012517980

REMOVAL

NOTE:

Replace the air filter per the periodic maintenance schedule. Refer to [MA-9, "FOR USA AND CANADA : Introduction of Periodic Maintenance"](#) (United States and Canada) or [MA-12, "FOR MEXICO : Introduction of Periodic Maintenance"](#) (Mexico).

1. Disconnect air duct and resonator from the air cleaner case (upper).
2. Disconnect the harness connector from MAF/IAT sensor.
3. Unhook clips, and lift air cleaner case (upper).
4. Remove the air cleaner filter from the air cleaner case (lower).

INSTALLATION

Installation is in the reverse order of removal.

ENGINE OIL

ENGINE OIL : Inspection

INFOID:000000012517981

OIL LEVEL

- Before starting the engine make sure the vehicle is parked on a flat and level surface, then check the oil level. If the engine is already running, turn it off and allow 10 minutes before checking.
- Pull out oil level gauge and wipe clean.

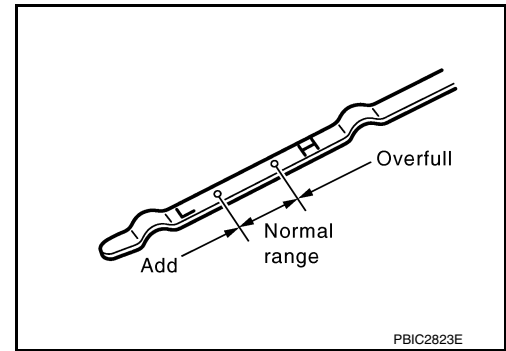
ENGINE MAINTENANCE (VK56DE)

< PERIODIC MAINTENANCE >

- Insert oil level gauge.
- Check that the oil level is within the low (L) and high (H) range as indicated on the dipstick.
- If the engine oil level is out of range, add oil as necessary. Refer to [MA-17, "FOR USA AND CANADA : Engine Oil Recommendation"](#) (United States and Canada) or [MA-17, "FOR MEXICO : Fluids and Lubricants"](#) (Mexico).

CAUTION:

Do not overfill the engine with oil.



ENGINE OIL : Changing Engine Oil

INFOID:000000012517982

WARNING:

- Be careful not to burn yourself, as the engine and 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 any oil leaks.
2. Stop engine and wait for 10 minutes.
3. Loosen oil filler cap, then remove oil drain plug.
4. Drain engine oil.
5. Install the oil drain plug with a new washer.

CAUTION:

- Clean the oil drain plug and install with a new washer.
- Do not reuse copper sealing washer.

Oil drain plug : Refer to [EM-173, "Exploded View"](#).

6. Refill the engine with new specified engine oil.

CAUTION:

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

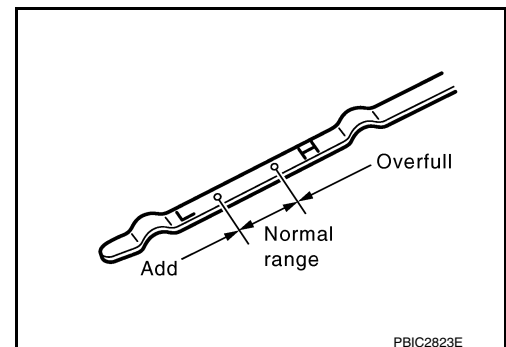
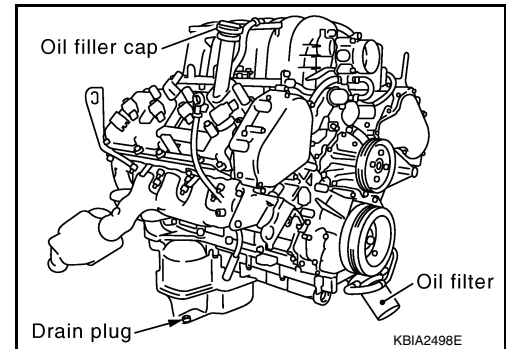
Oil grade and viscosity : Refer to [MA-15, "FOR USA AND CANADA : Fluids and Lubricants"](#).

Oil capacity : Refer to [LU-35, "Standard and Limit"](#).

7. Warm up the engine and check the area around the oil drain plug and oil filter for oil leaks.
8. Stop engine and wait for 10 minutes.
9. Check the oil level using the dipstick as shown. Add oil as necessary and install the oil filler cap. Refer to [MA-36, "ENGINE OIL : Inspection"](#).

CAUTION:

Do not overfill the engine with oil.



OIL FILTER

ENGINE MAINTENANCE (VK56DE)

< PERIODIC MAINTENANCE >

OIL FILTER : Removal and Installation

INFOID:000000012517983

REMOVAL

1. Remove the front under cover using power tool. Refer to [EXT-38. "Removal and Installation"](#).
2. Drain the engine oil. Refer to [LU-26. "Changing Engine Oil"](#).
3. Remove the oil filter using Tool as shown.

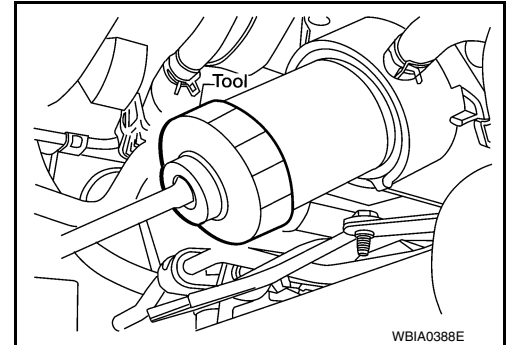
Tool number : KV10115801 (J-38956)

WARNING:

Be careful not to burn yourself, as the engine and engine oil may be hot.

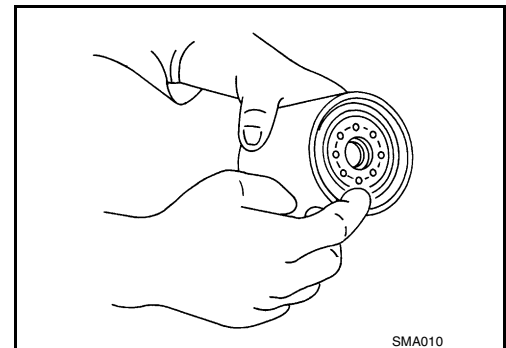
CAUTION:

- The oil filter is provided with a pressure relief valve.
- Use Genuine NISSAN oil filter or equivalent.
- When removing, prepare a shop cloth to absorb any engine oil leaks or spills.
- Do not allow engine oil to adhere to the drive belts.
- Completely wipe off engine oil that adheres to the engine and the vehicle.



INSTALLATION

1. Remove foreign materials adhering to the oil filter seal mating surface.
2. Apply clean engine oil to the new oil filter seal as shown.

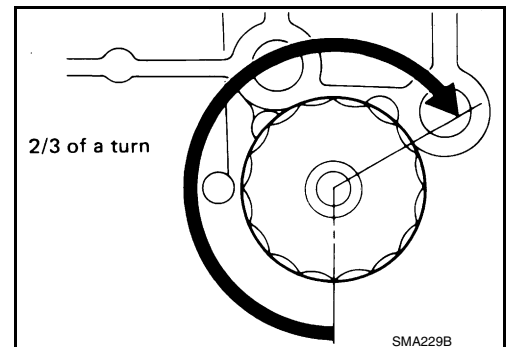


3. Screw on the oil filter manually until it touches the seal mating surface and then tighten it an additional 2/3 turn using Tool as shown; or to specification.

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

Tool number : KV10115801 (J-38956)

4. Refill the engine with new engine oil. Refer to [LU-26. "Changing Engine Oil"](#).
5. Inspect the engine for oil leaks. Refer to [LU-25. "Inspection"](#).
6. Install the front under cover. Refer to [EXT-38. "Removal and Installation"](#).



INSPECTION AFTER INSTALLATION

1. Check the engine oil level. Refer to [LU-25. "Inspection"](#).
2. Start the engine and check for engine oil leaks.
3. Stop the engine and wait for 10 minutes.
4. Check the engine oil level and add engine oil as required.

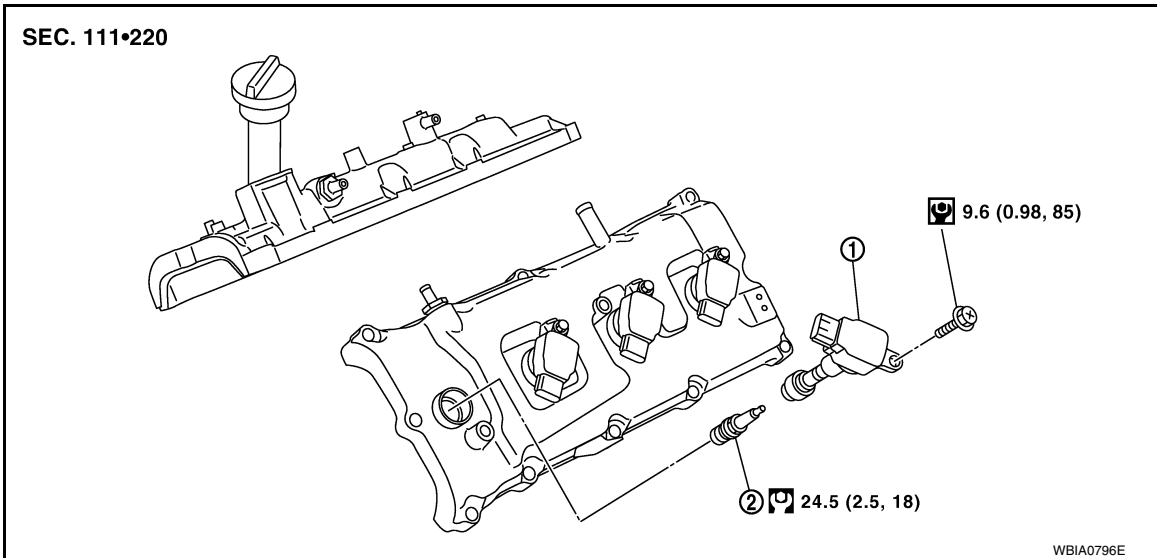
SPARK PLUG

ENGINE MAINTENANCE (VK56DE)

< PERIODIC MAINTENANCE >

SPARK PLUG : Exploded View

INFOID:000000012517984



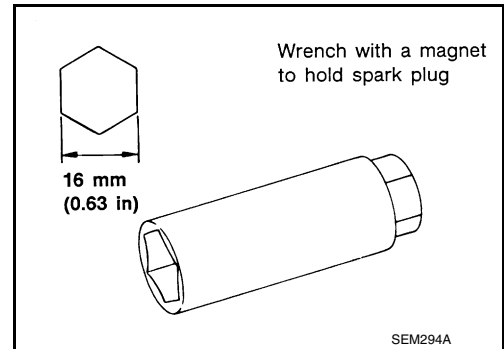
1. Ignition coil 2. Spark plug

SPARK PLUG : Removal and Installation

INFOID:000000012517985

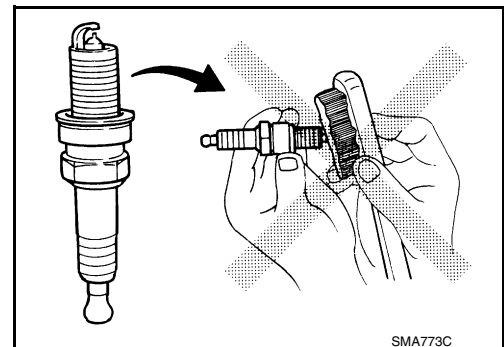
REMOVAL

1. Remove ignition coil. Refer to [EM-178. "Removal and Installation"](#).
CAUTION:
Do not drop or shock the ignition coil.
2. Remove spark plug using suitable tool.
CAUTION:
Do not drop or shock the spark plug.



INSPECTION AFTER REMOVAL

- Do not use a wire brush for cleaning.



- A spark plug cleaner may be used if the plug tip is covered with carbon.

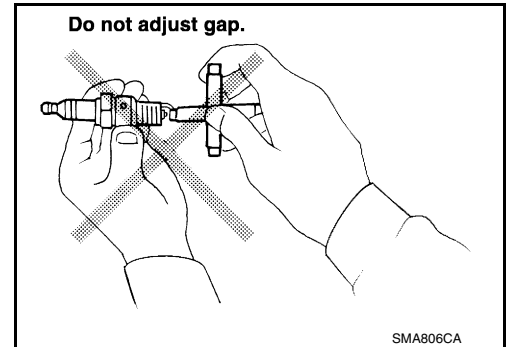
ENGINE MAINTENANCE (VK56DE)

< PERIODIC MAINTENANCE >

Cleaner air pressure : Less than 588 kPa (6 kg/cm², 85 psi)

Cleaning time : Less than 20 seconds

- Checking and adjusting the plug gap is not required between change intervals.



INSTALLATION

Installation is in the reverse order of removal.

CAUTION:

Do not drop or shock the spark plug.

Make	NGK
Model	Standard model
Standard type*	DILFR5A-11
Gap (Nominal)	1.1 mm (0.043 in)

*: Always check with the Parts Department for the latest parts information.

EVAP VAPOR LINES

EVAP VAPOR LINES : Checking EVAP Vapor Line

INFOID:0000000012517986

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

CHASSIS AND BODY MAINTENANCE

< PERIODIC MAINTENANCE >

CHASSIS AND BODY MAINTENANCE

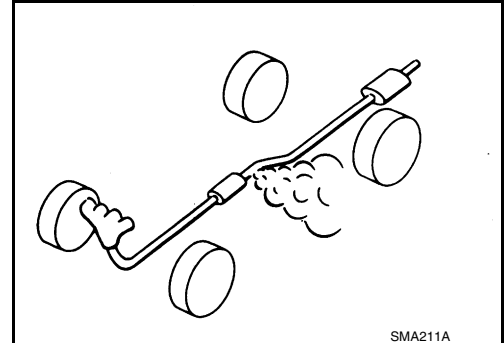
EXHAUST SYSTEM

EXHAUST SYSTEM : Checking Exhaust System

INFOID:000000012517987

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 : Checking the A/T Fluid (ATF)

INFOID:000000012517988

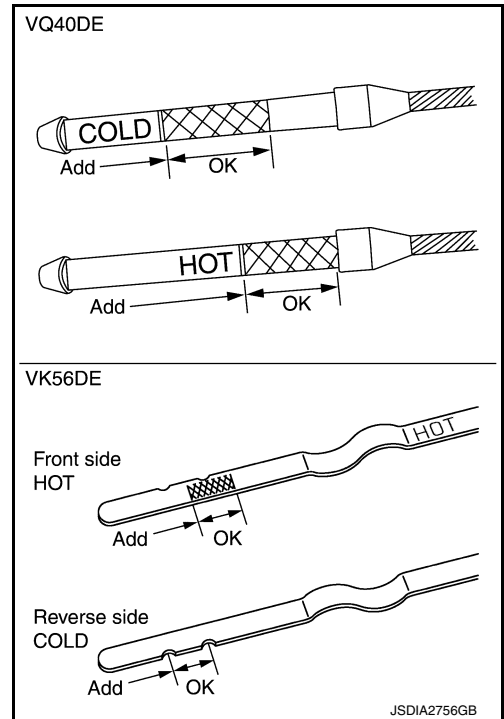
CAUTION:

If using the vehicle for towing, the A/T fluid must be replaced as specified. Refer to [MA-9, "FOR USA AND CANADA : Introduction of Periodic Maintenance"](#) (United States and Canada) and [MA-12, "FOR MEXICO : Introduction of Periodic Maintenance"](#) (Mexico).

1. Before driving, the A/T fluid level can be checked at A/T fluid temperatures of 30° to 50° C (86° to 122° F) using the "COLD" range on the A/T fluid level gauge as follows:
 - a. Park the vehicle on a level surface and set the parking brake.
 - b. Start the engine and move the shift selector through each gear position. Then move the shift selector into the "P" position.
 - c. Check the A/T fluid level with the engine idling.
 - d. Remove the A/T fluid level gauge and wipe it clean with a lint-free paper.

CAUTION:

When wiping the A/T fluid from the A/T fluid level gauge, always use a lint-free paper, not a cloth.



CHASSIS AND BODY MAINTENANCE

< PERIODIC MAINTENANCE >

- e. Re-insert the A/T fluid level gauge into the A/T fluid charging pipe until the cap contacts the top of the A/T fluid charging pipe as shown.

CAUTION:

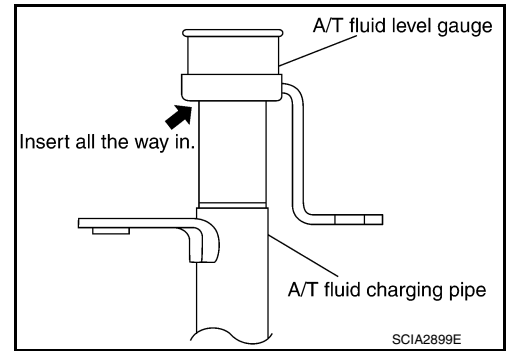
To check A/T fluid level, insert the A/T fluid level gauge until the cap contacts the top of the A/T fluid charging pipe, with the gauge reversed from the normal inserted position.

- f. Remove the A/T fluid level gauge and note the A/T fluid level. If the A/T fluid level is at low side of range, add A/T fluid to the transmission through the A/T fluid charging pipe.

CAUTION:

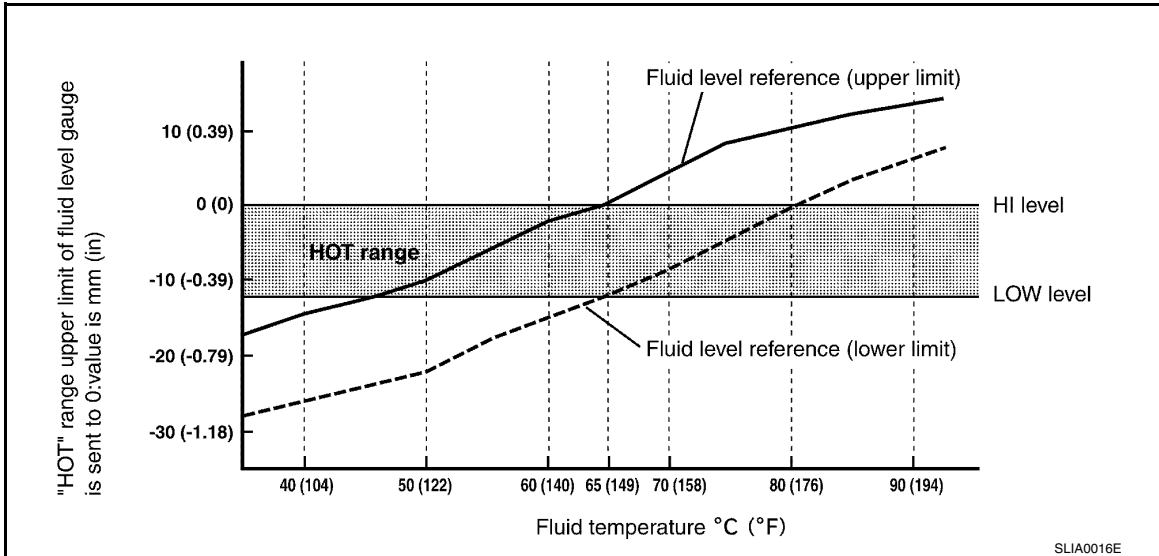
Do not overfill the transmission with A/T fluid.

- g. Install the A/T fluid level gauge and the A/T fluid level gauge bolt.



A/T fluid level gauge bolt : Refer to [TM-191, "Removal and Installation"](#).

2. Warm up the engine and transmission.
3. Check for any A/T fluid leaks.
4. Drive the vehicle to increase the A/T fluid temperature to 80° C (176° F).
5. Allow the A/T fluid temperature to fall to approximately 65°C (149°F). Use the CONSULT to monitor the A/T fluid temperature as follows:



NOTE:

The A/T fluid level will be significantly affected by the A/T fluid temperature as shown. Therefore monitor the A/T fluid temperature data using the CONSULT.

- a. Connect CONSULT to data link connector.
- b. Select "ATF TEMP 1" in "Data Monitor" mode for "TRANSMISSION" with CONSULT.
- c. Read out the value of "ATF TEMP 1".

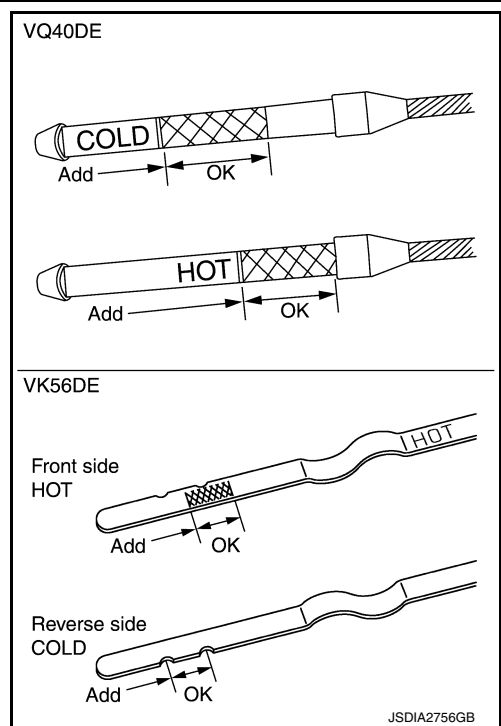
CHASSIS AND BODY MAINTENANCE

< PERIODIC MAINTENANCE >

6. Re-check the A/T fluid level at A/T fluid temperatures of approximately 65°C (149°F) using the “HOT” range on the A/T fluid level gauge as shown. The HOT range is between 50° - 80° C (122° - 176° F).

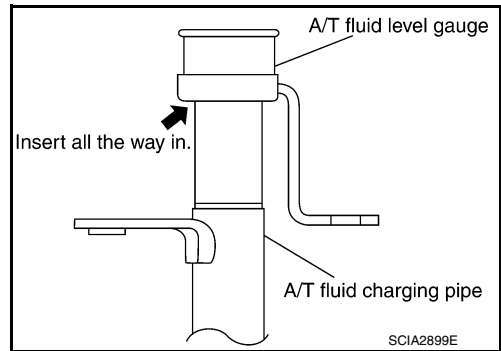
CAUTION:

- When wiping the A/T fluid from the A/T fluid level gauge, always use lint-free paper, not a cloth.



- To check the A/T fluid level, insert the A/T fluid level gauge until the cap contacts the top of the A/T fluid charging pipe, with the gauge reversed from the normal inserted position as shown.

7. Check the A/T fluid condition.
- If the A/T fluid is very dark or has some burned smell, there may be an internal problem with the transmission. Refer to [TM-71, "A/T Fluid Cooler Cleaning"](#). Flush the transmission cooling system after repairing the transmission.
 - If the A/T fluid contains frictional material (clutches, bands, etc.), replace the radiator and flush the transmission cooler lines using cleaning solvent and compressed air after repairing the transmission.



8. Install the A/T fluid level gauge in the A/T fluid charging pipe.
9. Tighten the A/T fluid level gauge bolt to specification.

A/T fluid level gauge bolt : Refer to [TM-191, "Removal and Installation"](#).

PROPELLER SHAFT

PROPELLER SHAFT : Inspection-Model 3S1355

INFOID:000000012517989

APPEARANCE AND NOISE INSPECTION

- Inspect the propeller shaft tube for dents or cracks. If damaged, replace the propeller shaft assembly.
- Check bearings for damage and noise. If damaged, replace as necessary.

PROPELLER SHAFT VIBRATION

NOTE:

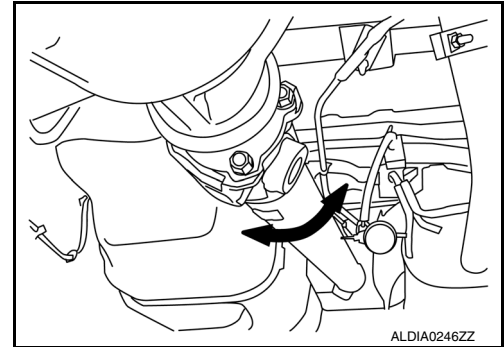
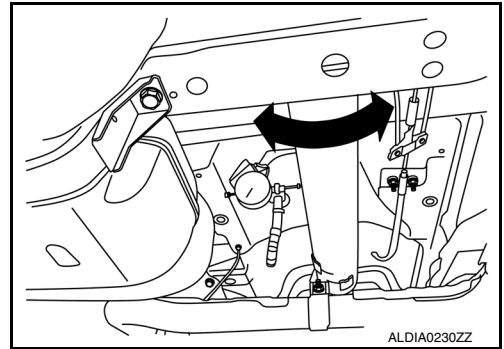
If vibration is present at high speed, check propeller shaft runout first, then check mounting between propeller shaft and companion flange.

CHASSIS AND BODY MAINTENANCE

< PERIODIC MAINTENANCE >

1. Measure the runout of the propeller shaft tube at several points by rotating the final drive companion flange with your hands.

Propeller shaft runout : Refer to [DLN-15, "General Specification"](#).



2. If the runout still exceeds specifications, disconnect the propeller shaft at the final drive companion flange; then rotate the companion flange 90°, 180°, 270° and reconnect propeller shaft.
3. Check the runout again. If the runout still exceeds specifications, replace the propeller shaft assembly.
4. After installation, check for vibration by driving the vehicle.

PROPELLER SHAFT : Inspection-Model 3S1415

INFOID:000000012517990

APPEARANCE AND NOISE INSPECTION

- Inspect the propeller shaft tube for dents or cracks. If damaged, replace the propeller shaft assembly.
- Check bearings for noise or damage. If damaged, replace as necessary.

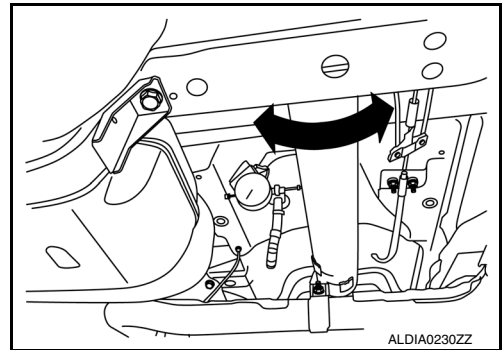
PROPELLER SHAFT VIBRATION

NOTE:

If vibration is present at high speed, check propeller shaft runout first, then check mounting between propeller shaft and companion flange.

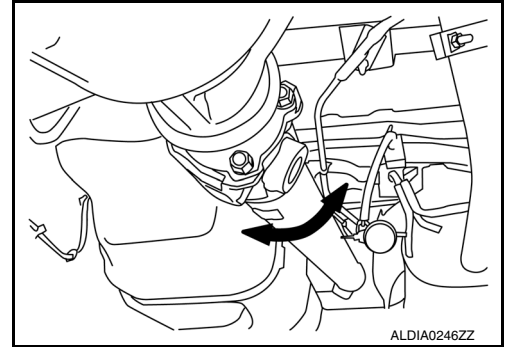
1. Measure the runout of the propeller shaft tube at several points by rotating the final drive companion flange with your hands.

Propeller shaft runout : Refer to [DLN-28, "General Specification"](#).



CHASSIS AND BODY MAINTENANCE

< PERIODIC MAINTENANCE >



2. If the runout still exceeds specifications, disconnect the propeller shaft at the final drive companion flange; then rotate the companion flange 90°, 180°, 270° and reconnect propeller shaft.
3. Check the runout again. If the runout still exceeds specifications, replace the propeller shaft assembly.
4. After installation, check for vibration by driving the vehicle.

REAR DIFFERENTIAL GEAR OIL

REAR DIFFERENTIAL GEAR OIL : Checking Differential Gear Oil

INFOID:0000000012517991

DIFFERENTIAL GEAR OIL LEAKAGE AND LEVEL

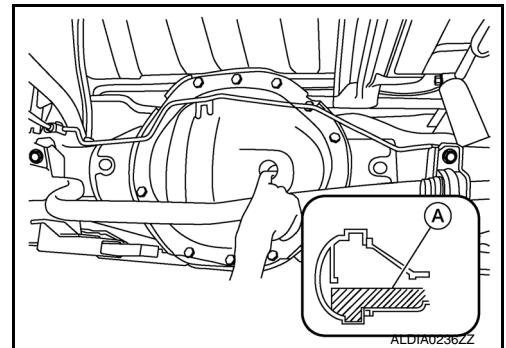
1. Make sure that differential gear oil is not leaking from the rear final drive assembly or around it.
2. Check that the differential gear oil level (A) reaches the filler plug hole as shown.

CAUTION:

Do not start engine while checking differential gear oil level.

3. Install the filler plug with sealant applied on the threads to the rear final drive assembly. Tighten to the specified torque.

Filler plug torque : 32 N·m (3.3 kg-m, 24 lb-ft)



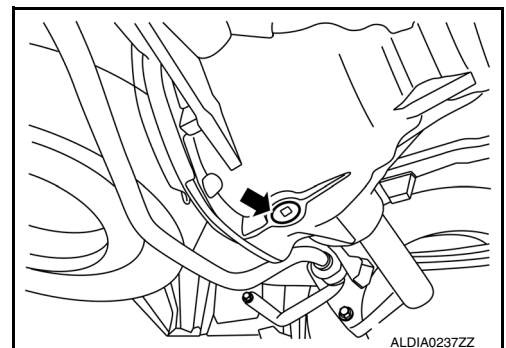
REAR DIFFERENTIAL GEAR OIL : Changing Differential Gear Oil

INFOID:0000000012517992

DRAINING

1. Stop engine.
2. Remove the drain plug from the rear final drive assembly to drain the differential gear oil.
3. Install the drain plug with sealant applied on the threads to the rear final drive assembly. Tighten to the specified torque.

Drain plug torque : 32 N·m (3.3 kg-m, 24 lb-ft)



FILLING

1. Remove the filler plug from the rear final drive assembly.

A
B
C
D
E
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G
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M
N
O
MA

CHASSIS AND BODY MAINTENANCE

< PERIODIC MAINTENANCE >

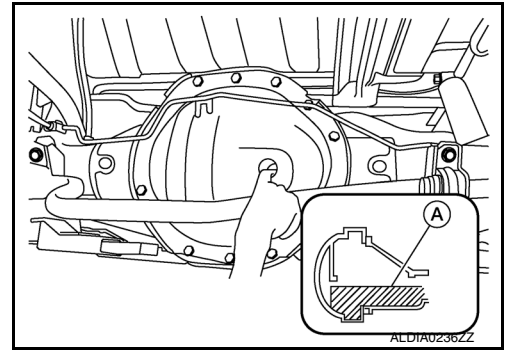
- Fill the rear final drive with new differential gear oil until the oil level (A) reaches the filler plug hole as shown.

Differential gear oil grade and capacity

: Refer to [MA-15, "FOR USA AND CANADA : Fluids and Lubricants"](#) (United States and Canada) or [MA-17, "FOR MEXICO : Fluids and Lubricants"](#) (Mexico).

- Install the filler plug with sealant applied on the threads to the rear final drive assembly. Tighten to the specified torque.

Filler plug torque : 32 N·m (3.3 kg-m, 24 lb-ft)



WHEELS

WHEELS : Adjustment

INFOID:000000012517993

BALANCING WHEELS (ADHESIVE WEIGHT TYPE)

Preparation Before Adjustment

Remove inner and outer balance weights from the road wheel 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 all traces of releasing agent from the road wheel.**

Wheel Balance Adjustment

- If a balancer machine has an adhesive weight mode setting, select the adhesive weight mode setting and skip Step 2. below. If a balancer machine only has the clip-on (rim flange) weight mode setting, follow Step 2. to calculate the correct size adhesive weight.

- Set road wheel on balancer machine using the center hole as a guide. Start the balancer machine.
- For balancer machines that only have a clip-on (rim flange) weight mode setting, follow this step to calculate the correct size adhesive weight to use. When inner and outer imbalance values are shown on the balancer machine indicator, multiply outer imbalance value by 5/3 (1.67) to determine balance weight that should be used. Select the outer balance weight with a value closest to the calculated value above and install in to the designated outer position of, or at the designated angle in relation to the road wheel.

- Indicated imbalance value $\times 5/3$ (1.67) = balance weight to be installed

Calculation example:

$23 \text{ g (0.81 oz)} \times 5/3 (1.67) = 38.33 \text{ g (1.35 oz)} \Rightarrow 40 \text{ g (1.41 oz)}$
balance weight (closer to calculated balance weight value)

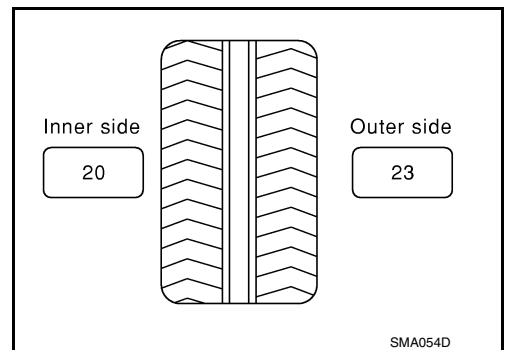
NOTE:

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

Example:

$37.4 \Rightarrow 35 \text{ g (1.23 oz)}$

$37.5 \Rightarrow 40 \text{ g (1.41 oz)}$



CHASSIS AND BODY MAINTENANCE

< PERIODIC MAINTENANCE >

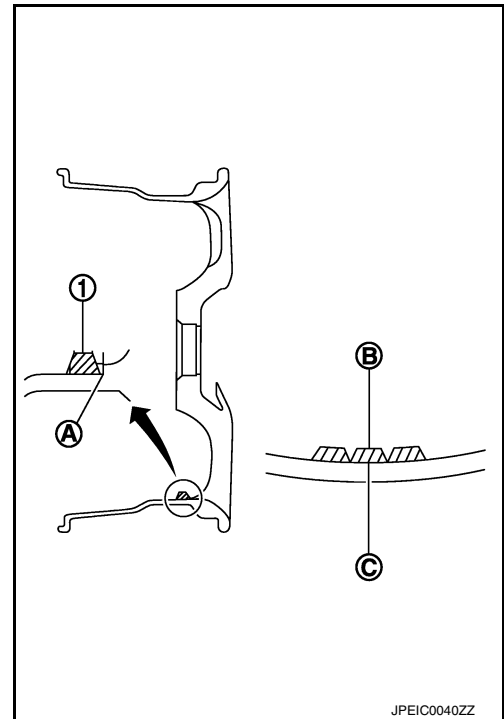
3. Install balance weight in the position shown.

CAUTION:

- Do not install the inner balance weight before installing the outer balance weight.
- Before installing the balance weight, be sure to clean the mating surface of the road wheel.
- When installing balance weight (1) to road wheel, set it into the grooved area (A) on the inner wall of the road wheel as shown so that the balance weight center (B) is aligned with the balancer machine indication position (angle) (C).

CAUTION:

- Always use Genuine NISSAN adhesive balance weights.
- Balance weights are non-reusable; always replace with new ones.
- Do not install more than three sheets of balance weight.



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

CAUTION:

Do not install one balance weight sheet on top another.

5. Start balancer machine again.

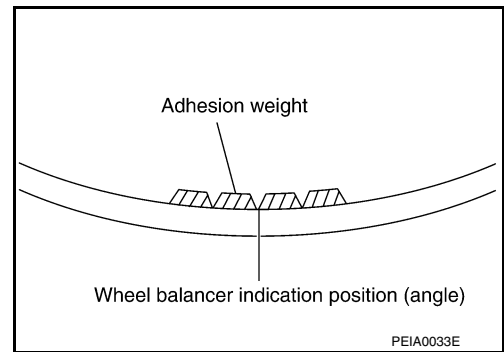
6. Install balance weight on inner side of road wheel in the balancer machine indication position (angle).

CAUTION:

Do not install more than two balance weights.

7. Start balancer machine. Make sure that inner and outer residual imbalance values are 5 g (0.17 oz) each or below.

8. If either residual imbalance value exceeds 5 g (0.17 oz), repeat installation procedures.



Wheel balance	Dynamic (At flange)	Static (At flange)
Maximum allowable imbalance	Refer to WT-69, "Road Wheel" .	

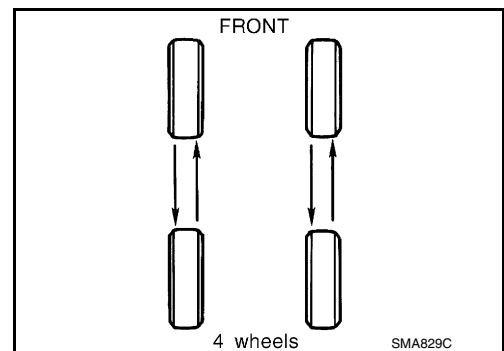
TIRE ROTATION

- Follow the maintenance schedule for tire rotation service intervals. Refer to [MA-9, "FOR USA AND CANADA : Introduction of Periodic Maintenance"](#) (United States and Canada) or [MA-12, "FOR MEXICO : Introduction of Periodic Maintenance"](#) (Mexico).

• When installing the wheel, tighten wheel nuts to the specified torque.

CAUTION:

- Do not include the 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 for preventing strain of disc rotor.



Wheel nut torque : 187 N-m (19 kg-m, 138 ft-lb)

- Perform the transmitter ID registration, after tire rotation. Refer to [WT-26, "Work Procedure"](#).

CHASSIS AND BODY MAINTENANCE

< PERIODIC MAINTENANCE >

BRAKE FLUID LEVEL AND LEAKS

BRAKE FLUID LEVEL AND LEAKS : Inspection

INFOID:000000012517994

BRAKE FLUID LEVEL

- Check that the fluid level in the reservoir tank is within the specified range (MAX – MIN lines).

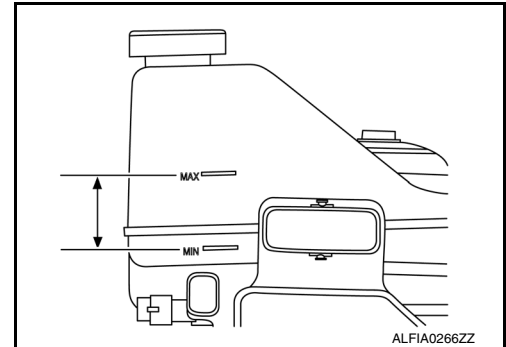
CAUTION:

Turn OFF the ignition switch and depress the brake pedal 20 times or more to check brake fluid level.

NOTE:

Since brake fluid is in the accumulator in pressurized condition, the reservoir tank brake fluid level should be lower than the MAX line.

- Visually check for any brake fluid leakage around the reservoir tank.
- Check the brake system for any leakage if the fluid level is extremely low (lower than MIN).
- Check the brake system for fluid leakage if the warning lamp remains illuminated even after the parking brake is released.
- Check the reservoir tank for the mixing of foreign matter (e.g. dust) and oils other than brake fluid.



BRAKE LINES AND CABLES

BRAKE LINES AND CABLES : Checking Brake Line and Cables

INFOID:000000012517995

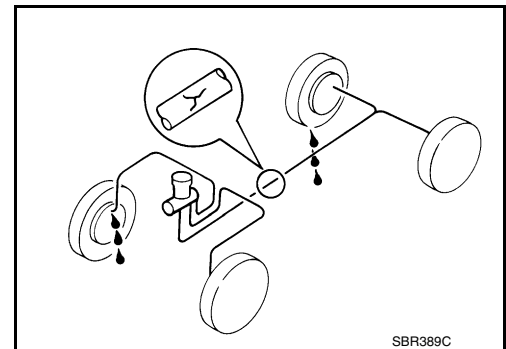
BRAKE LINE

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

CAUTION:

Retighten the applicable connection to the specified torque and repair any abnormal (damaged, worn or deformed) part if any brake fluid leakage is present.

2. Depress the brake pedal with a force of 490 N (50 kg-f, 110 lb-f) and hold down the pedal for approx. 5 seconds with the engine running. Check for any fluid leakage.



FRONT BRAKE

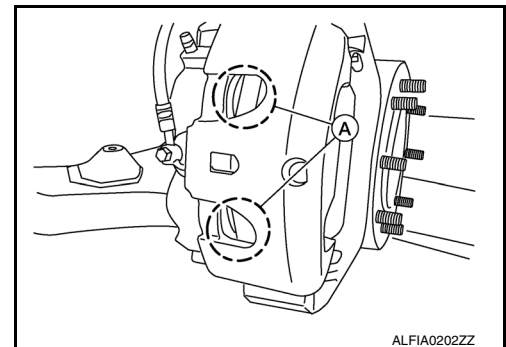
FRONT BRAKE : Inspection and Adjustment

INFOID:000000012517996

INSPECTION

Check the thickness of brake pad from the inspection hole (A) on brake caliper assembly. Check using a scale if necessary.

Wear thickness : Refer to [BR-47, "Front Disc Brake"](#).



ADJUSTMENT

CAUTION:

- **Burnish contact surfaces between pads and disc rotor according to the following procedure after refinishing the disc rotor or replacing brake pads, or if a soft pedal occurs at very low mileage.**

CHASSIS AND BODY MAINTENANCE

< PERIODIC MAINTENANCE >

- **Be careful of vehicle speed because the brake does not operate firmly/securely until pads and disc rotor are securely fitted.**
 - **Only perform this procedure under safe road and traffic conditions. Use extreme caution.**
1. Drive vehicle on straight, flat road.
 2. Depress brake pedal with the power to stop vehicle within 3 to 5 seconds until the vehicle stops.
 3. Drive without depressing brake for a few minutes to cool the brake.
 4. Repeat steps 1 to 3 until pad and disc rotor are securely fitted.

REAR BRAKE

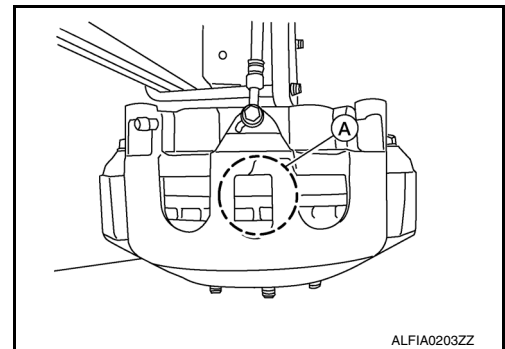
REAR BRAKE : Inspection and Adjustment

INFOID:000000012517997

INSPECTION

Check the thickness of brake pad from the inspection hole (A) on brake caliper assembly. Check using a scale if necessary.

Wear thickness : Refer to [BR-47, "Rear Disc Brake"](#).



ADJUSTMENT

CAUTION:

- **Burnish contact surfaces between pads and disc rotor according to the following procedure after refinishing the disc rotor or replacing brake pads, or if a soft pedal occurs at very low mileage.**
 - **Be careful of vehicle speed because the brake does not operate firmly/securely until pads and disc rotor are securely fitted.**
 - **Only perform this procedure under safe road and traffic conditions. Use extreme caution.**
1. Drive vehicle on straight, flat road.
 2. Depress brake pedal with the power to stop vehicle within 3 to 5 seconds until the vehicle stops.
 3. Drive without depressing brake for a few minutes to cool the brake.
 4. Repeat steps 1 to 3 until pad and disc rotor are securely fitted.

POWER STEERING FLUID AND LINES

POWER STEERING FLUID AND LINES : Checking Fluid Level

INFOID:000000012517998

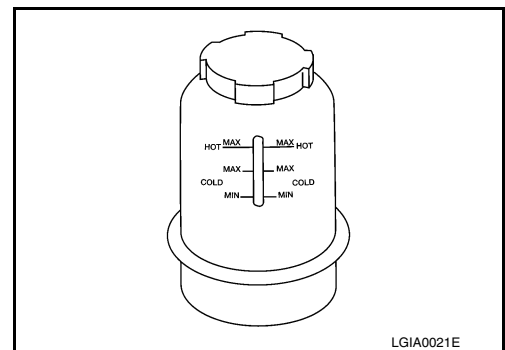
Check fluid level, referring to the scale on reservoir tank.

Use **HOT** range for power steering fluid temperatures of 50° – 80°C (122° – 176°F).

Use **COLD** range for power steering fluid temperatures of 0° – 30°C (32° – 86°F).

CAUTION:

- **Do not overfill.**
- **Do not reuse any used power steering fluid.**
- **Recommended power steering fluid is Genuine NISSAN PSF or equivalent. Refer to [MA-15, "FOR USA AND CANADA : Fluids and Lubricants"](#) (United States and Canada) or [MA-17, "FOR MEXICO : Fluids and Lubricants"](#) (Mexico).**



CHASSIS AND BODY MAINTENANCE

< PERIODIC MAINTENANCE >

POWER STEERING FLUID AND LINES : Checking Fluid Leakage

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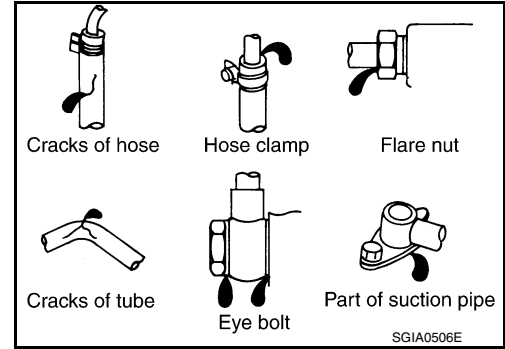
Check the hydraulic piping lines for improper attachment and for leaks, cracks, damage, loose connections, chafing or deterioration.

1. Run engine until power steering fluid temperature reaches 50° – 80°C (122° – 176°F) in reservoir tank. Keep engine speed at idle.
2. Turn steering wheel right-to-left several times.
3. Hold steering wheel at each “lock” position for five seconds to check fluid leakage.

CAUTION:

Do not hold steering wheel in a locked position for more than 10 seconds. (There is the possibility that the power steering oil pump may be damaged.)

4. If power steering fluid leakage at connections is noticed, then loosen flare nut and then retighten. Do not over tighten connector as this can damage O-ring, washer and connector.
5. If power steering fluid leakage from oil pump is noticed, check power steering oil pump. Refer to [ST-9, "On-Vehicle Inspection and Service"](#).
6. Check steering gear boots for accumulation of power steering fluid indicating a leak from the power steering gear.



AXLE AND SUSPENSION PARTS

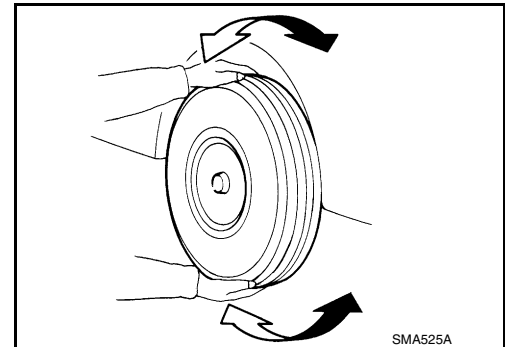
AXLE AND SUSPENSION PARTS : Checking Axle and Suspension Parts

INFOID:000000012518000

REAR AXLE AND SUSPENSION PARTS

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

- Shake each front wheel to check for excessive play. If looseness is noted, inspect wheel bearing end play, then check ball joint end play. Refer to [FAX-8, "Wheel Bearing"](#) (front), [RAX-5, "On-Vehicle Inspection"](#) (rear) and [FSU-25, "Ball Joint"](#).
- Make sure that the cotter pins are inserted.
- Rotate each wheel to check for abnormal noise.



- Check the axle and suspension nuts and bolts for looseness.
- Check the strut and shock absorber for oil leakage or other damage.
- Check the suspension ball joints for grease leakage and ball joint dust cover for cracks or other damage.

PROPELLER SHAFT

Inspect the propeller shaft tube for dents or cracks. If damaged, replace the propeller shaft assembly.

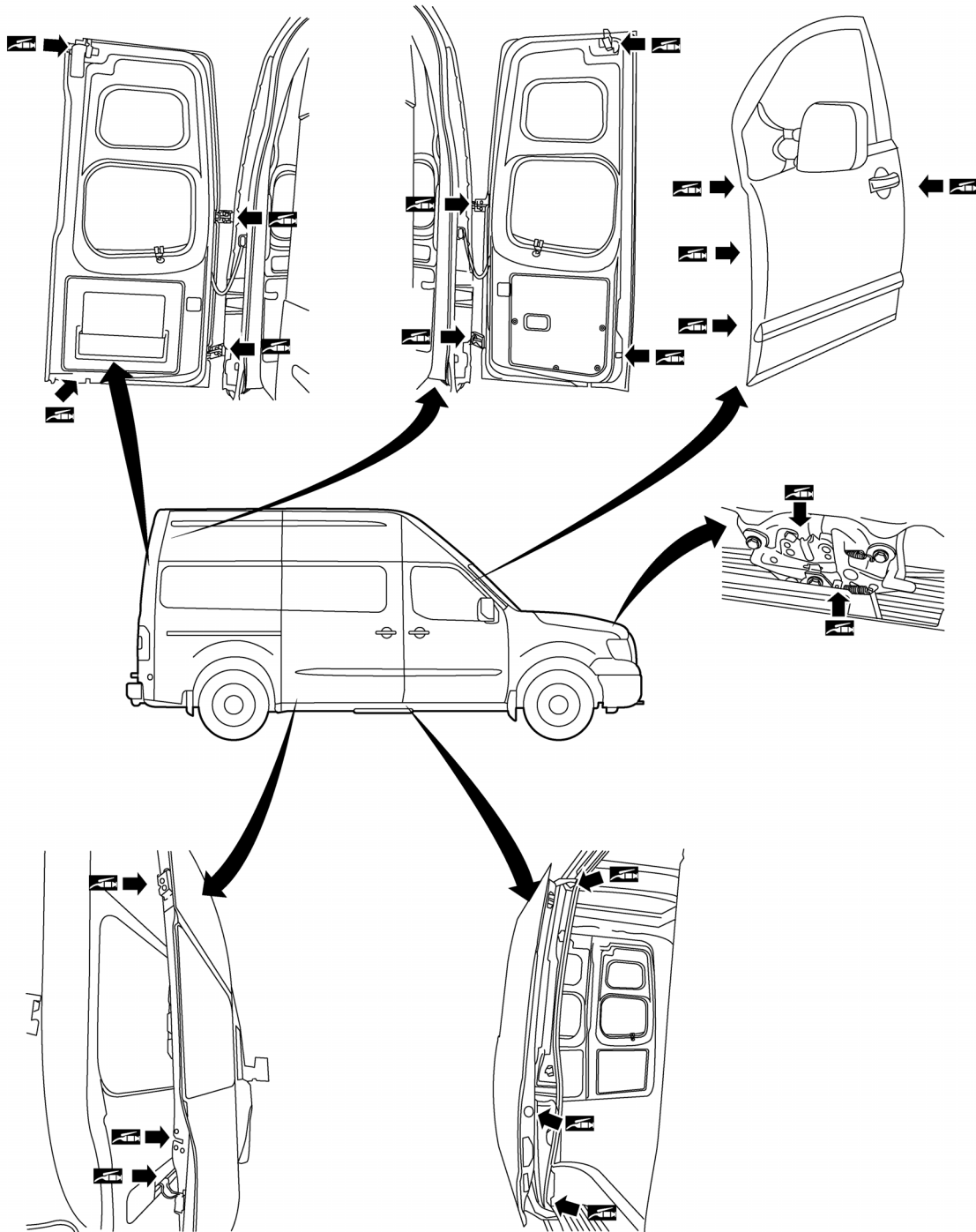
LOCKS AND HINGES

CHASSIS AND BODY MAINTENANCE

< PERIODIC MAINTENANCE >

LOCKS AND HINGES : Lubricating Locks, Hinges and Hood Latches

INFOID:000000012518001



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NOTE:

Lubricate the locations shown with a suitable multi-purpose grease.

SEAT BELT, BUCKLES, RETRACTORS, ANCHORS AND ADJUSTERS

SEAT BELT, BUCKLES, RETRACTORS, ANCHORS AND ADJUSTERS : Checking

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CHASSIS AND BODY MAINTENANCE

< PERIODIC MAINTENANCE >

Seat Belts, Buckles, Retractors, Anchors and Adjusters

INFOID:000000012518002

Check the seat belt buckles, webbing, retractors, anchors and adjusters. Replace any seat belt assembly as necessary.

- Check the seat belt anchors for loose bolts, damage, or excessive wear.
- Check the seat belt webbing for any damage, cuts, fraying, or excessive wear.
- Check the retractor for smooth operation.
- Check the function of the buckles by inserting the seat belt tongue and checking for proper engagement of the buckle and press the button on the buckle to check for proper release of the seat belt tongue.

WARNING:

- **After any collision, inspect all seat belt assemblies, including retractors and other attached components, such as the guide rail set. NISSAN recommends replacing all seat belt assemblies in use during a collision, unless they are not damaged and are inspected to confirm they are operating properly after a minor collision.**

Also inspect all seat belt assemblies that are not in use during a collision, and replace any components if damaged or not operating properly. The 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 have been deployed.

- **If any component of the seat belt assembly is suspected of being damaged or not operating properly, do not repair the component. Replace the components as an assembly.**
- **If the seat belt webbing is cut, frayed, or damaged then replace the seat belt assembly.**
- **Do not lubricate the seat belt buckle or tongue.**
- **When replacing any seat belt assembly always use a Genuine NISSAN seat belt assembly.**