

**SECTION MA**  
**MAINTENANCE**

A  
B  
C  
D  
E  
F  
G  
H  
I  
J  
K  
MA  
M  
N  
O  
P

**CONTENTS**

<b>SERVICE INFORMATION</b> .....	2	Checking Fuel Line .....	23
<b>PREPARATION</b> .....	2	Changing Air Cleaner Filter .....	23
Special Service Tool .....	2	Changing Engine Oil .....	23
Commercial Service Tool .....	2	Changing Oil Filter .....	24
<b>GENERAL MAINTENANCE</b> .....	3	Changing Spark Plugs (Platinum-Tipped Type) .....	25
Explanation of General Maintenance .....	3	Checking EVAP Vapor Line .....	26
<b>PERIODIC MAINTENANCE</b> .....	5	<b>CHASSIS AND BODY MAINTENANCE</b> .....	27
Introduction of Periodic Maintenance .....	5	Checking Exhaust System .....	27
Schedule 1 .....	5	Checking A/T Fluid .....	27
Schedule 2 .....	7	Changing A/T Fluid .....	28
<b>RECOMMENDED FLUIDS AND LUBRICANTS</b> .....	9	Checking Transfer Fluid .....	29
Fluids and Lubricants .....	9	Changing Transfer Fluid .....	29
Engine Oil Recommendation .....	9	Checking Propeller Shaft .....	30
Anti-Freeze Coolant Mixture Ratio .....	10	Checking Differential Gear Oil .....	30
<b>ENGINE MAINTENANCE (VQ35DE ENGINE)...</b>	11	Changing Differential Gear Oil .....	30
Checking Drive Belts .....	11	Balancing Wheels (Bonding Weight Type) .....	31
Tension Adjustment .....	11	Rotation .....	33
Changing Engine Coolant .....	13	Checking Brake Fluid Level and Leaks .....	33
Checking Fuel Line .....	15	Checking Brake Line and Cables .....	33
Changing Air Cleaner Filter .....	15	Changing Brake Fluid .....	33
Changing Engine Oil .....	16	Checking Disc Brake .....	34
Changing Oil Filter .....	17	Checking Steering Gear and Linkage .....	34
Changing Spark Plugs (Platinum-Tipped Type) .....	18	Checking Power Steering Fluid and Line .....	35
Checking EVAP Vapor Line .....	19	Axle and Suspension Parts .....	35
<b>ENGINE MAINTENANCE (VK45DE ENGINE)...</b>	20	Drive Shaft .....	36
Checking Drive Belts .....	20	Lubricating Locks, Hinges and Hood Latch .....	36
Tension Adjustment .....	20	Checking Seat Belt, Buckles, Retractors, Anchors and Adjusters .....	37
Changing Engine Coolant .....	20	<b>SERVICE DATA AND SPECIFICATIONS (SDS)</b> .....	38
		Standard and Limit .....	38

# PREPARATION

< SERVICE INFORMATION >

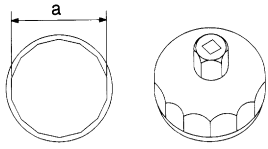
## SERVICE INFORMATION

### PREPARATION

#### Special Service Tool

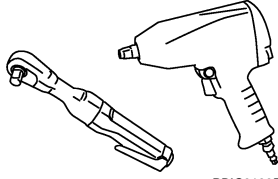
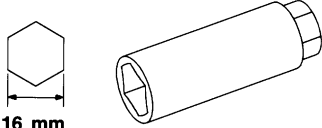
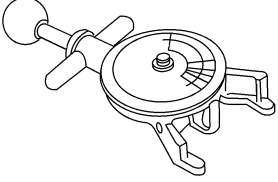
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The actual shapes of Kent-Moore tools may differ from those of special service tools illustrated here.

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

#### Commercial Service Tool

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Tool name (Kent-Moore No.)	Description
Power tool ( — )  <p style="text-align: center;">PBIC0190E</p>	Loosening nuts and bolts
Spark plug wrench ( — )  <p style="text-align: center;">S-NT047</p>	Removing and installing spark plug
Belt tension gauge (BT3373-F)  <p style="text-align: center;">AMA126</p>	Checking drive belt tension (VQ35DE)

# GENERAL MAINTENANCE

< SERVICE INFORMATION >

## GENERAL MAINTENANCE

### Explanation of General Maintenance

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

#### OUTSIDE THE VEHICLE

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

Item		Reference page
<b>Tires</b>	Check the pressure with a gauge often and always prior to long distance trips. Adjust the pressure in all tires, including the spare, to the pressure specified. Check carefully for damage, cuts or excessive wear.	—
<b>Wheel nuts</b>	When checking the tires, make sure no nuts are missing, and check for any loose nuts. Tighten if necessary.	—
<b>Tire rotation</b>	Tires should be rotated every 12,000 km (7,500 miles).	<a href="#">MA-33</a>
<b>Tire Pressure Monitoring System (TPMS) transmitter components</b>	Replace the TPMS transmitter grommet seal, valve core and cap when the tires are replaced due to wear or age.	<a href="#">WT-11. "System Component"</a>
<b>Wheel alignment and balance</b>	If the vehicle pulls to either side while driving on a straight and level road, or if you detect uneven or abnormal tire wear, there may be a need for wheel alignment. If the steering wheel or seat vibrates at normal highway speeds, wheel balancing may be needed.	<a href="#">MA-31</a> , <a href="#">FSU-5 (2WD)</a> , <a href="#">FSU-22 (AWD)</a> , <a href="#">RSU-5. "Wheel Alignment Inspection"</a>
<b>Windshield</b>	Clean the windshield on a regular basis. Check the windshield at least every six months for cracks or other damage. Repair as necessary.	—
<b>Windshield wiper blades</b>	Check for cracks or wear if they do not wipe properly.	—
<b>Doors and engine hood</b>	Check that all doors and the engine hood operate properly as well as the trunk lid. Also make sure that all latches lock securely. Lubricate if necessary. Make sure that the secondary latch keeps the hood from opening when the primary latch is released. When driving in areas using road salt or other corrosive materials, check lubrication frequently.	<a href="#">MA-36</a>
<b>Lamps</b>	Make sure that the headlamps, stop lamps, tail lamps, turn signal lamps, and other lamps are all operating properly and installed securely. Also check headlamp aim. Clean the headlamps on a regular basis.	—

#### INSIDE THE VEHICLE

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

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

# GENERAL MAINTENANCE

## < SERVICE INFORMATION >

Item		Reference page
<b>Seat belts</b>	Check that all parts of the seat belt system (e.g. buckles, anchors, adjusters and retractors) operate properly and smoothly, and are installed securely. Check the belt webbing for cuts, fraying, wear or damage.	<a href="#">MA-37</a>
<b>Accelerator pedal</b>	Check the pedal for smooth operation and make sure the pedal does not catch or require uneven effort. Keep the floor mats away from the pedal.	—
<b>Brakes</b>	Check that the brake does not pull the vehicle to one side when applied.	—
<b>Brake pedal and booster</b>	Check the pedal for smooth operation and make sure it has the proper distance under it when depressed fully. Check the brake booster function. Be sure to keep the floor mats away from the pedal.	<a href="#">BR-6</a> , <a href="#">BR-17</a>
<b>Parking brake</b>	Check that 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.	<a href="#">PB-3</a>
<b>Automatic transmission “Park” mechanism</b>	Check that the lock release button on the selector lever operates properly and smoothly. On a fairly steep hill check that the vehicle is held securely with the selector lever in the P (Park) position without applying any brakes.	—

### UNDER THE HOOD AND VEHICLE

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

Item		Reference page
<b>Windshield washer fluid</b>	Check that there is adequate fluid in the tank.	—
<b>Engine coolant level</b>	Check the coolant level when the engine is cold.	<a href="#">MA-13</a> , <a href="#">MA-20</a>
<b>Radiator and hoses</b>	Check the front of the radiator and clean off any dirt, insects, leaves, etc., that may have accumulated. Make sure the hoses have no cracks, deformation, deterioration or loose connections.	—
<b>Brake fluid level</b>	Make sure that the brake fluid level is between the “MAX” and “MIN” lines on the reservoir.	<a href="#">MA-33</a>
<b>Battery</b>	Check the fluid level in each cell. It should be between the “MAX” and “MIN” lines. Vehicles operated in high temperatures or under severe conditions require frequent checks of the battery fluid level.	<a href="#">SC-4</a>
<b>Engine drive belts</b>	Make sure that no belt is frayed, worn, cracked or oily.	<a href="#">MA-11</a> , <a href="#">MA-20</a>
<b>Engine oil level</b>	Check the level on the oil level gauge after parking the vehicle on a level spot and turning off the engine.	<a href="#">MA-16</a> , <a href="#">MA-23</a>
<b>Power steering fluid level and lines</b>	Check the level on the dipstick with the engine off. Check the lines for improper attachment, leaks, cracks, etc.	<a href="#">MA-35</a>
<b>Exhaust system</b>	Make sure there are no loose supports, cracks or holes. If the sound of the exhaust seems unusual or there is a smell of exhaust fumes, immediately locate the trouble and correct it.	<a href="#">MA-27</a>
<b>Underbody</b>	The underbody is frequently exposed to corrosive substances such as those used on icy roads or to control dust. It is very important to remove these substances, otherwise rust will form on the floor pan, frame, fuel lines and around the exhaust system. At the end of winter, the underbody should be thoroughly flushed with plain water, being careful to clean those areas where mud and dirt can easily accumulate.	—
<b>Fluid leaks</b>	Check under the vehicle for fuel, oil, water or other fluid leaks after the vehicle has been parked for a while. Water dripping from the air conditioner after use is normal. If you should notice any leaks or gasoline fumes are evident, check for the cause and correct it immediately.	—

# PERIODIC MAINTENANCE

< SERVICE INFORMATION >

## PERIODIC MAINTENANCE

### Introduction of Periodic Maintenance

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

Schedule 1	Follow Periodic Maintenance Schedule 1 if the driving habits frequently include one or more of the following driving conditions: <ul style="list-style-type: none"> <li>• Repeated short trips of less than 5 miles (8 km).</li> <li>• Repeated short trips of less than 10 miles (16 km) with outside temperatures remaining below freezing.</li> <li>• Operating in hot weather in stop-and-go "rush hour" traffic.</li> <li>• Extensive idling and/or low speed driving for long distances, such as police, taxi or door-to-door delivery use.</li> <li>• Driving in dusty conditions.</li> <li>• Driving on rough, muddy, or salt spread roads.</li> <li>• Towing a trailer, using a camper or a car-top carrier.</li> </ul>	Emission Control System Maintenance	<a href="#">MA-5</a>
		Chassis and Body Maintenance	<a href="#">MA-5</a>
Schedule 2	Follow Periodic Maintenance Schedule 2 if none of driving conditions shown in Schedule 1 apply to the driving habits.	Emission Control System Maintenance	<a href="#">MA-7</a>
		Chassis and Body Maintenance	<a href="#">MA-7</a>

### Schedule 1

INFOID:000000002957332

### EMISSION CONTROL SYSTEM MAINTENANCE

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

MAINTENANCE OPERATION		MAINTENANCE INTERVAL								Reference Section - Page or - Content Title
		Miles x 1,000 (km x 1,000) Months	3.75 (6) 3	7.50 (12) 6	11.25 (18) 9	15 (24) 12	18.75 (30) 15	22.5 (36) 18	26.25 (42) 21	
Perform at number of miles, kilometers or months, whichever comes first.										
Drive belts	NOTE (1)									<a href="#">MA-11,</a> <a href="#">MA-20</a>
Air cleaner filter	NOTE (2)								[R]	<a href="#">MA-15,</a> <a href="#">MA-23</a>
EVAP vapor lines									I*	<a href="#">MA-19,</a> <a href="#">MA-26</a>
Fuel lines									I*	<a href="#">MA-15,</a> <a href="#">MA-23</a>
Fuel filter	NOTE (3)									—
Engine coolant	NOTE (4)									<a href="#">MA-13,</a> <a href="#">MA-20</a>
Engine oil		R	R	R	R	R	R	R	R	<a href="#">MA-16,</a> <a href="#">MA-23</a>
Engine oil filter (Use genuine NISSAN engine oil filter or equivalent.)		R	R	R	R	R	R	R	R	<a href="#">MA-17,</a> <a href="#">MA-24</a>
Spark plugs (Platinum-tipped type)		Replace every 105,000 miles (169,000 km).								<a href="#">MA-18,</a> <a href="#">MA-25</a>
Intake & exhaust valve clearance*	NOTE (5)									<a href="#">EM-92,</a> <a href="#">EM-222</a>

# PERIODIC MAINTENANCE

## < SERVICE INFORMATION >

MAINTENANCE OPERATION		MAINTENANCE INTERVAL								Reference Section - Page or - Content Title
Perform at number of miles, kilometers or months, whichever comes first.	Miles x 1,000 (km x 1,000) Months	33.75 (54) 27	37.5 (60) 30	41.25 (66) 33	45 (72) 36	48.75 (78) 39	52.5 (84) 42	56.25 (90) 45	60 (96) 48	
Drive belts	NOTE (1)								I*	<a href="#">MA-11</a> , <a href="#">MA-20</a>
Air cleaner filter	NOTE (2)								[R]	<a href="#">MA-15</a> , <a href="#">MA-23</a>
EVAP vapor lines									I*	<a href="#">MA-19</a> , <a href="#">MA-26</a>
Fuel lines									I*	<a href="#">MA-15</a> , <a href="#">MA-23</a>
Fuel filter	NOTE (3)									—
Engine coolant	NOTE (4)								R*	<a href="#">MA-13</a> , <a href="#">MA-20</a>
Engine oil		R	R	R	R	R	R	R	R	<a href="#">MA-16</a> , <a href="#">MA-23</a>
Engine oil filter (Use genuine NISSAN engine oil filter or equivalent.)		R	R	R	R	R	R	R	R	<a href="#">MA-17</a> , <a href="#">MA-24</a>
Spark plugs (Platinum-tipped type)		Replace every 105,000 miles (169,000 km).								<a href="#">MA-18</a> , <a href="#">MA-25</a>
Intake & exhaust valve clearance*	NOTE (5)									<a href="#">EM-92</a> , <a href="#">EM-222</a>

**NOTE:**

- (1) After 60,000 miles (96,000 km) or 48 months, inspect every 15,000 miles (24,000 km) or 12 months. Replace the drive belts if found damaged or if the auto belt tensioner reading (only for VK45DE engine) reaches the maximum limit.
- (2) If operating mainly in dusty conditions, more frequent maintenance may be required.
- (3) Maintenance-free item. For service procedures, refer to FL section.
- (4) After 60,000 miles (96,000 km) or 48 months, replace every 30,000 miles (48,000 km) or 24 months.
- (5) Periodic maintenance is not required. However, if valve noise increases, inspect valve clearance.

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

## CHASSIS AND BODY MAINTENANCE

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

MAINTENANCE OPERATION		MAINTENANCE INTERVAL								Reference Section - Page or - Content Title
Perform at number of miles, kilometers or months, whichever comes first.	Miles x 1,000 (km x 1,000) Months	3.75 (6) 3	7.50 (12) 6	11.25 (18) 9	15 (24) 12	18.75 (30) 15	22.5 (36) 18	26.25 (42) 21	30 (48) 24	
Brake lines & cables					I				I	<a href="#">MA-33</a>
Brake pads & rotors			I		I		I		I	<a href="#">MA-34</a>
Automatic transmission & transfer fluid & differential gear oil	NOTE (1)				I				I	<a href="#">MA-27</a> , <a href="#">MA-29</a> , <a href="#">MA-30</a>
Steering gear & linkage, axle & suspension parts			I		I		I		I	<a href="#">MA-34</a> , <a href="#">MA-35</a>
Tire rotation	NOTE (2)									<a href="#">MA-3</a> , <a href="#">MA-33</a>
Propeller shaft (AWD models) and drive shaft boots			I		I		I		I	<a href="#">MA-36</a> , <a href="#">MA-30</a>
Exhaust system			I		I		I		I	<a href="#">MA-27</a>

# PERIODIC MAINTENANCE

## < SERVICE INFORMATION >

MAINTENANCE OPERATION		MAINTENANCE INTERVAL								Reference Section - Page or - Content Title
Perform at number of miles, kilometers or months, whichever comes first.	Miles x 1,000 (km x 1,000) Months	3.75 (6) 3	7.50 (12) 6	11.25 (18) 9	15 (24) 12	18.75 (30) 15	22.5 (36) 18	26.25 (42) 21	30 (48) 24	
In-cabin microfilter					R				R	<a href="#">ATC-120</a>
Climate controlled seat filter									R	<a href="#">SE-147</a>

MAINTENANCE OPERATION		MAINTENANCE INTERVAL								Reference Section - Page or - Content Title
Perform at number of miles, kilometers or months, whichever comes first.	Miles x 1,000 (km x 1,000) Months	33.75 (54) 27	37.5 (60) 30	41.25 (66) 33	45 (72) 36	48.75 (78) 39	52.5 (84) 42	56.25 (90) 45	60 (96) 48	
Brake lines & cables					I				I	<a href="#">MA-33</a>
Brake pads & rotors			I		I		I		I	<a href="#">MA-34</a>
Automatic transmission & transfer fluid & differential gear oil	NOTE (1)				I				I	<a href="#">MA-27,</a> <a href="#">MA-29,</a> <a href="#">MA-30</a>
Steering gear & linkage, axle & suspension parts			I		I		I		I	<a href="#">MA-34,</a> <a href="#">MA-35</a>
Tire rotation	NOTE (2)									<a href="#">MA-3,</a> <a href="#">MA-33</a>
Propeller shaft (AWD models) and drive shaft boots			I		I		I		I	<a href="#">MA-36,</a> <a href="#">MA-30</a>
Exhaust system			I		I		I		I	<a href="#">MA-27</a>
In-cabin microfilter					R				R	<a href="#">ATC-120</a>
Climate controlled seat filter									R	<a href="#">SE-147</a>

**NOTE:**

(1) If towing a trailer, using a camper or a car-top carrier, or driving on rough or muddy roads, change (not just inspect) fluid (A/T, transfer)/oil at every 30,000 miles (48,000 km) or 24 months. **Using 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 INFINITI new vehicle limited warranty.**

(2) Refer to "Tire rotation" under the "GENERAL MAINTENANCE" heading earlier in this section.

## Schedule 2

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## EMISSION CONTROL SYSTEM MAINTENANCE

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

MAINTENANCE OPERATION		MAINTENANCE INTERVAL								Reference Section - Page or - Content Title
Perform at number of miles, kilometers or months, whichever comes first.	Miles x 1,000 (km x 1,000) Months	7.5 (12) 6	15 (24) 12	22.5 (36) 18	30 (48) 24	37.5 (60) 30	45 (72) 36	52.5 (84) 42	60 (96) 48	
Drive belts	NOTE (1)								I*	<a href="#">MA-11,</a> <a href="#">MA-20</a>
Air cleaner filter					[R]				[R]	<a href="#">MA-15,</a> <a href="#">MA-23</a>
EVAP vapor lines					I*				I*	<a href="#">MA-19,</a> <a href="#">MA-26</a>
Fuel lines					I*				I*	<a href="#">MA-15,</a> <a href="#">MA-23</a>
Fuel filter	NOTE (2)									—
Engine coolant	NOTE (3)								R*	<a href="#">MA-13,</a> <a href="#">MA-20</a>
Engine oil		R	R	R	R	R	R	R	R	<a href="#">MA-16,</a> <a href="#">MA-23</a>

## PERIODIC MAINTENANCE

### < SERVICE INFORMATION >

MAINTENANCE OPERATION		MAINTENANCE INTERVAL								Reference Section - Page or - Content Title
Perform at number of miles, kilometers or months, whichever comes first.	Miles x 1,000 (km x 1,000) Months	7.5 (12) 6	15 (24) 12	22.5 (36) 18	30 (48) 24	37.5 (60) 30	45 (72) 36	52.5 (84) 42	60 (96) 48	
Engine oil filter (Use genuine NISSAN engine oil filter or equivalent.)		R	R	R	R	R	R	R	R	<a href="#">MA-17</a> , <a href="#">MA-24</a>
Spark plugs (Platinum-tipped type)		Replace every 105,000 miles (169,000 km).								<a href="#">MA-18</a> , <a href="#">MA-25</a>
Intake & exhaust valve clearance*	NOTE (4)									<a href="#">EM-92</a> , <a href="#">EM-222</a>

#### NOTE:

- (1) After 60,000 miles (96,000 km) or 48 months, inspect every 15,000 miles (24,000 km) or 12 months. Replace the drive belts if found damaged or if the auto belt tensioner reading (only for VK45DE engine) reaches the maximum limit.
- (2) Maintenance-free item. For service procedures, refer to FL section.
- (3) After 60,000 miles (96,000 km) or 48 months, replace every 30,000 miles (48,000 km) or 24 months.
- (4) Periodic maintenance is not required. However, if valve noise increases, inspect valve clearance.

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

## CHASSIS AND BODY MAINTENANCE

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

MAINTENANCE OPERATION		MAINTENANCE INTERVAL								Reference Section - Page or - Content Title
Perform at number of miles, kilometers or months, whichever comes first.	Miles x 1,000 (km x 1,000) Months	7.5 (12) 6	15 (24) 12	22.5 (36) 18	30 (48) 24	37.5 (60) 30	45 (72) 36	52.5 (84) 42	60 (96) 48	
Brake lines & cables			I		I		I		I	<a href="#">MA-33</a>
Brake pads & rotors			I		I		I		I	<a href="#">MA-34</a>
Automatic transmission & transfer fluid & differential gear oil	NOTE (1)		I		I		I		I	<a href="#">MA-27</a> , <a href="#">MA-29</a> , <a href="#">MA-30</a>
Steering gear & linkage, axle & suspension parts					I				I	<a href="#">MA-34</a> , <a href="#">MA-35</a>
Tire rotation	NOTE (2)									<a href="#">MA-3</a> , <a href="#">MA-33</a>
Propeller shaft (AWD models) and drive shaft boots			I		I		I		I	<a href="#">MA-36</a> , <a href="#">MA-30</a>
Exhaust system					I				I	<a href="#">MA-27</a>
In-cabin microfilter			R		R		R		R	<a href="#">ATC-120</a>
Climate controlled seat filter					R				R	<a href="#">SE-147</a>

#### NOTE:

**(1) Using 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 INFINITI new vehicle limited warranty.**

(2) Refer to "Tire rotation" under the "GENERAL MAINTENANCE" heading earlier in this section.



# RECOMMENDED FLUIDS AND LUBRICANTS

< SERVICE INFORMATION >

## RECOMMENDED FLUIDS AND LUBRICANTS

### Fluids and Lubricants

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			Capacity (Approximate)			Recommended Fluids/Lubricants
			US measure	Imp measure	Liter	
Engine oil Drain and refill	With oil filter change	VQ35DE	5 qt	4-1/8 qt	4.7	Engine oil with API Certification Mark* <sup>1</sup> Viscosity SAE 5W-30
		VK45DE	5-3/4 qt	4-7/8 qt	5.5	
	Without oil filter change	VQ35DE	4-5/8 qt	3-7/8 qt	4.4	
		VK45DE	5-1/8 qt	4-1/4 qt	4.9	
Dry engine (Overhaul)		VQ35DE	5-3/4 qt	4-3/4 qt	5.4	
		VK45DE	7-1/8 qt	5-7/8 qt	6.7	
Cooling system	With res- ervoir tank	VQ35DE	9-3/8 qt	7-7/8 qt	8.9	Genuine NISSAN Long Life Antifreeze/ Coolant or equivalent
		VK45DE	11 qt	9-1/8 qt	10.4	
	Reservoir tank	VQ35DE	7/8 qt	3/4 qt	0.8	
		VK45DE	7/8 qt	3/4 qt	0.8	
Automatic transmission fluid			10-7/8 qt	9-1/8 qt	10.3	Genuine NISSAN Matic S ATF* <sup>2</sup>
Differential gear oil		Front	1-3/8 pt	1-1/8 pt	0.65	Genuine NISSAN Differential Oil Hypoid Super GL-5 80W-90 or API GL-5, Viscosity SAE 80W- 90* <sup>3</sup>
		Rear	3 pt	2-1/2 pt	1.40	
Transfer fluid			2-5/8 pt	2-1/4 pt	1.25	Genuine NISSAN Matic J ATF* <sup>4</sup>
Power steering fluid (PSF)			1-1/8 qt	7/8 qt	1.0	Genuine NISSAN PSF or equivalent* <sup>5</sup>
Brake fluid			—	—	—	Genuine NISSAN Super Heavy Duty Brake Flu- id* <sup>6</sup> or equivalent DOT 3 (US FMVSS No. 116)
Multi-purpose grease			—	—	—	NLGI No. 2 (Lithium soap base)
Windshield washer fluid			—	—	—	Genuine NISSAN Windshield Washer Concen- trate Cleaner & Antifreeze or equivalent
Fuel recommendation		VQ35DE	—	—	—	Refer to <a href="#">GI-5, "Precaution for Fuel (Unleaded Premium Gasoline Recommended) (VQ35DE Engine Models)"</a> .
		VK45DE	—	—	—	Refer to <a href="#">GI-5, "Precaution for Fuel (Unleaded Premium Gasoline Required) (VK45DE Engine Models)"</a> .

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

\*2: If Genuine NISSAN Matic S ATF is not available, Genuine NISSAN Matic J ATF may also be used. Using 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 INFINITI new vehicle limited warranty.

\*3: For hot climates, viscosity SAE 90 is suitable for ambient temperatures above 0°C (32°F).

\*4: If Genuine NISSAN Matic J ATF is not available, Genuine NISSAN Matic D ATF or Canada NISSAN Automatic Transmission Fluid or equivalent (if available) may also be used.

\*5: DEXRON™ VI type ATF or Canada NISSAN Automatic Transmission Fluid may also be used.

\*6: Available in mainland U.S.A. through an INFINITI dealer.

### Engine Oil Recommendation

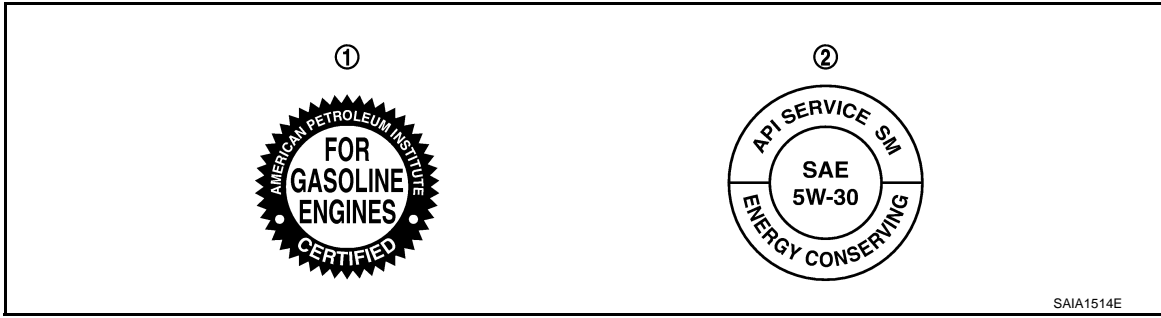
INFOID:000000002957335

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

# RECOMMENDED FLUIDS AND LUBRICANTS

## < SERVICE INFORMATION >

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

## Anti-Freeze Coolant Mixture Ratio

INFOID:000000002957336

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.

### CAUTION:

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

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

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

SMA947CA

# ENGINE MAINTENANCE (VQ35DE ENGINE)

< SERVICE INFORMATION >

## ENGINE MAINTENANCE (VQ35DE ENGINE)

### Checking Drive Belts

INFOID:000000002957337

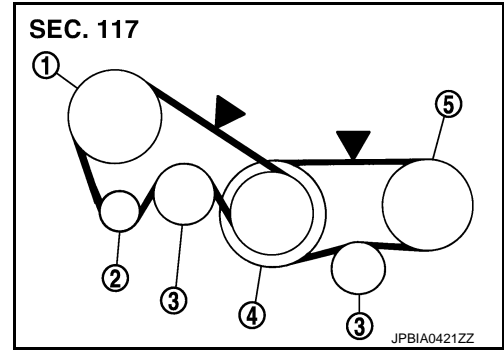
**WARNING:**

**Be sure to perform when engine is stopped.**

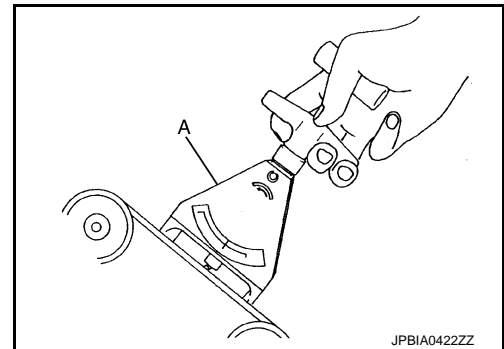
1. Inspect belts for cracks, fraying, wear and oil. If necessary, replace.
2. Inspect drive belt deflection or tension at a point on belt midway between pulleys.

- 1 : Power steering oil pump
- 2 : Alternator
- 3 : Idler pulley
- 4 : Crankshaft pulley
- 5 : A/C compressor

- Inspection should be done only when engine is cold, or over 30 minutes after engine is stopped.



- Measure the belt tension with belt tension gauge (Commercial service tool: BT3373-F or equivalent) (A) at points marked ▼ shown in the figure.
- When measuring the deflection, apply 98 N (10 kg, 22 lb) at the ▼ marked point.
- Adjust if the belt deflection exceeds the limit or if the belt tension is not within specifications.



**CAUTION:**

- **When checking the belt deflection or the tension immediately after installation, first adjust it to the specified value. Then, after turning crankshaft two turns or more, re-adjust to the specified value to avoid variation in deflection between pulleys.**
- **Tighten idler pulley lock nut by hand and measure the deflection or the tension without looseness.**

Belt Deflection and Tension

Items	Deflection adjustment		Unit: mm (in)	Tension adjustment*		Unit: N (kg, lb)
	Used belt		New belt	Used belt		New belt
	Limit	After adjustment		Limit	After adjustment	
Alternator and power steering oil pump belt	12 (0.47)	7 - 8 (0.28 - 0.31)	6 - 7 (0.24 - 0.28)	294 (30, 66)	730 - 818 (74.5 - 83.4, 164 - 184)	838 - 926 (85.5 - 94.5, 188 - 208)
A/C compressor belt	12 (0.47)	9 - 10 (0.35 - 0.39)	8 - 9 (0.31 - 0.35)	196 (20, 44)	348 - 436 (35.5 - 44.5, 78 - 98)	470 - 559 (47.9 - 57.0, 106 - 126)
Applied pushing force	98 N (10 kg, 22 lb)			—		

\*: If belt tension gauge cannot be installed at check points shown, check drive belt tension at different location on belt.

### Tension Adjustment

INFOID:000000002957338

Portion	Belt tightening method for adjustment
Alternator and power steering oil pump belt	Adjusting bolt on idler pulley
A/C compressor belt	Adjusting bolt on idler pulley

**CAUTION:**

# ENGINE MAINTENANCE (VQ35DE ENGINE)

## < SERVICE INFORMATION >

- When belt is replaced with a new one, adjust it to value for “New belt” to accommodate for insufficient adaptability with pulley grooves.
- When deflection or tension of belt being used exceeds “Limit”, adjust it to value for “After adjustment”.
- When checking belt deflection or tension immediately after installation, first adjust it to the specified value. Then, after turning crankshaft two turns or more, re-adjust to the specified value to avoid variation in deflection between pulleys.
- When installing belt, check that it is correctly engaged with pulley grooves.
- Keep engine oil, working fluid and engine coolant away from belt and pulley grooves.
- Never twist or bend belt excessively.

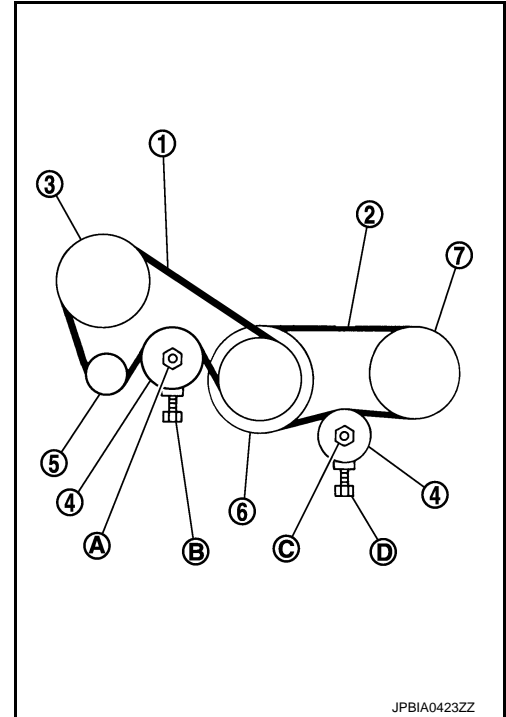
### ALTERNATOR AND POWER STEERING OIL PUMP BELT

1. Remove front engine undercover with power tool.
2. Loosen idler pulley lock nut (A) and adjust tension by turning adjusting bolt (B).
  - For the specified belt tension, refer to [MA-11, "Checking Drive Belts"](#).

- 1 : Alternator and power steering oil pump belt
- 2 : A/C compressor belt
- 3 : Power steering oil pump
- 4 : Idler pulley
- 5 : Alternator
- 6 : Crankshaft pulley
- 7 : A/C compressor

3. Tighten idler pulley lock nut.

: **34.8 N·m (3.5 kg·m, 26 ft·lb)**



### A/C COMPRESSOR BELT

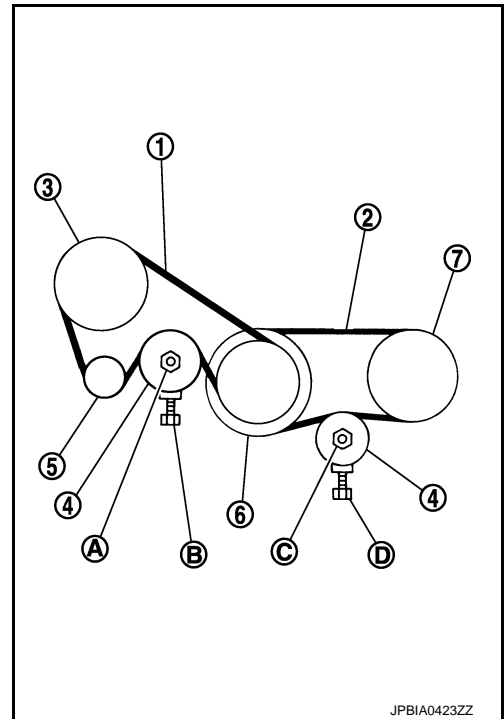
1. Remove front engine undercover with power tool.

# ENGINE MAINTENANCE (VQ35DE ENGINE)

## < SERVICE INFORMATION >

- Loosen idler pulley lock nut (C) and adjust tension by turning adjusting bolt (D).
  - For the specified belt tension, refer to [MA-11. "Checking Drive Belts"](#).
- Tighten idler pulley lock nut.

: 34.8 N·m (3.5 kg·m, 26 ft·lb)



## Changing Engine Coolant


INFOID:000000002957339

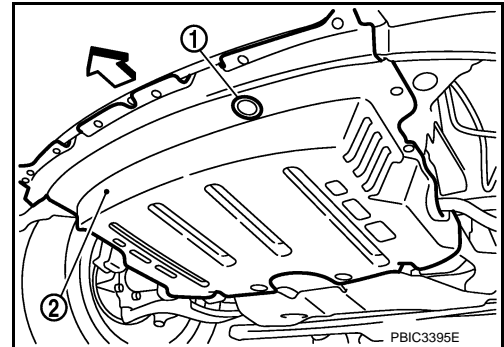
### WARNING:

- To avoid being scalded, never change engine coolant when the engine is hot.
- Wrap a thick cloth around radiator cap and carefully remove radiator cap. First, turn radiator cap a quarter of a turn to release built-up pressure. Then turn radiator cap all the way.
- Be careful not to allow engine coolant to contact drive belts.

### DRAINING ENGINE COOLANT

- Remove engine room cover (RH and LH). Refer to [EM-14](#).
- Remove air duct (inlet). Refer to [EM-18](#).
- Open radiator drain plug at the bottom of radiator, and then remove radiator cap.

- 1 : Radiator drain plug hole
- 2 : Front engine under cover
-  : Engine front



When draining all of engine coolant in the system, open water drain plugs on cylinder block. Refer to [EM-124. "Disassembly and Assembly"](#).

- Remove reservoir tank as necessary, and drain engine coolant and clean reservoir tank before installing.
- Check drained engine coolant for contaminants such as rust, corrosion or discoloration. If contaminated, flush the engine cooling system. Refer to [CO-10. "Changing Engine Coolant"](#).

### REFILLING ENGINE COOLANT

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

### CAUTION:

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

# ENGINE MAINTENANCE (VQ35DE ENGINE)

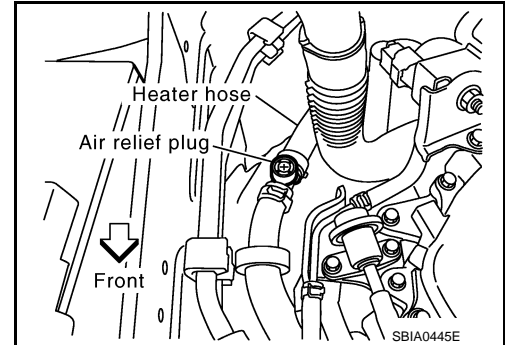
< SERVICE INFORMATION >

## Radiator drain plug:

: 1.2 N-m (0.12 kg-m, 11 in-lb)

If water drain plugs on cylinder block are removed, close and tighten them. Refer to [EM-124, "Dis-assembly and Assembly"](#).

2. Check that each hose clamp has been firmly tightened.
3. Remove air relief plug on heater hose.



4. Fill radiator, and reservoir tank if removed, to specified level.
  - Pour engine coolant through engine coolant filler neck slowly of less than 2 ℓ (2-1/8 US qt, 1-3/4 Imp qt) a minute to allow air in system to escape.
  - Use Genuine NISSAN Long Life Antifreeze/Coolant or equivalent mixed with water (distilled or demineralized). Refer to [MA-9](#).

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

: Approximately 8.9 ℓ (9-3/8 US qt, 7-7/8 Imp qt)

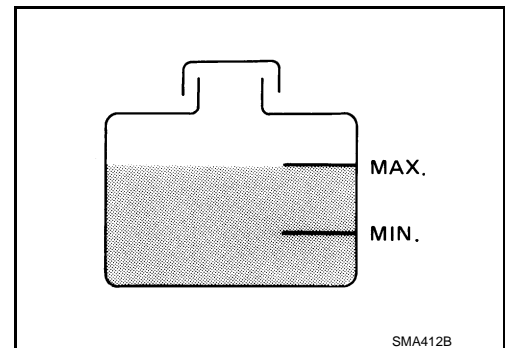
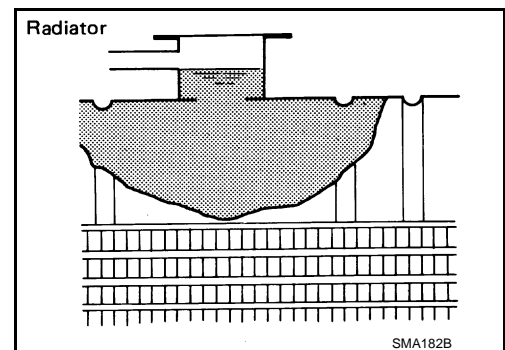
**Reservoir tank engine coolant capacity**  
(At "MAX" level)

: 0.8 ℓ (7/8 US qt, 3/4 Imp qt)

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

## Air relief plug:

: 1.2 N-m (0.12 kg-m, 11 ft-lb)



5. Install radiator cap.
6. Warm up engine until opening thermostat. Standard for warming-up time is approximately 10 minutes at 3,000 rpm.
  - Check thermostat opening condition by touching radiator hose (lower) to see a flow of warm water.

**CAUTION:**  
**Watch water temperature gauge so as not to overheat engine.**
7. Stop the engine and cool down to less than approximately 50°C (122°F).
  - Cool down using fan to reduce the time.
  - If necessary, refill radiator up to filler neck with engine coolant.
8. Refill reservoir tank to "MAX" level line with engine coolant.
9. Repeat steps 4 through 7 two or more times with radiator cap installed until engine coolant level no longer drops.
10. Check cooling system for leaks with engine running.
11. Warm up the engine, and check for sound of engine coolant flow while running engine from idle up to 3,000 rpm with heater temperature controller set at several position between "COOL" and "WARM".

# ENGINE MAINTENANCE (VQ35DE ENGINE)

## < SERVICE INFORMATION >

- Sound may be noticeable at heater unit.
12. Repeat step 11 three times.
  13. If sound is heard, bleed air from cooling system by repeating step 4 through 7 until engine coolant level no longer drops.

## FLUSHING COOLING SYSTEM

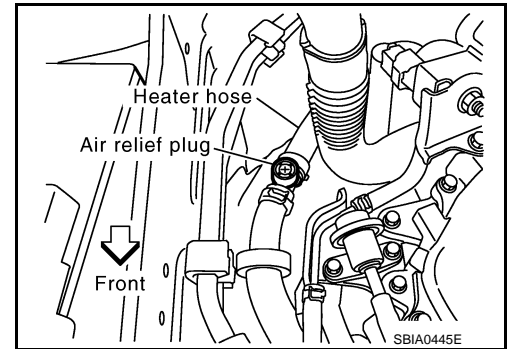
1. Install reservoir tank if removed, and radiator drain plug.  
**CAUTION:**  
**Be sure to clean drain plug and install with new O-ring.**

### Radiator drain plug:

: 1.2 N·m (0.12 kg-m, 11 in-lb)

If water drain plugs on cylinder block are removed, close and tighten them. Refer to [EM-124, "Disassembly and Assembly"](#).

2. Remove air relief plug on heater hose.



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

### Air relief plug:

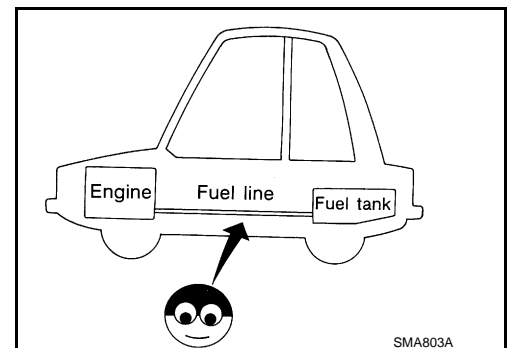
: 1.2 N·m (0.12 kg-m, 11 ft-lb)

4. Run the engine and warm it up to normal operating temperature.
5. Rev the engine two or three times under no-load.
6. Stop the engine and wait until it cools down.
7. Drain water from the system. Refer to [CO-10, "Changing Engine Coolant"](#).
8. Repeat steps 1 through 7 until clear water begins to drain from radiator.

## Checking Fuel Line

INFOID:00000002957340

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



INFOID:00000002957341

## Changing Air Cleaner Filter

### VISCOUS PAPER TYPE

The viscous paper type filter does not need cleaning between replacement intervals. Refer to [MA-5](#).

# ENGINE MAINTENANCE (VQ35DE ENGINE)

< SERVICE INFORMATION >

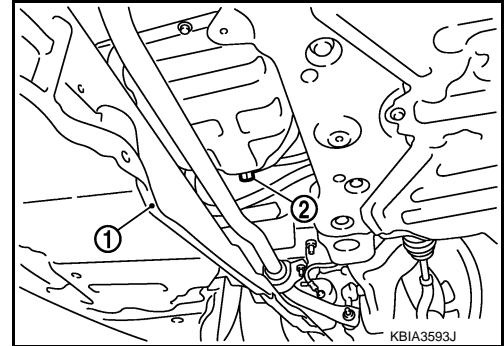
## Changing Engine Oil

INFOID:00000002957342

### WARNING:

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

1. Warm up the engine, and check for engine oil leakage from engine components. Refer to [LU-5, "Inspection"](#).
2. Stop the engine and wait for 10 minutes.
3. Loosen oil filler cap.
4. Remove mounting bolts, and then pull down the rear of front engine under cover (1) and secure it using clip.
5. Remove drain plug (2) and then drain engine oil.



6. Install drain plug with new washer. Refer to [EM-30](#).

### CAUTION:

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

### Oil pan drain plug:

: 34.3 N·m (3.5 kg·m, 25 ft·lb)

7. Refill with new engine oil.  
**Engine oil specification and viscosity:**  
Refer to [MA-9](#).

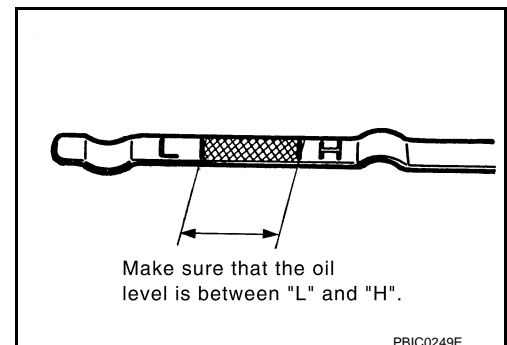
Engine oil capacity (Approximate):

Unit: ℓ (US qt, Imp qt)

Drain and refill	With oil filter change	4.7 (5, 4-1/8)
	Without oil filter change	4.4 (4-5/8, 3-7/8)
Dry engine (Overhaul)		5.4 (5-3/4, 4-3/4)

### CAUTION:

- When filling engine oil, never pull out oil level gauge.
  - The refill capacity depends on the engine oil temperature and drain time. Use these specifications for reference only.
  - Always use oil level gauge to determine the proper amount of engine oil in engine.
8. Warm up the engine and check area around drain plug and oil filter for engine oil leakage.
  9. Stop the engine and wait for 10 minutes.
  10. Check the engine oil level.



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# ENGINE MAINTENANCE (VQ35DE ENGINE)

< SERVICE INFORMATION >

## Changing Oil Filter

INFOID:000000002957343

### REMOVAL

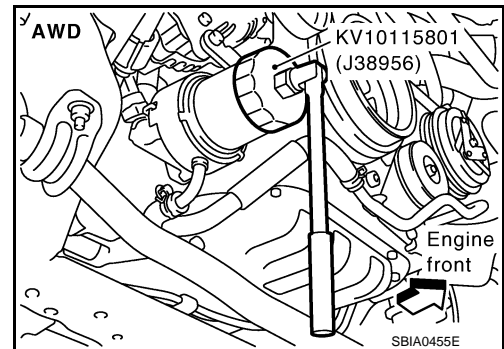
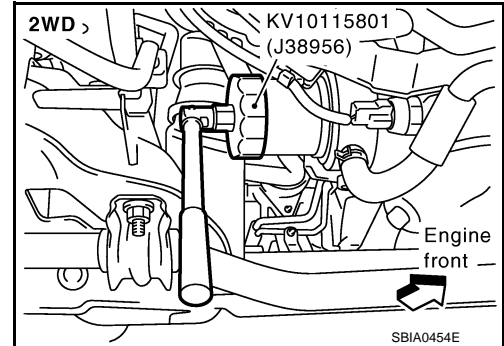
#### WARNING:

Be careful not to get burned when the engine and engine oil may be hot.

1. Remove front engine undercover with power tool.
2. Using oil filter wrench (SST), remove oil filter.

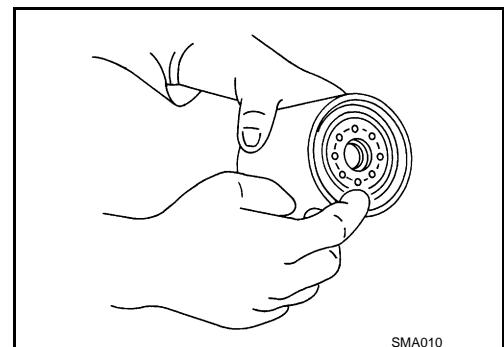
#### CAUTION:

- Oil filter is provided with relief valve. Use Genuine NISSAN engine oil filter or equivalent.
- When removing, prepare a shop cloth to absorb any engine oil leakage or spillage.
- Never allow engine oil to adhere to drive belts.
- Completely wipe off any engine oil that adheres to engine and vehicle.



### INSTALLATION

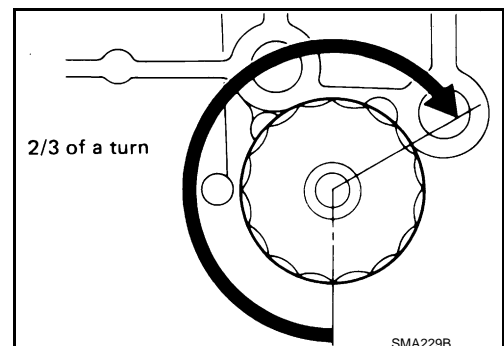
1. Remove foreign materials adhering to oil filter installation surface.
2. Apply engine oil to the oil seal contact surface of new oil filter.



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

#### Oil filter:

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



### INSPECTION AFTER INSTALLATION

1. Check the engine oil level. Refer to [MA-16. "Changing Engine Oil"](#).

A  
B  
C  
D  
E  
F  
G  
H  
I  
J  
K  
MA  
M  
N  
O  
P

# ENGINE MAINTENANCE (VQ35DE ENGINE)

## < SERVICE INFORMATION >

2. Start the engine, and check there is no leak of engine oil.
3. Stop the engine and wait for 10 minutes.
4. Check the engine oil level, and adjust the level. Refer to [MA-16. "Changing Engine Oil"](#).

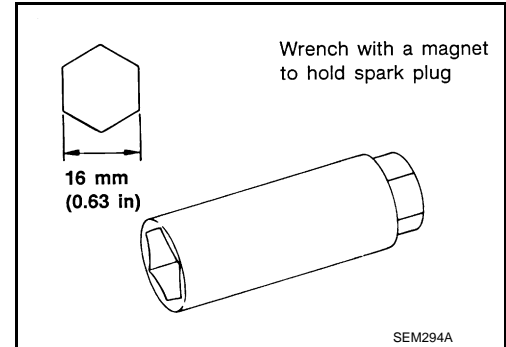
## Changing Spark Plugs (Platinum-Tipped Type)

INFOID:000000002957344

### REMOVAL

1. Remove engine cover with power tool. Refer to [EM-20](#).
2. Remove ignition coil. Refer to [EM-43](#).
3. Remove spark plug with a spark plug wrench (commercial service tool).

**CAUTION:**  
Never drop or shock spark plug.



### INSPECTION AFTER REMOVAL

**Use the standard type spark plug for normal condition.**

The hot type spark plug is suitable when fouling occurs with the standard type spark plug under conditions such as:

- Frequent engine starts
- Low ambient temperatures

The cold type spark plug is suitable when spark knock occurs with the standard type spark plug under conditions such as:

- Extended highway driving
- Frequent high engine revolution

Make	NGK
Standard type	PLFR5A-11
Hot type	PLFR4A-11
Cold type	PLFR6A-11

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

### **CAUTION:**

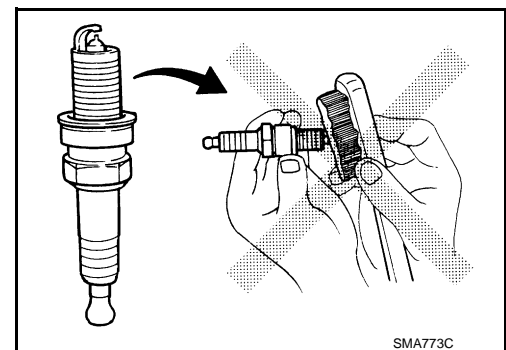
- Never drop or shock spark plug.
- Never use a wire brush for cleaning.
- If plug tip is covered with carbon, spark plug cleaner may be used.

**Cleaner air pressure:**

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

**Cleaning time:**

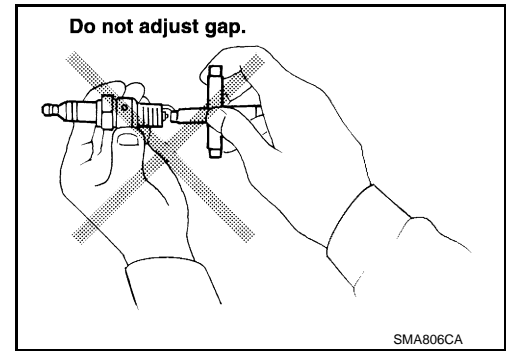
**Less than 20 seconds**



# ENGINE MAINTENANCE (VQ35DE ENGINE)

## < SERVICE INFORMATION >

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



## INSTALLATION

Install in the reverse order of removal.

: **24.5 N·m (2.5 kg-m, 18 ft-lb)**

## Checking EVAP Vapor Line

INFOID:000000002957345

1. Visually inspect EVAP vapor lines for improper attachment and for cracks, damage, loose connections, chafing and deterioration.
2. Inspect fuel tank filler cap vacuum relief valve for clogging, sticking, etc.  
**Refer to [EC-40](#).**

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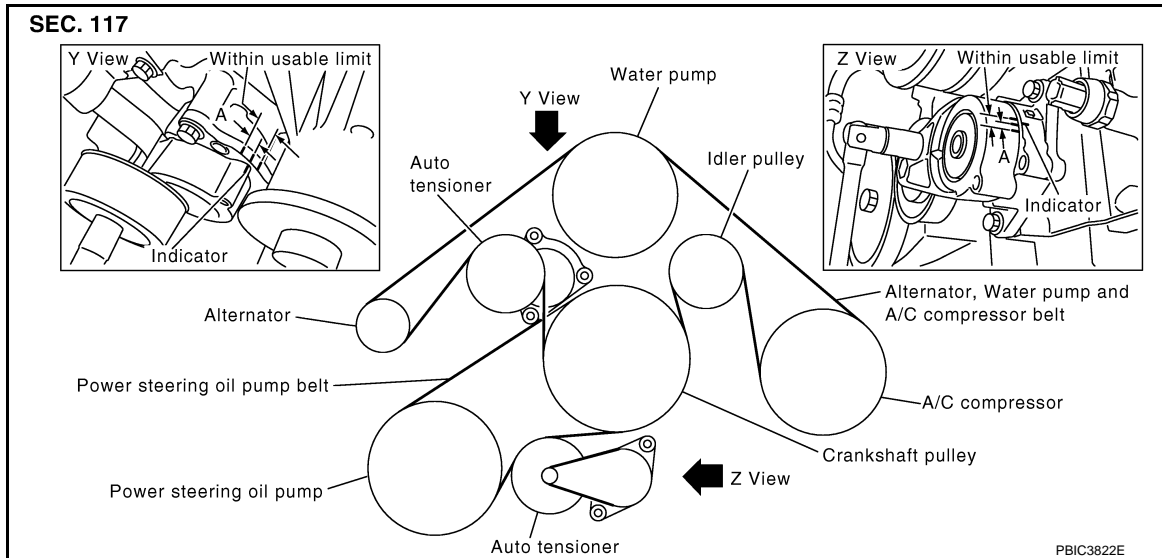
# ENGINE MAINTENANCE (VK45DE ENGINE)

< SERVICE INFORMATION >

## ENGINE MAINTENANCE (VK45DE ENGINE)

### Checking Drive Belts

INFOID:000000002957346



#### **WARNING:**

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

- Remove air duct (inlet) when inspecting drive belt for alternator, water pump and A/C compressor.
- Remove front engine undercover with power tool when inspecting power steering oil pump belt.
- Check that indicator (single line notch) of each auto tensioner is within the allowable working range (between three line notches).

#### **NOTE:**

- Check auto tensioner indication when engine is cold.
- When new drive belt is installed, the range should be "A".
- The indicator notch is located on the moving side of the tensioner for alternator, water pump and A/C compressor belt, while it is found on the fixed side for power steering oil pump belt.
- Visually check entire belt for wear, damage or cracks.
- If the indicator is out of allowable working range or belt is damaged, replace belt.

### Tension Adjustment

INFOID:000000002957347

Belt tensioning is not necessary, as it is automatically adjusted by auto tensioner.

### Changing Engine Coolant

INFOID:000000002957348

#### **WARNING:**

- To avoid being scalded, never change engine coolant when engine is hot.
- Wrap a thick cloth around radiator cap and carefully remove radiator cap. First, turn radiator cap a quarter of a turn to release built-up pressure. Then turn radiator cap all the way.
- Be careful not to allow engine coolant to contact drive belts.

### DRAINING ENGINE COOLANT

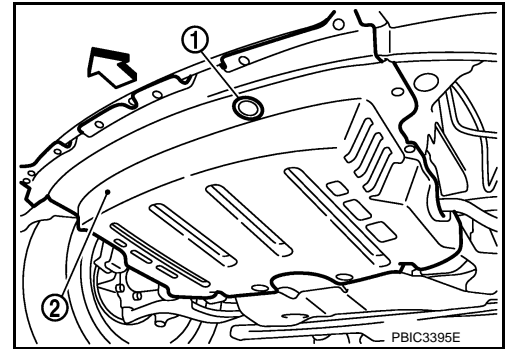
1. Remove engine room cover (RH and LH). Refer to [EM-171](#).
2. Remove engine cover with power tool. Refer to [EM-177](#).

# ENGINE MAINTENANCE (VK45DE ENGINE)

## < SERVICE INFORMATION >

3. Open radiator drain plug at the bottom of radiator, and then remove radiator cap.

- 1 : Radiator drain plug hole
- 2 : Front engine undercover
- ↶ : Engine front



**When draining all of engine coolant in the system, open water drain plugs on cylinder block. Refer to [EM-250, "Disassembly and Assembly"](#).**

4. Remove reservoir tank as necessary, and drain engine coolant and clean reservoir tank before installing.
5. Check drained engine coolant for contaminants such as rust, corrosion or discoloration. If contaminated, flush the engine cooling system. Refer to "FLUSHING COOLING SYSTEM".

## REFILLING ENGINE COOLANT

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

### **CAUTION:**

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

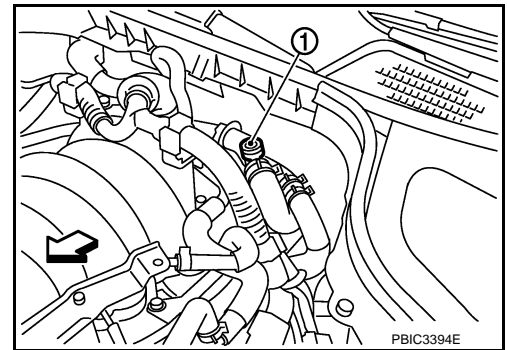
### Radiator drain plug:

: 1.2 N·m (0.12 kg-m, 11 in-lb)

**If water drain plugs on cylinder block are removed, close and tighten them. Refer to [EM-250, "Disassembly and Assembly"](#).**

2. Check that each hose clamp has been firmly tightened.
3. Remove air relief plug (1) on heater hose.

↶ : Engine front



4. Fill thermostat housing and reservoir tank to specified level.
  - Refill engine coolant up to filler neck of thermostat housing.
  - Pour engine coolant through engine coolant filler neck slowly of less than 2 ℓ (2-1/8 US qt, 1-3/4 Imp qt) a minute to allow air in system to escape.
  - Use Genuine NISSAN Long Life Antifreeze/Coolant or equivalent mixed with water (distilled or demineralized). Refer to [MA-9](#).

### Engine coolant capacity

(With reservoir tank at "MAX" level):

Approx. 10.4 ℓ (11 US qt, 9-1/8 Imp qt)

# ENGINE MAINTENANCE (VK45DE ENGINE)

## < SERVICE INFORMATION >

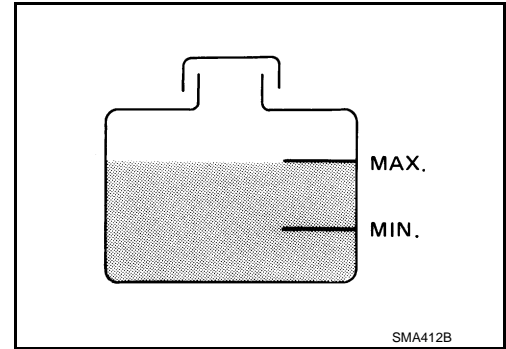
### Reservoir tank engine coolant capacity (At "MAX" level):

0.8 ℓ (7/8 US qt, 3/4 Imp qt)

- When engine coolant overflows air relief hole on heater hose, install air relief plug.

### Air relief plug:

: 1.2 N·m (0.12 kg·m, 11 in·lb)



5. Install radiator cap.
  6. Warm up until opening thermostat. Standard for warming-up time is approximately 10 minutes at 3,000 rpm.
    - Check thermostat opening condition by touching radiator hose (lower) to see a flow of warm water.
- CAUTION:**  
**Watch water temperature gauge so as not to overheat engine.**
7. Stop engine and cool down to less than approximately 50°C (122°F).
    - Cool down using a fan to reduce the time.
    - If necessary, refill engine coolant up to filler neck of thermostat housing.
  8. Refill reservoir tank to "MAX" level line with engine coolant.
  9. Repeat steps 4 through 7 two or more times with radiator cap installed until engine coolant level no longer drops.
  10. Check cooling system for leaks with engine running.
  11. Warm up engine, and check for sound of engine coolant flow while running engine from idle up to 3,000 rpm with heater temperature controller set at several position between "COOL" and "WARM".
    - Sound may be noticeable at heater unit.
  12. Repeat step 11 three times.
  13. If sound is heard, bleed air from cooling system by repeating steps 4 through 7 until engine coolant level no longer drops.

## FLUSHING COOLING SYSTEM

1. Install reservoir tank, and radiator drain plug.

### CAUTION:


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

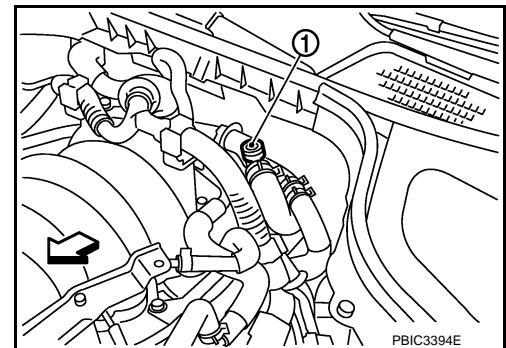
### Radiator drain plug:

: 1.2 N·m (0.12 kg·m, 11 in·lb)

**If water drain plugs on cylinder block are removed, close and tighten them. Refer to [EM-250, "Disassembly and Assembly"](#).**

2. Remove air relief plug (1) on heater hose.

 : Engine front



3. Fill thermostat housing with water until water spills from the air relief hole, then close air relief plug. Fill thermostat housing and reservoir tank with water and reinstall radiator cap.

# ENGINE MAINTENANCE (VK45DE ENGINE)

< SERVICE INFORMATION >

## Air relief plug:

: 1.2 N·m (0.12 kg-m, 11 in-lb)

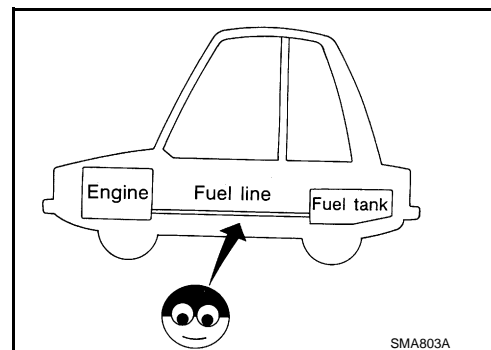
4. Run engine and warm it up to normal operating temperature.
5. Rev engine two or three times under no-load.
6. Stop engine and wait until it cools down.
7. Drain water from the system. Refer to [CO-38. "Changing Engine Coolant"](#).
8. Repeat steps 1 through 7 until clear water begins to drain from radiator.

## Checking Fuel Line

INFOID:000000002957349

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

If necessary, repair or replace damaged parts.



## Changing Air Cleaner Filter

INFOID:000000002957350

### VISCOUS PAPER TYPE

The viscous paper type filter does not need cleaning between replacement intervals. Refer to [MA-5](#).

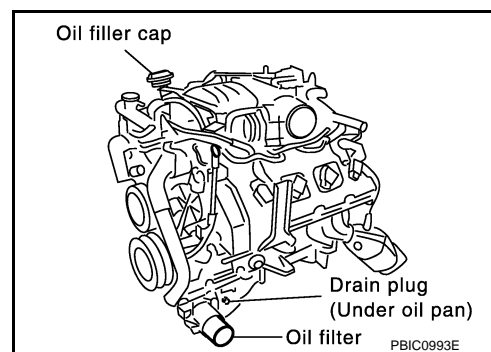
## Changing Engine Oil

INFOID:000000002957351

### WARNING:

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

1. Warm up engine, put vehicle horizontally and check for engine oil leakage from engine components. Refer to [LU-23. "Inspection"](#).
2. Stop engine and wait for 15 minutes.
3. Loosen oil filler cap.



4. Remove mounting bolts, and then pull down the rear of front engine undercover and secure it using clip.
5. Remove drain plug and then drain engine oil.
6. Install drain plug with new washer. Refer to [EM-185](#).

### CAUTION:

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

# ENGINE MAINTENANCE (VK45DE ENGINE)

## < SERVICE INFORMATION >

### Oil pan drain plug:

: 34.3 N·m (3.5 kg-m, 25 ft-lb)

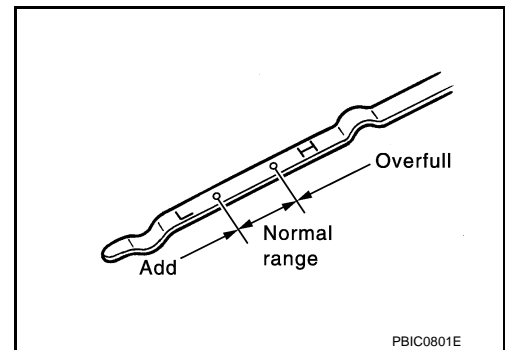
7. Refill with new engine oil.  
**Engine oil specification and viscosity:**  
Refer to [MA-9](#).

Engine oil capacity (Approximate):

		Unit: ℓ (US qt, Imp qt)
Drain and refill	With oil filter change	5.5 (5-3/4, 4-7/8)
	without oil filter change	4.9 (5-1/8, 4-1/4)
Dry engine (engine overhaul)		6.7 (7-1/8, 5-7/8)

### CAUTION:

- The refill capacity depends on the engine oil temperature and drain time. Use these specifications for reference only.
  - Always use oil level gauge to determine the proper amount of engine oil in the engine.
8. Warm up engine and check area around drain plug and oil filter for oil leakage.
  9. Stop engine and wait for 15 minutes.
  10. Check the engine oil level.



## Changing Oil Filter

INFOID:000000002957352

### REMOVAL

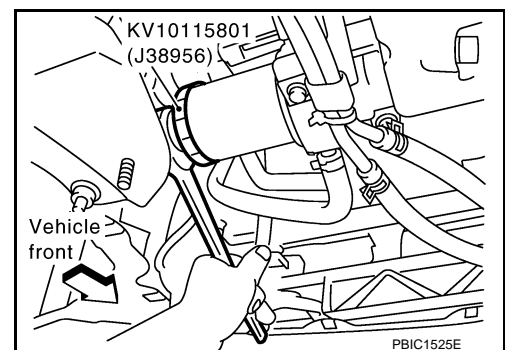
#### WARNING:

Be careful not to get burned when the engine and engine oil may be hot.

1. Remove front engine undercover with power tool.
2. Using the oil filter wrench (SST), remove the oil filter.

#### CAUTION:

- Oil filter is provided with relief valve. Use Genuine NISSAN engine oil filter or equivalent.
- When removing, prepare a shop cloth to absorb any engine oil leakage or spillage.
- Never allow engine oil to adhere to drive belts.
- Completely wipe off any engine oil that adhere to engine and vehicle.



### INSTALLATION

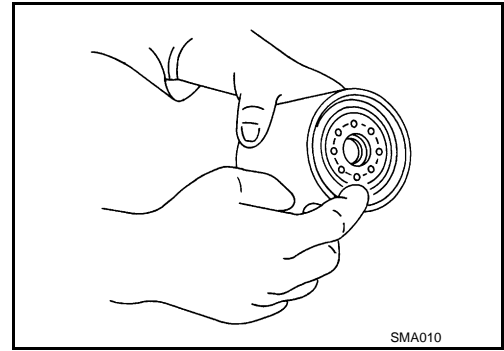
1. Remove foreign materials adhering to oil filter installation surface.



# ENGINE MAINTENANCE (VK45DE ENGINE)

## < SERVICE INFORMATION >

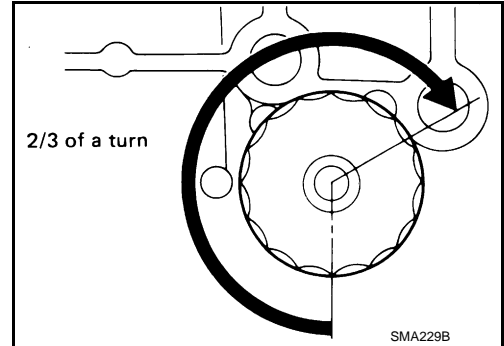
2. Apply new engine oil to the oil seal circumference of the new oil filter.



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

### Oil filter:

: 17.7 N·m (1.8 kg·m, 13 ft·lb)



## INSPECTION AFTER INSTALLATION

1. Check the engine oil level. Refer to [MA-23. "Changing Engine Oil"](#).
2. Start engine, and check there is no leaks of engine oil.
3. Stop engine and wait for 15 minutes.
4. Check the engine oil level and add engine oil. Refer to [MA-23. "Changing Engine Oil"](#).

## Changing Spark Plugs (Platinum-Tipped Type)

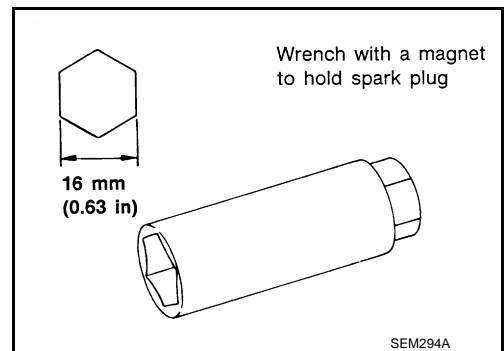
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### REMOVAL

1. Remove engine cover with power tool. Refer to [EM-171](#).
2. Remove ignition coil. Refer to [EM-189](#).
3. Remove spark plug with spark plug wrench (commercial service tool).

### CAUTION:

Never drop or shock spark plug.



### INSPECTION AFTER REMOVAL

Use standard type spark plug for normal condition.

Hot type spark plug is suitable when fouling occurs with standard type spark plug under conditions such as:

- Frequent engine starts
- Low ambient temperatures

Cold type spark plug is suitable when spark plug knock occurs with standard type spark plug under conditions such as:

- Extended highway driving
- Frequent high engine revolution

# ENGINE MAINTENANCE (VK45DE ENGINE)

## < SERVICE INFORMATION >

Make	NGK
Standard type	PLFR5A-11
Hot type	PLFR4A-11
Cold type	PLFR6A-11

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

### CAUTION:

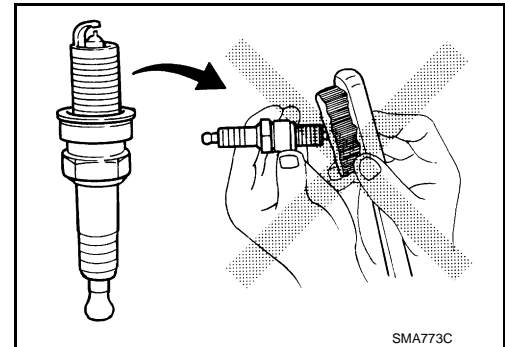
- Never drop or shock spark plug.
- Never use wire brush for cleaning.
- If plug tip is covered with carbon, spark plug cleaner may be used.

**Cleaner air pressure:**

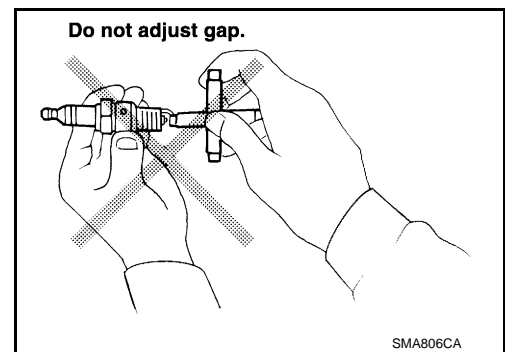
**Less than 588 kPa (6 kg/cm<sup>2</sup>, 85 psi)**

**Cleaning time:**

**Less than 20 seconds**



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



## INSTALLATION

Install in the reverse order of removal.

**Spark plug:**

 **24.5 N·m (2.5 kg·m, 18 ft·lb)**

## Checking EVAP Vapor Line

INFOID:000000002957354

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

Refer to **EC-662**.

# CHASSIS AND BODY MAINTENANCE

< SERVICE INFORMATION >

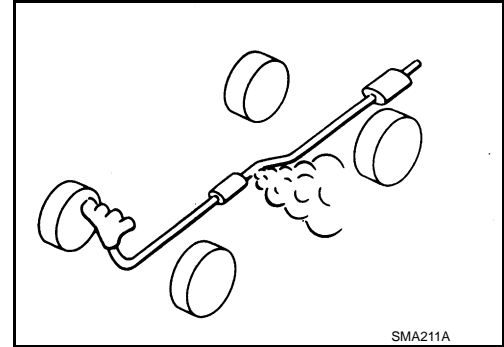
## CHASSIS AND BODY MAINTENANCE

### Checking Exhaust System

INFOID:000000002957355

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

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



### Checking A/T Fluid

INFOID:000000002957356

1. Warm up engine.
2. Check for A/T fluid leakage.
3. Loosen the level gauge bolt.
4. Before driving, A/T fluid level can be checked at A/T fluid temperatures of 30 to 50°C (86 to 122°F) using "COLD" range on A/T fluid level gauge as follows.

- a. Park vehicle on level surface and set parking brake.
- b. Start engine and move selector lever through each gear position. Leave selector lever in "P" position.
- c. Check A/T fluid level with engine idling.
- d. Remove A/T fluid level gauge and wipe clean with lint-free paper.

**CAUTION:**

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

- e. Re-insert A/T fluid level gauge into A/T fluid charging pipe as far as it will go.

**CAUTION:**

**To check A/T fluid level, insert the A/T fluid level gauge until the cap contacts the end of the A/T fluid charging pipe, with the A/T fluid level gauge reversed from the normal attachment conditions.**

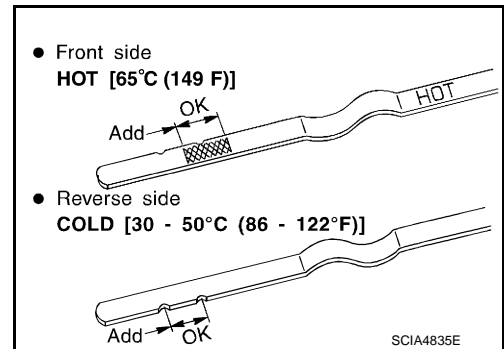
- f. Remove A/T fluid level gauge and note reading. If reading is at low side of range, add ATF to the A/T fluid charging pipe.

**CAUTION:**

**Do not overfill.**

5. Drive vehicle for approximately 5 minutes in urban areas.
6. Make the A/T fluid temperature approximately 65°C (149°F).

**NOTE:**

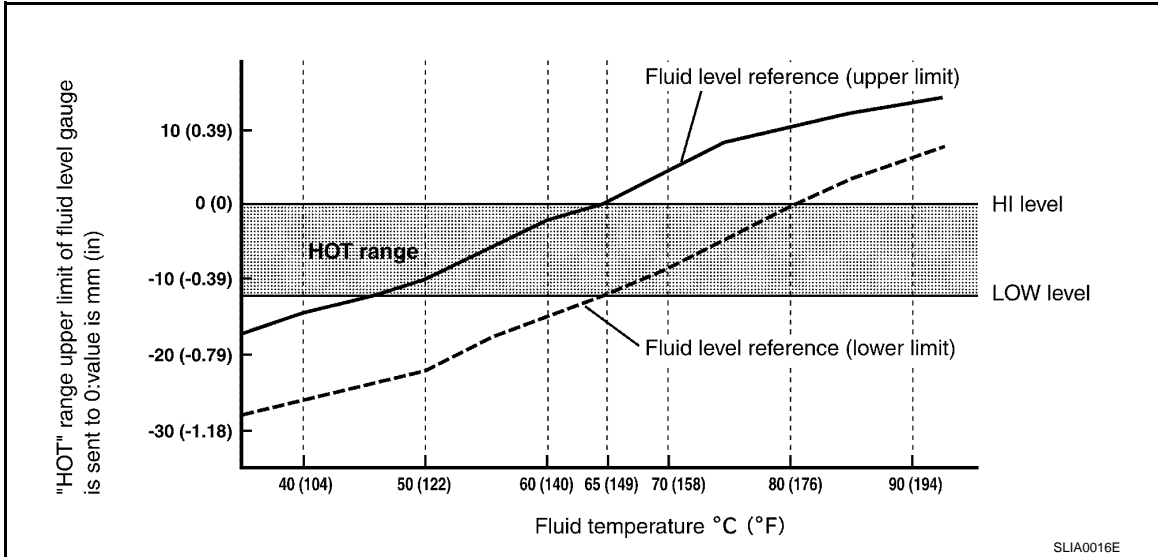


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# CHASSIS AND BODY MAINTENANCE

## < SERVICE INFORMATION >

A/T fluid level will be greatly affected by temperature as shown in figure. Therefore, be certain to perform operation while checking data with CONSULT-III.

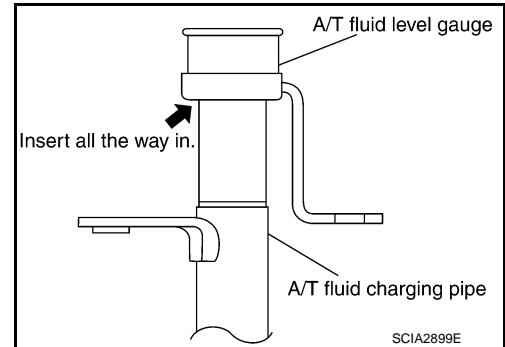


- a. Select "DATA MONITOR".
- b. Read out the value of "ATF TEMP 1".
7. Re-check A/T fluid level at A/T fluid temperatures of approximately 65°C (149°F) using "HOT" range on A/T fluid level gauge.

### CAUTION:

- When wiping away the A/T fluid level gauge, always use lint-free paper, not a cloth one.
- To check A/T fluid level, insert the A/T fluid level gauge until the cap contacts the end of the A/T fluid charging pipe, with the A/T fluid level gauge reversed from the normal attachment conditions as shown.

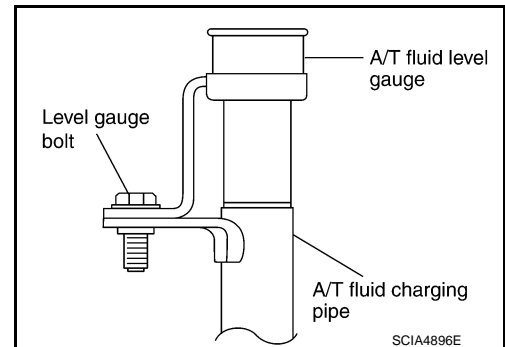
8. Check A/T fluid condition.
  - If ATF is very dark or smells burned, check operation of A/T. Flush cooling system after repair of A/T.
  - If A/T fluid contains frictional material (clutches, bands, etc.), replace radiator and flush cooler line using cleaning solvent and compressed air after repair of A/T. Refer to [CO-13](#) (for VQ35DE engine), [CO-41](#) (for VK45DE engine) and [AT-14. "A/T Fluid Cooler Cleaning"](#).



9. Install the removed A/T fluid level gauge in the A/T fluid charging pipe.
10. Tighten level gauge bolt.

### Level gauge bolt

: 5.1 N·m (0.52 kg·m, 45 in·lb)



## Changing A/T Fluid

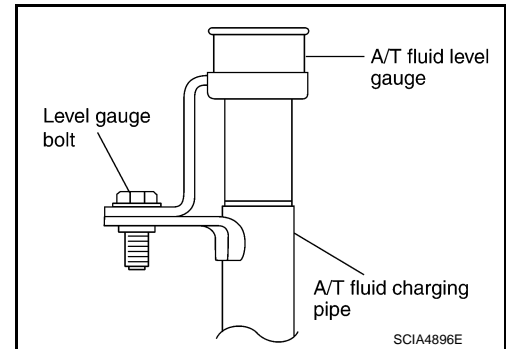
INFOID:000000002957357

1. Warm up ATF.
2. Stop engine.

# CHASSIS AND BODY MAINTENANCE

## < SERVICE INFORMATION >

- Loosen the level gauge bolt.
- Drain ATF from drain plug and refill with new ATF. Always refill same volume with drained ATF.
  - To replace the ATF, pour in new ATF at the A/T fluid charging pipe with the engine idling and at the same time drain the old ATF from the radiator cooler hose return side.
  - When the color of the ATF coming out is about the same as the color of the new ATF, the replacement is complete. The amount of new ATF to use should be 30 to 50% increase of the stipulated amount.



**ATF:** **Genuine NISSAN Matic S ATF**  
**Fluid capacity:** **10.3 l (10-7/8 US qt, 9-1/8 Imp qt)**

### CAUTION:

- Use Genuine NISSAN Matic S ATF.
- If Genuine NISSAN Matic S ATF is not available, Genuine NISSAN Matic J ATF may also be used. Using ATF 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 INFINITI new vehicle limited warranty.
- When filling ATF, take care not to scatter heat generating parts such as exhaust.
- Do not reuse drain plug gasket.

### Drain plug

 : **34 N·m (3.5 kg-m, 25 ft-lb)**

- Run engine at idle speed for 5 minutes.
- Check A/T fluid level and condition. Refer to [AT-12, "Checking A/T Fluid"](#). If ATF is still dirty, repeat step 2. through 5.
- Install the removed A/T fluid level gauge into A/T fluid charging pipe.
- Tighten the level gauge bolt.

### Level gauge bolt

 : **5.1 N·m (0.52 kg-m, 45 in-lb)**

## Checking Transfer Fluid

INFOID:000000002957358

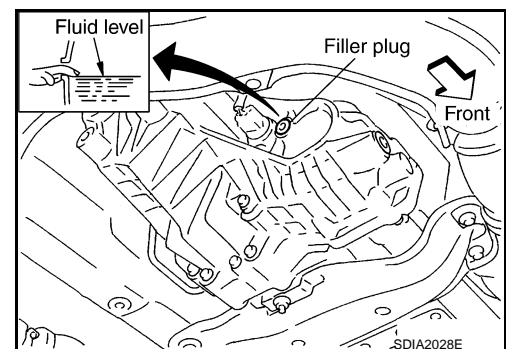
Check for fluid leakage and fluid level.  
(For details, refer to [TF-10, "Inspection"](#).)

### CAUTION:

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

### Filler plug:

 : **35 N·m (3.6 kg-m, 26 ft-lb)**



## Changing Transfer Fluid

INFOID:000000002957359

### CAUTION:

**When draining fluid, protect exhaust tube flange with cover.**

- Drain fluid from drain plug and refill with new gear fluid.  
(For details, refer to [TF-10, "Replacement"](#).)

# CHASSIS AND BODY MAINTENANCE

## < SERVICE INFORMATION >

2. Check fluid level.

**CAUTION:**

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

**Fluid grade:**


Genuine NISSAN Matic J ATF

Refer to [MA-9](#).

**Fluid capacity:**

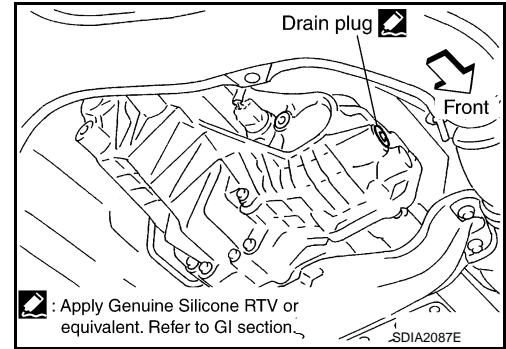
: Approx. 1.25 l (2-5/8 US pt, 2-1/4 Imp pt)

**Drain plug:**

: 29.4 N·m (3.0 kg·m, 22 ft·lb)

**Filler plug:**

: 35 N·m (3.6 kg·m, 26 ft·lb)



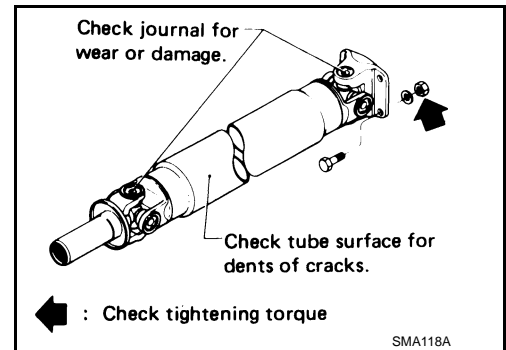
## Checking Propeller Shaft

INFOID:000000002957360

Check propeller shaft for damage, looseness or grease leakage.

**Tightening torque:**

Refer to [PR-7](#)

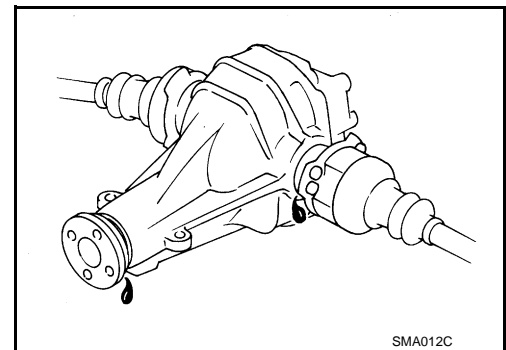


## Checking Differential Gear Oil

INFOID:000000002957361

Check for oil leakage.

(For details, refer to [FFD-9, "Checking Differential Gear Oil"](#) and [RFD-9, "Checking Differential Gear Oil"](#).)



## Changing Differential Gear Oil

INFOID:000000002957362

1. Drain oil from drain plug and refill with new gear oil.

(For details, refer to [FFD-9, "Changing Differential Gear Oil"](#) and [RFD-9, "Changing Differential Gear Oil"](#).)

# CHASSIS AND BODY MAINTENANCE

## < SERVICE INFORMATION >

### 2. Check oil level.

#### Oil grade and Viscosity:

Refer to [MA-9](#).

#### Capacity:

Front final drive (F160A)

0.65 ℓ (1 - 3/8 US pt, 1 - 1/8 Imp pt)

Rear final drive (R200)


1.4 ℓ (3 US pt, 2 - 1/2 Imp pt)

#### Filler plug:

Front final drive

: 34.5 N-m (3.5 kg-m, 25 ft-lb)

Rear final drive

: 34.5 N-m (3.5 kg-m, 25 ft-lb)

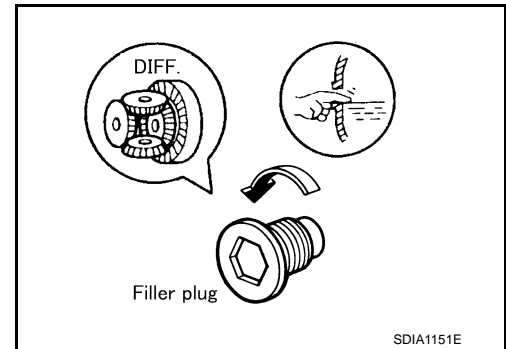
#### Drain plug:

Front final drive

: 34.5 N-m (3.5 kg-m, 25 ft-lb)

Rear final drive

: 34.5 N-m (3.5 kg-m, 25 ft-lb)



## Balancing Wheels (Bonding Weight Type)

INFOID:00000002957363

### REMOVAL

1. Remove inner and outer balance weights from the road wheel.

#### **CAUTION:**

**Be careful not to scratch the road wheel during removal.**

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

#### **CAUTION:**

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

### WHEEL BALANCE ADJUSTMENT

- If a tire balance machine has adhesion balance weight mode settings and drive-in weight mode setting, select and adjust a drive-in weight mode suitable for road wheels.

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

#### **CAUTION:**

- **Do not install the inner balance weight before installing the outer balance weight.**

# CHASSIS AND BODY MAINTENANCE

## < SERVICE INFORMATION >

- Before installing the balance weight, be sure to clean the mating surface of the road wheel.

Indicated unbalance value  $\times 5/3 =$  balance weight to be installed

### Calculation example:

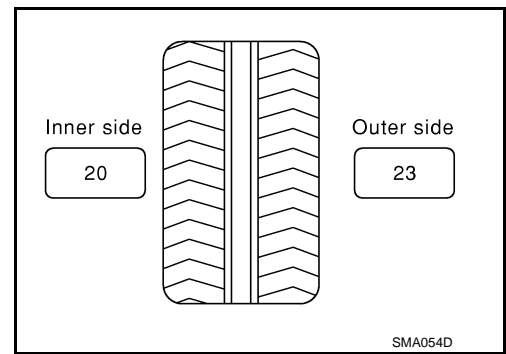
$23 \text{ g (0.81 oz)} \times 5/3 = 38.33 \text{ g (1.35 oz)} \Rightarrow 40 \text{ g (1.41 oz)}$  balance weight (closer to calculated balance weight value)

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

### Example:

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

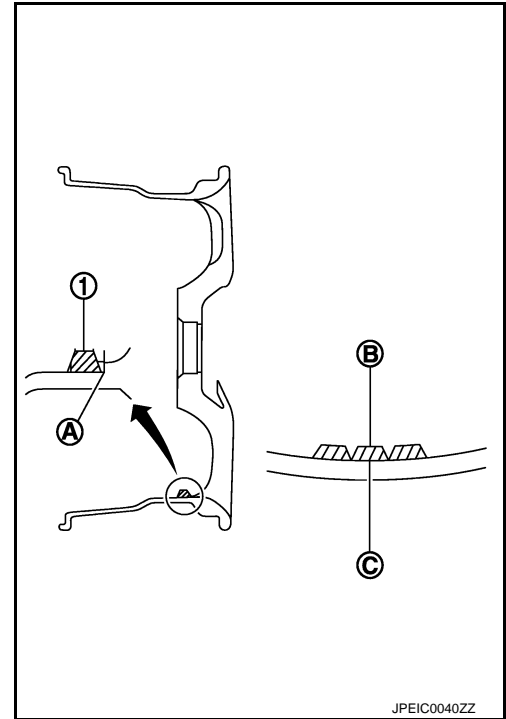
$37.5 \Rightarrow 40 \text{ g (1.41 oz)}$



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

### CAUTION:

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



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

### CAUTION:

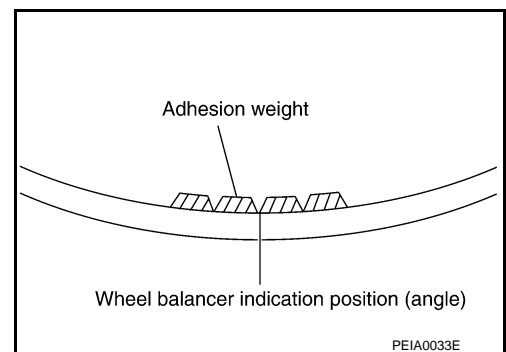
**Do not install one balance weight sheet on top of another.**

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

### CAUTION:

**Do not install more than two balance weights.**

- Start tire balance machine. Make sure that inner and outer residual unbalance values are 7 g (0.25 oz) each or below.
  - If either residual unbalance value exceeds 7 g (0.25 oz), repeat installation procedures.



Maximum allowable unbalance	Dynamic (At rim flange)	Less than 7 g (0.25 oz) (one side)
	Static (At rim flange)	Less than 14 g (0.49 oz)



# CHASSIS AND BODY MAINTENANCE

## < SERVICE INFORMATION >

### Rotation

INFOID:000000002957364

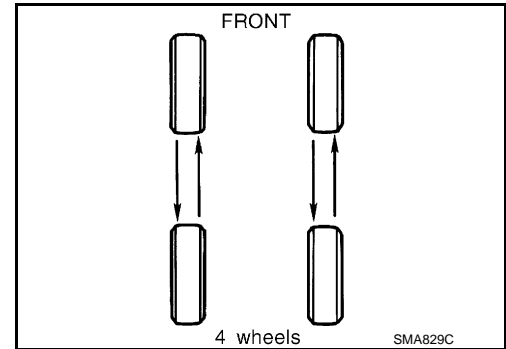
- Follow the maintenance schedule for tire rotation service intervals. Refer to [MA-3](#).
- Do not include the spare tire when rotating the tires.

#### CAUTION:

- 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.
- Use NISSAN genuine wheel nuts for aluminum wheels.

#### Tightening torque of wheel nut

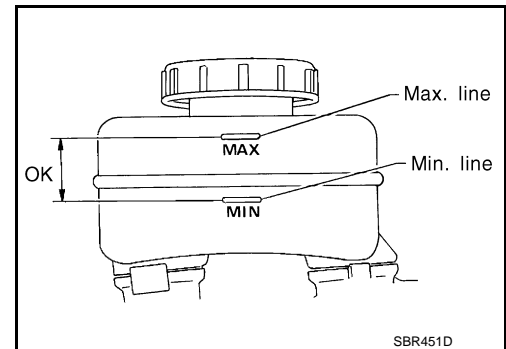
 : 108 N·m (11 kg-m, 80 ft-lb)



### Checking Brake Fluid Level and Leaks

INFOID:000000002957365

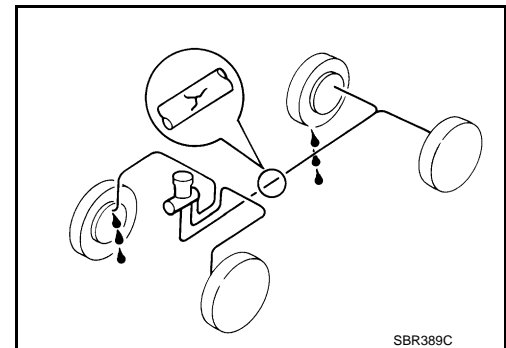
- If fluid level is extremely low, check brake system for leaks.



### Checking Brake Line and Cables

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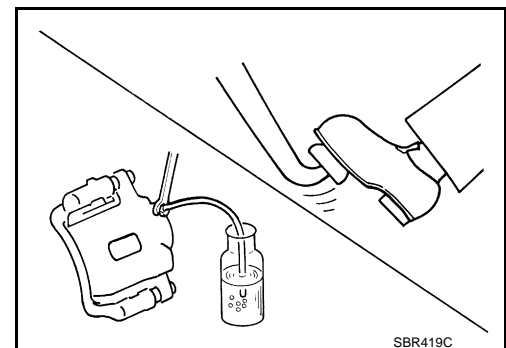
- Check brake fluid lines and parking brake cables for improper attachment, leaks, chafing, abrasions, deterioration, etc.



### Changing Brake Fluid

INFOID:000000002957367

1. Drain brake fluid from each bleed valve.
2. Refill until new brake fluid comes out from each bleed valve. Use same procedure as in bleeding hydraulic system to refill brake fluid. Refer to [BR-10, "Bleeding Brake System"](#).
  - Refill with recommended genuine Nissan Super Heavy Duty Brake Fluid or equivalent DOT 3 (US FMVSS No. 116). Refer to [MA-9](#).
  - Never reuse drained brake fluid.
  - Be careful not to splash brake fluid on painted areas.



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# CHASSIS AND BODY MAINTENANCE

< SERVICE INFORMATION >

## Checking Disc Brake

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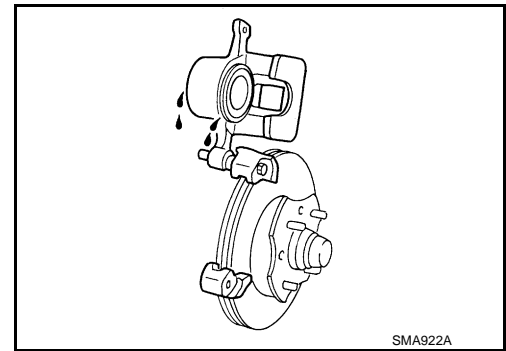
### ROTOR

Check condition, wear, and damage.

	Front	Rear
Standard thickness	28.0 mm (1.102 in)	16.0 mm (0.631 in)
Runout limit (with it attached to the vehicle)	0.035 mm (0.0014 in)	0.055mm (0.0022 in)
Wear limit	26.0 mm (1.024 in)	14.0 mm (0.551 in)

### CALIPER

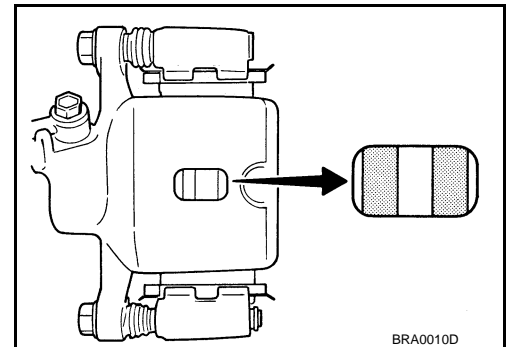
- Check for leakage.



### PAD

- Check for wear or damage.

	Front	Rear
Standard thickness	11.0 mm (0.433 in)	8.5 mm (0.335 in)
Repair limit thickness	2.0 mm (0.079 in)	2.0 mm (0.079 in)

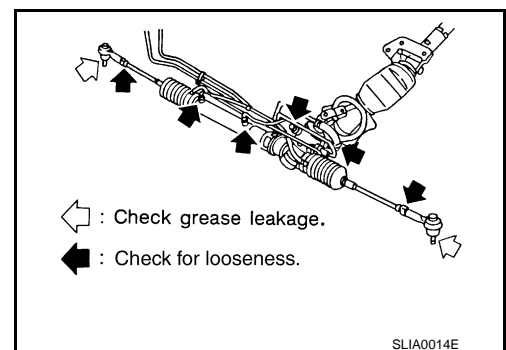


## Checking Steering Gear and Linkage

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### STEERING GEAR

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



### STEERING LINKAGE

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

# CHASSIS AND BODY MAINTENANCE

## < SERVICE INFORMATION >

### Checking Power Steering Fluid and Line

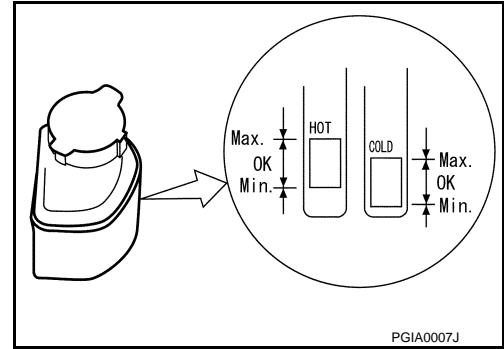
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Check fluid level in reservoir tank with engine off.

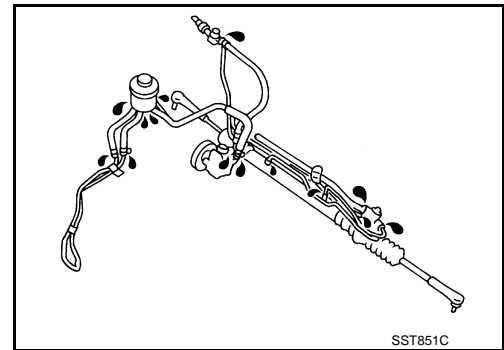
Use "HOT" range at fluid temperatures of 50 to 80°C (122 to 176°F) or "COLD" range at fluid temperatures of 0 to 30°C (32 to 86°F).

#### CAUTION:

- Do not overfill.
- Recommended fluid is genuine NISSAN PSF or equivalent. Refer to [MA-9](#).



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

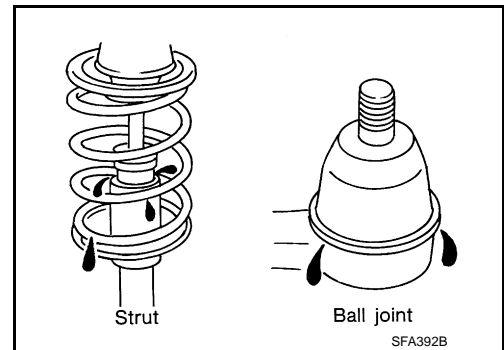
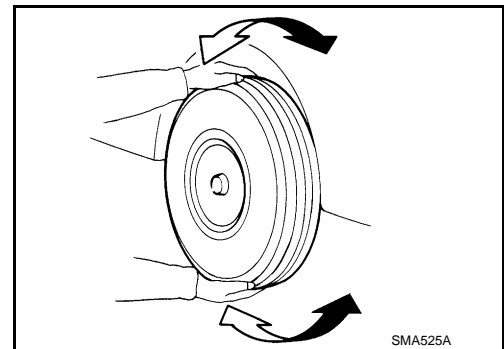


### Axle and Suspension Parts

INFOID:000000002957371

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

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



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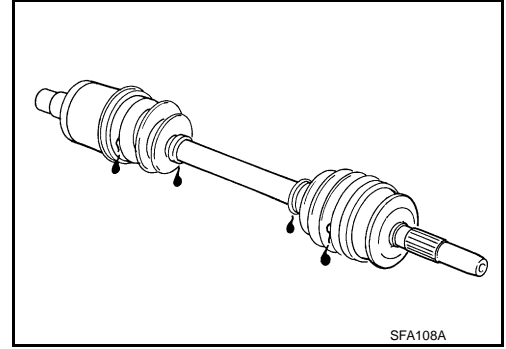
# CHASSIS AND BODY MAINTENANCE

< SERVICE INFORMATION >

## Drive Shaft

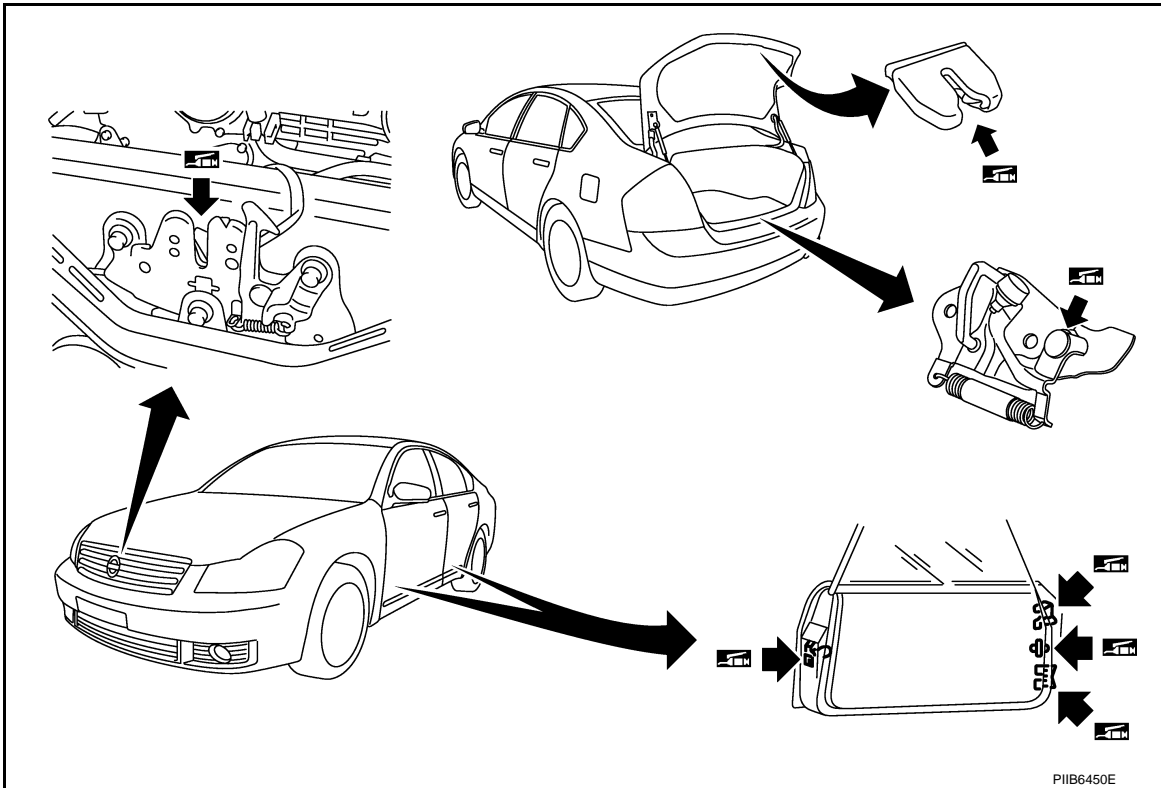
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Check boot and drive shaft for cracks, wear, damage and grease leakage.



## Lubricating Locks, Hinges and Hood Latch

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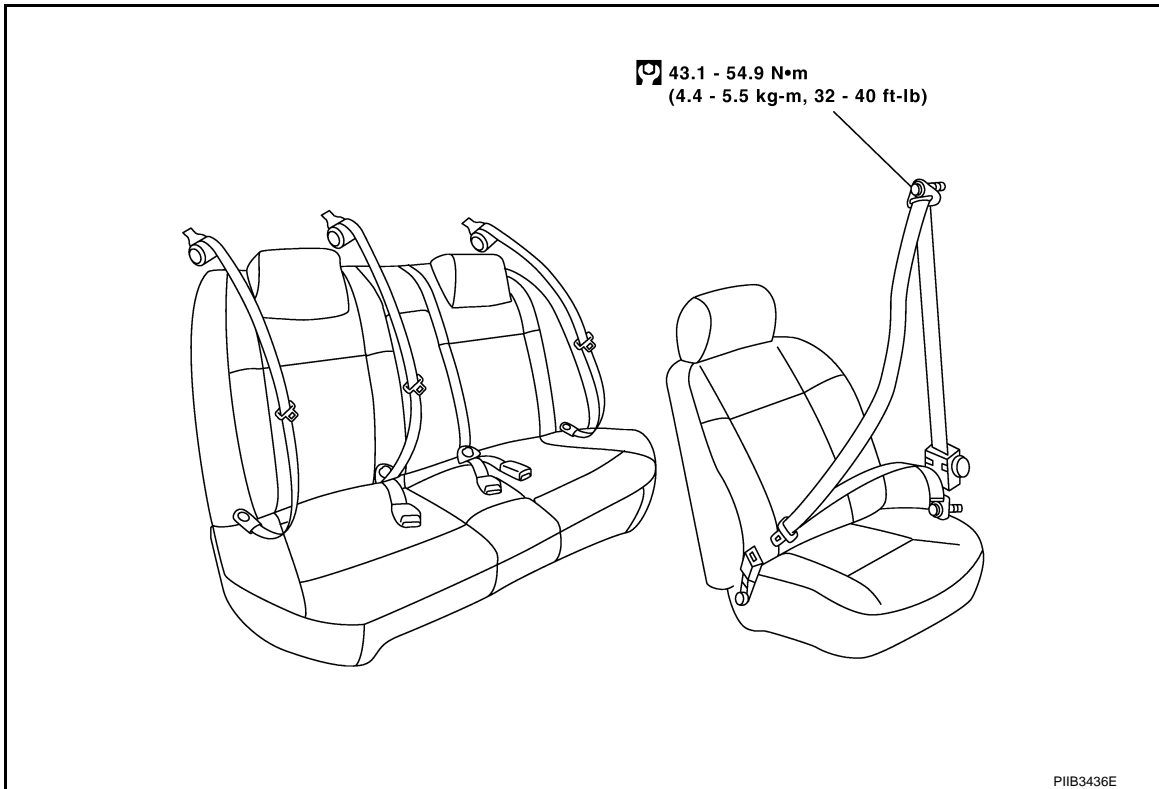


# CHASSIS AND BODY MAINTENANCE

< SERVICE INFORMATION >

## Checking Seat Belt, Buckles, Retractors, Anchors and Adjusters

INFOID:00000002957374



### CAUTION:

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

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

- If any component of seat belt assembly is questionable, do not repair. Replace as seat belt assembly.
- If webbing is cut, frayed, or damaged, replace belt assembly.
- Never oil tongue and buckle.
- Use a genuine NISSAN seat belt assembly.

For details, refer to [SB-30, "Seat Belt Inspection"](#) in SB section.

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

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# SERVICE DATA AND SPECIFICATIONS (SDS)

< SERVICE INFORMATION >

## SERVICE DATA AND SPECIFICATIONS (SDS)

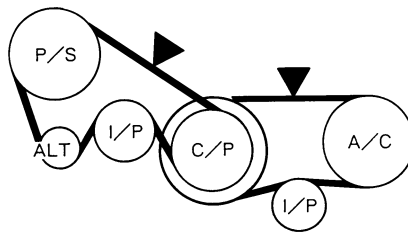
### Standard and Limit

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### BELT DEFLECTION AND TENSION (VQ35DE)

	Deflection adjustment		Unit: mm (in)	Tension adjustment*		Unit: N (kg, lb)
	Used belt		New belt	Used belt		New belt
	Limit	After adjustment		Limit	After adjustment	
Alternator and power steering oil pump belt	12 (0.47)	7 - 8 (0.28 - 0.31)	6 - 7 (0.24 - 0.28)	294 (30, 66)	730 - 818 (74.5 - 83.4, 164 - 184)	838 - 926 (85.5 - 94.5, 188 - 208)
A/C compressor belt	12 (0.47)	9 - 10 (0.35 - 0.39)	8 - 9 (0.31 - 0.35)	196 (20, 44)	348 - 436 (35.5 - 44.5, 78 - 98)	470 - 559 (47.9 - 57.0, 106 - 126)
Applied pushing force	98 N (10 kg, 22 lb)			—		

### SEC. 117



PBIC5323E

\*: If belt tension gauge cannot be installed at check points shown, check drive belt tension at different location on the belt.

### BELT DEFLECTION AND TENSION (VK45DE)

Tension of drive belts	Auto-adjustment by auto tensioner
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### ENGINE COOLANT CAPACITY (APPROXIMATE) (VQ35DE)

Unit: ℓ (US qt, Imp qt)

Engine coolant capacity (With reservoir tank at "MAX" level)	8.9 (9-3/8, 7-7/8)
Reservoir tank engine coolant capacity (At "MAX" level)	0.8 (7/8, 3/4)

### ENGINE COOLANT CAPACITY (APPROXIMATE) (VK45DE)

Unit: ℓ (US qt, Imp qt)

Engine coolant capacity (With reservoir tank at "MAX" level)	10.4 (11, 9-1/8)
Reservoir tank engine coolant capacity (At "MAX" level)	0.8 (7/8, 3/4)

### RADIATOR

Unit: kPa (kg/cm<sup>2</sup>, psi)

Cap relief pressure	Standard	78 - 98 (0.8 - 1.0, 11 - 14)
	Limit	59 (0.6, 9)
Leakage testing pressure		157 (1.6, 23)

### ENGINE OIL CAPACITY (APPROXIMATE) (VQ35DE)

# SERVICE DATA AND SPECIFICATIONS (SDS)

## < SERVICE INFORMATION >

Unit: ℓ (US qt, Imp qt)

Drain and refill	With oil filter change	4.7 (5, 4-1/8)
	Without oil filter change	4.4 (4-5/8, 3-7/8)
Dry engine (Overhaul)		5.4 (5-3/4, 4-3/4)

### ENGINE OIL CAPACITY (APPROXIMATE) (VK45DE)

Unit: ℓ (US qt, Imp qt)

Drain and refill	With oil filter change	5.5 (5-3/4, 4-7/8)
	Without oil filter change	4.9 (5-1/8, 4-1/4)
Dry engine (Overhaul)		6.7 (7-1/8, 5-7/8)

### SPARK PLUG (PLATINUM-TIPPED TYPE) (VQ35DE)

Make	NGK	
Type	Standard	PLFR5A-11
	Hot	PLFR4A-11
	Cold	PLFR6A-11
Spark plug gap		Nominal: 1.1mm (0.043 in)

### SPARK PLUG (PLATINUM-TIPPED TYPE) (VK45DE)

Make	NGK	
Type	Standard	PLFR5A-11
	Hot	PLFR4A-11
	Cold	PLFR6A-11
Spark plug gap		Nominal: 1.1mm (0.043 in)

### WHEEL BALANCE

Maximum allowable unbalance	Dynamic (At rim flange)	Less than 7 g (0.25 oz) (one side)
	Static (At rim flange)	Less than 14 g (0.49 oz)

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