

**SECTION MA**  
**MAINTENANCE**

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# PRECAUTIONS

## PRECAUTIONS

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### Precautions for Supplemental Restraint System (SRS) “AIR BAG” and “SEAT BELT PRE-TENSIONER”

ELS0014S

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

#### **WARNING:**

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

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# PREPARATION

## PREPARATION

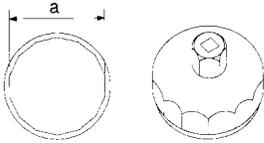
PFP:00002

### Special Service Tool

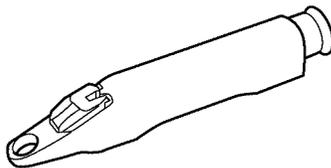
ELS0014T

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

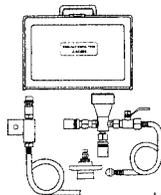
Tool number (Kent-Moore No.) Tool name	Description
KV10115801 (J-38956) Oil filter cap wrench	Removing oil filter <b>a: 64.3 mm (2.531 in)</b>
KV991J0010 (J-23688) Engine coolant refractometer	Checking concentration of ethylene glycol in engine coolant
KV991J0070 (J-45695) Coolant Refill Tool	Refilling engine cooling system



NT375



WBIA0539E

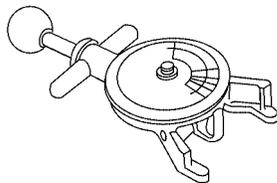


LMA053

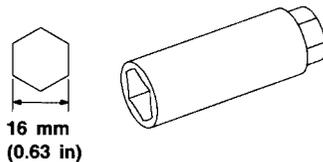
## Commercial Service Tool

ELS0014U

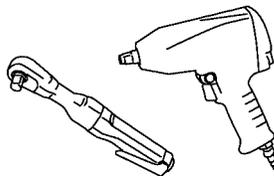
Tool name (Kent-Moore No.)	Description
Belt tension gauge (BT-3373-F)	Checking drive belt tension
Spark plug wrench	Removing and installing spark plugs
Power Tool	Loosening bolts and nuts



AMA126



S-NT047



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# GENERAL MAINTENANCE

## GENERAL MAINTENANCE

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### 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 have their NISSAN dealers do them.

### OUTSIDE THE VEHICLE

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

Item		Reference page
<b>Tires</b>	Check the pressure including the spare, at least once a month and always prior to a long distance trip with a gauge. Adjust to the specified pressure if necessary. Check carefully for damage, cuts or excessive wear.	<a href="#">WT-6, "Tire"</a>
<b>Wheel nuts</b>	When checking the tires, make sure no nuts are missing, and check for any loose nuts. Tighten if necessary.	<a href="#">WT-5, "Rotation"</a>
<b>Windshield</b>	Clean the windshield on a regular basis. Check windshield at least every six months for cracks or other damage. Repair as necessary.	<a href="#">GW-11, "WINDSHIELD GLASS"</a>
<b>Tire rotation</b>	Tires should be rotated every 12,000 km (7,500 miles).	<a href="#">WT-5, "Rotation"</a>
<b>Wheel alignment and balance</b>	If the vehicle pulls to either side while driving on a straight and level road, or if you detect uneven or abnormal tire wear, there may be a need for wheel alignment. If the steering wheel or seat vibrates at normal highway speeds, wheel balancing may be needed.	<a href="#">FSU-6, "Front Wheel Alignment"</a> and <a href="#">MA-32, "Balancing Wheels (Bonding Weight Type)"</a>
<b>Windshield wiper blades</b>	Check for cracks or wear if they do not wipe properly.	—
<b>Doors and engine hood</b>	Check that all doors and the engine hood operate smoothly as well as the trunk lid and back hatch. Also make sure that all latches lock securely. Lubricate if necessary. Make sure that the secondary latch keeps the hood from opening when the primary latch is released. When driving in areas using road salt or other corrosive materials, check lubrication frequently.	<a href="#">GI-45, "Recommended Chemical Products and Sealants"</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.	<a href="#">LT-28, "Aiming Adjustment"</a>

### 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.	<a href="#">DI-30, "WARNING LAMPS"</a> , <a href="#">DI-45, "WARNING CHIME"</a>
<b>Windshield wiper and washer</b>	Check that the wipers and washer operate properly and that the wipers do not streak.	—
<b>Windshield defroster</b>	Check that the air comes out of the defroster outlets properly and in sufficient quantity when operating the heater or air conditioner.	—
<b>Steering wheel</b>	Check that it has the specified play. Be sure to check for changes in the steering condition, such as excessive play, hard steering or strange noises.	<a href="#">PS-7, "STEERING WHEEL"</a>
<b>Seats</b>	Check seat position controls such as seat adjusters, seatback recliner, etc. to make sure they operate smoothly and that all latches lock securely in every position. Check that the head restraints move up and down smoothly and that the locks (if equipped) hold securely in all latched positions. Check that the latches lock securely for folding-down rear seatbacks.	—
<b>Seat belts</b>	Check that all parts of the seat belt system (e.g. buckles, anchors, adjusters and retractors) operate properly and smoothly, and are installed securely. Check the belt webbing for cuts, fraying, wear or damage.	<a href="#">MA-38</a>
<b>Clutch pedal</b>	Make sure the pedal operates smoothly and check that it has proper free play.	<a href="#">CL-6, "On-vehicle Inspection and Adjustment"</a>

# GENERAL MAINTENANCE

Item		Reference page
<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, "BRAKE PEDAL"</a> and <a href="#">BR-15, "BRAKE BOOSTER"</a>
<b>Parking brake</b>	Check that the lever 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, "Inspection"</a>
<b>Automatic transaxle "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" 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-16</a> QR25DE or <a href="#">MA-23</a> VQ35DE
<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 and clutch fluid levels</b>	Make sure that the brake and clutch fluid levels are between the "MAX" and "MIN" lines on the reservoirs.	<a href="#">MA-34</a> (brakes), <a href="#">MA-28</a> (clutch)
<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.	—
<b>Engine drive belts</b>	Make sure that no belt is frayed, worn, cracked or oily.	<a href="#">MA-15</a> QR25DE or <a href="#">MA-22</a> VQ35DE
<b>Engine oil level</b>	Check the level on the dipstick after parking the vehicle on a level spot and turning off the engine.	<a href="#">MA-18</a> QR25DE or <a href="#">MA-25</a> VQ35DE
<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-36</a>
<b>Automatic transaxle fluid level</b>	Check the level on the dipstick after putting the selector lever in "P" with the engine idling.	<a href="#">MA-30</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-28</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

## PERIODIC MAINTENANCE

PFP:00026

### Introduction of Periodic Maintenance

ELS0014W

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-7</a>
		Chassis and Body Maintenance	<a href="#">MA-9</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-10</a>
		Chassis and Body Maintenance	<a href="#">MA-11</a>

## SCHEDULE 1 EMISSION CONTROL SYSTEM MAINTENANCE

ELS0014X

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

MAINTENANCE OPERATION		MAINTENANCE INTERVAL								Reference Section - Page or - Content Title
Perform at number of miles, kilometers or months, whichever comes first.	Miles x 1,000 (km x 1,000) Months	3.75 (6) 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	
Drive belts	NOTE (1)									<a href="#">MA-15</a> (QR25DE) or <a href="#">MA-22</a> (VQ35DE)
Air cleaner filter	NOTE (2)								[R]	<a href="#">MA-18</a> (QR25DE) or <a href="#">MA-25</a> (VQ35DE)
EVAP vapor lines									I*	<a href="#">MA-21</a> (QR25DE) or <a href="#">MA-27</a> (VQ35DE)
Fuel lines									I*	<a href="#">MA-17</a> (QR25DE) or <a href="#">MA-24</a> (VQ35DE)
Fuel filter	NOTE (3)									—
Engine coolant	NOTE (4)									<a href="#">MA-15</a> (QR25DE) or <a href="#">MA-22</a> (VQ35DE)
Engine oil		R	R	R	R	R	R	R	R	<a href="#">MA-18</a> (QR25DE) or (VQ35DE)

## PERIODIC MAINTENANCE

MAINTENANCE OPERATION		MAINTENANCE INTERVAL								Reference Section - Page or - Content Title
Perform at number of miles, kilometers or months, whichever comes first.	Miles x 1,000 (km x 1,000) Months	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	
Engine oil filter (Use part No. 15208 9E000 (for QR25DE engine), 15208 65F01 (for VQ35DE engine) or equivalent.)		R	R	R	R	R	R	R	R	<a href="#">MA-19</a> (QR25DE) or <a href="#">MA-26</a> (VQ35DE)
Spark plugs (PLATINUM-TIPPED type)		Replace every 105,000 miles (169,000 km).								<a href="#">MA-19</a> (QR25DE) or <a href="#">MA-26</a> (VQ35DE)
Intake & exhaust valve clearance*	NOTE (5)									<a href="#">EM-100</a> , " <a href="#">Valve Clearance</a> " (QR25DE) or <a href="#">EM-247</a> , " <a href="#">Valve Clearance</a> " (VQ35DE)

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-15</a> (QR25DE) or <a href="#">MA-22</a> (VQ35DE)
Air cleaner filter	NOTE (2)								[R]	<a href="#">MA-18</a> (QR25DE) or <a href="#">MA-25</a> (VQ35DE)
EVAP vapor lines									I*	<a href="#">MA-21</a> (QR25DE) or <a href="#">MA-27</a> (VQ35DE)
Fuel lines									I*	<a href="#">MA-17</a> (QR25DE) or <a href="#">MA-24</a> (VQ35DE)
Fuel filter	NOTE (3)									—
Engine coolant	NOTE (4)								R*	<a href="#">MA-15</a> (QR25DE) or <a href="#">MA-22</a> (VQ35DE)
Engine oil		R	R	R	R	R	R	R	R	<a href="#">MA-18</a> (QR25DE) or <a href="#">MA-25</a> (VQ35DE)
Engine oil filter (Use part No. 15208-9E000 (for QR25DE engine), 15208 65F01 (for VQ35DE engine) or equivalent.)		R	R	R	R	R	R	R	R	<a href="#">MA-19</a> (QR25DE) or <a href="#">MA-26</a> (VQ35DE)

# PERIODIC MAINTENANCE

MAINTENANCE OPERATION		MAINTENANCE INTERVAL								Reference Section - Page or - Content Title
Perform at number of miles, kilometers or months, whichever comes first.	Miles x 1,000 (km x 1,000) Months	33.75 (54) 27	37.5 (60) 30	41.25 (66) 33	45 (72) 36	48.75 (78) 39	52.5 (84) 42	56.25 (90) 45	60 (96) 48	
Spark plugs (PLATINUM-TIPPED type)		Replace every 105,000 miles (169,000 km).								<a href="#">MA-19</a> (QR25DE) or <a href="#">MA-26</a> (VQ35DE)
Intake & exhaust valve clearance*	NOTE (5)									<a href="#">EM-100</a> , "Valve Clearance" (QR25DE) or <a href="#">EM-247</a> , "Valve Clearance" (VQ35DE)

**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 of QR25DE 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, go to the FL section.
- (4) After 60,000 miles (96,000 km) or 48 months, replace every 30,000 miles (48,000 km) or 24 months.
- (5) If valve noise increases, inspect valve clearance.

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

## CHASSIS AND BODY 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-34</a>
Brake pads & rotors			I		I		I		I	<a href="#">MA-35</a>
Automatic transaxle fluid & manual transaxle gear oil	NOTE (1)				I				I	<a href="#">MA-31</a> (A/T) or <a href="#">MA-29</a> (M/T)
Steering gear & linkage, axle & suspension parts			I		I		I		I	<a href="#">MA-35</a> , <a href="#">MA-36</a>
Tire rotation	NOTE (2)									<a href="#">MA-34</a>
Exhaust system			I		I		I		I	<a href="#">MA-28</a>
Front drive shaft boot			I		I		I		I	<a href="#">MA-37</a>
In-cabin microfilter					R				R	<a href="#">MA-28</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-34</a>
Brake pads & rotors			I		I		I		I	<a href="#">MA-35</a>
Automatic transaxle fluid & manual transaxle gear oil	NOTE (1)				I				I	<a href="#">MA-31</a> (A/T) or <a href="#">MA-29</a> (M/T)
Steering gear & linkage, axle & suspension parts			I		I		I		I	<a href="#">MA-35</a> , <a href="#">MA-36</a>
Tire rotation	NOTE (2)									<a href="#">MA-34</a>

# PERIODIC MAINTENANCE

MAINTENANCE OPERATION		MAINTENANCE INTERVAL								Reference Section - Page or - Content Title
Perform at number of miles, kilometers or months, whichever comes first.	Miles x 1,000 (km x 1,000) Months	33.75 (54) 27	37.5 (60) 30	41.25 (66) 33	45 (72) 36	48.75 (78) 39	52.5 (84) 42	56.25 (90) 45	60 (96) 48	
Exhaust system			I		I		I		I	<a href="#">MA-28</a>
Front drive shaft boots			I		I		I		I	<a href="#">MA-37</a>
In-cabin microfilter					R				R	<a href="#">MA-28</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) oil at every 30,000 miles (48,000 km) or 24 months.

(2) Refer to [MA-5, "GENERAL MAINTENANCE"](#).

## SCHEDULE 2 EMISSION CONTROL SYSTEM MAINTENANCE

ELS0014Y

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-15</a> (QR25DE) or <a href="#">MA-22</a> (VQ35DE)
Air cleaner filter					[R]				[R]	<a href="#">MA-18</a> (QR25DE) or <a href="#">MA-25</a> (VQ35DE)
EVAP vapor lines					I*				I*	<a href="#">MA-21</a> (QR25DE) or <a href="#">MA-27</a> (VQ35DE)
Fuel lines					I*				I*	<a href="#">MA-17</a> (QR25DE) or <a href="#">MA-24</a> (VQ35DE)
Fuel filter	NOTE (2)									—
Engine coolant	NOTE (3)								R*	<a href="#">MA-15</a> (QR25DE) or <a href="#">MA-22</a> (VQ35DE)
Engine oil		R	R	R	R	R	R	R	R	<a href="#">MA-18</a> (QR25DE) or <a href="#">MA-25</a> (VQ35DE)
Engine oil filter (Use part No. 15208-9E000 (for QR25DE engine), 15208 65F01 (for VQ35DE engine) or equivalent.		R	R	R	R	R	R	R	R	<a href="#">MA-19</a> (QR225DE) or <a href="#">MA-26</a> (VQ35DE)

# PERIODIC MAINTENANCE

MAINTENANCE OPERATION		MAINTENANCE INTERVAL								Reference Section - Page or - Content Title
Perform at number of miles, kilometers or months, whichever comes first.	Miles x 1,000 (km x 1,000) Months	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	
Spark plugs (PLATINUM-TIPPED type)		Replace every 105,000 miles (169,000 km).								<a href="#">MA-19</a> (QR25DE) or <a href="#">MA-26</a> (VQ35DE)
Intake & exhaust valve clearance*	NOTE (4)									<a href="#">EM-100, "CYLINDER HEAD"</a> (QR25DE) or <a href="#">EM-247, "CYLINDER HEAD"</a> (VQ35DE)

**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 of QR25DE engine reaches the maximum limit.
- (2) Maintenance-free item. For service procedures, go to FL section.
- (3) After 60,000 miles (96,000 km) or 48 months, replace every 30,000 miles (48,000 km) or 24 months.
- (4) If valve noise increases, inspect valve clearance.

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

## 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-34</a>
Brake pads & rotors			I		I		I		I	<a href="#">MA-35</a>
Automatic transaxle fluid & manual transaxle gear oil			I		I		I		I	<a href="#">MA-30</a> (A/T) or <a href="#">MA-28</a> (M/T)
Steering gear & linkage, axle & suspension parts					I				I	<a href="#">MA-35, MA-36</a>
Tire rotation	NOTE (1)									<a href="#">MA-34</a>
Exhaust system					I				I	<a href="#">MA-28</a>
Front drive shaft boots			I		I		I		I	<a href="#">MA-37</a>
In-cabin microfilter			R		R		R		R	<a href="#">MA-28</a>

**NOTE:**

- (1) Refer to [MA-5, "GENERAL MAINTENANCE"](#).

# RECOMMENDED FLUIDS AND LUBRICANTS

## RECOMMENDED FLUIDS AND LUBRICANTS

PFP:00000

### Fluids and Lubricants QR25DE

EL50014Z

Description		Capacity (Approximate)			Recommended Fluids/Lubricants
		Liter	US measure	Imp measure	
Fuel		75.6	20 gal	16 5/8 gal	Unleaded gasoline with an octane rating of at least 87 AKI (RON 91)
Engine oil Drain and refill	With oil filter change	4.2	4 1/2 qt	3 3/4 qt	<ul style="list-style-type: none"> <li>● API Certification Mark *1</li> <li>● API grade SG/SH, Energy Conserving I &amp; II or API grade SJ or SL, Energy Conserving *1</li> <li>● ILSAC grade GF-I, GF-II, or GF-III *1</li> </ul>
	Without oil filter change	4.0	4 1/4 qt	3 1/2 qt	
Dry engine (engine overhaul)		4.6	4 7/8 qt	4 qt	
Cooling system	With reservoir	7.6	2 gal	1 5/8 gal	Genuine NISSAN Long Life Anti-freeze / Coolant or equivalent
Manual transaxle fluid (MTF)		2.2	2 3/8 qt	2 qt	Genuine NISSAN Manual Transmission Fluid (MTF) HQ Multi 75W-85 or API GL-4, Viscosity SAE 75W-85
Automatic transaxle (4A/T) fluid (ATF)		9.2	9 3/4 qt	8 1/8 qt	Genuine NISSAN Matic "D" ATF (Continental US and Alaska) or Canada NISSAN Automatic Transmission Fluid *2
Power steering fluid (PSF)		1.0	2 1/8 pt	1 3/4 pt	Genuine NISSAN PSF or equivalent *3
Brake and clutch fluids		—	—	—	Genuine NISSAN Super Heavy Duty Brake Fluid *4 or equivalent DOT 3 (US FMVSS No. 116)
Brake grease		—	—	—	PBC (poly butyl cuprysil)
Brake pad plate grease		—	—	—	Molykote AS880N grease
Multi-purpose grease		—	—	—	NLGI No. 2 (Lithium soap base)
Windshield washer fluid		—	—	—	Genuine NISSAN Windshield Washer Concentrate Cleaner & Anti-freeze or equivalent
Air conditioning system refrigerant		0.50 ± 0.025 kg	1.10 ± 0.055 lb	1.10 ± 0.055 lb	HFC-134a (R-134a) *5
Air conditioning system lubricant		150 mℓ	5.03 fl oz	5.01 fl oz	NISSAN A/C System Lubricant Type DH-PS or equivalent *5

\*1: For further details, see "SAE Viscosity Number".

\*2: DEXRON™ III / MERCON™ or equivalent may also be used. Outside the continental United States and Alaska contact a NISSAN dealership for more information regarding suitable fluids, including recommended brand(s) of Dexron™ III / Mercon™ Automatic Transmission Fluid.

\*3: For Canada, NISSAN Automatic Transmission Fluid (ATF), DEXRON™ III / MERCON™ or equivalent ATF may also be used.

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

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

# RECOMMENDED FLUIDS AND LUBRICANTS

## VQ35DE

Description		Capacity (Approximate)			Recommended Fluids/Lubricants
		Liter	US measure	Imp measure	
Fuel		75.6	20 gal	16 5/8 gal	Unleaded gasoline with an octane rating of at least 87 AKI (RON 91), or for improved performance an octane rating of 91 AKI (RON 96)
Engine oil Drain and refill	With oil filter change	4.2	4 1/2 qt	3 3/4 qt	<ul style="list-style-type: none"> <li>● API Certification Mark *1</li> <li>● API grade SG/SH, Energy Conserving I &amp; II or API Grade SJ or SL, Energy Conserving *1</li> </ul>
	Without oil filter change	4.0	4 1/4 qt	3 1/2 qt	
Dry engine (engine overhaul)		4.6	4 7/8 qt	4 qt	<ul style="list-style-type: none"> <li>● ILSAC grade GF-I, GF-II, or GF-III *1</li> </ul>
Cooling system	With reservoir	8.2	2 1/8 gal	1 3/4 gal	Genuine NISSAN Long Life Anti-freeze/ Coolant or equivalent
Manual transaxle fluid (MTF)		2.2	2 3/8 qt	2 qt	Genuine NISSAN Manual Transmission Fluid (MTF) HQ Multi 75W-85 or API GL-4, Viscosity SAE 75W-85
Automatic transaxle (5A/T) fluid (ATF)		7.3	7 3/4 qt	6 3/8 qt	Genuine NISSAN Matic "K" ATF *2
Power steering fluid (PSF)		1.0	2 1/8 pt	1 3/4 pt	Genuine NISSAN PSF or equivalent *3
Brake and clutch fluids		—	—	—	Genuine NISSAN Super Heavy Duty Brake Fluid*4 or equivalent DOT 3 (US FMVSS No. 116)
Brake grease		—	—	—	PBC (poly butyl cuprysil)
Brake pad plate grease		—	—	—	Molykote AS880N grease
Multi-purpose grease		—	—	—	NLGI No. 2 (Lithium soap base)
Windshield washer fluid		—	—	—	Genuine NISSAN Windshield Washer Concentrate Cleaner & Anti-freeze or equivalent
Air conditioning system refrigerant		0.50 ± 0.025 kg	1.10 ± 0.055 lb	1.10 ± 0.055 lb	HFC-134a (R-134a) *5
Air conditioning system lubricant		150 mℓ	5.03 fl oz	5.01 fl oz	NISSAN A/C System Lubricant Type DH-PS or equivalent *5

\*1: For further details, see "SAE Viscosity Number".

\*2: Using automatic transmission fluid other than Genuine NISSAN Matic "K" 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 warranty.

\*3: For Canada, NISSAN Automatic Transmission Fluid (ATF), DEXRON™ III / MERCON™ or equivalent ATF may also be used.

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

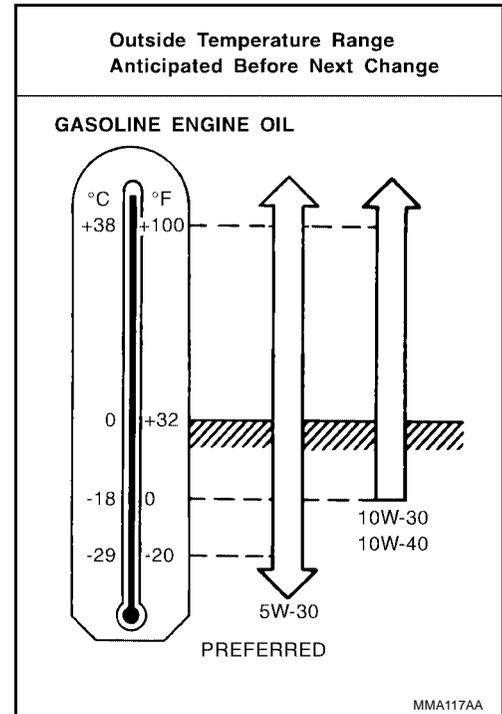
\*5: For further details, see "Air conditioner specification label".

# RECOMMENDED FLUIDS AND LUBRICANTS

ELS00150

## SAE Viscosity Number GASOLINE ENGINE OIL

SAE 5W-30 viscosity oil is preferred for all temperatures. SAE 10W-30 and 10W-40 viscosity oil may be used if the ambient temperature is above -18°C (0°F). Use of 5W-30 viscosity oil will increase fuel economy.



## ANTI-FREEZE COOLANT MIXTURE RATIO

The engine cooling system is filled at the factory with a high-quality, long life, 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 Long Life Anti-freeze / Coolant or equivalent	Demineralized water or distilled water
°C	°F		
-35°	-30°	50%	50%

### CAUTION:

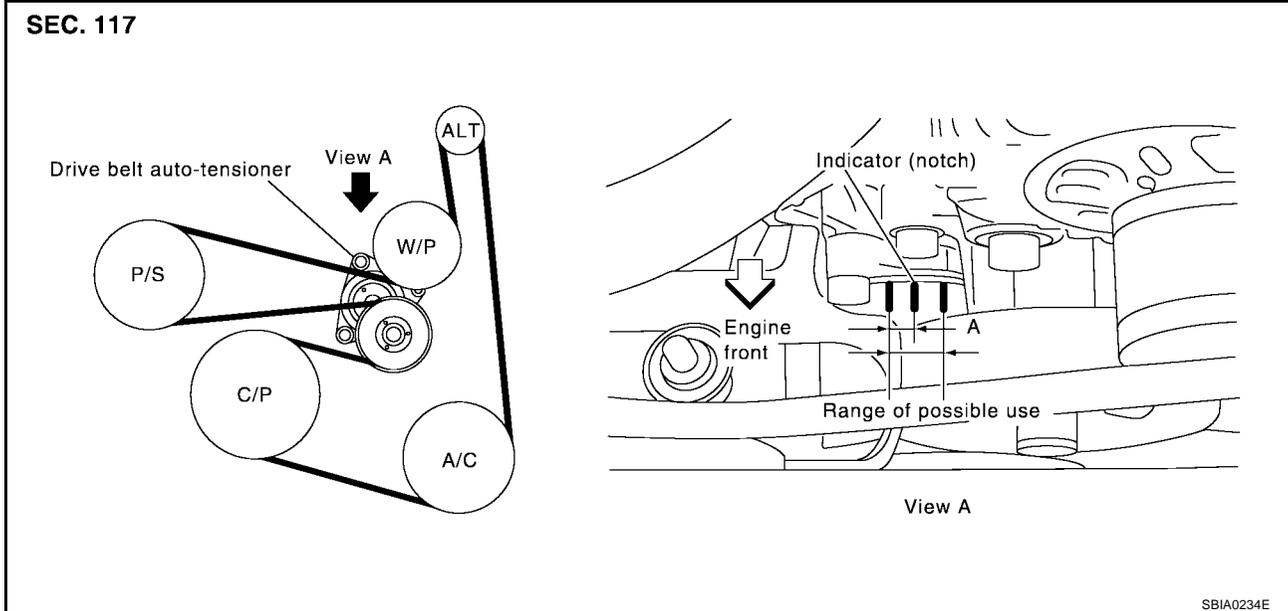
- When adding or replacing coolant, be sure to use only Genuine NISSAN Long Life Anti-freeze / Coolant or equivalent with the proper mixture ratio of 50% anti-freeze and 50% demineralized water or distilled water.
- Other types of coolant solutions may damage your cooling system.

## ENGINE MAINTENANCE (QR25DE ENGINE)

PF10001

### Checking Drive Belts

ELS00151



#### **WARNING:**

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

#### **NOTE:**

On vehicles not equipped with A/C, there is an idler pulley in the position for the drive belt routing.

- Remove the under cover using power tool, when inspecting the power steering pump belt.
- Make sure that the indicator (single line notch) of each automatic tensioner is within the allowable working range (between the three line notches).

#### **NOTE:**

- Check the drive belt auto-tensioner indicator when the engine is cold.
- When the new drive belt is installed, the range should be "A".
- Visually check the entire belt for wear, damage or cracks.
- If the indicator is out of allowable working range or belt is damaged, replace the belt. Refer to [EM-15](#), "[Removal and Installation](#)".
- Belt tension adjustment is not necessary, as it is automatically adjusted by the drive belt auto-tensioner.

### Changing Engine Coolant

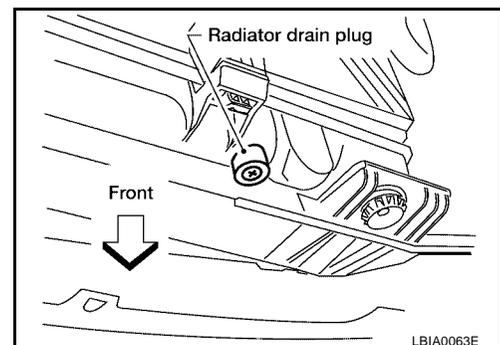
ELS00152

#### **WARNING:**

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

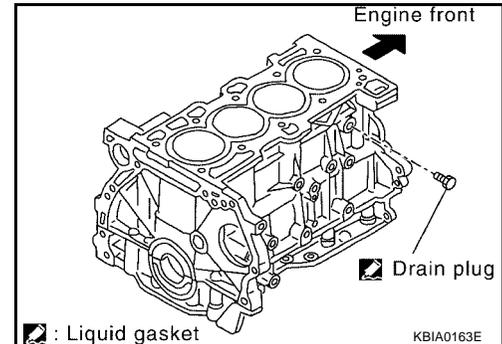
#### **DRAINING ENGINE COOLANT**

1. Remove the engine undercover using power tool.
2. Open the radiator drain plug at the bottom of the radiator, and remove the radiator filler cap. This is the only step required when partially draining the cooling system (radiator only).
  - Do not to allow the coolant to contact the drive belts.



## ENGINE MAINTENANCE (QR25DE ENGINE)

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



6. Check the drained coolant for contaminants such as rust, corrosion or discoloration. If the coolant is contaminated, flush the engine cooling system. Refer to [MA-17, "FLUSHING COOLING SYSTEM"](#).

### REFILLING ENGINE COOLANT

1. Install the radiator drain plug. Install the reservoir tank and cylinder block drain plug, if removed for a total system drain or for engine removal or repair.

- The radiator must be completely empty of coolant and water.
- Apply sealant to the threads of the cylinder block drain plugs. Use **Genuine High Performance Thread Sealant** or equivalent. Refer to [GI-45, "RECOMMENDED CHEMICAL PRODUCTS AND SEALANTS"](#).

**Radiator drain plug** : Refer to [CO-11, "Removal and Installation"](#).

**Cylinder block drain plug** : Refer to [EM-71, "Removal and Installation"](#).

2. If disconnected, reattach the upper radiator hose at the engine side.
3. 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.
4. 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)

5. 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.

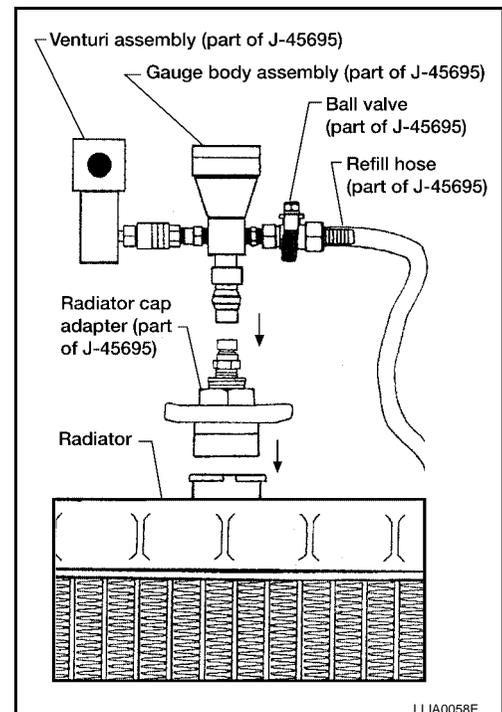
- Use **Genuine NISSAN Long Life Anti-freeze coolant or equivalent, mixed 50/50 with distilled water or demineralized water.**

Refer to [MA-14, "ANTI-FREEZE COOLANT MIXTURE RATIO"](#).

**Engine coolant capacity (with reservoir tank)** : Refer to [MA-12, "Fluids and Lubricants"](#).

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

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



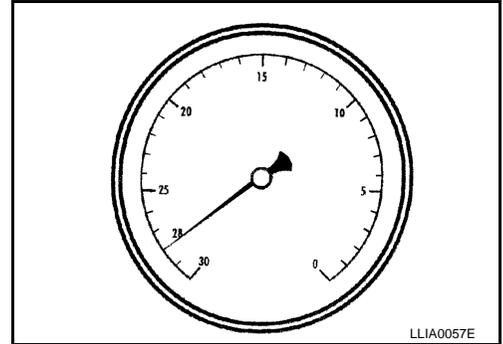
# ENGINE MAINTENANCE (QR25DE ENGINE)

## 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. Coolant will be visible rising in the refill hose. Once 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 vacuum specifications based on the altitude above sea level.

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



- When the vacuum gauge has reached the specified amount, disconnect the air hose and wait 20 seconds to see if the system loses any vacuum. If the vacuum level drops, perform any necessary repairs to the system and repeat steps 6 - 8 to bring the vacuum to the specified amount. Recheck for any leaks.
- 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.

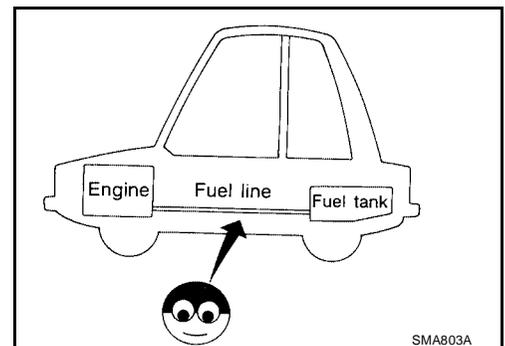
- Remove the Tool from the radiator neck opening.
- Fill the cooling system reservoir tank to the specified level and install the radiator cap. Run the engine to warm up the cooling system and top up the system as necessary.

## FLUSHING COOLING SYSTEM

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

## Checking Fuel Lines

Inspect the fuel lines and fuel tank for improperly attached hoses, leaks, cracks, damage, loose connections, chafing, or deterioration. If necessary, repair or replace any damaged parts.

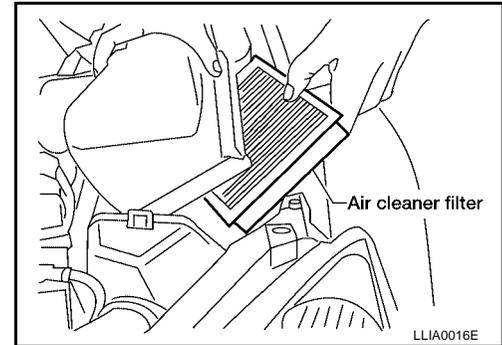


# ENGINE MAINTENANCE (QR25DE ENGINE)

## Changing Air Cleaner Filter VISCIOUS PAPER TYPE

ELS00154

The viscous paper type filter does not need cleaning between specified replacement intervals. Refer to [MA-7, "PERIODIC MAINTENANCE"](#).



### CHANGING THE AIR CLEANER FILTER

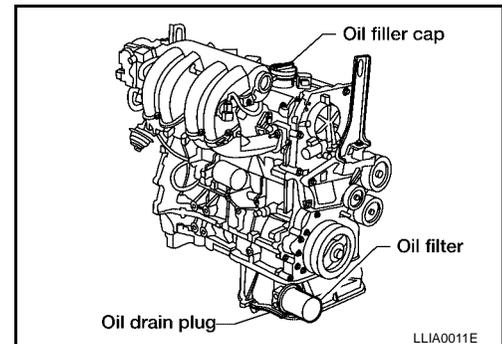
1. Unhook the air cleaner case side clips and raise the air cleaner case (upper).
2. Remove the air cleaner filter.
3. Install a new air cleaner filter.
4. Installation is in the reverse order of removal.

## Changing Engine Oil

ELS00155

### WARNING:

- Be careful not to burn yourself, as the engine oil is 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. The vehicle must be level on the hoist.
  2. Warm up the engine, and check for oil leaks from the engine.
  3. Stop the engine and wait at least 10 minutes.
  4. Remove the drain plug and oil filler cap.



5. Drain the engine oil.
6. Install the drain plug and refill the engine with new engine oil.
  - Oil specification and capacity. Refer to [MA-12, "Fluids and Lubricants"](#).

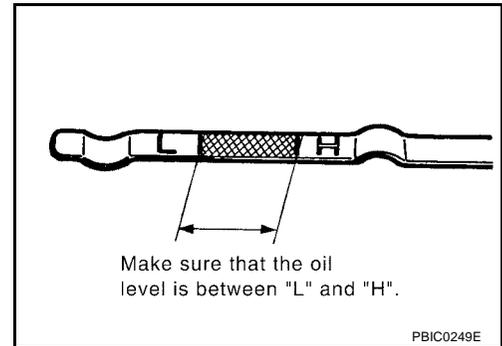
**Oil pan drain plug** : Refer to [EM-26, "Removal and Installation"](#).

### CAUTION:

- Be sure to clean the drain plug and install it with a new washer.
  - The refill capacity depends on the oil temperature and drain time. Use the specifications for reference only.
  - Always use the dipstick to determine when the proper amount of oil is in the engine.
7. Warm up the engine and check the area around the drain plug and oil filter for any oil leaks.
  8. Stop the engine and wait at least 10 minutes.

# ENGINE MAINTENANCE (QR25DE ENGINE)

9. Check the oil level.



## Changing Oil Filter

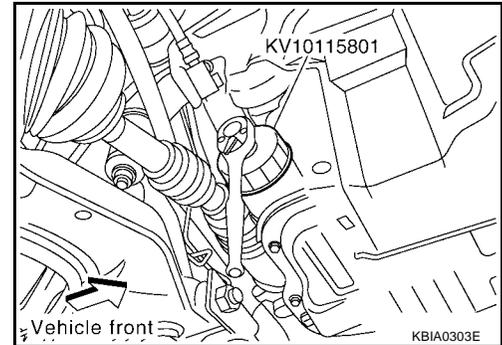
ELS00156

1. Remove the oil filter using Tool as shown.

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

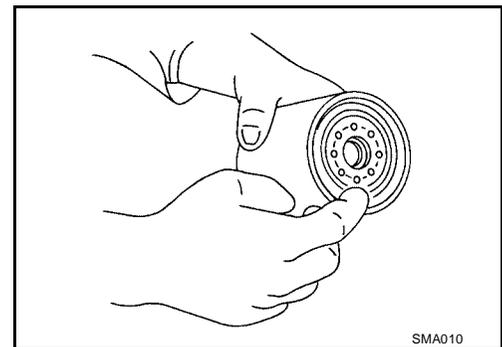
### CAUTION:

- The oil filter contains an internal relief valve. Use a genuine NISSAN oil filter.
- Be careful not to get burned as the engine and engine oil are hot.
- When removing the oil filter, position a shop cloth to absorb any oil leakage or spillage.
- Do not allow the engine oil to spill on the drive belts.
- Completely wipe off any oil that spills on the engine or on the vehicle.



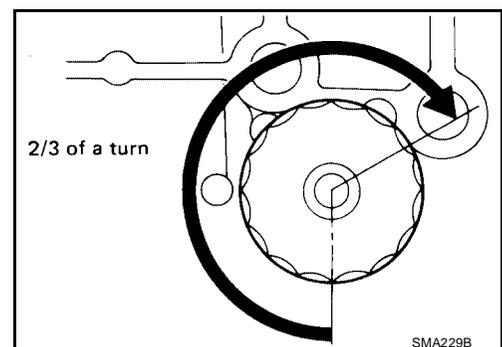
2. Clean the oil filter mounting surface on the cylinder block.

- Coat the oil filter rubber seal of new oil filter with engine oil as shown.



3. Screw the oil filter manually until it touches the engine block installation surface, then tighten it by turning another 2/3 turn, or tighten to specification.

**Oil filter** : Refer to [EM-26. "Removal and Installation"](#)



4. Check the oil level and add engine oil as necessary.  
5. After warming up the engine, check for engine for oil leaks, correct as necessary.

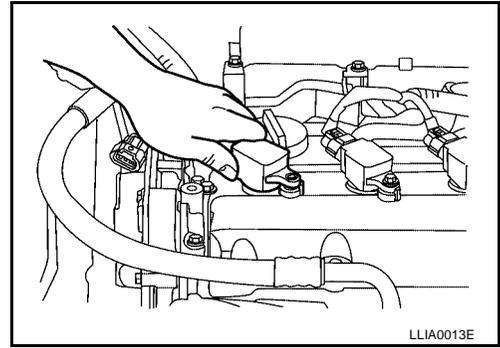
## Changing Spark Plugs (Platinum - Tipped Type)

ELS00157

1. Remove the engine cover using power tool.

## ENGINE MAINTENANCE (QR25DE ENGINE)

2. Remove the ignition coils. Refer to [EM-29, "Removal and Installation"](#).



3. Remove the spark plugs. Refer to [EM-30, "Removal and Installation"](#).
4. Install the new spark plugs, check that the gap is within specification before installing. The gap is not adjustable, replace the spark plug as necessary.

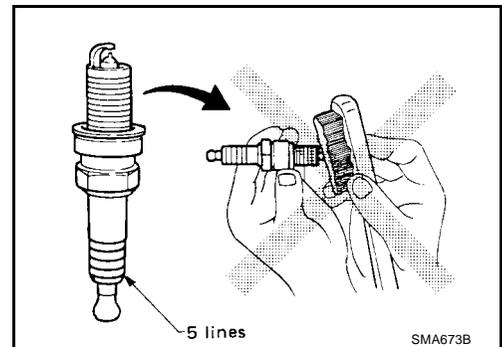
**Spark plug** : Refer to [EM-30, "Removal and Installation"](#).

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

### Spark Plug Types

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

- Use the standard type spark plug for normal driving conditions.
- 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 engine spark knock occurs with the standard type spark plug) under conditions such as:
  - extended highway driving
  - frequent high engine revolution
- Do not use a wire brush for cleaning the spark plug electrode.



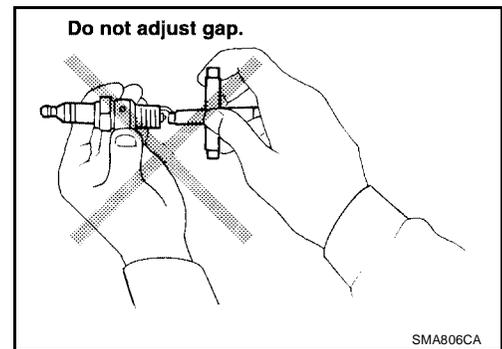
- If the spark plug electrode is covered with carbon, a spark plug cleaner may be used.

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

**Cleaning time** : Less than 20 seconds

## ENGINE MAINTENANCE (QR25DE ENGINE)

- Checking and adjusting the spark plug gap is not required between change intervals, replace the spark plug as necessary.



5. Install the ignition coils.

**Ignition coil bolt** : Refer to [EM-29, "Removal and Installation"](#) .

### Checking EVAP Vapor Lines

ELS00158

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 and sticking.

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

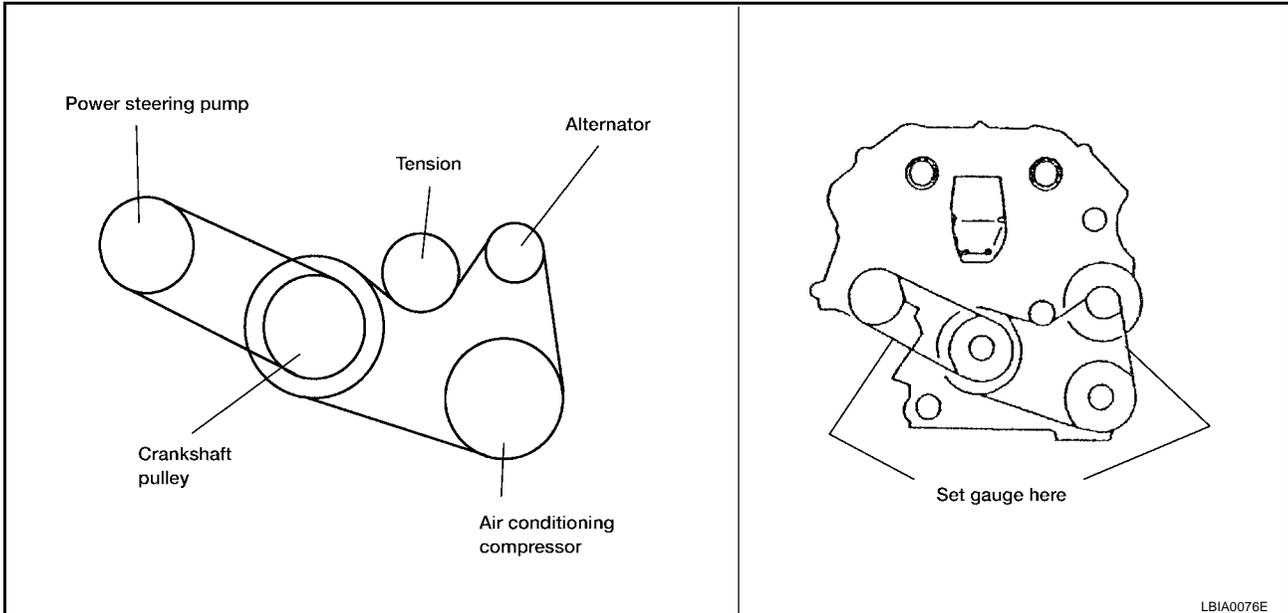
# ENGINE MAINTENANCE (VQ35DE ENGINE)

## ENGINE MAINTENANCE (VQ35DE ENGINE)

PF1:10001

### Checking Drive Belts

ELS00159



LBIA0076E

#### **WARNING:**

**Inspect and check drive belts with the engine off.**

1. Inspect belt for cracks, fraying, wear or oil adhesion. If necessary, replace with a new one.
2. Inspect drive belt deflections by pushing on the belt midway between pulleys.
3. Rotate the crankshaft pulley two times then check the drive belt tension using Tool.

**Tool number** : — (BT-3373-F)

#### **NOTE:**

- Inspect the drive belt deflection and tension when the engine is cold.
- Adjust if the belt deflections exceed the limit or if belt tension is not within specifications.

#### **Belt Deflection and Tension**

Description	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, Air conditioner compressor oil pump	7.0 (0.28)	4.2 - 4.6 (0.17 - 0.18)	3.7 - 4.1 (0.15 - 0.16)	294 (30, 66)	730 - 818 (74.5 - 83.5, 164 - 184)	838 - 926 (85.5 - 94.5, 188 - 208)
Power steering oil pump	11.0 (0.43)	7.3 - 8.0 (0.29 - 0.31)	6.5 - 7.2 (0.26 - 0.28)	196 (20, 44)	495 - 583 (50.5 - 59.5, 111 - 131)	603 - 691 (61.5 - 70.5, 135.6 - 155.4)
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 the belt.

### Changing Engine Coolant

ELS0015A

#### **WARNING:**

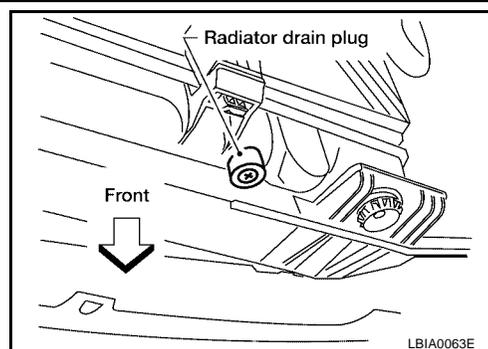
- To avoid being scalded, never change the coolant when the engine is hot.
- Wrap a thick cloth around cap and carefully remove the cap. First, turn the cap a quarter of a turn to release built-up pressure. Then turn the cap all the way.

#### **DRAINING ENGINE COOLANT**

1. Remove engine undercover, using power tools.

## ENGINE MAINTENANCE (VQ35DE ENGINE)

- Open radiator drain plug at the bottom of radiator and remove the radiator filler cap. This is the only step required for a partial cooling system drain.
- If removing the heater core, remove the upper heater hose from the engine coolant outlet and apply moderate air pressure of 15 psi (103.46 kPa, 1.055 kg-cm<sup>2</sup>) maximum for 30 seconds into the hose to blow out excess coolant from the core.
- For a complete cooling system drain, remove the reservoir tank and drain the coolant, and then clean the reservoir tank before installation.



- Do not allow coolant to spill on the drive belts.
- When performing a complete cooling system drain (to remove the engine or for engine repair), remove the cylinder block front drain plug and the cylinder block RH drain plug.
  - Check the drained coolant for contaminants such as rust, corrosion or discoloration.
    - If contaminated, flush the engine cooling system. Refer to [MA-24, "FLUSHING COOLING SYSTEM"](#).

### REFILLING ENGINE COOLANT

- Install the radiator drain plug. If the cooling system was drained completely, install the reservoir tank and the cylinder block drain plugs.
  - The radiator must be completely empty of coolant and water.
  - Apply sealant to the threads of the cylinder block drain plugs. Use Genuine High Performance Thread Sealant or equivalent. Refer to [GI-45, "RECOMMENDED CHEMICAL PRODUCTS AND SEALANTS"](#).

**Radiator drain plug** : Refer to [CO-30, "Removal and Installation"](#).

**Cylinder block front drain plug** : Refer to [EM-219, "Removal and Installation"](#).

**Cylinder block RH drain plug** : Refer to [EM-219, "Removal and Installation"](#).

- If disconnected, reattach the upper radiator hose at the engine side.
- 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.
- 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 Genuine NISSAN Long Life Anti-freeze coolant or equivalent, mixed 50/50 with distilled water or demineralized water. Refer to [MA-14, "ANTI-FREEZE COOLANT MIXTURE RATIO"](#).

**Engine coolant capacity (with reservoir tank)** : Refer to [MA-12, "Fluids and Lubricants"](#).

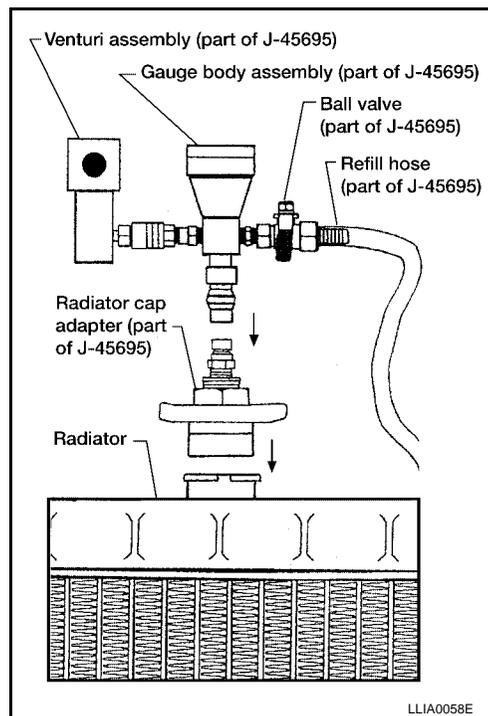
- Install an air hose to the venturi assembly, the air pressure must be within specification.

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

#### CAUTION:

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

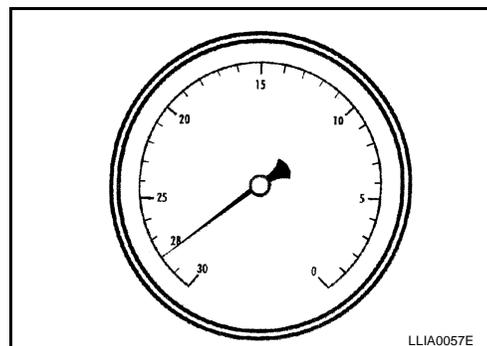
- The vacuum gauge will begin to rise and there will be an audible hissing noise. During this process open the ball valve on the refill hose slightly. Coolant will be visible rising in the refill hose. Once the refill hose is full of coolant, close the ball valve. This will purge any air trapped in the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



## ENGINE MAINTENANCE (VQ35DE ENGINE)

8. Continue to draw the vacuum until the gauge reaches 28 inches of vacuum. The gauge may not reach 28 inches in high altitude locations, refer to the vacuum specifications based on the altitude above sea level.

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 any vacuum. If the vacuum level drops, perform any necessary repairs to the system and repeat steps 6 - 8 to bring the vacuum to the specified amount. Recheck for any leaks.
10. Place the coolant container (with the refill hose 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.
12. Fill the cooling system reservoir tank to the specified level and install the radiator cap. Run the engine to warm up the cooling system and top up the system as necessary.

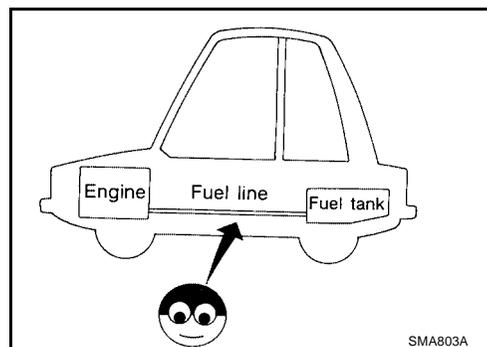
### FLUSHING COOLING SYSTEM

1. Fill the radiator from the filler neck above the radiator upper hose and reservoir tank with clean water and reinstall radiator filler cap.
2. Run the engine and warm it up to normal operating temperature.
3. Rev the engine two or three times under no-load.
4. Stop the engine and wait until it cools down.
5. Drain the water from the system. Refer to [MA-22, "DRAINING ENGINE COOLANT"](#) .
6. Repeat steps 1 through 5 until clear water begins to drain from the radiator.

### Checking Fuel Lines

Inspect the fuel lines and fuel tank for improper hose attachment, leaks, cracks, damage, loose connections, chafing, or deterioration. If necessary, repair or replace faulty parts.

ELS0015B

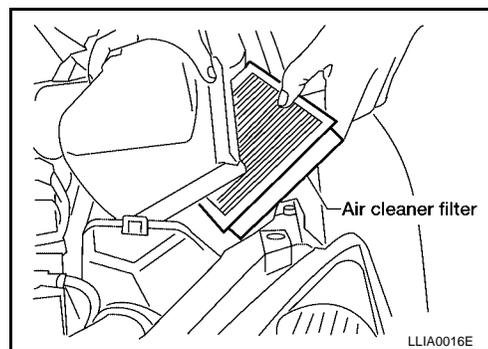


# ENGINE MAINTENANCE (VQ35DE ENGINE)

## Changing Air Cleaner Filter VISCIOUS PAPER TYPE

ELS0015C

The viscous paper type filter does not need cleaning between replacement intervals. Refer to [MA-7, "PERIODIC MAINTENANCE"](#)



### CHANGING AIR CLEANER FILTER

1. Unhook the air cleaner case side clips and lift up the air cleaner case (upper).
2. Remove the air cleaner filter.
3. Install a new air cleaner filter.
4. Installation is in the reverse order of removal.

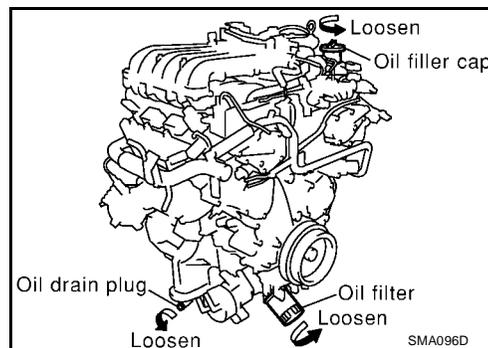
## Changing Engine Oil

ELS0015D

### WARNING:

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

1. Position the vehicle so it is level on the hoist.
2. Warm up the engine, and check for oil leaks from the engine.
3. Stop the engine and wait at least 10 minutes.
4. Remove the oil drain plug and oil filler cap.
5. Drain the engine oil.
6. Install the oil drain plug and refill the engine with new engine oil.



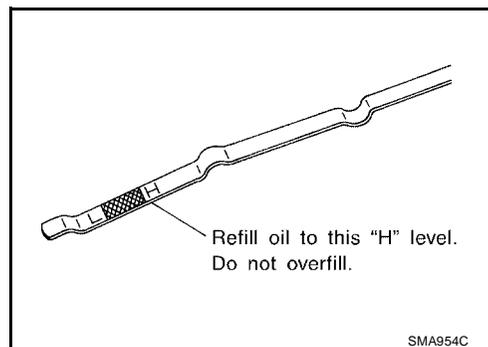
### Oil Specification and Capacity

- Refer to [MA-12, "Fluids and Lubricants"](#) .

**Oil pan drain plug** : Refer to [EM-138, "Removal and Installation"](#) .

### CAUTION:

- Be sure to clean the drain plug and install using a new washer.
  - The refill oil capacity depends on the oil temperature and drain time. Use these specifications for reference only.
  - Always use the dipstick to determine when the proper amount of oil is in the engine.
7. Warm up the engine and check the oil drain plug and oil filter for oil leaks.
  8. Stop engine and wait at least 10 minutes.
  9. Check engine oil level.



# ENGINE MAINTENANCE (VQ35DE ENGINE)

ELS0015E

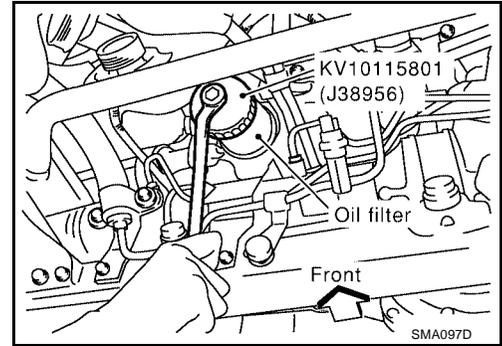
## Changing Oil Filter

1. Remove the oil filter using Tool as shown.

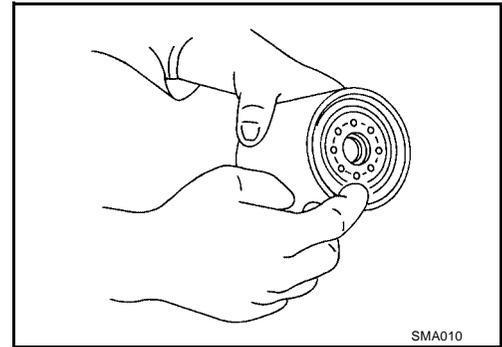
**Tool number** : KV10115801 (J-38956)

### CAUTION:

- The oil filter is provided with a relief valve. Use genuine NISSAN oil filter.
- Be careful not to get burned when the engine and engine oil are hot.
- When removing, prepare a shop cloth to absorb any oil leakage or spillage.
- Do not allow engine oil to adhere to the drive belts.
- Completely wipe off any oil that adheres to the engine and the vehicle.

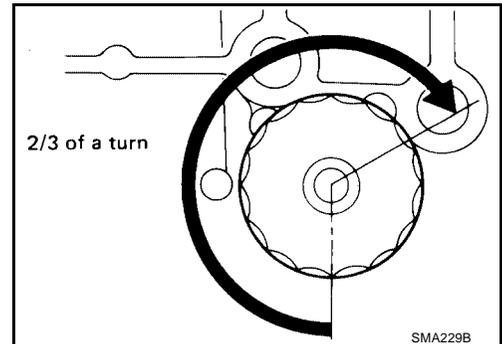


2. Clean oil filter mounting surface on cylinder block.
  - Coat rubber seal of new oil filter with engine oil.



3. Screw the oil filter manually until it touches the engine block installation surface, then tighten it by turning another 2/3 turn, or tighten to specification.

**Oil filter** : Refer to [EM-138, "Removal and Installation"](#)



4. Check engine oil level and add engine oil as necessary.
5. After warming up the engine, check for engine oil leaks, correct as necessary.

## Changing Spark Plugs (Platinum - Tipped Type)

ELS0015F

1. Remove the engine cover using power tool.
2. Remove the intake manifold collector. Refer to [EM-130, "REMOVAL"](#).
3. Remove the ignition coils. Refer to [EM-144, "Removal and Installation"](#).
4. Remove the spark plugs. Refer to [EM-145, "Removal and Installation"](#).
5. Install the new spark plugs. Check the gap before installing the new spark, the gap is not adjustable, replace the spark plug as necessary.

**Spark plug** : Refer to [EM-145, "Removal and Installation"](#).

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

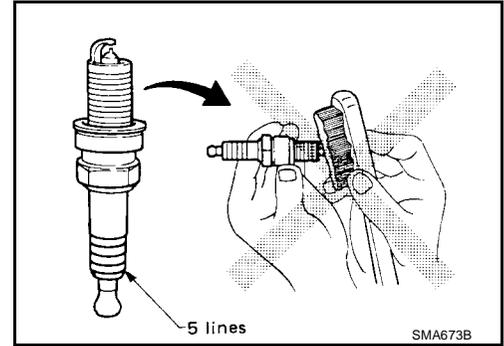
### Spark Plug Types

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

- Use the standard type spark plugs for normal driving conditions.

## ENGINE MAINTENANCE (VQ35DE ENGINE)

- 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
- Do not use a wire brush for cleaning the spark plug tip.

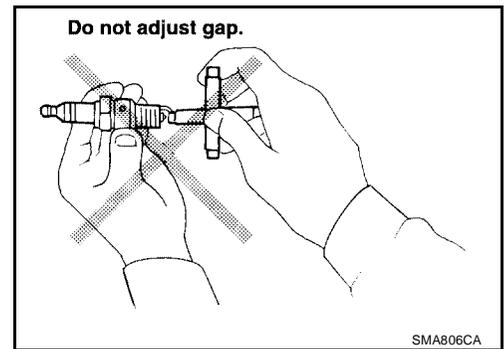


- If the spark plug tip is covered with carbon, a spark plug cleaner may be used.

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

**Cleaning time** : Less than 20 seconds

- Checking and adjusting the spark plug gap is not required between change intervals, replace the spark plug as necessary.



6. Install the ignition coils.

**Ignition coil bolt** : Refer to [EM-144, "Removal and Installation"](#) .

### Checking EVAP Vapor Lines

ELS0015G

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, and sticking.

A  
B  
C  
D  
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## CHASSIS AND BODY MAINTENANCE

PFP:00100

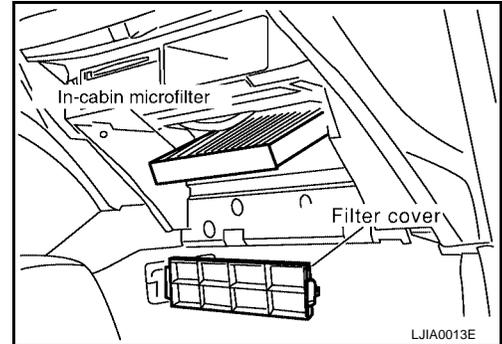
### Changing In-cabin Microfilter

ELS0015H

1. Remove the glove box pins. Refer to [JP-14, "Instrument Lower Cover RH and Glove Box"](#).
2. Press in the sides of the glove box door to release the glove box door from the glove box housing.
3. Disconnect the glove box damper cord to remove the glove box door.
4. Disengage the two filter cover tabs to remove the filter cover.
5. Remove the in-cabin microfilter from the blower unit.
6. Install the new in-cabin microfilter into the blower unit.

#### CAUTION:

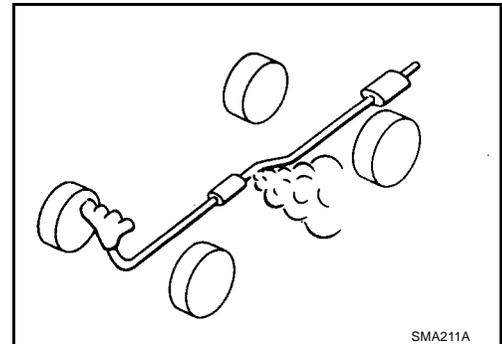
- Insert the new filter with the "UP" arrow in the correct orientation.
  - Insert the new filter with the "UP" arrow side of the filter facing the rear of the vehicle.
7. Install the filter cover on the blower unit.
  8. Connect the glove box damper cord to the glove box door.
  9. Press in the sides of the glove box door to install the glove box door into the glove box housing.
  10. Install the glove box pins.



### Checking Exhaust System

ELS0015I

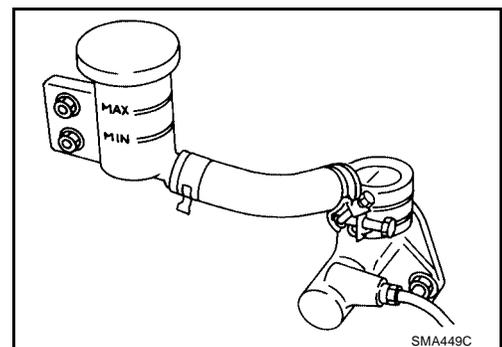
Check the exhaust pipes, muffler, and exhaust mounts for improper attachment, leaks, cracks, damage, chafing, or deterioration.



### Checking Clutch Fluid Level and Leaks

ELS0015J

If the clutch fluid level is extremely low or below the "MIN" level in the reservoir, check the clutch system for leaks.



### Checking M/T Oil

ELS0015K

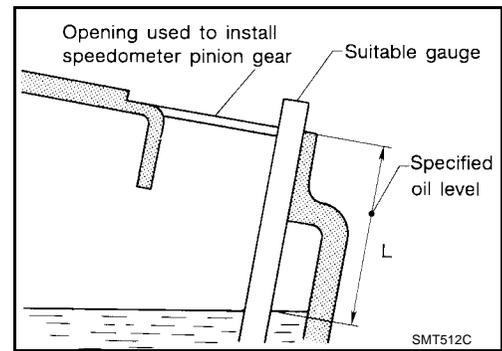
1. Check for any oil leaks.
2. Remove the speedometer pinion gear.

# CHASSIS AND BODY MAINTENANCE

3. Measure the oil level using a suitable gauge as shown. Check that the oil level is at specification "L". Add oil as necessary through the opening for the speedometer pinion gear.

**Oil level "L" : 49 - 55 mm (1.93 - 2.17 in)**

**CAUTION:**  
Never start the engine while checking the oil level.



4. Install a new O-ring on the speedometer pinion gear, and install the speedometer pinion gear in the transaxle case.

**Speedometer pinion gear bolt : Refer to [MT-20, "CASE AND HOUSING COMPONENTS" \(RS5F51A\)](#), [MT-84, "CASE AND HOUSING COMPONENTS" \(RS6F51A\)](#).**

**CAUTION:**  
Do not reuse the O-ring.

## Changing M/T Oil DRAINING

ELS0015L

1. Start the engine and let it run to warm up the transaxle.
2. Stop the engine. Drain the oil by removing the drain plug.
3. Install a new gasket on the drain plug and install the drain plug in the transaxle case.

**Drain plug : Refer to [MT-20, "CASE AND HOUSING COMPONENTS" \(RS5F51A\)](#), [MT-84, "CASE AND HOUSING COMPONENTS" \(RS6F51A\)](#).**

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

## FILLING

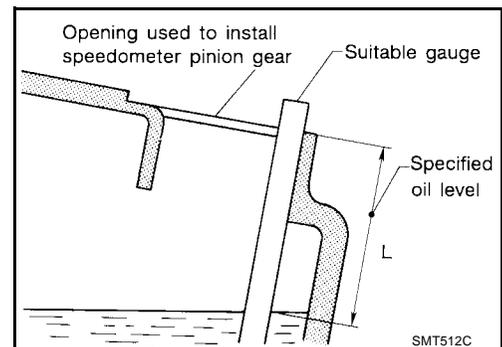
1. Remove the speedometer pinion gear and fill the transaxle with new gear oil through the opening for the speedometer pinion gear.

**Oil grade and capacity : Refer to [MA-12, "Fluids and Lubricants"](#) .**

2. Check the oil level using a suitable gauge as shown. Check that the oil level is at specification "L". Add oil as necessary through the opening for the speedometer pinion gear.

**Oil level "L" : 49 - 55 mm (1.93 - 2.17 in)**

**CAUTION:**  
Never start the engine while checking the oil level.



3. Install a new O-ring on the speedometer pinion gear, and install the speedometer pinion gear in to the transaxle case.

**Speedometer pinion gear bolt : Refer to [MT-20, "CASE AND HOUSING COMPONENTS" \(RS5F51A\)](#), [MT-84, "CASE AND HOUSING COMPONENTS" \(RS6F51A\)](#).**

**CAUTION:**  
Do not reuse the O-ring.

# CHASSIS AND BODY MAINTENANCE

ELS0015M

## Checking A/T Fluid

1. Warm up the engine.
2. Check for any transaxle fluid leaks.
3. Before driving, the fluid level can be checked at fluid temperature using the "COLD" range on the A/T fluid level gauge.

### 4 A/T temperature range

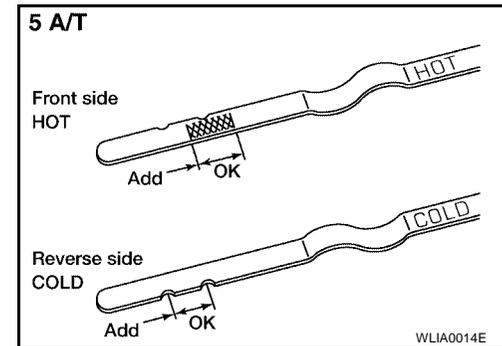
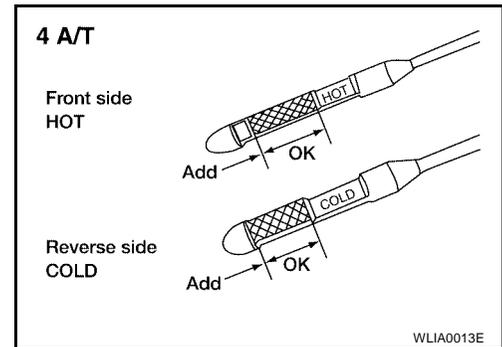
**COLD** : 30° – 50° C (86° – 122° F)

**HOT** : 50° – 80° C (122° – 176° F)

### 5 A/T temperature range

**COLD** : 30° – 40° C (86° – 104° F)

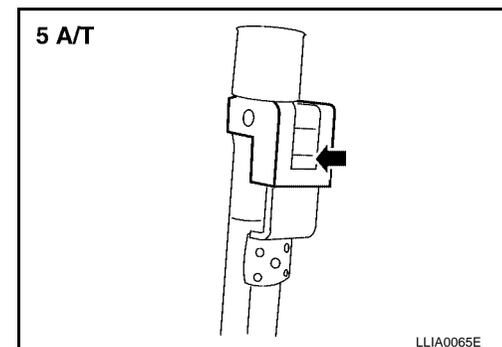
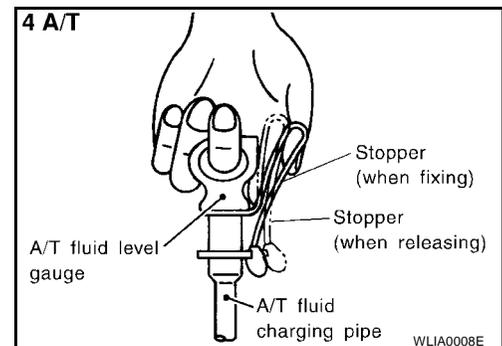
**HOT** : 70° – 80° C (158° – 176° F)



- a. Park the vehicle on a level surface and set parking brake.
- b. Start the engine and move the transaxle selector lever through each gear position. Leave the selector lever in the "P" park position.
- c. Check the fluid level with the engine idling.

### CAUTION:

Firmly fix the A/T fluid level gauge into the A/T fluid charging pipe using the attached stopper, this will provide an accurate reading on the gauge.



- d. Remove the A/T fluid level gauge and wipe it clean with a lint-free paper.
- e. Re-insert the A/T fluid level gauge into the charging pipe as far as it will go.
- f. Remove the A/T fluid level gauge and note the reading. If the reading is at or below the low side of the range, add the necessary specified A/T fluid through the A/T fluid charging pipe and then re-insert the A/T fluid level gauge.

# CHASSIS AND BODY MAINTENANCE

## CAUTION:

- Do not overfill the transaxle.
  - Firmly fix the A/T fluid level gauge into the A/T fluid charging pipe using the attached stopper, this will provide an accurate reading on the gauge, and will keep the gauge in position while driving.
4. Drive the vehicle for approximately 5 minutes at moderate speeds.
  5. Re-check the fluid level at fluid temperatures using the "HOT" range on the A/T fluid level gauge.

## CAUTION:

Firmly fix the A/T fluid level gauge into the A/T fluid charging pipe using the attached stopper, this will provide an accurate reading on the gauge, and will keep the gauge in position while driving.

### 4 A/T temperature range

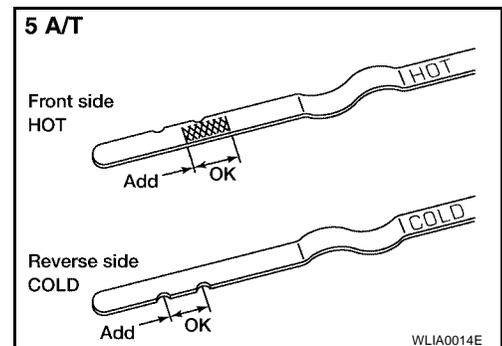
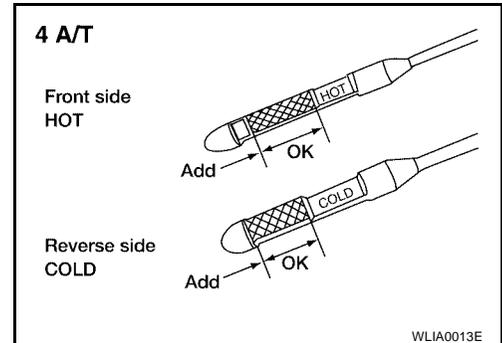
**COLD** : 30° – 50° C (86° – 122° F)

**HOT** : 50° – 80° C (122° – 176° F)

### 5 A/T temperature range

**COLD** : 30° – 40° C (86° – 104° F)

**HOT** : 70° – 80° C (158° – 176° F)



6. Check the fluid for the following conditions:
  - If the fluid is very dark or smells burned, refer to the AT section for checking the operation of the transaxle. Flush the AT fluid cooling system after repairing the transaxle.
  - If the fluid contains frictional material (from the clutches or bands), remove the radiator and flush the cooler lines using a cleaning solvent and compressed air after completing repairs to the transaxle. Refer to [CO-11, "RADIATOR"](#) (QR25DE) [CO-30, "RADIATOR"](#) (VQ35DE).



## Changing A/T Fluid

ELS0015N

1. Run the engine to warm up the transaxle until the fluid is at full operating temperature "HOT".

### 4 A/T temperature range

**COLD** : 30° – 50° C (86° – 122° F)

**HOT** : 50° – 80° C (122° – 176° F)

### 5 A/T temperature range

**COLD** : 30° – 40° C (86° – 104° F)

**HOT** : 70° – 80° C (158° – 176° F)

2. Stop the engine.
3. Remove the engine undercover.

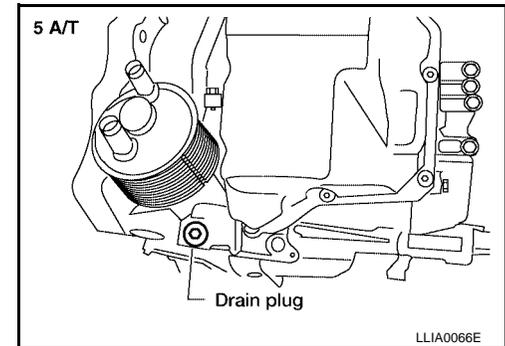
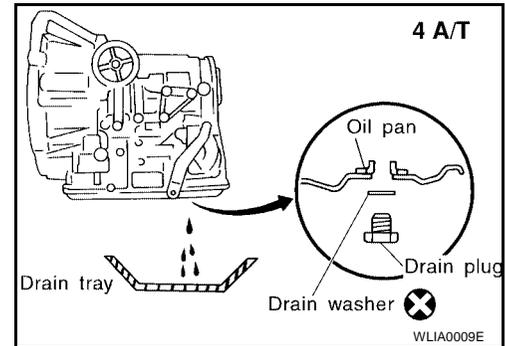
## CHASSIS AND BODY MAINTENANCE

4. Drain the A/T fluid by removing the drain plug. Reinstall the drain plug to the specified tightness using a new drain washer.

### Drain plug

**4 A/T** : Refer to [AT-273, "REMOVAL AND INSTALLATION"](#) .

**5 A/T** : Refer to [AT-624, "REMOVAL AND INSTALLATION"](#) .



5. Refill the transaxle with new specified A/T fluid through the A/T fluid charging pipe. Always refill the transaxle with the same volume amount that was drained out.

### CAUTION:

**Do not overfill the transaxle.**

**Fluid grade and capacity** : Refer to [MA-12, "Fluids and Lubricants"](#) .

6. Run the engine at idle speed for five minutes.
7. Check fluid level and condition. Refer to [MA-30, "Checking A/T Fluid"](#) . If the fluid is still contaminated, repeat step 2 through 5.

## Balancing Wheels (Bonding Weight Type) REMOVAL

ELS00150

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

### CAUTION:

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

2. Use a releasing agent to remove the double-faced adhesive tape from the road wheel.

### CAUTION:

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

## WHEEL BALANCE ADJUSTMENT

### NOTE:

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

1. Set the road wheel on the wheel balancer using the center hole as a guide. Start the tire balance machine.

## CHASSIS AND BODY MAINTENANCE

2. When the inner and outer unbalance values are shown on the wheel balancer indicator, multiply outer unbalance value by 1.6 to determine balance weight that should be used. Select the outer balance weight with a value closest to the calculated value, then install it at the designated outer position of, or at the designated angle position on the road wheel.

**Outer balance weight calculation:**

Indicated unbalance value  $\times 5/3 =$  outer balance weight

**Calculation example:**

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

**NOTE:**

The selected balance weight value must be the closest balance weight available to the calculated balance weight value.

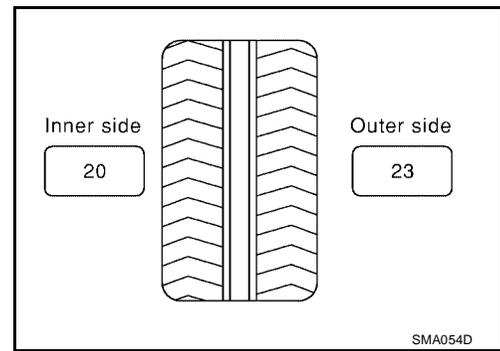
**Example:**

37.4 = 35 g (1.23 oz)

37.5 = 40 g (1.41 oz)

**CAUTION:**

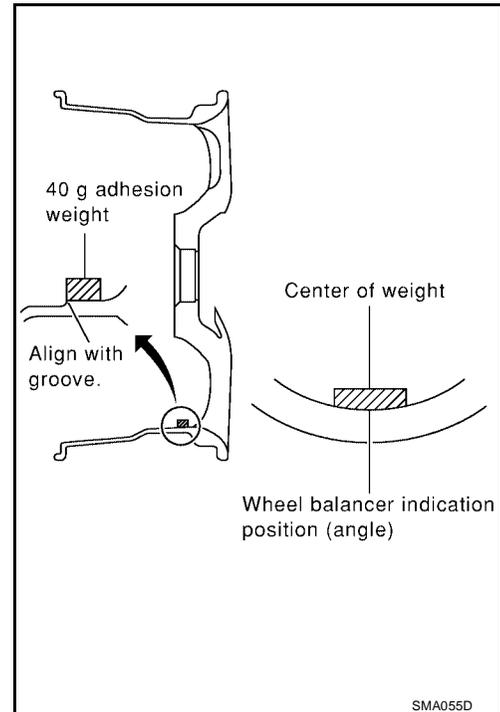
- Do not install the inner balance weight before installing the outer balance weight.
- Before installing the balance weight, be sure to clean the mating surface of the road wheel.



- a. Install the balance weight in the position as shown.
- b. When installing the balance weight to the road wheels, set it into the grooved area on the inner wall of the road wheel as shown, so that the balance weight center is aligned with the wheel balancer indication position (angle).

**CAUTION:**

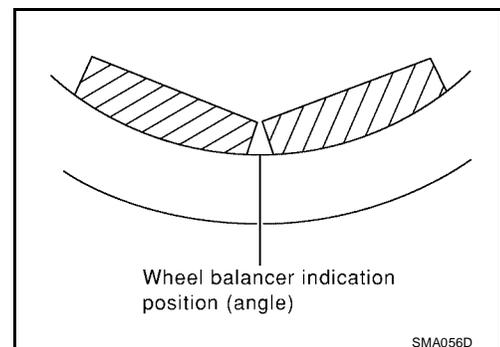
- Always use genuine NISSAN adhesion balance weights.
- Balance weights are not reusable; always replace with new ones.
- Do not install more than three sheets of balance weight.



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

**CAUTION:**

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



3. Start the wheel balancer.

# CHASSIS AND BODY MAINTENANCE

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

**CAUTION:**

**Do not install more than two balance weights in one position (angle).**

- Start the wheel balancer. Make sure that the inner and outer residual unbalance values are 5 g (0.18 oz) each or less.
  - If either residual unbalance value exceeds 5 g (0.18 oz), repeat the installation procedures.

**Wheel Balance (Maximum Allowable Unbalance)**

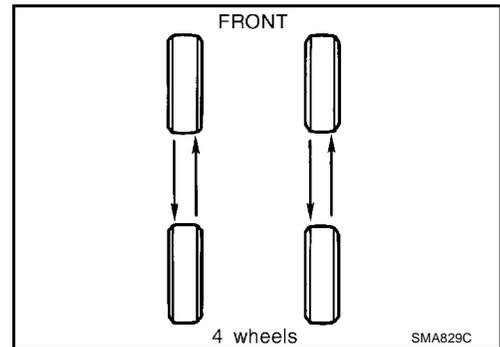
Maximum allowable unbalance	Dynamic (at rim flange)	5 g (0.18 oz) (one side)
	Static	10 g (0.35 oz)

## Tire Rotation

ELS0015P

- Do not include the T-type spare tire when rotating the tires.
- After rotating the tires as shown, adjust the tire pressure to specification.
- Retighten the wheel nuts after the vehicle has been driven the first 1,000 km (600 miles). Also retighten the wheel nuts after a flat tire repair, or any type of service where the wheels have been removed and installed.

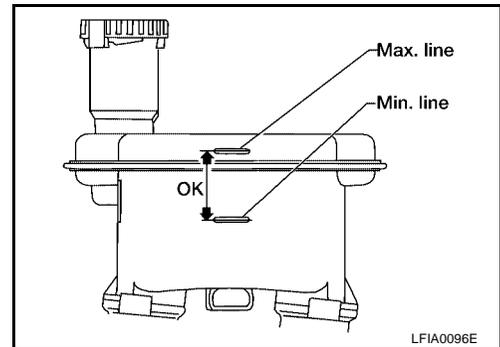
**Wheel nut : 98.1 - 117 N·m (10 - 12 kg·m, 73 - 86 ft·lb)**



## Checking Brake Fluid Level and Leaks

ELS0015Q

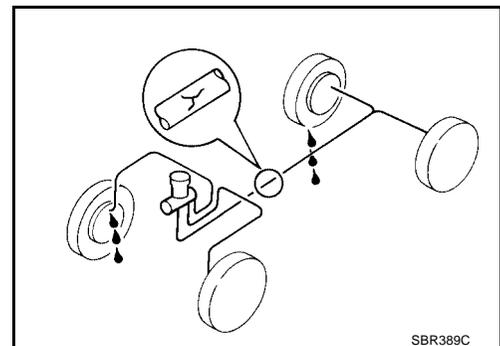
- Check the brake fluid level in the reservoir tank. It should be between the “MAX” and “MIN” lines on the reservoir tank.
- If the brake fluid level is extremely low or below the “MIN” level, check the brake system for leaks.
- Release the parking brake lever and check that the brake warning lamp goes off. If not, check the brake system for leaks.



## Checking Brake Lines and Cables

ELS0015R

Check the brake fluid lines and parking brake cables for improper attachment, leaks, chafing, abrasions, deterioration, and damage. Repair or replace parts as necessary.



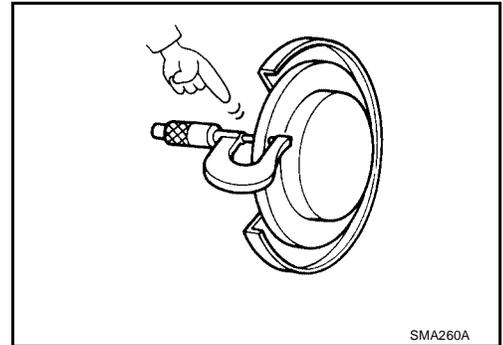
# CHASSIS AND BODY MAINTENANCE

## Checking Disc Brake

ELS0015S

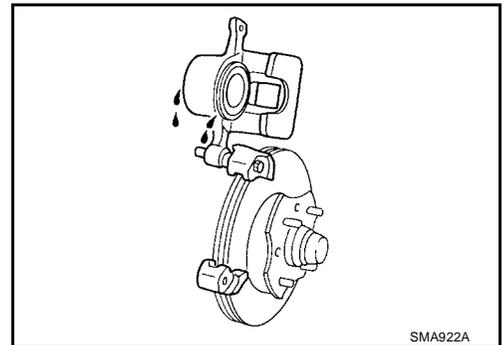
### ROTOR

Check the rotor condition and thickness using a suitable tool as shown. Resurface or replace the rotor as necessary. Refer to [BR-40, "Disc Brake"](#) .



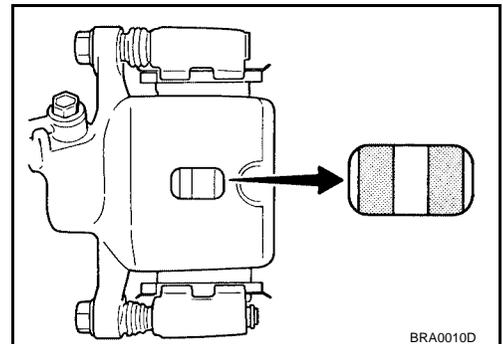
### CALIPER

Check the caliper for leakage.



### PAD

Check the brake pads for damage or wear as shown. Refer to [BR-40, "Disc Brake"](#) .

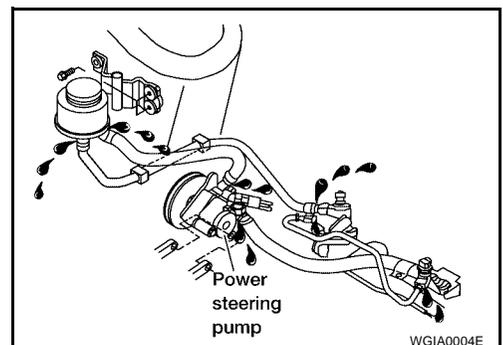


## Checking Steering Gear and Linkage

### STEERING GEAR

ELS0015T

- Check the gear housing and boots for looseness, damage and power steering fluid leaks.
- Check the power steering hose connections for leaks.
- Check the steering column for looseness.



### STEERING LINKAGE

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

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D  
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I  
J  
K  
MA

M

# CHASSIS AND BODY MAINTENANCE

## Checking Power Steering Fluid and Lines

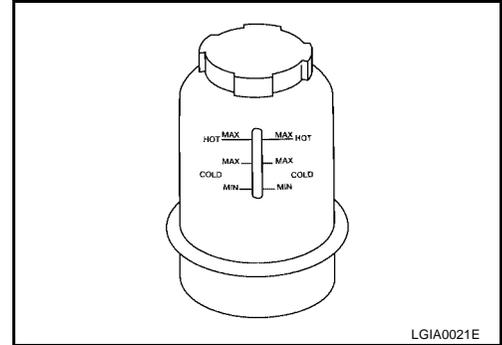
ELS0015U

Check the power steering fluid level in the reservoir tank with the engine off.

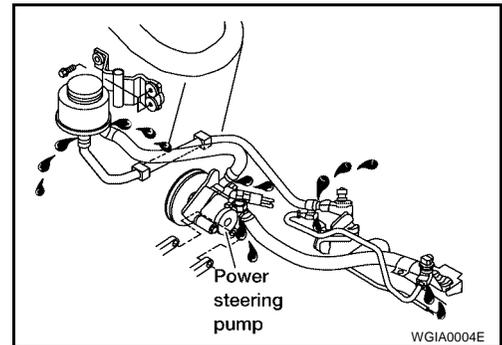
Use the "HOT" range at fluid temperatures of 50° - 80°C (122° - 176°F) or the "COLD" range at fluid temperatures of 0° - 30°C (32° - 86°F).

### CAUTION:

- Do not overfill the power steering reservoir tank.



- Use the specified power steering fluid. Refer to [MA-12, "Fluids and Lubricants"](#).
- Check the power steering hoses for improper attachment, leaks, cracks, damage, loose connections, chafing and deterioration.
- Check the steering rack boots for accumulation of power steering fluid indicating an internal leak.

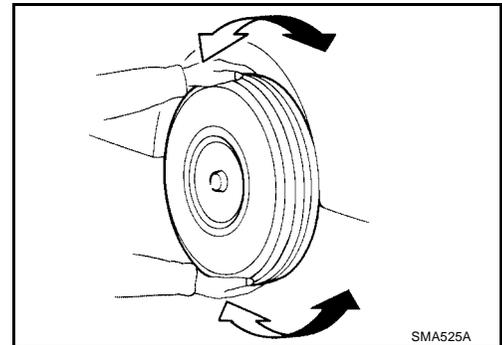


## Axle and Suspension Parts

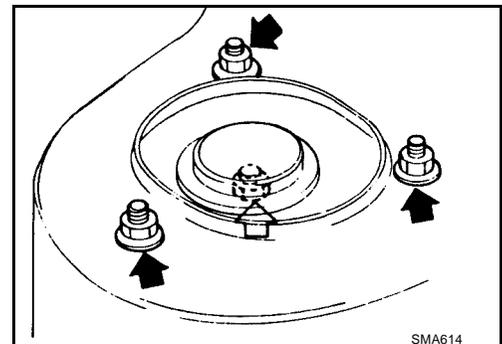
ELS0015V

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

- Shake each wheel as shown to check for excessive play.
- Rotate each wheel to check for abnormal noise.

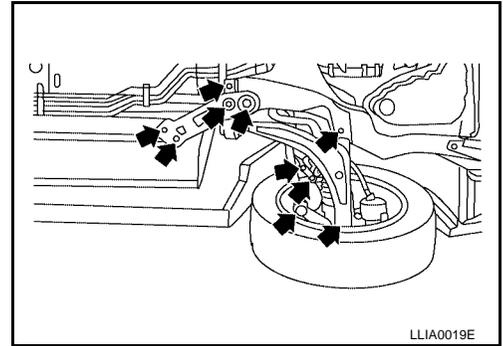


- Check the strut mount nuts for looseness.

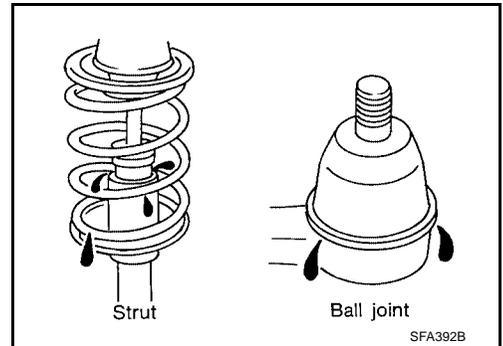


# CHASSIS AND BODY MAINTENANCE

- Check the axle and suspension nuts and bolts for looseness.

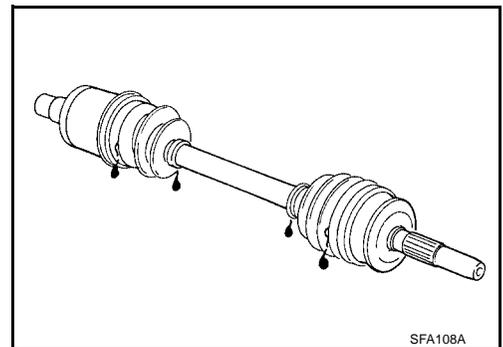


- Check the struts for oil leakage or other damage.
- Check suspension ball joint for grease leakage and ball joint dust cover for cracks or other damage.

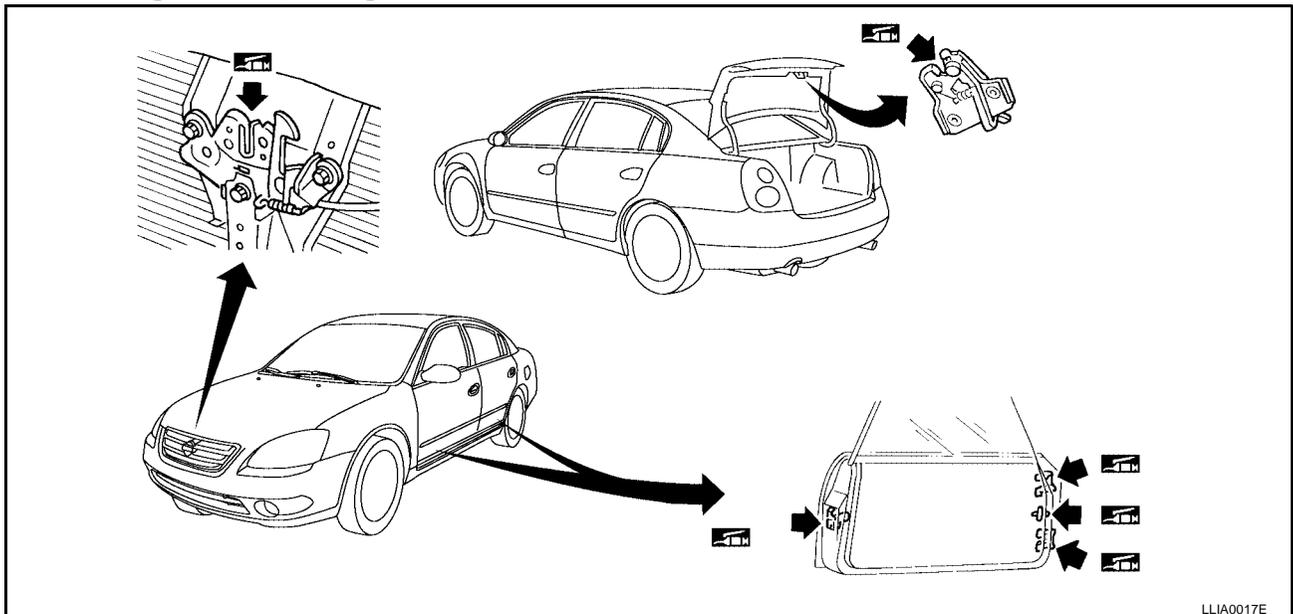


## Drive Shaft

- Check the boot and drive shaft for cracks, wear, damage and grease leakage as shown.



## Lubricating Locks, Hinges and Hood Latch



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# CHASSIS AND BODY MAINTENANCE

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

ELS0015Y

### CAUTION:

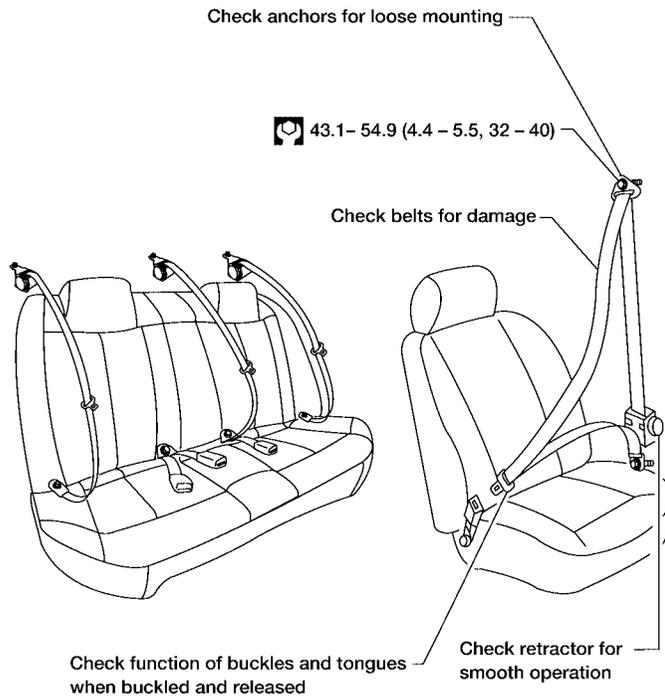
- After any collision, inspect all seat belt assemblies, including retractors and other attached hardware (i.e. anchor bolt, guide rail set). Nissan recommends to replace all seat belt assemblies in use during a collision, unless not damaged and properly operating after minor collision. Also inspect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

Anchor bolt

 43.1 - 54.9 (4.4 - 5.5, 32 - 40)

 N·m (kg·m, ft·lb)



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