

**SECTION MA**  
**MAINTENANCE**

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

**CONTENTS**

<p><b>SERVICE INFORMATION ..... 2</b></p> <p><b>PRECAUTIONS ..... 2</b>          Precaution for Supplemental Restraint System (SRS) "AIR BAG" and "SEAT BELT PRE-TENSIONER" .....2</p> <p><b>PREPARATION ..... 3</b>          Special Service Tool .....3          Commercial Service Tool .....3</p> <p><b>GENERAL MAINTENANCE ..... 4</b>          General Maintenance .....4</p> <p><b>PERIODIC MAINTENANCE ..... 6</b>          Introduction of Periodic Maintenance .....6          Schedule 1 .....6          Schedule 2 .....8</p> <p><b>RECOMMENDED FLUIDS AND LUBRICANTS .....10</b>          Fluids and Lubricants ..... 10          Engine Oil Recommendation ..... 10          Anti-Freeze Coolant Mixture Ratio ..... 11</p> <p><b>ENGINE MAINTENANCE .....12</b>          Checking Drive Belts ..... 12          Changing Engine Coolant ..... 12          Checking Fuel Line ..... 15          Changing Fuel Filter ..... 15          Changing Engine Air Cleaner Filter ..... 15</p>	<p>Changing Engine Oil .....16          Changing Oil Filter .....16          Changing Spark Plugs .....18          Checking EVAP Vapor Line .....19</p> <p><b>CHASSIS AND BODY MAINTENANCE .....20</b>          Changing In-cabin Microfilter .....20          Checking Exhaust System .....20          Checking the A/T Fluid (ATF) .....21          Changing the A/T Fluid (ATF) .....22          Changing Transfer Fluid .....23          Checking Transfer Fluid .....24          Checking Propeller Shaft .....24          Checking Front Final Drive Oil .....24          Changing Front Final Drive Oil .....25          Checking Rear Final Drive Oil .....25          Changing Rear Final Drive Oil .....25          Balancing Wheels .....26          Tire Rotation .....28          Checking Brake Fluid Level and Leaks .....28          Checking Brake Line and Cables .....28          Checking Disc Brake .....28          Checking Steering Gear and Linkage .....29          Checking Power Steering Fluid and Line .....29          Checking Axle and Suspension Parts .....30          Lubricating Locks, Hinges and Hood Latches .....31          Checking Seat Belts, Buckles, Retractors, Anchors and Adjusters .....31          Seat Belt Inspection .....32</p>
--	---

# PRECAUTIONS

< SERVICE INFORMATION >

---

## SERVICE INFORMATION

### PRECAUTIONS

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

INFOID:000000003709060

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

**WARNING:**

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

# PREPARATION

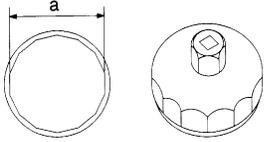
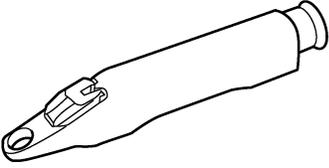
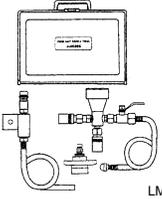
< SERVICE INFORMATION >

## PREPARATION

### Special Service Tool

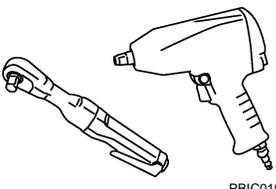
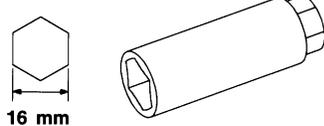
INFOID:000000003709061

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

Tool number (Kent-Moore No.) Tool name	Description
KV10115801 (J-38956) Oil filter cap wrench  <p style="text-align: right;">NT375</p>	Removing and installing oil filter <b>a: 64.3 mm (2.531 in)</b>
KV991J0010 (J-23688) Engine coolant refractometer  <p style="text-align: right;">WBIA0539E</p>	Checking concentration of ethylene glycol in engine coolant
KV991J0070 (J-45695) Coolant refill tool  <p style="text-align: right;">LMA053</p>	Filling cooling system

### Commercial Service Tool

INFOID:000000003709062

(Kent-Moore No.) Tool name	Description
Power tool  <p style="text-align: right;">PBIC0190E</p>	Loosening bolts and nuts
Spark plug wrench  <p style="text-align: right;">S-NT047</p>	Removing and installing spark plug

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

MA

# GENERAL MAINTENANCE

< SERVICE INFORMATION >

## GENERAL MAINTENANCE

### General Maintenance

INFOID:000000003709063

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

#### OUTSIDE THE VEHICLE

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

Item		Reference page
<b>Tires</b>	Check the pressure with a gauge at least once a month and always prior to a long distance trip. Adjust to the specified pressure if necessary. Check carefully for damage, cuts or excessive wear.	<a href="#">WT-46. "Inspection"</a>
<b>Wheel lug nuts</b>	When checking the tires, make sure no nuts are missing, and check for any loose nuts. Tighten if necessary.	<a href="#">WT-48. "Rotation"</a>
<b>Windshield</b>	Clean the windshield on a regular basis. Check the windshield at least every six months for cracks or other damage. Repair as necessary.	—
<b>Tire rotation</b>	Tires should be rotated every 12,000 km (7,500 miles).	<a href="#">WT-48. "Rotation"</a>
<b>Tire Pressure Monitoring System (TPMS) transmitter components</b>	Replace the TPMS transmitter grommet seat, valve core and cap when the tires are replaced due to wear or age.	<a href="#">WT-49. "Transmitter (Pressure Sensor)"</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="#">WT-47. "Balancing Wheels", FSU-5. "Front Wheel Alignment"</a>
<b>Windshield wiper blades</b>	Check for cracks or wear if they do not wipe properly.	<a href="#">WW-73. "Front Wiper Arms"</a>
<b>Doors and engine hood</b>	Check that all doors and the engine hood operate smoothly as well as the back tail gate. Also make sure that all latches lock securely. Lubricate if necessary. Make sure that the secondary latch keeps the engine hood from opening when the primary latch is released. When driving in areas using road salt or other corrosive materials, check lubrication frequently.	<a href="#">MA-31. "Lubricating Locks, Hinges and Hood Latches"</a>
<b>Lamps</b>	Make sure that the head lamps, stop lamps, tail lamps, turn signal lamps, and other lamps are all operating properly and installed securely. Also check head lamp aim. Clean the head lamps on a regular basis.	<a href="#">EXL-133. "HEADLAMP: 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="#">WCS-4. "WARNING CHIME SYSTEM: System Description"</a>
<b>Windshield wiper and washer</b>	Check that the windshield wipers and washer operate properly and that the wipers do not streak.	<a href="#">WW-73. "Front Wiper Arms"</a>
<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="#">ST-15. "On-Vehicle Inspection and Service"</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 seat backs.	<a href="#">SE-5. "Preliminary Check"</a>
<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="#">SB-11. "Seat Belt Inspection"</a>

# GENERAL MAINTENANCE

## < SERVICE INFORMATION >

Item		Reference page	
<b>Accelerator pedal</b>	Check the pedal for smooth operation. Keep the floor mats away from the pedal.	—	A
<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. Keep the floor mats away from the pedal.	<a href="#">BR-14, "Inspection and Adjustment"</a> , <a href="#">BR-9, "Inspection"</a>	B
<b>Parking brake</b>	Check that the parking brake control 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, "On-Vehicle Service"</a>	C
<b>Automatic transmission "Park" mechanism</b>	On a fairly steep hill check that the vehicle is held securely with the selector lever in the P position without applying the brakes.	—	D
<b>UNDER THE HOOD AND VEHICLE</b>			
The maintenance items listed here should be checked periodically (e.g. each time you check the engine oil or refuel).			
Item		Reference page	
<b>Windshield washer fluid</b>	Check that there is adequate fluid in the tank.	—	F
<b>Engine coolant level</b>	Check the coolant level when the engine is cold.	<a href="#">CO-10, "Inspection"</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.	—	G
<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-28</a>	H
<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.	—	I
<b>Engine drive belt</b>	Make sure that no belt is frayed, worn, cracked or oily.	<a href="#">MA-12</a>	J
<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-16</a>	
<b>Power steering fluid level and lines</b>	Check the level on the reservoir with the engine off. Check the lines for improper attachment, leaks, cracks, etc.	<a href="#">MA-29</a>	K
<b>Automatic transmission fluid level</b>	Check the level on the dipstick after putting the selector lever in "P" with the engine idling.	<a href="#">MA-21</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-20</a>	L
<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.	—	M
<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.	—	N
			O

# PERIODIC MAINTENANCE

< SERVICE INFORMATION >

## PERIODIC MAINTENANCE

### Introduction of Periodic Maintenance

INFOID:000000003709064

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 or time intervals, whichever comes first.**

Schedule 1	Follow Periodic Maintenance Schedule 1 if your driving habits frequently includes 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 or using a camper or car-top carrier.</li> </ul>	Emission Control System Maintenance	<a href="#">MA-6</a>
		Chassis and Body Maintenance	<a href="#">MA-6</a>
Schedule 2	Follow Periodic Maintenance Schedule 2 if none of the driving conditions shown in Schedule 1 apply to the driving habits.	Emission Control System Maintenance	<a href="#">MA-8</a>
		Chassis and Body Maintenance	<a href="#">MA-8</a>

### Maintenance for off-road driving (4WD only)

After driving the vehicle off-road through sand, mud, or water; more frequent maintenance may be required for the following items:

- ▲ Brake pads and rotors
- ▲ Brake lines and hoses
- ▲ Rear final drive oil, transmission fluid, and transfer fluid
- ▲ Steering linkage
- ▲ Drive shafts
- ▲ Engine air cleaner filter
- ▲ In-cabin microfilters

### Schedule 1

INFOID:000000003709065

## 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	3.75 (6)	7.50 (12)	11.25 (18)	15 (24)	18.75 (30)	22.5 (36)	26.25 (42)	30 (48)	
Drive belts	NOTE (1)									<a href="#">MA-12</a>
Air cleaner filter	NOTE (2)								[R]	<a href="#">MA-15</a>
EVAP vapor lines									I*	<a href="#">MA-19</a>
Fuel lines									I*	<a href="#">MA-15</a>
Fuel filter	NOTE (3)									<a href="#">MA-15</a>
Engine coolant	NOTE (4)									<a href="#">MA-12</a>
Engine oil		R	R	R	R	R	R	R	R	<a href="#">MA-16</a>
Engine oil filter		R	R	R	R	R	R	R	R	<a href="#">MA-16</a>
Spark plugs (Iridium-tipped type)		Replace every 105,000 miles (169,000 km).								<a href="#">MA-18</a>
Intake and exhaust valve clearance*	NOTE (5)									<a href="#">EM-108</a>

## PERIODIC MAINTENANCE

### < SERVICE INFORMATION >

MAINTENANCE OPERATION		MAINTENANCE INTERVAL								Reference Section - Page or - Content Title
		Miles x 1,000 (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	
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-12</a>
Air cleaner filter	NOTE (2)								[R]	<a href="#">MA-15</a>
EVAP vapor lines									I*	<a href="#">MA-19</a>
Fuel lines									I*	<a href="#">MA-15</a>
Fuel filter	NOTE (3)									<a href="#">MA-15</a>
Engine coolant	NOTE (4)								R*	<a href="#">MA-12</a>
Engine oil		R	R	R	R	R	R	R	R	<a href="#">MA-16</a>
Engine oil filter		R	R	R	R	R	R	R	R	<a href="#">MA-16</a>
Spark plugs (Iridium-tipped type)		Replace every 105,000 miles (169,000 km).								<a href="#">MA-18</a>
Intake and exhaust valve clearance*	NOTE (5)									<a href="#">EM-108</a>

(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 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) Periodic maintenance is not required. However, if valve noise increases, inspect valve clearance.

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

### CHASSIS AND BODY MAINTENANCE

Abbreviations: R = Replace. I = Inspect. Correct or replace if necessary. L = Lubricate. [ ] : 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	7.5 (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.	Miles x 1,000 (km x 1,000) Months	3.75 (6) 3	7.5 (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 and cables					I				I	<a href="#">MA-28</a>
Brake pads and rotors			I		I		I		I	<a href="#">MA-28</a>
Automatic transmission fluid, transfer fluid and differential gear oil	NOTE (1)				I				I	<a href="#">MA-21</a>
Steering gear and linkage, axle and suspension parts			I		I		I		I	<a href="#">MA-29</a> , <a href="#">MA-30</a>
Tire Rotation	NOTE (2)									<a href="#">MA-28</a>
Drive shaft boots and propeller shaft (4WD)			I		I		I		I	<a href="#">MA-24</a>
Exhaust system			I		I		I		I	<a href="#">MA-20</a>
In-cabin microfilter					R				R	<a href="#">MA-20</a>

# PERIODIC MAINTENANCE

## < SERVICE INFORMATION >

MAINTENANCE OPERATION		MAINTENANCE INTERVAL									Reference Section - Page or - Content Title
		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	
Perform at number of miles, kilometers or months, whichever comes first.											
Brake lines and cables					I					I	<a href="#">MA-28</a>
Brake pads and rotors			I		I		I			I	<a href="#">MA-28</a>
Automatic transmission fluid, transfer fluid and differential gear oil	NOTE (1)				I					I	<a href="#">MA-21</a>
Steering gear and linkage, axle and suspension parts			I		I		I			I	<a href="#">MA-29, MA-30</a>
Tire Rotation	NOTE (2)										<a href="#">MA-28</a>
Drive shaft boots and propeller shaft (4WD)			I		I		I			I	<a href="#">MA-24</a>
Exhaust system			I		I		I			I	<a href="#">MA-20</a>
In-cabin microfilter					R					R	<a href="#">MA-20</a>

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

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

## Schedule 2

INFOID:000000003709066

## 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	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	
Perform at number of miles, kilometers or months, whichever comes first.											
Drive belts	NOTE (1)									I*	<a href="#">MA-12</a>
Air cleaner filter					[R]					[R]	<a href="#">MA-15</a>
EVAP vapor lines					I*					I*	<a href="#">MA-19</a>
Fuel lines					I*					I*	<a href="#">MA-15</a>
Fuel filter	NOTE (2)										<a href="#">MA-15</a>
Engine coolant	NOTE (3)									R*	<a href="#">MA-12</a>
Engine oil (Except for FFV models)		R	R	R	R	R	R	R	R	R	<a href="#">MA-16</a>
Engine oil (For FFV models)		Replace every 3,750 miles (6,000 km) or 3 months.									<a href="#">MA-16</a>
Engine oil filter (Except for FFV models)		R	R	R	R	R	R	R	R	R	<a href="#">MA-16</a>
Engine oil filter (For FFV models)		Replace every 3,750 miles (6,000 km) or 3 months.									<a href="#">MA-16</a>
Spark plugs (Iridium - tipped type)		Replace every 105,000 miles (169,000 km)									<a href="#">MA-18</a>
Intake and exhaust valve clearance*	NOTE (4)										<a href="#">EM-108</a>

(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 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) Periodic maintenance is not required. However, if valve noise increases, inspect valve clearance.

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

# PERIODIC MAINTENANCE

## < SERVICE INFORMATION >

### CHASSIS AND BODY MAINTENANCE

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

MAINTENANCE OPERATION		MAINTENANCE INTERVAL								Reference Section - Page or - Content Title
		Miles x 1,000 (km x 1,000) Months	7.5 (12) 6	15 (24) 12	22.5 (36) 18	30 (48) 24	37.5 (60) 30	45 (72) 36	52.5 (84) 42	
Perform at number of miles, kilometers or months, whichever comes first.										
Brake lines and cables			I		I		I		I	<a href="#">MA-28</a>
Brake pads and rotors			I		I		I		I	<a href="#">MA-28</a>
Automatic transmission fluid, transfer fluid and differential gear oil	NOTE (1)		I		I		I		I	
Steering gear and linkage, axle and suspension parts.					I				I	<a href="#">MA-29</a> , <a href="#">MA-30</a>
Tire rotation	NOTE (2)									<a href="#">MA-28</a>
Drive shaft boots and propeller shaft (4WD)			I		I		I		I	<a href="#">MA-24</a>
Exhaust system					I				I	<a href="#">MA-20</a>
In-cabin microfilter			R		R		R		R	<a href="#">MA-20</a>

(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 NISSAN new vehicle limited warranty.

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

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

MA

# RECOMMENDED FLUIDS AND LUBRICANTS

< SERVICE INFORMATION >

## RECOMMENDED FLUIDS AND LUBRICANTS

### Fluids and Lubricants

INFOID:000000003709067

Description		Capacity (Approximate)			Recommended Fluids/Lubricants
		Metric	US measure	Imp measure	
Fuel		105.8 ℓ	28 gal	23 1/4 gal	Unleaded gasoline with an octane rating of at least 87 AKI (RON 91), or E-85 Ethanol fuel for Flexible Fuel Vehicles (FFV) *7
Engine oil Drain and refill	With oil filter change	6.5 ℓ	6 7/8 qt	5 3/4 qt	<ul style="list-style-type: none"> <li>• Engine oil with API Certification Mark*1</li> <li>• Viscosity SAE 5W-30</li> </ul>
	Without oil filter change	6.2 ℓ	6 1/2 qt	5 1/2 qt	
Dry engine (engine overhaul)		7.6 ℓ	8 qt	6 3/4 qt	
Cooling system	With reservoir at MAX level	14.4 ℓ	15 1/4 qt	12 5/8 qtl	Genuine NISSAN Long Life Anti-freeze coolant or equivalent
Automatic transmission fluid (ATF)		10.6 ℓ	11 1/4 qt	9 3/8 qt	Genuine NISSAN Matic S ATF*2
Rear differential gear oil		1.75 ℓ	3 3/4 pt	3 1/8 pt	API GL-5 Synthetic 75W-90 Gear Oil (Part No. 999MP-DF200P) or equivalent *6
Transfer fluid		3.0 ℓ	3 1/8 qt	2 5/8 qt	Genuine NISSAN Matic D ATF (Continental U.S and Alaska) or Canada NISSAN Automatic Transmission Fluid or equivalent (if available)
Front differential gear oil		1.6 ℓ	3 3/8 pt	2 7/8 pt	Genuine NISSAN Differential Oil Hypoid Super GL-5 80W-90 or API GL-5 Viscosity SAE 80W-90 *8
Power steering fluid (PSF)		1.0 ℓ	2 1/8 pt	1 3/4 pt	Genuine NISSAN PSF or equivalent*3
Brake fluid		—	—	—	Genuine NISSAN Super Heavy Duty Brake Fluid or equivalent, DOT 3 (US FMVSS No. 116) *4
Multi-purpose grease		—	—	—	NLGI No. 2 (lithium soap base)
Brake grease		—	—	—	PBC (poly butyl cuprysil) grease or equivalent
Windshield washer fluid		4.5 ℓ	1 1/4 gal	1 gal	Genuine NISSAN Windshield Washer Concentrate Cleaner & Anti-freeze or equivalent
Air conditioning system refrigerant		1.08 ± 0.05 kg	2.38 ± 0.11 lb	2.38 ± 0.11 lb	HFC-134a (R-134a)*5
Air conditioning system oil		290 m ℓ	9.8 fl oz	10.2 fl oz	NISSAN A/C System Oil Type S or equivalent *5

\*1: For further details, refer to [MA-10, "Engine Oil Recommendation"](#).

\*2: If Genuine NISSAN Matic S ATF is not available, Genuine 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 NISSAN new vehicle limited warranty.

\*3: DEXRON™ VI type ATF or Canada NISSAN Automatic Transmission Fluid may also be used.

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

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

\*6: See a NISSAN dealer for service for synthetic oil.

\*7: For further details, refer to [GI-27, "Fuel \(Regular Unleaded Gasoline Recommended\)"](#).

\*8: For hot climates, Viscosity SAE 90 is suitable for ambient temperatures above 0°C (32°F).

### Engine Oil Recommendation

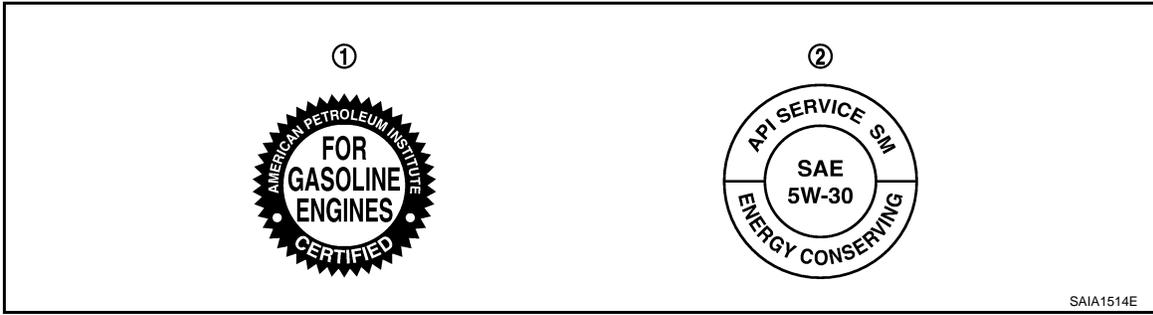
INFOID:000000004024131

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:000000004024132

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

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

MA

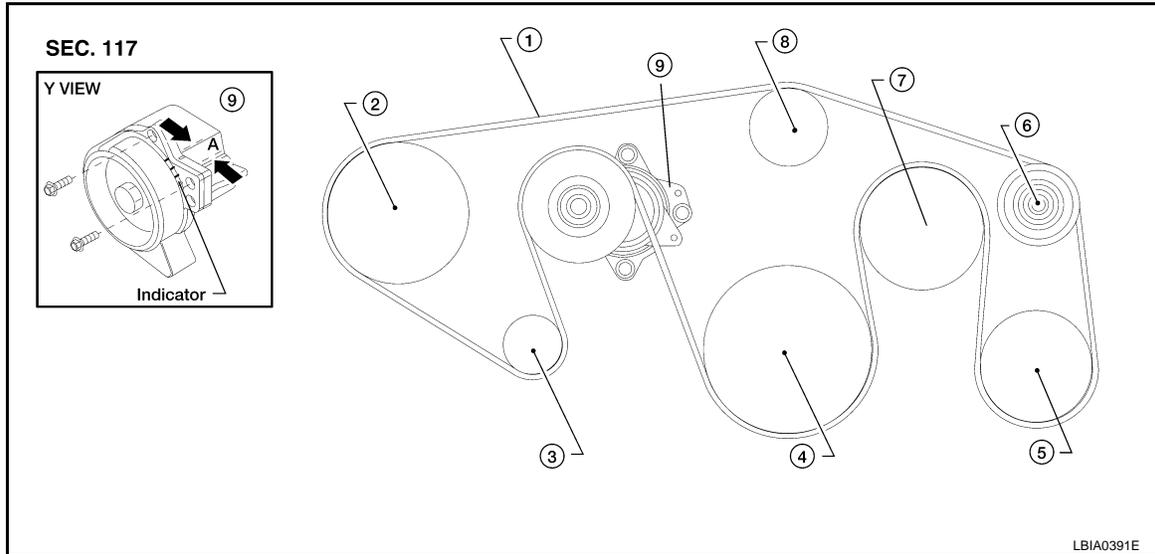
# ENGINE MAINTENANCE

< SERVICE INFORMATION >

## ENGINE MAINTENANCE

### Checking Drive Belts

INFOID:000000004176236



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

#### **WARNING:**

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

1. Remove air duct and resonator assembly when inspecting drive belt.
2. Make sure that indicator (single line notch) of each auto tensioner is within the allowable working range (between three line notches).

#### **NOTE:**

- Check the drive belt auto tensioner indication when the engine is cold.
  - The indicator notch is located on the moving side of the drive belt auto tensioner.
3. Visually check entire belt for wear, damage or cracks.
  4. If the indicator is out of allowable working range or belt is damaged, replace the belt. Refer to [MA-12](#).

#### DRIVE BELT TENSION

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

### Changing Engine Coolant

INFOID:000000004176243

#### **WARNING:**

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

#### DRAINING ENGINE COOLANT

1. Turn ignition switch ON and set temperature control lever all the way to HOT position or the highest temperature position. Wait 10 seconds and turn ignition switch OFF.
2. Remove the engine front undercover using power tool.

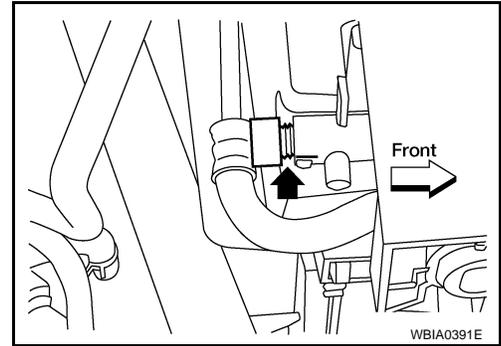
# ENGINE MAINTENANCE

## < SERVICE INFORMATION >

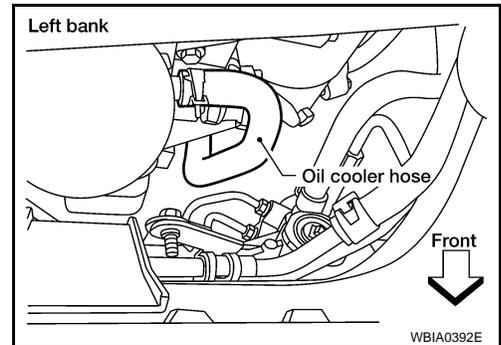
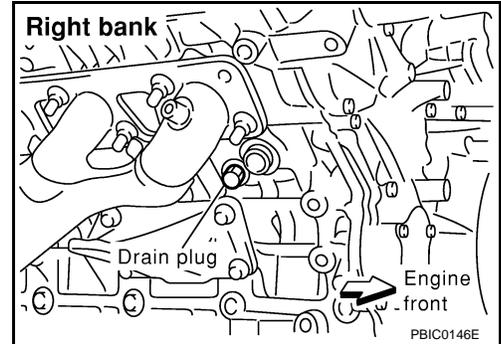
3. Open the radiator drain plug at the bottom of the radiator, and remove the radiator filler cap. This is the only step required when partially draining the cooling system (radiator only).

**CAUTION:**

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



4. When draining all of the coolant in the system for engine removal or repair, it is necessary to drain the cylinder block. Remove the RH cylinder block drain plug to drain the right bank and the oil cooler hose to drain the left bank as shown.



5. Remove the reservoir tank to drain the engine coolant, then clean the reservoir tank before installing it.
6. Check the drained coolant for contaminants such as rust, corrosion or discoloration. If the coolant is contaminated, flush the engine cooling system. Refer to [MA-12. "Changing Engine Coolant"](#).

## REFILLING ENGINE COOLANT

1. Close the radiator drain plug. Install the reservoir tank, cylinder block drain plug, and the oil cooler hose, if removed for a total system drain 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 plug. Use Genuine High Performance Thread Sealant or equivalent. Refer to [GI-15. "Recommended Chemical Products and Sealants"](#).

**Radiator drain plug** : Refer to [CO-15](#).

**RH cylinder block drain plug** : Refer to [EM-83](#).

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

# ENGINE MAINTENANCE

## < SERVICE INFORMATION >

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-10, "Fluids and Lubricants"](#).

**Cooling system capacity (with reservoir)** : Refer to [MA-10, "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)

### CAUTION:

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

7. The vacuum gauge will begin to rise and there will be an audible hissing noise. During this process open the ball valve 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.
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.

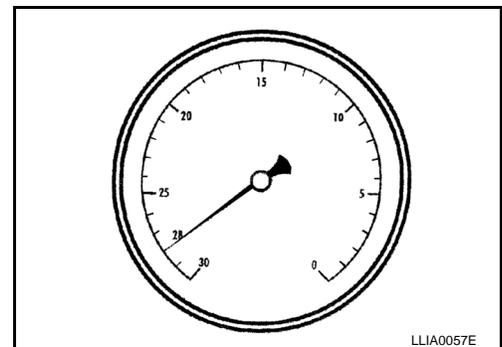
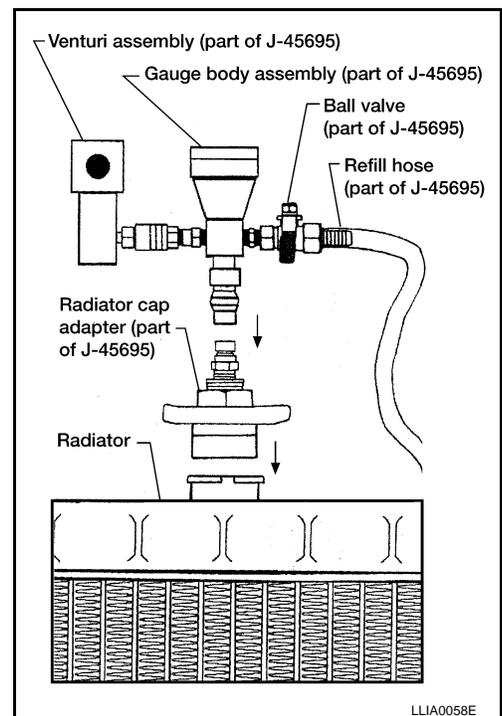
### CAUTION:

**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 and install the radiator cap.
12. Remove the non-vented reservoir cap.
13. Fill the cooling system reservoir tank to the specified level. Run the engine to warm up the cooling system and top up the system as necessary before installing the vented reservoir cap.

## FLUSHING COOLING SYSTEM

1. Drain the water from the engine cooling system. Refer to [MA-12, "Changing Engine Coolant"](#).



# ENGINE MAINTENANCE

## < SERVICE INFORMATION >

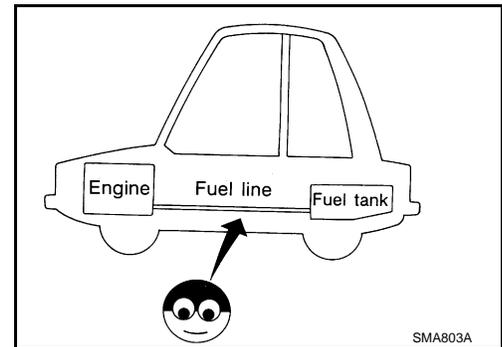
2. Fill the radiator and the reservoir tank (to the "MAX" line), with water. Reinstall the radiator cap and leave the vented reservoir cap off.
3. Run the engine until it reaches normal operating temperature.
4. Press the engine accelerator two or three times under no-load.
5. Stop the engine and wait until it cools down.
6. Drain the water from the engine cooling system. Refer to [MA-12, "Changing Engine Coolant"](#).
7. Repeat steps 2 through 6 until clear water begins to drain from the radiator.

## Checking Fuel Line

INFOID:000000004176242

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 Fuel Filter

INFOID:000000003709072

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

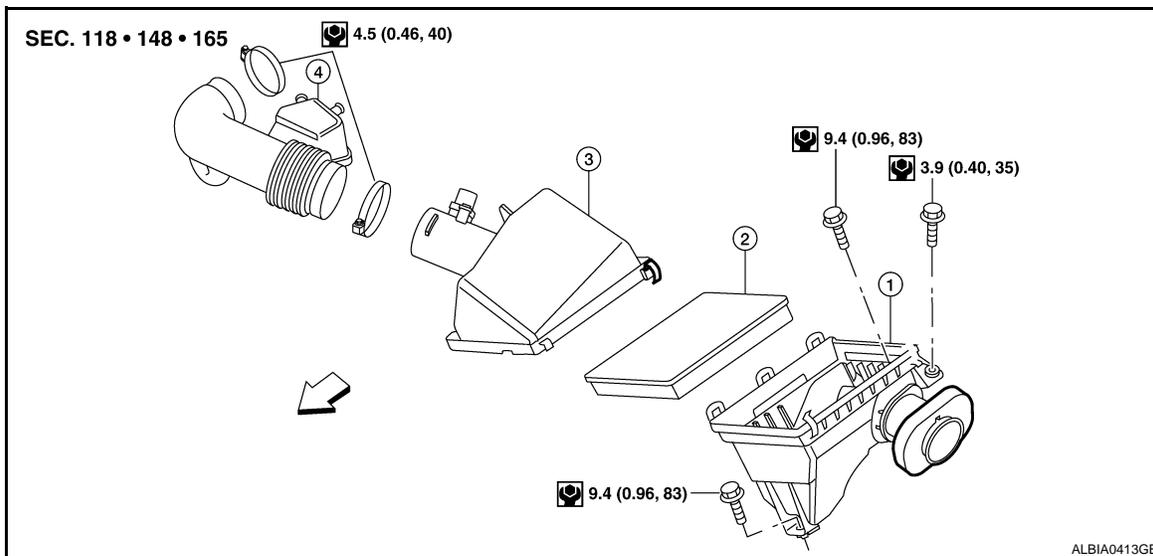
### **WARNING:**

**Before replacing the fuel filter, release the fuel pressure from the fuel system. Refer to [EC-484, "Fuel Pressure Check"](#).**

## Changing Engine Air Cleaner Filter

INFOID:000000004176239

### REMOVAL



1. Air cleaner case (upper)
  2. Air cleaner filter
  3. Air cleaner case (lower)
  4. Air duct and resonator assembly
- ⇐ Front

### NOTE:

- The viscous paper type filter does not need cleaning between replacement intervals.
- Replace the air filter as necessary for periodic maintenance. Refer to [MA-6, "Introduction of Periodic Maintenance"](#).

# ENGINE MAINTENANCE

## < SERVICE INFORMATION >

1. Remove the air duct and resonator assembly.
2. Remove the air cleaner case (upper).
3. Remove the air cleaner filter from the air cleaner case (lower).

### INSTALLATION

1. Install the new air cleaner filter in the air cleaner case (lower).
2. Install the air cleaner case (upper).
3. Install the air duct and resonator assembly (inlet).

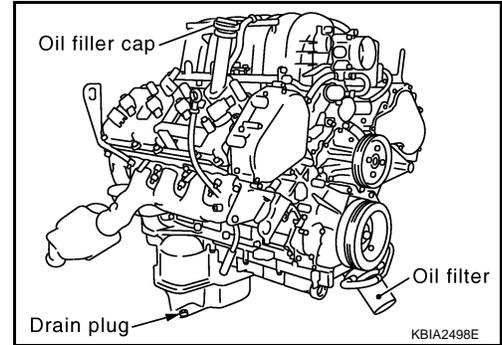
## Changing Engine Oil

INFOID:000000004176241

### 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 engine oil. If skin contact is made, wash thoroughly with soap or hand cleaner as soon as possible.

1. Remove engine front undercover using power tool.
2. Warm up engine, and check for oil leakage from engine components. Refer to [LU-8, "Inspection"](#).
3. Stop engine and wait for 10 minutes.
4. Loosen oil filler cap, then remove drain plug.
5. Drain engine oil.
6. Install drain plug with new washer.



### 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. Refer to [MA-10, "Fluids and Lubricants"](#).

Engine oil capacity (Approximate):

		Unit: ℓ (US qt, Imp qt)
Drain and refill	With oil filter change	6.5 (6 7/8, 5-3/4)
	Without oil filter change	6.2 (6 1/2, 5-1/2)
Dry engine (engine overhaul)		7.6 (8, 6-3/4)

### CAUTION:

- The refill capacity depends on the engine oil temperature and drain time. Use these specifications for reference only.
  - Always use the oil level gauge to determine when the proper amount of engine oil is in the engine.
8. Warm up engine and check area around drain plug and oil filter for oil leakage.
  9. Stop engine and wait for 10 minutes.
  10. Check engine oil level. Refer to [LU-8, "Inspection"](#).

## Changing Oil Filter

INFOID:000000004176240

### REMOVAL

# ENGINE MAINTENANCE

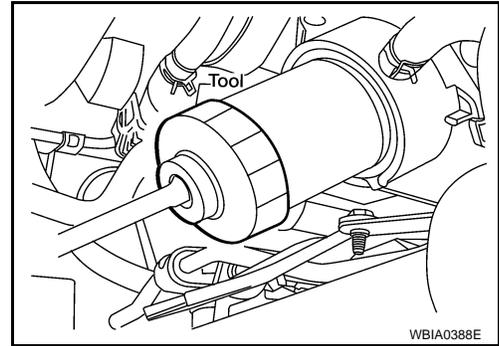
## < SERVICE INFORMATION >

1. Remove the engine front undercover using power tool.
2. Remove the oil filter using Tool.

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

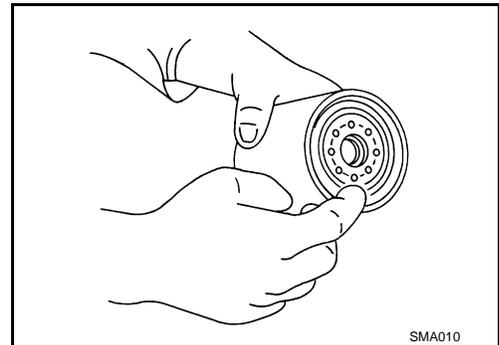
### CAUTION:

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



## INSTALLATION

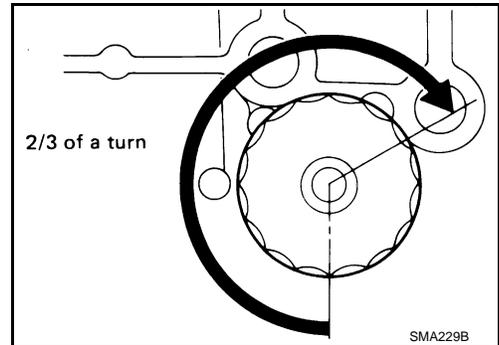
1. Remove foreign materials adhering to the oil filter installation surface.
2. Apply engine oil to the oil seal circumference of the new oil filter.



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

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

4. Inspect the engine for oil leakage. Refer to [MA-16. "Changing Oil Filter"](#).
5. Install the engine front undercover.



## INSPECTION AFTER INSTALLATION

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

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

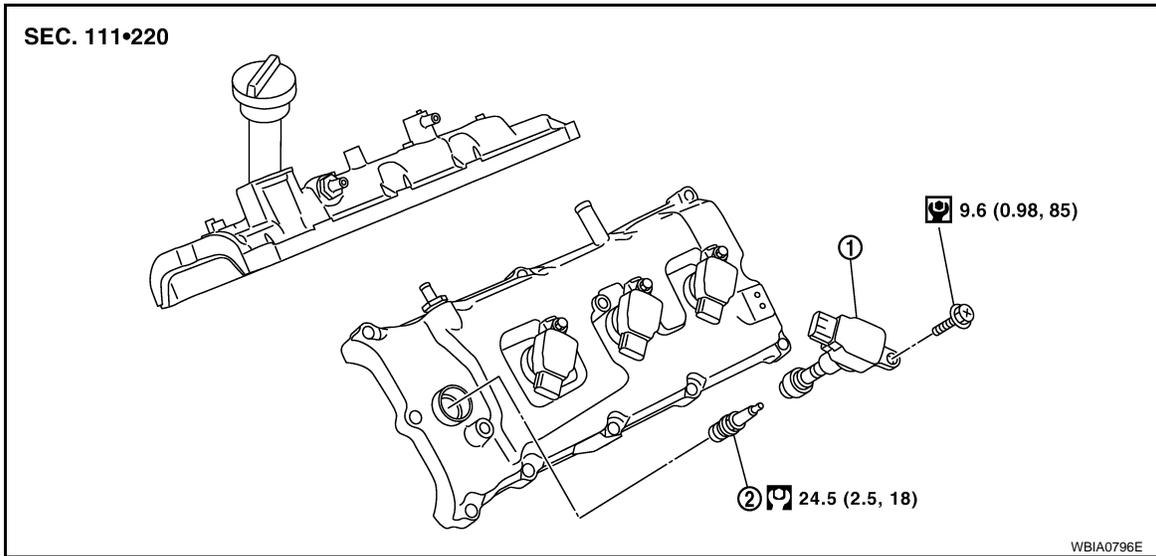
MA

# ENGINE MAINTENANCE

< SERVICE INFORMATION >

## Changing Spark Plugs

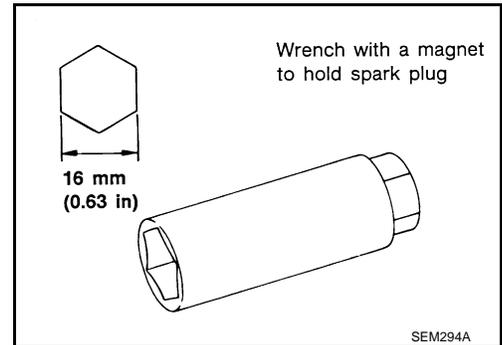
INFOID:000000004176238



1. Ignition coil
2. Spark plug

### REMOVAL

1. Remove engine room cover using power tool. Refer to [EM-24, "Removal and Installation"](#).
2. Remove ignition coil. Refer to [EM-37, "Removal and Installation"](#).
3. Remove spark plug using suitable tool.



### INSPECTION AFTER REMOVAL

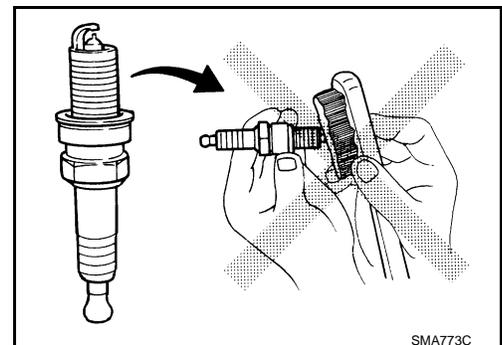
- Do not use a wire brush for cleaning.
- If plug tip is covered with carbon, spark plug cleaner may be used.

#### Cleaner air pressure:

Less than 588 kPa (5.9 bar, 6 kg/cm<sup>2</sup>, 85 psi)

#### Cleaning time:

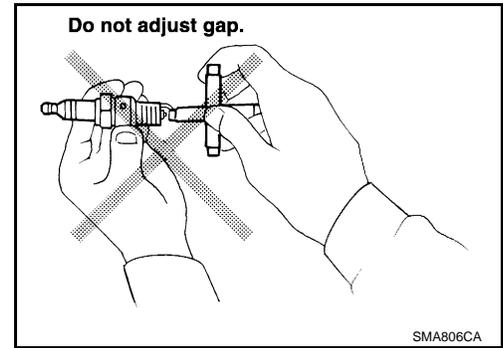
Less than 20 seconds



# ENGINE MAINTENANCE

## < SERVICE INFORMATION >

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



## INSTALLATION

Installation is in the reverse order of removal.

### Spark Plug Types

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

### **CAUTION:**

**Do not drop or shock spark plug.**

## Checking EVAP Vapor Line

INFOID:000000003709077

1. Visually inspect the EVAP vapor lines for improper attachment, cracks, damage, loose connections, chafing, or deterioration.
2. Inspect the vacuum relief valve of the fuel tank filler cap for clogging and sticking. Refer to [EC-486. "How to Detect Fuel Vapor Leakage"](#).

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

MA

# CHASSIS AND BODY MAINTENANCE

< SERVICE INFORMATION >

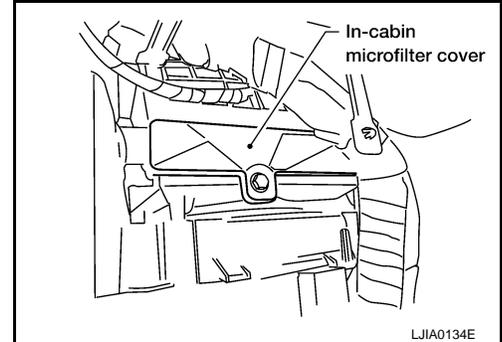
## CHASSIS AND BODY MAINTENANCE

### Changing In-cabin Microfilter

INFOID:000000004176235

#### REPLACEMENT PROCEDURE

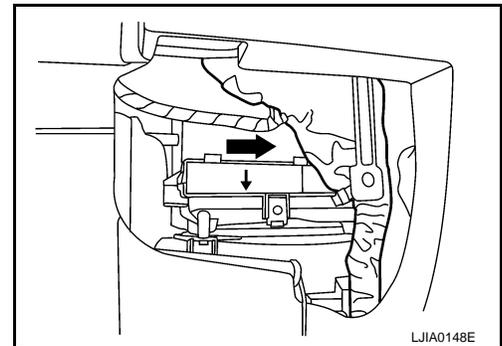
1. Remove the glove box assembly from the instrument panel. Refer to [IP-16, "Removal and Installation"](#).
2. Remove the screw and remove the in-cabin microfilter cover as shown.
3. Remove the two in-cabin microfilters from the front heater and cooling unit assembly housing.



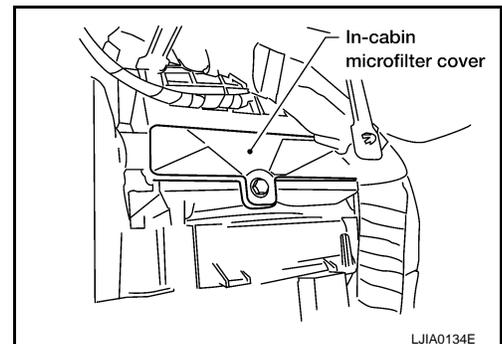
4. Insert the first new in-cabin microfilter into the front heater and cooling unit assembly housing and slide it over to the right. Insert the second new in-cabin microfilter into the front heater and cooling unit assembly housing as shown.

**NOTE:**

The in-cabin microfilters are marked with air flow arrows. The end of the microfilter with the arrow should face the rear of the vehicle. The arrows should point downward.



5. Install the in-cabin microfilter cover.

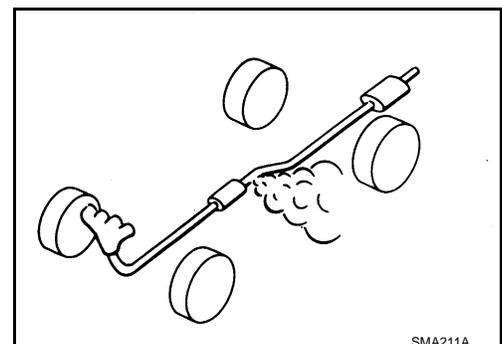


6. Install the glove box assembly in the instrument panel. Refer to [IP-16, "Removal and Installation"](#).
7. Fill out the date information on the small replacement label and attach it to the glove box lid.

### Checking Exhaust System

INFOID:000000003709079

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



# CHASSIS AND BODY MAINTENANCE

< SERVICE INFORMATION >

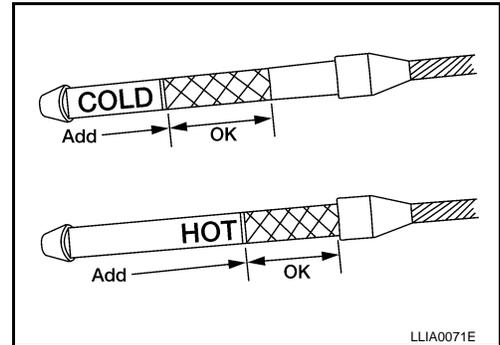
## Checking the A/T Fluid (ATF)

INFOID:000000004176228

**CAUTION:**

If using the vehicle for towing, the A/T fluid must be replaced as specified. Refer to [MA-6, "Introduction of Periodic Maintenance"](#).

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



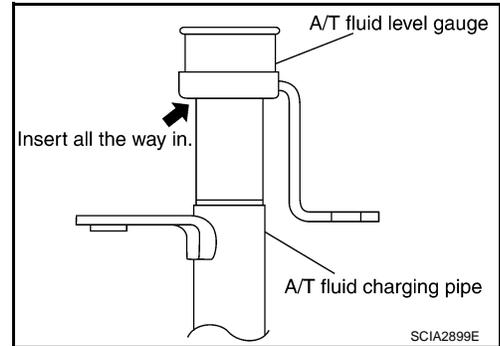
**CAUTION:**

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

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

**CAUTION:**

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



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

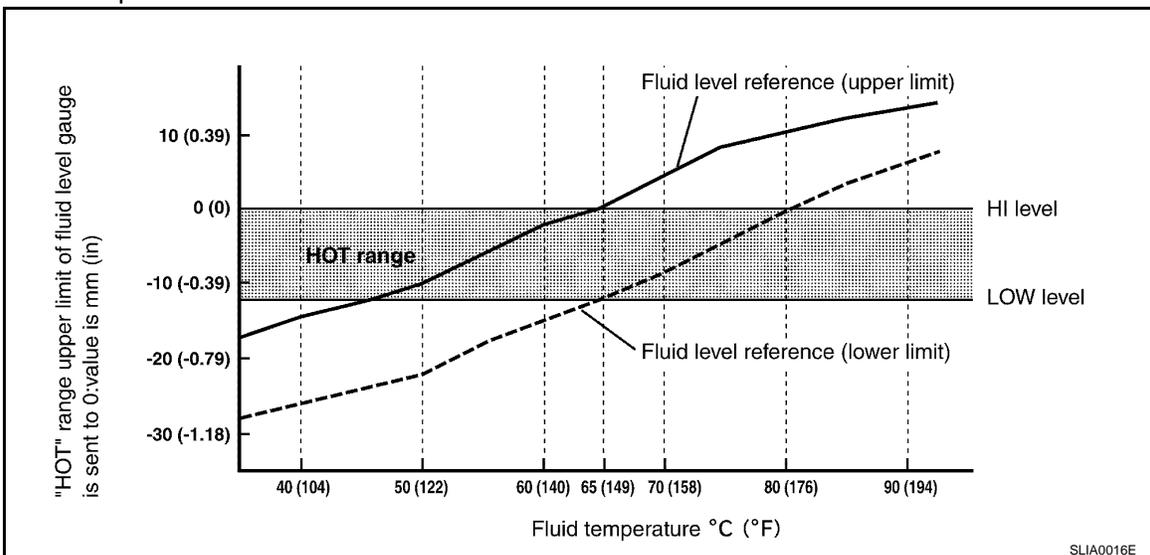
**CAUTION:**

Do not overfill the transmission with A/T fluid.

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

**A/T fluid level gauge bolt** : Refer to [TM-218, "Removal and Installation \(2WD\)"](#) or [TM-220, "Removal and Installation \(4WD\)"](#)

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



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

# CHASSIS AND BODY MAINTENANCE

## < SERVICE INFORMATION >

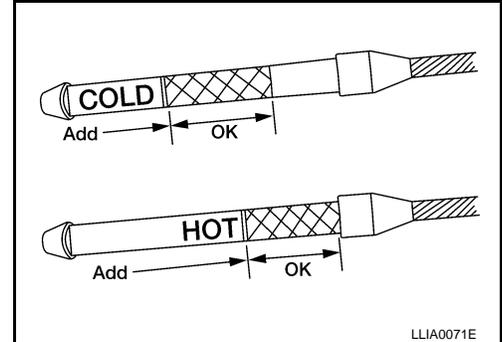
### NOTE:

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

- Connect CONSULT-III to data link connector.
  - Select "MAIN SIGNALS" in "DATA MONITOR" mode for "A/T" with CONSULT-III.
  - Read out the value of "ATF TEMP 1".
6. Re-check the A/T fluid level at A/T fluid temperatures of approximately 65°C (149°F) using the "HOT" range on the A/T fluid level gauge as shown. The HOT range is between 50° - 80° C (122° - 176° F).

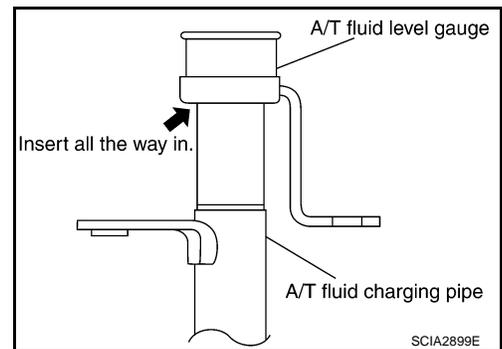
### CAUTION:

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



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

7. Check the A/T fluid condition.
- If the A/T fluid is very dark or has some burned smell, there may be an internal problem with the transmission. Refer to [TM-190. "A/T Fluid Cooler Cleaning"](#). Flush the transmission cooling system after repairing the transmission.
  - If the A/T fluid contains frictional material (clutches, bands, etc.), replace the radiator and flush the transmission cooler lines using cleaning solvent and compressed air after repairing the transmission.
8. Install the A/T fluid level gauge in the A/T fluid charging pipe.
9. Tighten the A/T fluid level gauge bolt to specification.



**A/T fluid level gauge bolt** : Refer to [TM-218. "Removal and Installation \(2WD\)"](#) or [TM-220. "Removal and Installation \(4WD\)"](#)

## Changing the A/T Fluid (ATF)

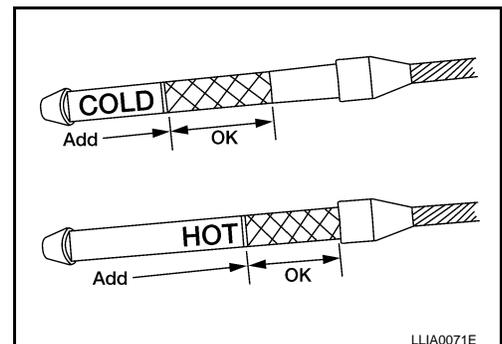
INFOID:000000004176229

### CAUTION:

If using the vehicle for towing, the A/T fluid must be replaced as specified. Refer to [MA-6. "Introduction of Periodic Maintenance"](#).

- Drive the vehicle to warm up the A/T fluid to approximately 80° C (176° F).
- Stop the engine.
- Remove the A/T fluid level gauge.
- Drain the A/T fluid from the drain plug hole, then install the drain plug with a new gasket. Refill the transmission with new A/T fluid. Always refill with the same volume as the drained A/T fluid. Use the A/T fluid level gauge to check the A/T fluid level as shown. Add A/T fluid as necessary.

**Drain plug** : Refer to [TM-224. "Component"](#).



# CHASSIS AND BODY MAINTENANCE

## < SERVICE INFORMATION >

- To flush out the old A/T fluid from the transmission oil coolers, pour new A/T fluid into the A/T fluid charging pipe with the engine idling and at the same time drain the old A/T fluid from the auxiliary transmission oil cooler hose return line.
- When the color of the A/T fluid coming out of the auxiliary transmission oil cooler hose return line is about the same as the color of the new A/T fluid, flushing out the old A/T fluid is complete. The amount of new A/T fluid used for flushing should be 30% to 50% increase of the specified capacity.

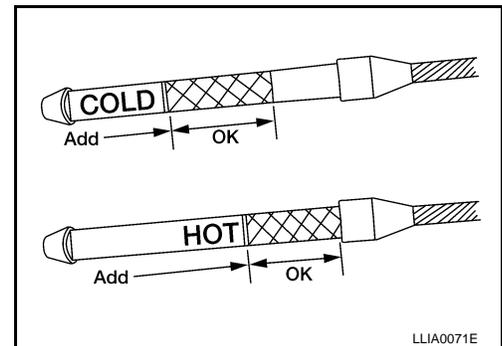
**A/T fluid grade and capacity** : Refer to [MA-10, "Fluids and Lubricants"](#).

### CAUTION:

- If Genuine NISSAN Matic S ATF is not available, Genuine NISSAN Matic J ATF may also be used.
  - Using ATF fluid other than Genuine NISSAN Matic S ATF or Matic J ATF will cause deterioration in driveability and A/T durability, and may damage the A/T, which is not covered by the warranty.
  - When filling the transmission with A/T fluid, do not spill the A/T fluid on any heat generating parts such as the exhaust parts.
  - Do not reuse the drain plug gasket.
5. Install the A/T fluid level gauge and tighten the A/T fluid level gauge bolt to specification.

**A/T fluid level gauge bolt** : Refer to [TM-218, "Removal and Installation \(2WD\)"](#) or [TM-220, "Removal and Installation \(4WD\)"](#).

6. Drive the vehicle to warm up the A/T fluid to approximately 80° C (176° F).
7. Check the fluid level and condition. If the A/T fluid is still dirty, repeat steps 2 through 6.



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

**A/T fluid level gauge bolt** : Refer to [TM-218, "Removal and Installation \(2WD\)"](#) or [TM-220, "Removal and Installation \(4WD\)"](#).

## Changing Transfer Fluid

INFOID:000000004176230

### CAUTION:

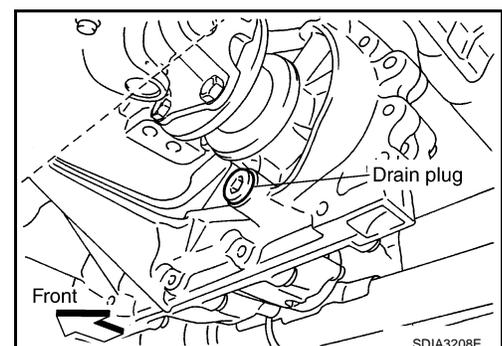
If using the vehicle for towing, the transfer fluid must be replaced as specified. Refer to [MA-6, "Introduction of Periodic Maintenance"](#).

### DRAINING

1. Stop engine.
2. Remove the drain plug and gasket and drain the fluid.
3. Install the drain plug with a new gasket to the transfer. Tighten to the specified torque. Refer to [DLN-140, "Disassembly and Assembly"](#).

### CAUTION:

Do not reuse gasket.



# CHASSIS AND BODY MAINTENANCE

## < SERVICE INFORMATION >

### FILLING

1. Remove the filler plug and gasket.
2. Fill the transfer with new fluid until the fluid level reaches the specified limit near the filler plug hole.

**Fluid grade and capacity** : Refer to [MA-10, "Fluids and Lubricants"](#).

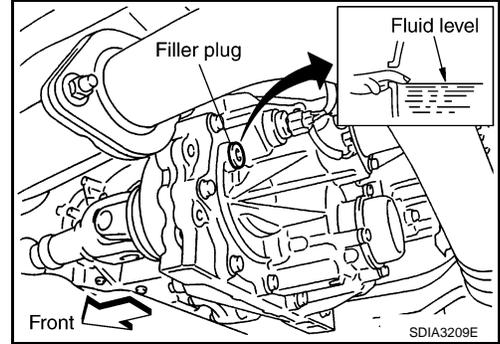
**CAUTION:**

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

3. Leave the vehicle for 3 minutes, and check fluid level again.
4. Install the filler plug with a new gasket to the transfer. Tighten to the specified torque. Refer to [DLN-140, "Disassembly and Assembly"](#).

**CAUTION:**

**Do not reuse gasket.**



### Checking Transfer Fluid

INFOID:000000004176231

**CAUTION:**

**If using the vehicle for towing, the transfer fluid must be replaced as specified. Refer to [MA-6, "Introduction of Periodic Maintenance"](#).**

### FLUID LEAKAGE AND FLUID LEVEL

1. Make sure that fluid is not leaking from the transfer assembly or around it.
2. Check fluid level from the filler plug hole as shown.

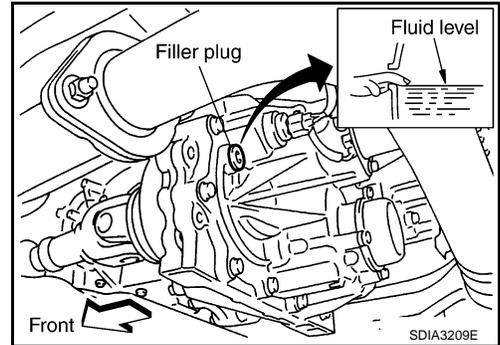
**CAUTION:**

**Do not start engine while checking fluid level.**

3. Install the filler plug with a new gasket to the transfer. Tighten to the specified torque. Refer to [DLN-140, "Disassembly and Assembly"](#).

**CAUTION:**

**Do not reuse gasket.**



### Checking Propeller Shaft

INFOID:000000003709084

Check the front and rear propeller shafts for damage, dents, and cracks. Check the joints for looseness and any damage. Repair or replace as necessary.

### Checking Front Final Drive Oil

INFOID:000000004195916

### DIFFERENTIAL GEAR OIL LEAKAGE AND LEVEL

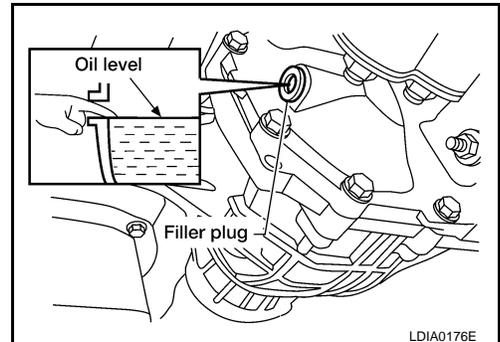
1. Make sure that differential gear oil is not leaking from the front final drive assembly or around it.
2. Check the differential gear oil level from the filler plug hole as shown.

**CAUTION:**

**Do not start engine while checking differential gear oil level.**

3. Install the filler plug with sealant applied on the threads to the front final drive assembly. Tighten to the specified torque. Refer to [DLN-209, "Disassembly and Assembly"](#).

- Use High Performance Thread Sealant or equivalent. Refer to [GI-15, "Recommended Chemical Products and Sealants"](#).



# CHASSIS AND BODY MAINTENANCE

< SERVICE INFORMATION >

## Changing Front Final Drive Oil

INFOID:000000004195915

### DRAINING

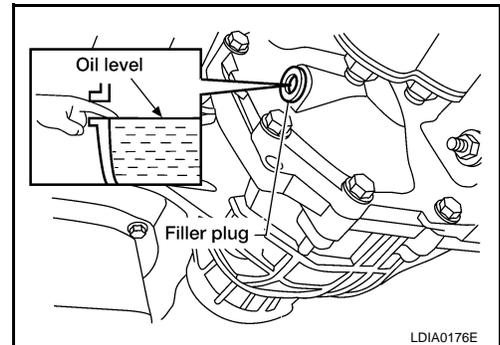
1. Stop the engine.
2. Remove the drain plug from the front final drive assembly to drain the differential gear oil.
3. Install the drain plug with sealant applied on the threads to the front final drive assembly. Tighten to the specified torque. Refer to [DLN-209, "Disassembly and Assembly"](#).
  - Use High Performance Thread Sealant or equivalent. Refer to [GI-15, "Recommended Chemical Products and Sealants"](#).

### FILLING

1. Remove the filler plug from the front final drive assembly.
2. Fill the front final drive assembly with new differential gear oil until the level reaches the specified level near the filler plug hole.

**Differential gear oil grade and capacity** : Refer to [MA-10, "Fluids and Lubricants"](#).

3. Install the filler plug with sealant applied on the threads to the front final drive assembly. Tighten to the specified torque. Refer to [DLN-209, "Disassembly and Assembly"](#).
  - Use High Performance Thread Sealant or equivalent. Refer to [GI-15, "Recommended Chemical Products and Sealants"](#).



## Checking Rear Final Drive Oil

INFOID:000000004176233

### OIL LEAKAGE AND OIL LEVEL

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

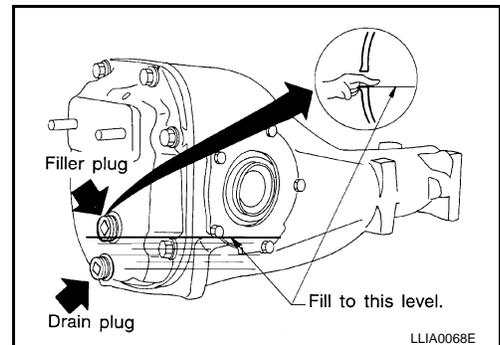
**CAUTION:**

**Do not start engine while checking differential gear oil level.**

3. Install the filler plug with a new gasket on it to the rear final drive assembly. Tighten to the specified torque. Refer to [DLN-244, "Disassembly and Assembly"](#).

**CAUTION:**

**Do not reuse gasket.**



## Changing Rear Final Drive Oil

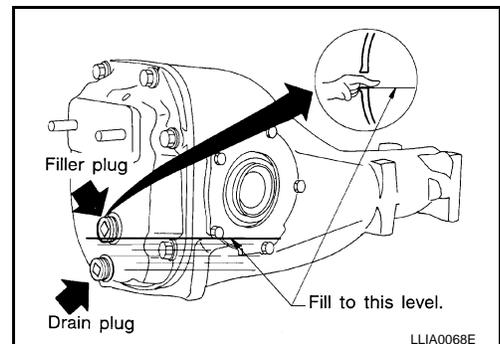
INFOID:000000004176232

### DRAINING

1. Stop the engine.
2. Remove the drain plug and gasket from the rear final drive assembly to drain the differential gear oil.
3. Install the drain plug with a new gasket to the rear final drive assembly. Tighten to the specified torque. Refer to [DLN-244, "Disassembly and Assembly"](#).

**CAUTION:**

**Do not reuse gasket.**



### FILLING

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

MA

# CHASSIS AND BODY MAINTENANCE

## < SERVICE INFORMATION >

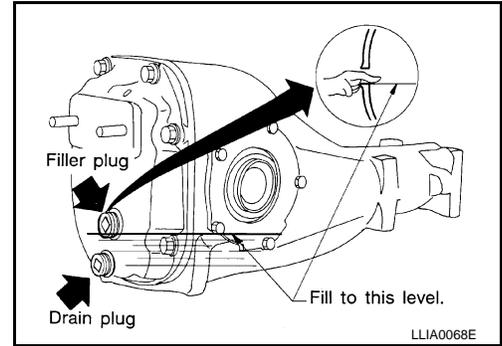
1. Remove the filler plug and gasket from the rear final drive assembly.
2. Fill the rear final drive assembly with new differential gear oil until the level reaches the specified level near the filler plug hole.

**Differential gear oil grade and capacity** : Refer to [MA-10, "Fluids and Lubricants"](#).

3. Install the filler plug with a new gasket on it to the rear final drive assembly. Tighten to the specified torque. Refer to [DLN-244, "Disassembly and Assembly"](#).

**CAUTION:**

**Do not reuse gasket.**



## Balancing Wheels

INFOID:000000003709087

### Removal

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

**CAUTION:**

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

1. Set wheel on wheel balancer using the center hole as a guide. Start the tire balance machine.
2. When inner and outer imbalance values are shown on the wheel balancer indicator, multiply outer imbalance 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 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.**
- **Before installing the balance weight, be sure to clean the mating surface of the wheel.**

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

Calculation example:

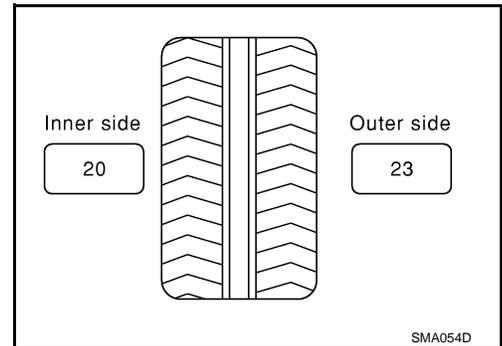
$23 \text{ g (0.81 oz)} \times 5/3 = 38.33 \text{ g (1.35 oz)} = 40 \text{ g (1.41 oz)}$  balance weight (closer to calculated balance weight value)

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

Example:

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

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



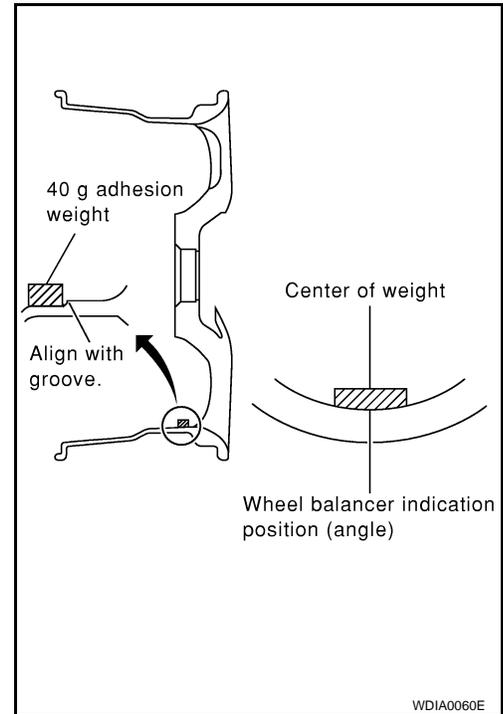
# CHASSIS AND BODY MAINTENANCE

## < SERVICE INFORMATION >

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

**CAUTION:**

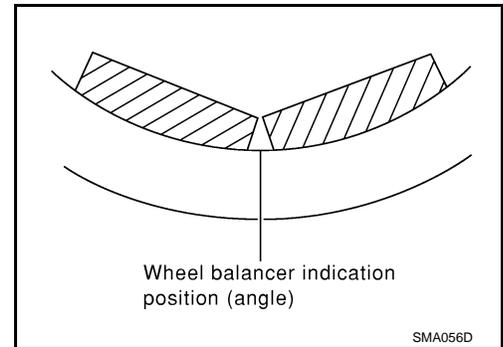
- Always use Genuine NISSAN adhesion balance weights.
- Balance weights are not reusable; always replace with new ones.
- Do not install more than three sheets of balance weights.



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

**CAUTION:**

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



3. Start wheel balancer again.
  4. Install drive-in balance weight on inner side of road wheel in the wheel balancer indication position (angle).
- CAUTION:**  
**Do not install more than two balance weights.**
5. Start wheel balancer. Make sure that inner and outer residual imbalance values are 5 g (0.18 oz) each or below.
    - If either residual imbalance value exceeds 5 g (0.18 oz), repeat installation procedures.

Wheel Balance (Maximum Allowable Imbalance)

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

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

MA

# CHASSIS AND BODY MAINTENANCE

## < SERVICE INFORMATION >

### Tire Rotation

INFOID:000000003709088

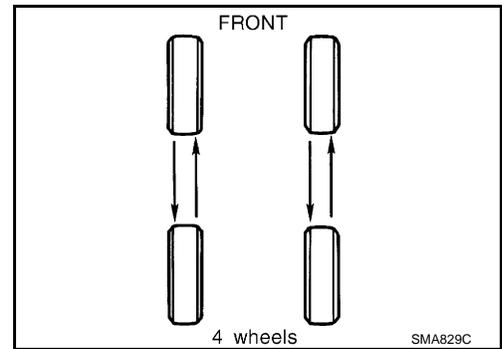
1. Rotate the tires on each side from front to back as shown. Do not include the spare tire when rotating the tires.

**Wheel nuts** : Refer to [WT-48](#).

**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.**

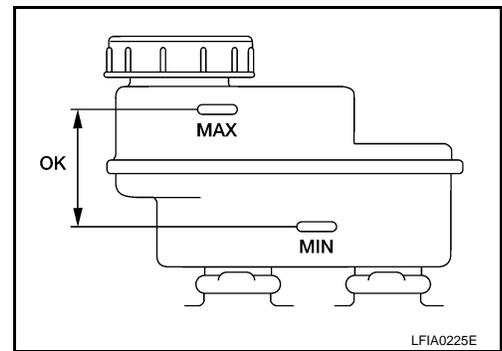
2. Adjust the tire pressure to specification. Refer to [WT-51, "Tire"](#) .
3. After the tire rotation, retighten the wheel nuts after the vehicle has been driven for 1,000 km (600 miles), and also after every wheel and tire have been installed such as after repairing a flat tire.



### Checking Brake Fluid Level and Leaks

INFOID:000000003709089

- Make sure the fluid level in reservoir tank is between MAX and MIN lines as shown.
- Visually check around reservoir tank for fluid leaks.
- If fluid level is excessively low, check brake system for leaks.
- If brake warning lamp remains illuminated after parking brake pedal is released, check brake system for fluid leaks.



### Checking Brake Line and Cables

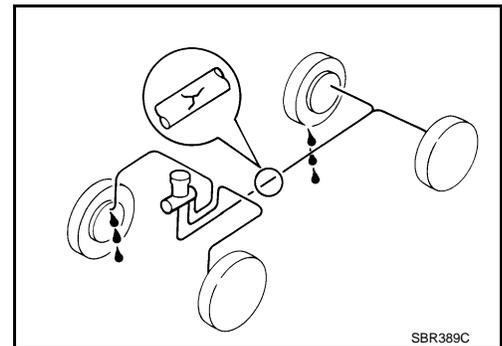
INFOID:000000003709090

1. Check the brake lines and hoses for cracks, deterioration, and other damage. Replace any damaged parts.

**CAUTION:**

**If brake fluid leaks are visible around the brake line joints, retighten the joint, or replace damaged parts as necessary.**

2. Check for brake fluid leaks by fully depressing brake pedal while engine is running.

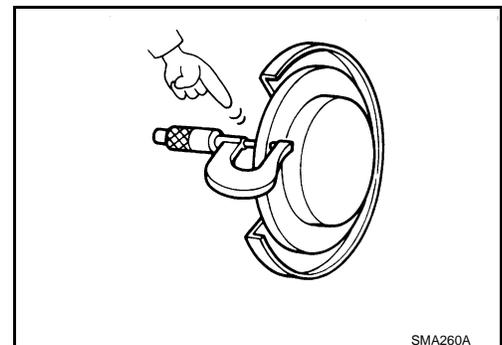


### Checking Disc Brake

INFOID:000000003709091

#### ROTOR

Check the rotor condition for wear or damage. Refer to [BR-6, "DISC ROTOR : Inspection"](#) (front), [BR-8, "DISC ROTOR : Inspection"](#) (rear).

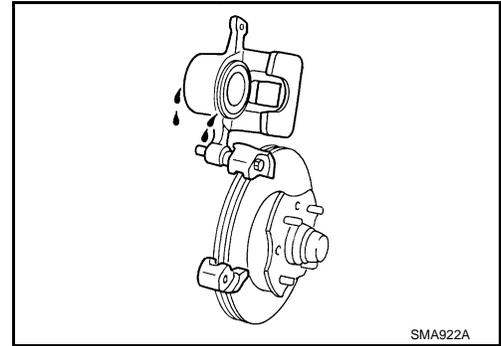


#### CALIPER

# CHASSIS AND BODY MAINTENANCE

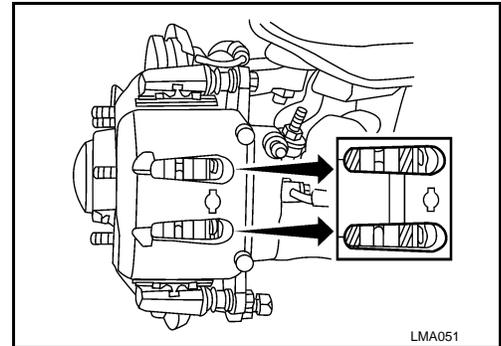
## < SERVICE INFORMATION >

Check the caliper for leaks, repair as necessary.



## PAD

Check the pads for wear or damage. Refer to [BR-6, "BRAKE PAD : Inspection"](#) (front), [BR-8, "BRAKE PAD : Inspection"](#) (rear).

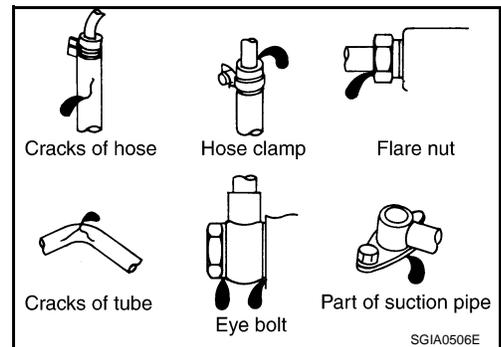


## Checking Steering Gear and Linkage

INFOID:000000003709092

### STEERING GEAR

- Check the steering gear housing for looseness, damage, and oil leakage as shown.
- Check the steering column connections for looseness.



### STEERING LINKAGE

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

## Checking Power Steering Fluid and Line

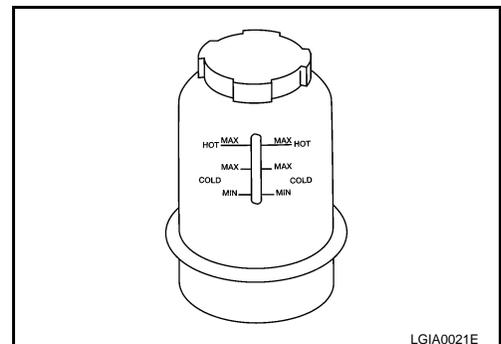
INFOID:000000003709093

### CHECKING FLUID LEVEL

- Check the power steering fluid level with the engine off.
- Check fluid level on reservoir. Use "HOT" range at fluid temperatures of 50° to 80°C (122° to 176°F). Use "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-10, "Fluids and Lubricants"](#).



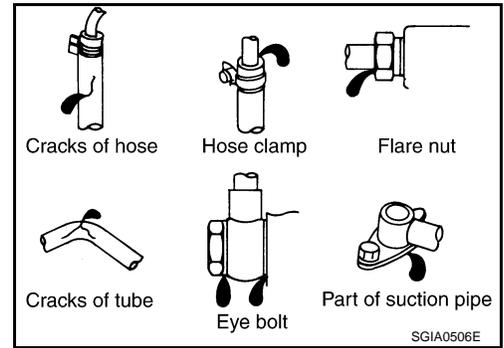
### CHECKING LINES

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

# CHASSIS AND BODY MAINTENANCE

## < SERVICE INFORMATION >

- Check lines for improper attachment, leaks, cracks, damage, loose connections, chafing, and deterioration.



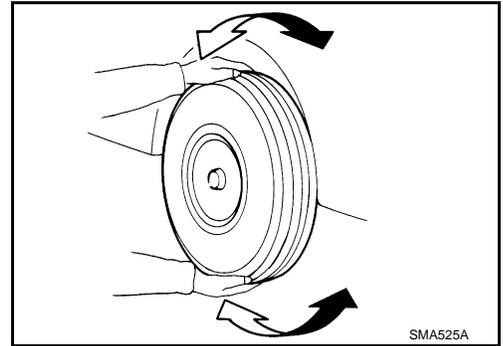
## Checking Axle and Suspension Parts

INFOID:000000003709094

### FRONT AND REAR AXLE AND SUSPENSION PARTS

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

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



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

### PROPELLER SHAFT

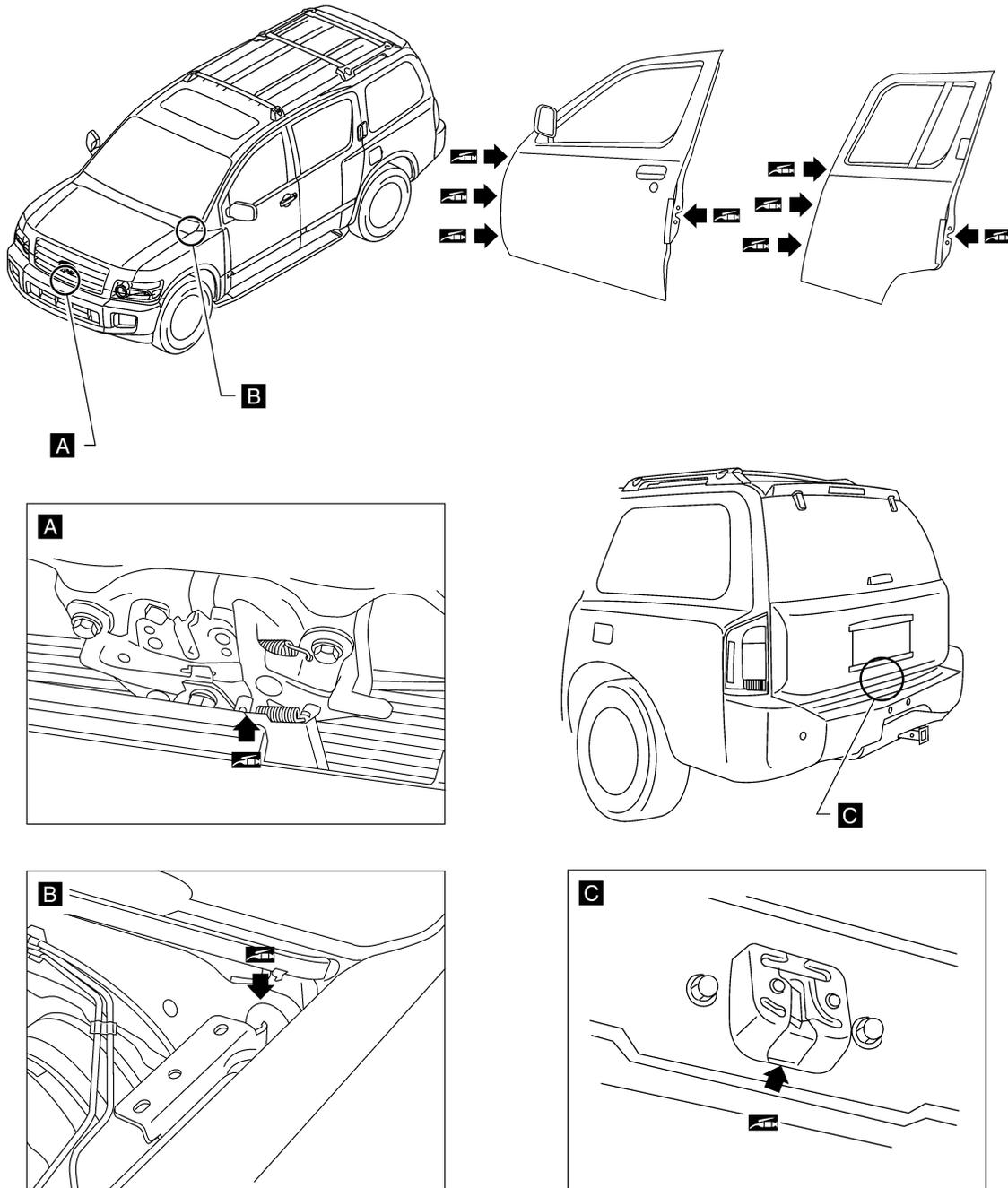
Inspect the propeller shaft tube for dents or cracks. If damaged, replace the propeller shaft assembly.

# CHASSIS AND BODY MAINTENANCE

< SERVICE INFORMATION >

## Lubricating Locks, Hinges and Hood Latches

INFOID:000000003709095



### NOTE:

Lubricate the locations shown with a suitable multi-purpose grease. Refer to [MA-10. "Fluids and Lubricants"](#).

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

INFOID:000000003709096

Check the seat belt buckles, webbing, retractors, anchors and adjusters. Replace any seat belt assembly as necessary. Refer to [SB-11. "Seat Belt Inspection"](#).

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

### WARNING:

# CHASSIS AND BODY MAINTENANCE

## < SERVICE INFORMATION >

**Inspect all seat belt assemblies including retractors and attaching hardware after any collision. NISSAN recommends that all seat belt assemblies in use during a collision be replaced unless the collision was minor and the belts show no damage and continue to operate properly. Failure to do so could result in serious personal injury in an accident. Seat belt assemblies not in use during a collision should also be replaced if either damage or improper operation is noted. Seat belt pre-tensioners should be replaced even if the seat belts are not in use during a frontal collision in which the air bags are deployed.**

Replace any seat belt assembly (including anchor bolts) if:

- The seat belt was in use at the time of a collision (except for minor collisions and the belts, retractors and buckles show no damage and continue to operate properly).
- The seat belt was damaged in an accident. (i.e. torn webbing, bent retractor or guide).
- The seat belt attaching point was damaged in an accident. Inspect the seat belt attaching area for damage or distortion and repair as necessary before installing a new seat belt assembly.
- Anchor bolts are deformed or worn out.
- The seat belt pre-tensioner should be replaced even if the seat belts are not in use during the collision in which the air bags are deployed.

## Seat Belt Inspection

INFOID:000000004195914

### AFTER A COLLISION

#### **WARNING:**

**Inspect all seat belt assemblies including retractors and attaching hardware after any collision. NISSAN recommends that all seat belt assemblies in use during a collision be replaced unless the collision was minor and the belts show no damage and continue to operate properly. Failure to do so could result in serious personal injury in an accident. Seat belt assemblies not in use during a collision should also be replaced if either damage or improper operation is noted. Seat belt pre-tensioners should be replaced even if the seat belts are not in use during a frontal collision in which the air bags are deployed.**

Replace any seat belt assembly (including anchor bolts) if:

- The seat belt was in use at the time of a collision (except for minor collisions and the belts, retractors and buckles show no damage and continue to operate properly).
- The seat belt was damaged in an accident. (i.e. torn webbing, bent retractor or guide).
- The seat belt attaching point was damaged in an accident. Inspect the seat belt attaching area for damage or distortion and repair as necessary before installing a new seat belt assembly.
- Anchor bolts are deformed or worn out.
- The seat belt pre-tensioner should be replaced even if the seat belts are not in use during the collision in which the air bags are deployed.

### PRELIMINARY CHECKS

1. Check the seat belt warning lamp/chime for proper operation as follows:
  - a. Switch ignition ON. The seat belt warning lamp should illuminate. Also, the seat belt warning chime should sound for about seven seconds.
  - b. Fasten drivers seat belt. The seat belt warning lamp should go out and the chime (if sounding) should stop.
2. If the air bag warning lamp is blinking, conduct self-diagnosis using CONSULT-II, and air bag warning lamp. Refer to [SRC-13, "SRS Operation Check"](#).
3. Check that the seat belt retractor, seat belt anchor and buckle bolts are securely attached.
4. Check the shoulder seat belt guide and shoulder belt height adjuster for front seats. Ensure guide swivels freely and that belt lays flat and does not bind in guide. Ensure height adjuster operates properly and holds securely.
5. Check retractor operation:
  - a. Fully extend the seat belt webbing and check for twists, tears or other damage.
  - b. Allow the seat belt to retract. Ensure that belt returns smoothly and completely into the retractor. If the seat belt does not return smoothly, wipe the inside of the loops with a clean paper cloth, because dirt built up in the loops of the upper anchors can cause the seat belts to retract slowly.
  - c. Fasten the seat belt. Check the seat belt returns smoothly and completely to the retractor. If the belt does not return smoothly, the cause may be an accumulation of dust or dirt. Use the "SEAT BELT TAPE SET" and perform the following steps.

# CHASSIS AND BODY MAINTENANCE

## < SERVICE INFORMATION >

Inspect the front seat belt through-anchor:

1. Pull the seat belt out to a length of 500 mm (19.69 in) or more.
2. Use a clip or other device to hold the seat belt at the center pillar belt opening.
3. Pass a thin wire through the through-anchor belt opening. Hold both ends of the wire and pull taut while moving it up and down several times along the belt opening surface to remove dirt.
4. Any dirt that cannot be removed with the wire can be removed by cleaning the opening with a clean cloth.
5. Apply tape at the point where the belt contacts the through-anchor belt opening.

**NOTE:**

Apply the tape so that there is no looseness or wrinkling.

6. Remove the clip holding the seat belt and check that the belt returns smoothly.
7. Repeat steps above as necessary to check the other seat belts.

## SEAT BELT RETRACTOR ON-VEHICLE CHECK

Emergency Locking Retractors (ELR) and Automatic Locking Retractors (ALR)

**NOTE:**

All seat belt retractors are of the Emergency Locking Retractors (ELR) type. In an emergency (sudden stop) the retractor will lock and prevent the belt from extending any further. All 3-point type seat belt retractors except the driver's seat belt also have an Automatic Locking Retractors (ALR) mode. The ALR mode (also called child restraint mode) is used when installing child seats. The ALR mode is activated when the seat belt is fully extended. When the belt is then retracted partially, the ALR mode automatically locks the seat belt in a specific position so the belt cannot be extended any further. To cancel the ALR mode, allow the seat belt to fully wind back into the retractor.

Check the seat belt retractors using the following test(s) to determine if a retractor assembly is operating properly.

### ELR Function Stationary Check

Grasp the shoulder belt and pull forward quickly. The retractor should lock and prevent the belt from extending further.

### ALR Function Stationary Check

1. Pull out entire length of seat belt from retractor until a click is heard.
2. Retract the belt partially. A clicking noise should be heard as the belt retracts indicating that the retractor is in the Automatic Locking Retractor (ALR) mode.
3. Grasp the seat belt and try to pull out the retractor. The belt must lock and not extend any further. If necessary replace the retractor assembly.
4. Allow the entire length of the belt to retract to cancel the automatic locking mode.

### ELR Function Moving Check

**WARNING:**

**Perform the following test in a safe, open area clear of other vehicles and obstructions (for example, a large, empty parking lot). Road surface must be paved and dry. DO NOT perform the following test on wet or gravel roads or on public streets and highways. This could result in an accident and serious personal injury. The driver and passenger must be prepared to brace themselves in the event the retractor does not lock.**

1. Fasten drivers seat belt. Buckle a passenger into the seat for the belt that is to be tested.
2. Proceed to the designated safe area.
3. Drive the vehicle at approximately 16 km/h (10 MPH). Notify any passengers of a pending sudden stop. The driver and passenger must be prepared to brace themselves in the event the retractor does not lock. Apply brakes firmly and make a very hard stop.

During stop, seat belts should lock and not be extended. If the seat belt retractor assembly does not lock, perform the retractor off-vehicle check.

## SEAT BELT RETRACTOR OFF-VEHICLE CHECK

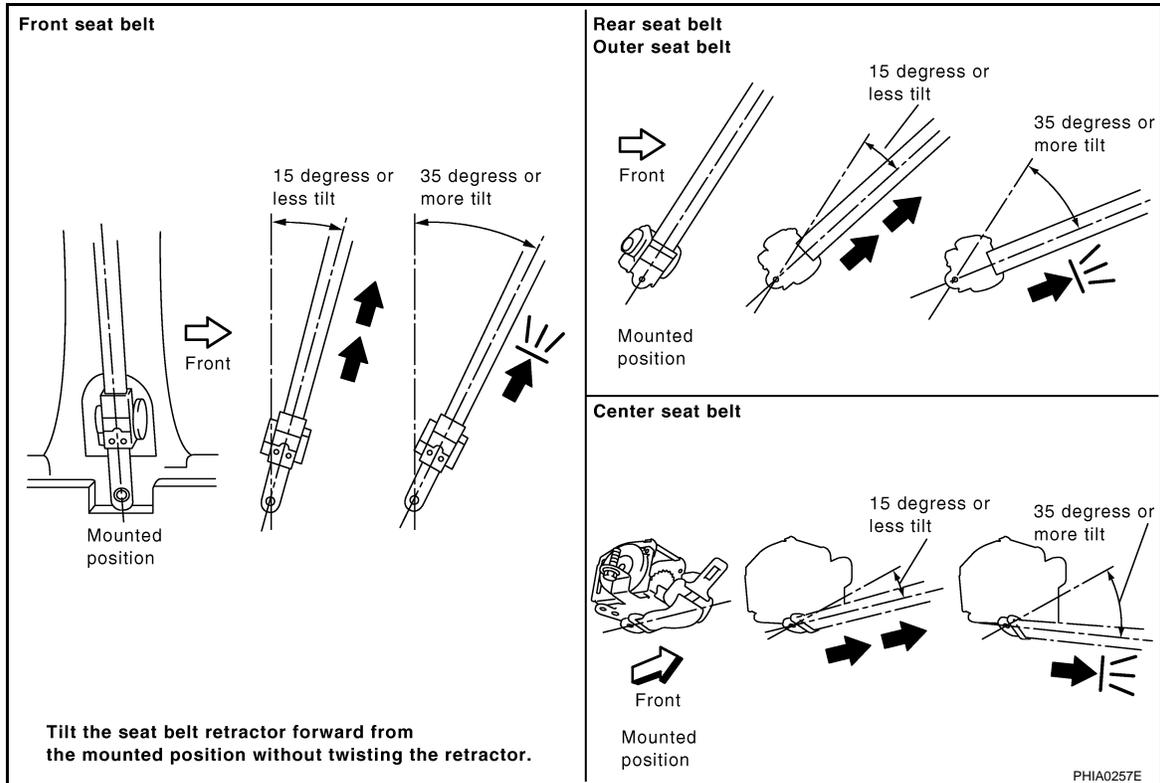
1. Remove the seat belt retractor assembly.
2. Slowly pull out belt while tilting the retractor assembly forward from the mounted position without twisting the retractor assembly as shown in the illustration.

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



# CHASSIS AND BODY MAINTENANCE

< SERVICE INFORMATION >



**15 degrees or less tilt : Belt can be pulled out.**

**35 degrees or more tilt : Belt locks and cannot be pulled out.**

If retractor does not operate within specifications, replace the retractor assembly.