

# MAINTENANCE

# SECTION MA

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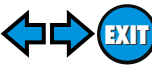
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## PRECAUTIONS

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

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

NFMA0001

The Supplemental Restraint System such as "AIR BAG" and "SEAT BELT PRE-TENSIONER" used along with a seat belt, helps to reduce the risk or severity of injury to the driver and front passenger for certain types of collision. The SRS system composition which is available to NISSAN MODEL A33 is as follows (The composition varies according to optional equipment.):

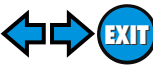
- For a frontal collision  
The Supplemental Restraint System consists of driver air bag module (located in the center of the steering wheel), front passenger air bag module (located on the instrument panel on passenger side), seat belt pre-tensioners, a diagnosis sensor unit, warning lamp, wiring harness and spiral cable.
- For a side collision  
The Supplemental Restraint System consists of front side air bag module (located in the outer side of front seat), satellite sensor, diagnosis sensor unit (one of components of air bags for a frontal collision), wiring harness, warning lamp (one of components of air bags for a frontal collision).

Information necessary to service the system safely is included in the **RS 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 should be performed by an authorized NISSAN dealer.
- Improper maintenance, including incorrect removal and installation of the SRS, can lead to personal injury caused by intentional activation of the system. For removal of Spiral Cable and Air Bag Module, see the RS section.
- Do not use electrical test equipment on any circuit related to the SRS unless instructed to in this Service Manual. Spiral cable and wiring harnesses covered with yellow insulation or tape either just before the harness connectors or for the complete harness are related to the SRS.

# PREPARATION

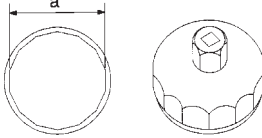


Special Service Tool

## Special Service Tool

NFMA0002

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

Tool number (Kent-Moore No.) Tool name	Description
KV10115801 (J38956) Oil filter cap wrench	<div style="display: flex; align-items: center;">  <div style="margin-left: 20px;"> <p>Removing oil filter <b>a: 64.3 mm (2.531 in)</b></p> </div> </div> <p style="text-align: left; margin-top: 10px;">NT375</p>

GI

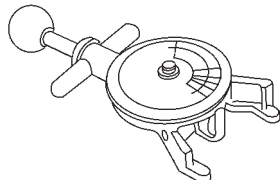
**MA**

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## Commercial Service Tool

NFMA0003

Tool name (Kent-Moore No.)	Description
Belt tension gauge (BT3373-F)	<div style="display: flex; align-items: center;">  <div style="margin-left: 20px;"> <p>Checking drive belt tension</p> </div> </div> <p style="text-align: left; margin-top: 10px;">AMA126</p>

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# GENERAL MAINTENANCE

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 with a gauge periodically when at a service station, including the spare, and adjust to the specified pressure if necessary. Check carefully for damage, cuts or excessive wear.	—
<b>Wheel nuts</b>	When checking the tires, make sure no nuts are missing, and check for any loose nuts. Tighten if necessary.	—
<b>Tire rotation</b>	Tires should be rotated every 12,000 km (7,500 miles).	MA-24
<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.	MA-23, SU-7, "Preliminary Inspection" SU-20, "Preliminary Inspection"
<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.	MA-27
<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.	—

## INSIDE THE VEHICLE

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

Item		Reference page
<b>Warning lamps and chimes</b>	Make sure that all warning lamps and chimes are operating properly.	—
<b>Windshield wiper and washer</b>	Check that the wipers and washer operate properly and that the wipers do not streak.	—
<b>Windshield defroster</b>	Check that the air comes out of the defroster outlets properly and in sufficient quantity when operating the heater or air conditioner.	—
<b>Steering wheel</b>	Check that it has the specified play. Be sure to check for changes in the steering condition, such as excessive play, hard steering or strange noises. <b>Free play: Less than 35 mm (1.38 in)</b>	—
<b>Seats</b>	Check seat position controls such as seat adjusters, seatback recliner, etc. to make sure they operate smoothly and that all latches lock securely in every position. Check that the head restraints move up and down smoothly and that the locks (if equipped) hold securely in all latched positions. Check that the latches lock securely for folding-down rear seatbacks.	—
<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.	MA-27 RS-9, "Seat Belt Inspection"
<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.	—

# GENERAL MAINTENANCE

Item		Reference page	
<b>Clutch pedal</b>	Make sure the pedal operates smoothly and check that it has the proper free play.	CL-6, "Adjusting Clutch Pedal"	GI
<b>Brakes</b>	Check that the brake does not pull the vehicle to one side when applied.	—	MA
<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 floor mats away from the pedal.	BR-13, "Brake Pedal and Bracket" and BR-21, "Brake Booster"	EM
<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.	BR-37, "Parking Brake Control"	LC
<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.	—	EC

## 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.	—	CL
<b>Engine coolant level</b>	Check the coolant level when the engine is cold.	MA-15	MT
<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.	—	AT
<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.	MA-21, 25	AX
<b>Battery</b>	Check the fluid level in each cell. It should be between the "MAX" and "MIN" lines.	—	SU
<b>Engine drive belts</b>	Make sure that no belt is frayed, worn, cracked or oily.	MA-13	
<b>Engine oil level</b>	Check the level on the dipstick after parking the vehicle on a level spot and turning off the engine.	MA-17	BR
<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.	MA-26	ST
<b>Automatic transaxle fluid level</b>	Check the level on the dipstick after putting the selector lever in "P" with the engine idling.	MA-22	RS
<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.	MA-21	BT
<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.	—	HA SC
<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.	—	EL IDX

# PERIODIC MAINTENANCE

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	MA-7
		Chassis and Body Maintenance	MA-8
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	MA-9
		Chassis and Body Maintenance	MA-10

## Schedule 1

### 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				
	3.8 (6)	7.5 (12)	11.3 (18)	15 (24)	18.8 (30)	22.5 (36)	26.3 (42)	30 (48)	33.8 (54)	37.5 (60)	41.3 (66)	45 (72)	48.8 (78)		52.5 (84)	56.3 (90)	60 (96)	
Perform at number of miles, kilometers or months, whichever comes first.	Miles x 1,000 (km x 1,000) Months																	
Drive belts	NOTE (1)																I*	MA-13
Air cleaner filter	NOTE (2)						[R]										[R]	MA-17
EVAP vapor lines							I*										I*	MA-20
Fuel lines							I*										I*	MA-16
Fuel filter	NOTE (3)																	
Engine coolant	NOTE (4)																	
Engine oil		R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R*	MA-14
Engine oil filter (Use part No. 15208-31U00 or 15208-31U01 or equivalent.)		R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	MA-17
Spark plugs (PLATINUM-TIPPED type)		Replace every 105,000 miles (169,000 km).														MA-18		
Intake & exhaust valve clearance*	NOTE (5)																	EM-52, "Valve Clearance"

**NOTE:**

- (1) After 60,000 miles (96,000 km) or 48 months, inspect every 15,000 miles (24,000 km) or 12 months.
  - (2) If operating mainly in dusty conditions, more frequent maintenance may be required.
  - (3) Maintenance-free item. For service procedures, refer to FE 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.

# PERIODIC MAINTENANCE

Schedule 1 (Cont'd)

## CHASSIS AND BODY MAINTENANCE

NFMA0005S0102

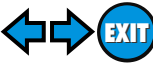
Abbreviations: R = Replace. I = Inspect. Correct or replace if necessary. L = Lubricate.

MAINTENANCE OPERATION	MAINTENANCE INTERVAL														Reference Section - Page or Content Title		
	3.8 (6)	7.5 (12)	11.3 (18)	15 (24)	18.8 (30)	22.5 (36)	26.3 (42)	30 (48)	33.8 (54)	37.5 (60)	41.3 (66)	45 (72)	48.8 (78)	52.5 (84)		56.3 (90)	60 (96)
Perform at number of miles, kilometers or months, whichever comes first.	Miles x 1,000 (km x 1,000) Months																
Brake lines & cables				I			I					I				I	MA-25
Brake pads & rotors		I		I			I					I				I	MA-25
Manual transaxle oil or automatic transaxle fluid	NOTE (1)			I			I					I				I	MA-21, 22
Steering gear & linkage, axle & suspension parts		I		I			I					I				I	MA-26 NOTE (3)
Tire rotation	NOTE (4)																MA-4 MA-24
Front drive shaft boots		I		I			I					I				I	AX-4, "DRIVE SHAF" "
Exhaust system		I		I			I					I				I	MA-21
Supplemental air bag system and supplemental side air bag systems	NOTE (2)																RS-17, "Maintenance Items"
ASCD vacuum hoses							I									I	EL-212, "ASCD ACTUATOR/ PUMP CHECK"

**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) Inspect the supplemental air bag systems 10 years after the date of manufacture noted on the FMVSS certification label.
- (3) Refer to SU-6, "Front Suspension Parts", SU-20, "Rear Suspension Parts", AX-3, "Front Axle Parts" and AX-18, "Rear Axle Parts".
- (4) Refer to "Tire rotation" under the "General maintenance" heading earlier in this section.





Schedule 2

EMISSION CONTROL SYSTEM MAINTENANCE

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NFMA0005S0201

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

MAINTENANCE OPERATION	Miles x 1,000 (km x 1,000) Months	MAINTENANCE INTERVAL								Reference Section - Page or - Content Title	
		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*	MA-13
Air cleaner filter					[R]					[R]	MA-17
EVAP vapor lines					I*					I*	MA-20
Fuel lines					I*					I*	MA-16
Fuel filter	NOTE (2)										
Engine coolant	NOTE (3)									R*	MA-14
Engine oil		R	R	R	R	R	R	R	R	R	MA-17
Engine oil filter (Use part No. 15208-31U00 or 15208-31U01 or equivalent.)		R	R	R	R	R	R	R	R	R	MA-18
Spark plugs (PLATINUM-TIPPED type)		Replace every 105,000 miles (169,000 km).									MA-18
Intake & exhaust valve clearance*	NOTE (4)										EM-52, "Valve Clearance"

NOTE:

- (1) After 60,000 miles (96,000 km) or 48 months, inspect every 15,000 miles (24,000 km) or 12 months.
- (2) Maintenance-free item. For service procedures, refer to FE 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.

# PERIODIC MAINTENANCE

Schedule 2 (Cont'd)

## CHASSIS AND BODY MAINTENANCE

NFMA0005S0202

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

MAINTENANCE OPERATION	Miles x 1,000 (km x 1,000) Months	MAINTENANCE INTERVAL								Reference Section - Page or - Content Title	
		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.											
Brake lines & cables			I		I						MA-25
Brake pads & rotors			I		I						MA-25
Manual transaxle oil or automatic transaxle fluid			I								MA-21, 22
Steering gear & linkage, axle & suspension parts											MA-26 NOTE (2)
Tire rotation	NOTE (3)										MA-4 MA-24
Front drive shaft boots			I		I						AX-4, "Drive Shaft"
Exhaust system					I						MA-21
Supplemental air bag system and supplemental side air bag systems	NOTE (1)										RS-17, "Maintenance Items"
ASCD vacuum hoses			I		I						EL-212, "ASCD ACTUATOR/PUMP CHECK"

**NOTE:**

- (1) Inspect the supplemental air bag systems 10 years after the date of manufacture noted on the FMVSS certification label.
- (2) Refer to SU-6, "Front Suspension Parts", SU-20, "Rear Suspension Parts", AX-3, "Front Axle Parts" and AX-18, "Rear Axle Parts".
- (3) Refer to "Tire rotation" under the "General maintenance" heading earlier in this section.

## Fluids and Lubricants

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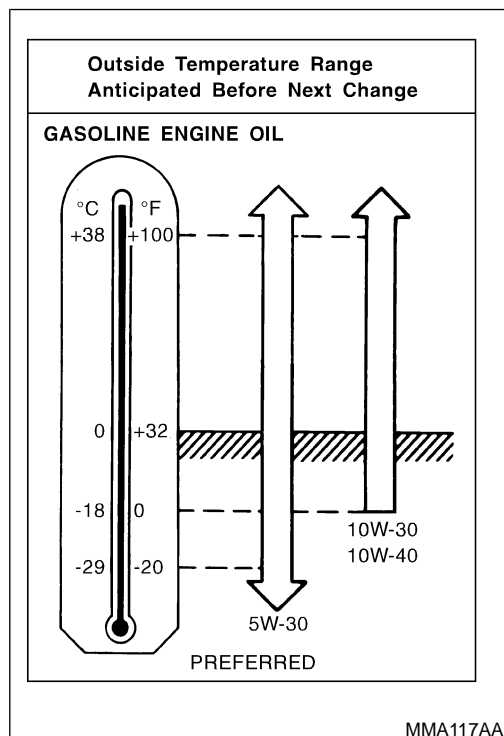
		Capacity (Approximate)			Recommended Fluids/Lubricants
		US measure	Imp measure	Liter	
Engine oil Drain and refill	With oil filter change	4-1/4 qt	3-1/2 qt	4.0	<ul style="list-style-type: none"> <li>● API Certification Mark*1</li> <li>● API grade SG/SH, Energy Conserving I &amp; II or API grade SJ, Energy Conserving*1</li> <li>● ILSAC grade GF-I &amp; GF-II*1</li> </ul>
	Without oil filter change	3-7/8 qt	3-1/4 qt	3.7	
Dry engine (engine overhaul)		5-1/8 qt	4-1/4 qt	4.8	
Cooling system	With reservoir	8-1/8 qt	6-3/4 qt	7.7	Genuine Nissan Anti-freeze coolant or equivalent
	Reservoir	3/4 qt	5/8 qt	0.7	
Manual trans-axle gear oil	RS5F50A	9-1/2 - 10-1/8 pt	7-7/8 - 8-1/2 pt	4.5 - 4.8	API GL-4, Viscosity SAE 80W-90 only
	RS5F50V	9-1/8 - 9-1/2 pt	7-5/8 - 7-7/8 pt	4.3 - 4.5	
Automatic trans-axle fluid	RE4F04B/ RE4F04W	10 qt	8-1/4 qt	9.4	Nissan Matic "D" (Continental U.S. and Alaska) or Canada NISSAN Automatic Transmission Fluid*2
Power steering fluid		—	—	—	Power Steering Fluid: Genuine NISSAN PSF II or equivalent*4
Brake and clutch fluid		—	—	—	Genuine Nissan Brake Fluid*3 or equivalent DOT 3 (US FMVSS No. 116)
Multi-purpose grease		—	—	—	NLGI No. 2 (Lithium soap base)

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

\*4: Genuine Nissan PSF, Canada NISSAN Automatic Transmission Fluid, Dexron™ III/Mercon™, or equivalent ATF may also be used.



### SAE Viscosity Number GASOLINE ENGINE OIL

NFMA0006S02

NFMA0006S0203

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).

# RECOMMENDED FLUIDS AND LUBRICANTS

## Anti-freeze Coolant Mixture Ratio

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

SMA947CA

## Anti-freeze Coolant Mixture Ratio

NFMA0006S03

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.

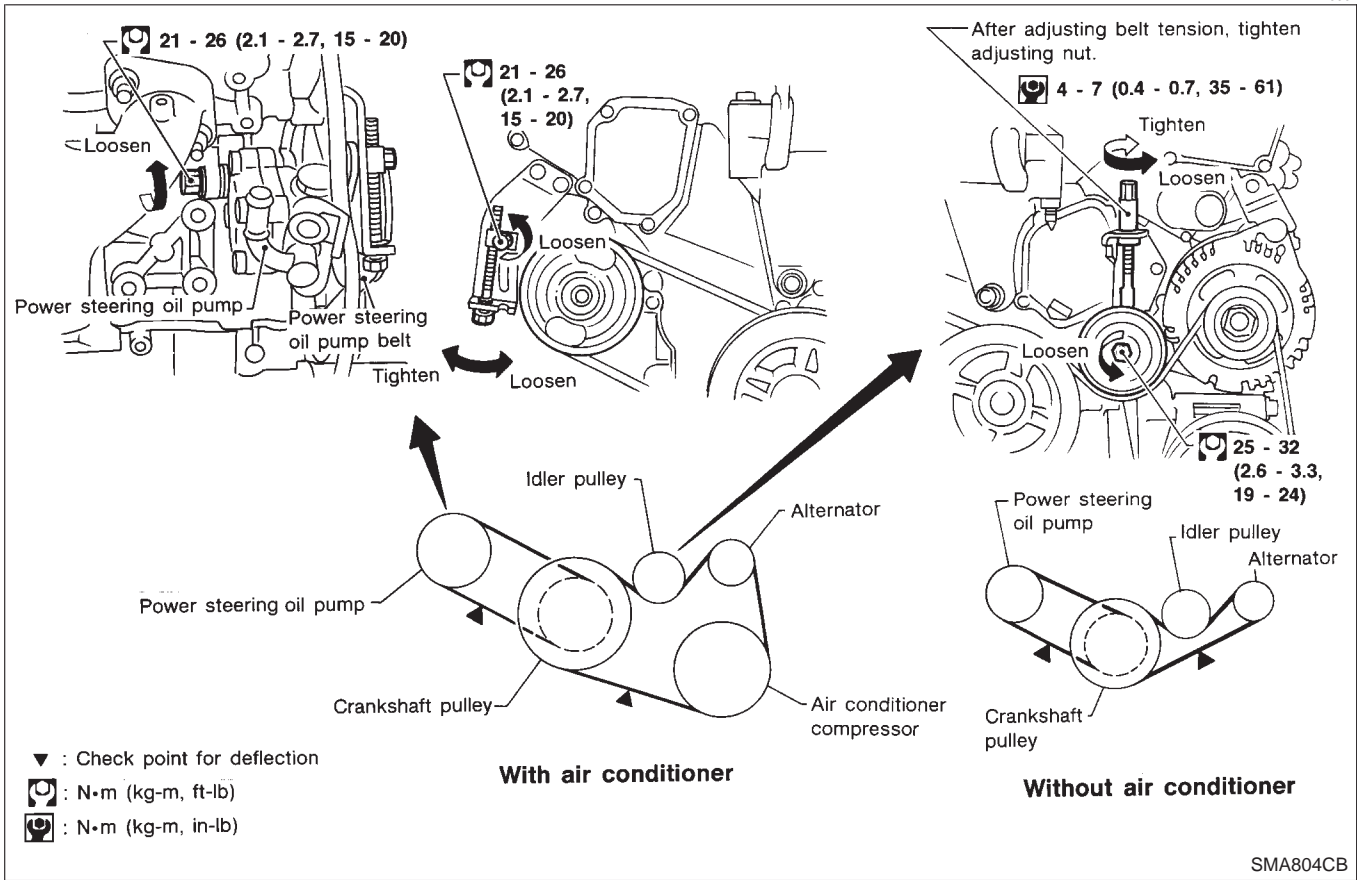
**CAUTION:**

**When adding or replacing coolant, be sure to use only Genuine Nissan anti-freeze 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.**

## Checking Drive Belts

NFMA0007



GI  
**MA**  
 EM  
 LC  
 EC  
 FE  
 CL  
 MT  
 AT  
 AX

1. Inspect belts for cracks, fraying, wear and oil. If necessary, replace.
2. Inspect drive belt deflection or tension at a point on the belt midway between pulleys.
  - Check belt tension using belt tension gauge (BT 3373-F or equivalent).
  - Inspect drive belt deflection or tension when engine is cold.

**Adjust if belt deflection exceeds the limit or if belt tension is not within specifications.**

- Drive belt tension can also be checked at other points on the belts.

### Belt deflection and tension:

		Deflection adjustment Unit: mm (in)			Tension adjustment*1 Unit: N (kg, lb)		
		Used belt		New belt	Used belt		New belt
		Limit	After adjustment		Limit	After adjustment	
Alternator	With air conditioner compressor	7 (0.28)	4.2 - 4.6 (0.165 - 0.181)	3.7 - 4.1 (0.146 - 0.161)	294 (30, 66)	730 - 818 (74.5 - 83.5, 164 - 184)	838 - 926 (85.45 - 94.43, 188.4 - 208.2)
	Without air conditioner compressor	10 (0.39)	6.3 - 6.9 (0.248 - 0.272)	5.6 - 6.0 (0.220 - 0.236)	294 (30, 66)	730 - 818 (74.5 - 83.5, 164 - 184)	838 - 926 (85.45 - 94.43, 188.4 - 208.2)

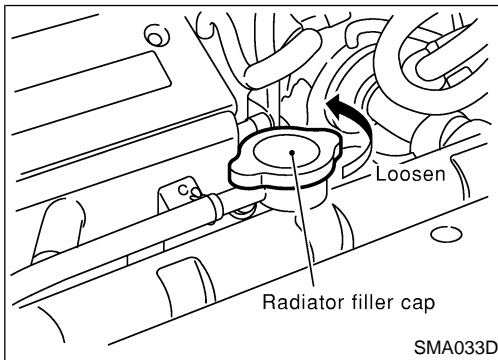
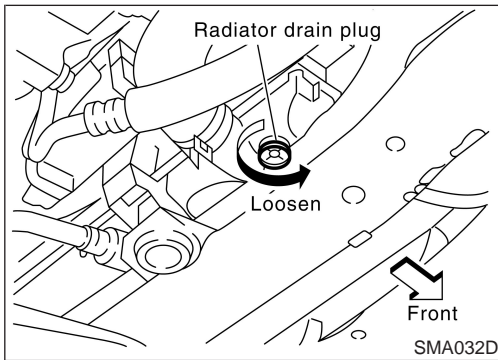
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# ENGINE MAINTENANCE

## Checking Drive Belts (Cont'd)

	Deflection adjustment Unit: mm (in)			Tension adjustment*1 Unit: N (kg, lb)		
	Used belt		New belt	Used belt		New belt
	Limit	After adjustment		Limit	After adjustment	
Power steering oil pump	11 (0.43)	7.3 - 8 (0.287 - 0.315)	6.5 - 7.2 (0.256 - 0.283)	196 (20, 44)	495 - 583 (50.5 - 59.5, 111 - 131)	603 - 691 (61.5 - 70.5, 136 - 155)
Applied pushing force	98 N (10 kg, 22 lb)			—		

\*1: If the belt tension gauge cannot be installed at check points shown, check drive belt tension at a different location on the belt.



## Changing Engine Coolant

NFMA0008

### **WARNING:**

To avoid the danger of being scalded, never change the coolant when the engine is hot.

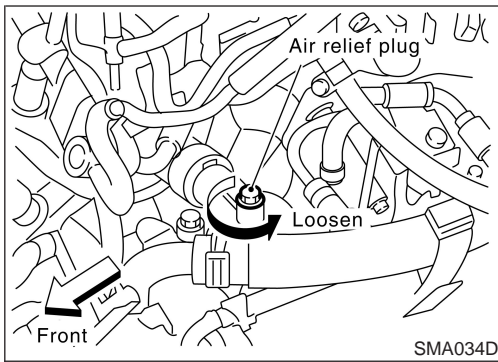
### — DRAINING ENGINE COOLANT —

NFMA0008S01

1. Set air conditioning system as follows to prevent coolant from remaining in the system.
    - a. Turn ignition switch ON and set temperature controller to maximum hot position.
    - b. Wait 10 seconds before turning ignition switch OFF.
  2. Open radiator drain plug at the bottom of radiator, and remove radiator filler cap.
  3. Remove reservoir tank, drain coolant, then clean reservoir tank.
- **Be careful not to allow coolant to contact drive belts.**

# ENGINE MAINTENANCE

Changing Engine Coolant (Cont'd)



4. Remove drain plugs on both sides of cylinder block and air relief plug.
5. Check drained coolant for contaminants such as rust, corrosion or discoloration. If contaminated flush engine cooling system, refer to "FLUSHING COOLING SYSTEM", MA-16.

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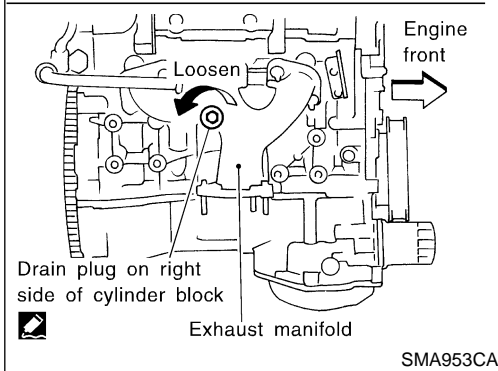
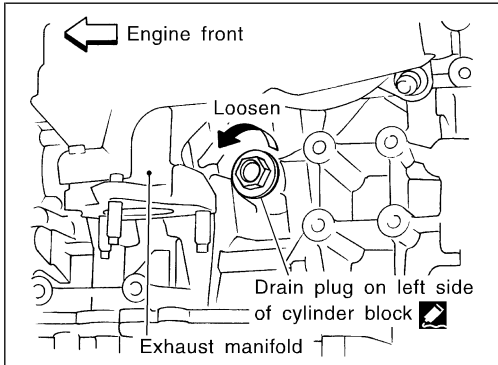
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## — REFILLING ENGINE COOLANT —

NFMA0008S02

1. Install reservoir tank, and radiator drain plug.
2. Close and tighten cylinder block drain plugs securely.
  - **Apply sealant to the thread of cylinder block drain plugs.**
    - : 60 - 66 N·m (6.1 - 6.7 kg-m, 44 - 48 ft-lb) Left side
    - : 18 - 22 N·m (1.8 - 2.2 kg-m, 13 - 16 ft-lb) Right side
3. Fill radiator slowly with coolant until coolant spills from the air relief plug, then install air relief plug.
  - Air relief plug:**
    - : 6.9 - 7.8 N·m (0.7 - 0.8 kg-m, 61 - 69 in-lb)
- Use genuine Nissan anti-freeze coolant or equivalent mixed with water (distilled or demineralized).

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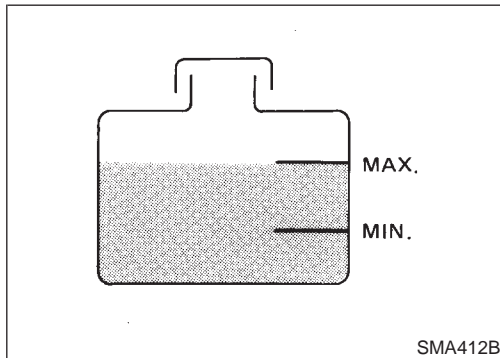
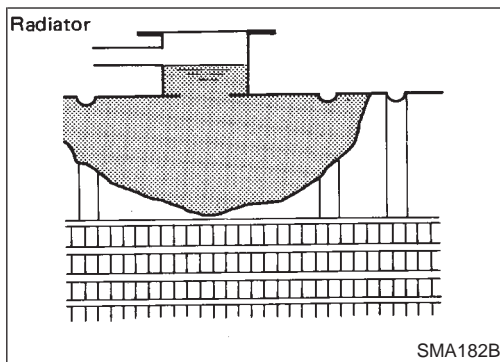
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# ENGINE MAINTENANCE

## Changing Engine Coolant (Cont'd)



Refer to “RECOMMENDED FLUIDS AND LUBRICANTS”, MA-11.

**Engine coolant capacity (With reservoir tank):**

**7.7 ℓ (8-1/8 US qt, 6-3/4 Imp qt)**

**Reservoir tank capacity:**

**0.7 ℓ (3/4 US qt, 5/8 Imp qt)**

- Pour coolant through coolant filler neck slowly to allow air in system to escape.
- 4. Fill radiator and reservoir tank to specified level.
- 5. Warm up engine to normal operating temperature without radiator cap installed.
- If coolant overflows radiator filler hole, install filler cap.
- 6. Run engine at 2,500 rpm for 10 seconds and return to idle speed with radiator cap installed.
- Repeat two or three times.

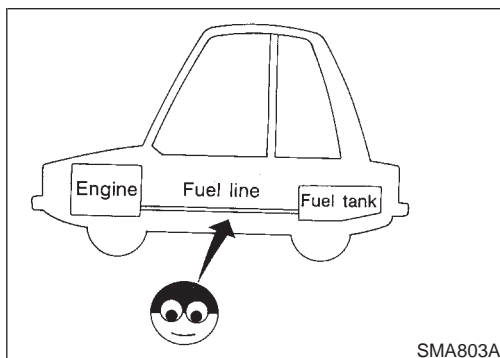
**Watch coolant temperature gauge so as not to overheat the engine.**

- 7. Stop engine and cool it down.
- Cool down using a fan to reduce the time.
- If necessary, refill radiator up to filler neck with coolant.
- 8. Refill reservoir tank to MAX level line with coolant.
- 9. Repeat steps 5 through 8 two or more times with radiator cap installed until coolant level no longer drops.
- 10. Check cooling system for leaks with engine running.
- 11. Warm up engine, and check for sound of coolant flow while running engine from idle up to 3,000 rpm with heater temperature controller set at several positions between COOL and WARM.
- Sound may be noticeable at heater water cock.
- 12. If sound is heard, bleed air from cooling system by repeating steps 5 through 8 until coolant level no longer drops
- Clean excess coolant from engine.

### — FLUSHING COOLING SYSTEM —

NFMA0008S03

1. Open air relief plug.
2. Fill radiator with water until water spills from the air relief hole, then close air relief plug. Fill radiator and reservoir tank with water and reinstall radiator cap.
3. Run engine and warm it up to normal operating temperature.
4. Rev engine two or three times under no-load.
5. Stop engine and wait until it cools down.
6. Drain water.
7. Repeat steps 1 through 6 until clear water begins to drain from radiator.

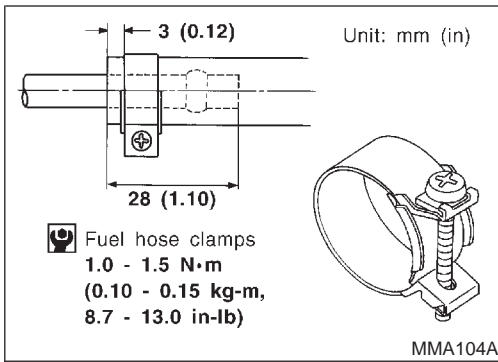


### Checking Fuel Lines

NFMA0009

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





**CAUTION:**

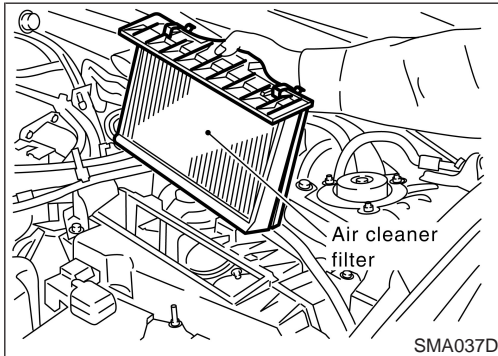
Tighten high-pressure rubber hose clamp so that clamp end is 3 mm (0.12 in) from hose end. Tightening torque specifications are the same for all rubber hose clamps. Ensure that screw does not contact adjacent parts.

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## Changing Air Cleaner Filter

### VISCOUS PAPER TYPE

The viscous paper type filter does not need cleaning.

NFMA0011

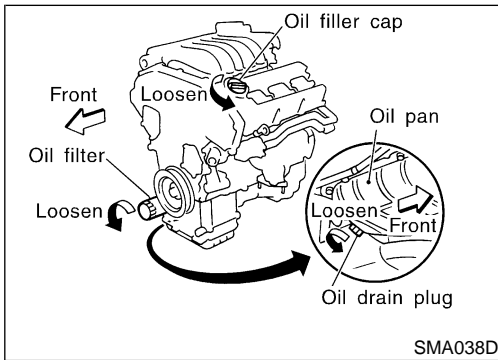
NFMA0011S01

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## Changing Engine Oil

**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. Warm up engine, and check for oil leakage from engine components.
2. Stop engine and wait more than 10 minutes.
3. Remove drain plug and oil filler cap.
4. Drain oil and refill with new engine oil.

### Oil specification and viscosity:

- API Certification Mark
- API grade SG/SH, Energy Conserving I & II or API grade SJ, Energy Conserving
- ILSAC grade GF-I & GF-II
- Refer to "RECOMMENDED FLUIDS AND LUBRICANTS", MA-11.

### Oil capacity (Approximate):

Unit: liter (US qt, Imp qt)

Drain and refill	With oil filter change	4.0 (4-1/4, 3-1/2)
	Without oil filter change	3.7 (3-7/8, 3-1/4)
Dry engine (engine overhaul)		4.8 (5-1/8, 4-1/4)

**CAUTION:**

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

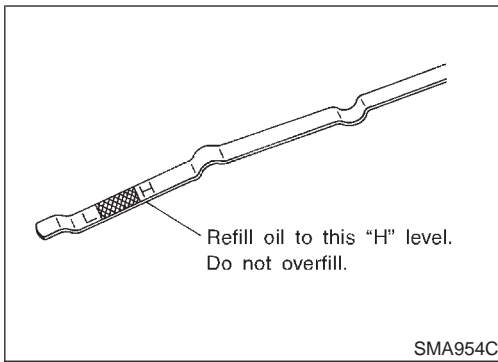
**Oil pan drain plug:**

: 29 - 39 N·m (3.0 - 4.0 kg-m, 22 - 29 ft-lb)

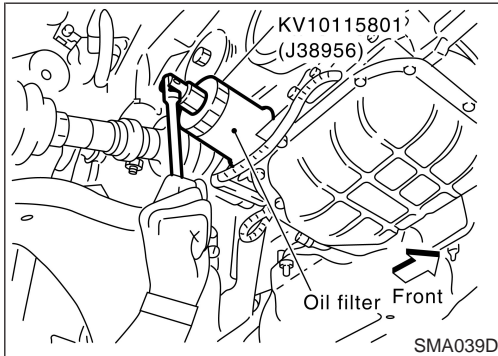
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# ENGINE MAINTENANCE

## Changing Engine Oil (Cont'd)



- The refill 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.
  - Never pull out level gauge while filling engine oil.
5. Warm up engine and check area around drain plug and oil filter for oil leakage.
  6. Stop engine and wait more than 10 minutes.
  7. Check oil level.



## Changing Oil Filter

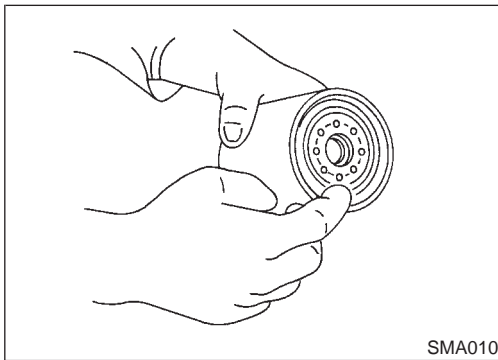
1. The oil filter is a small full-flow cartridge type and is provided with a relief valve. NFMA0013

Refer to LC-6, "Oil Filter".

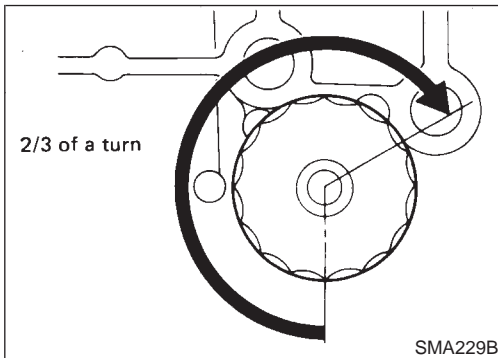
2. Remove oil filter with Tool or suitable tool.

**WARNING:**

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



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

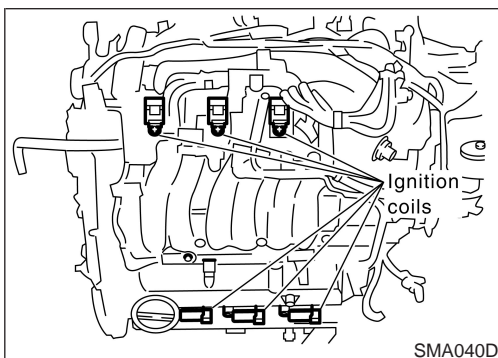


4. Screw in the oil filter until a slight resistance is felt, then tighten additionally 2/3 turn.
5. Add engine oil.

**Oil filter:**

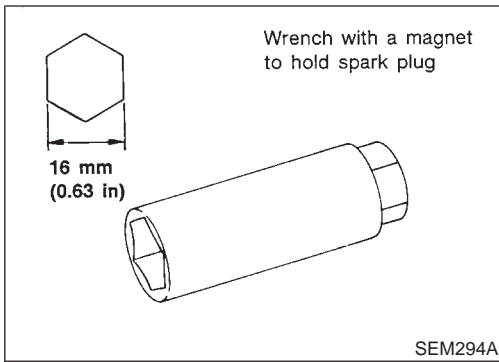
: 14.7 - 20.5 N·m (1.5 - 2.1 kg-m, 11 - 15 ft-lb)

Refer to "Changing Engine Oil", MA-17.



## Changing Spark Plugs

1. Remove left side rocker cover ornament. NFMA0014
2. Disconnect ignition coil harness connectors.
3. Loosen ignition coil fixing bolts and pull out coil from intake manifold connector.



4. Remove spark plugs with suitable spark plug wrench.

**Spark plug (Platinum-tipped type):**

Make	NGK
Standard type	PFR5G-11
Hot type	PFR4G-11
Cold type	PFR6G-11

GI

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

The hot type spark plug is suitable when fouling may occur with the standard type spark plug such as:

LC

- frequent engine starts
- low ambient temperatures

EC

The cold type spark plug is suitable when spark knock may occur with the standard type spark plug such as:

- extended highway driving
- frequent high engine revolution

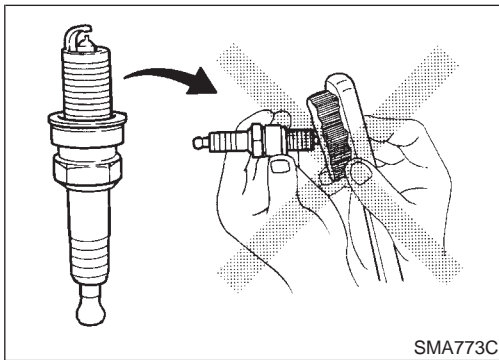
FE

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

CL

**: 20 - 29 N-m (2.0 - 3.0 kg-m, 14 - 22 ft-lb)**

MT



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

AT

**Cleaner air pressure:**

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

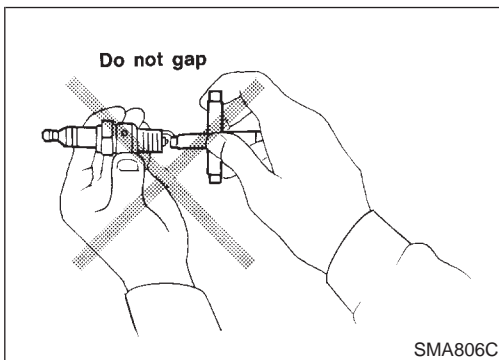
AX

**Cleaning time:**

**Less than 20 seconds**

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- Checking and adjusting plug gap is not required.

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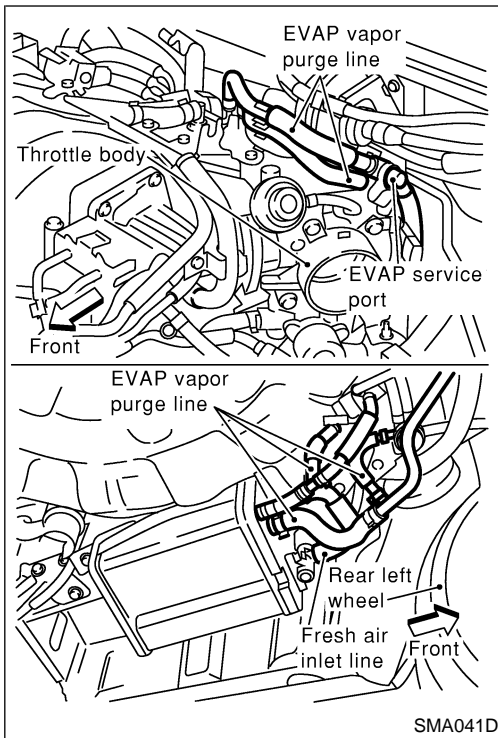
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## Checking EVAP Vapor Lines

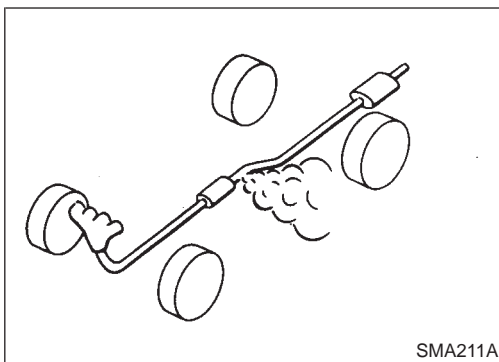


### Checking EVAP Vapor Lines

NFMA0015

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

Refer to EC-36, "Evaporative Emission System".



## Checking Exhaust System

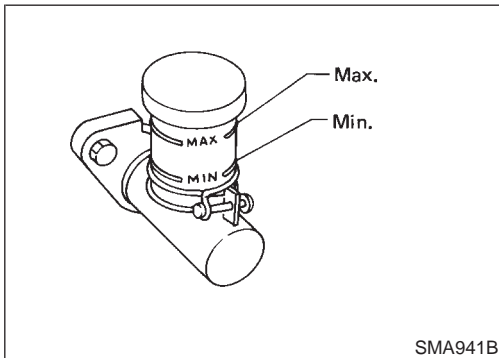
Check exhaust pipes, muffler and mounting for improper attachment, leaks, cracks, damage, chafing or deterioration. NFMA0016

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## Checking Clutch Fluid Level and Leaks

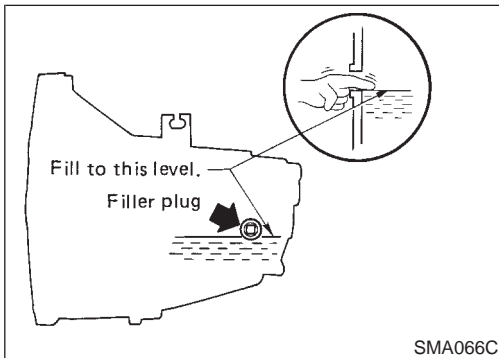
If fluid level is extremely low, check clutch system for leaks. NFMA0017

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## Checking M/T Oil

Check for oil leakage and oil level. NFMA0018

Never start engine while checking oil level.

Filler plug:

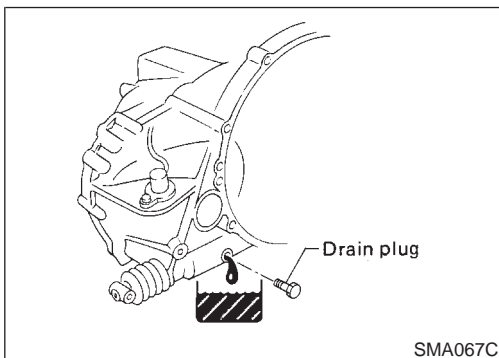
: 25 - 34 N·m (2.5 - 3.5 kg·m, 18 - 25 ft·lb)

AT

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## Changing M/T Oil

1. Drain oil from drain plug and refill with new gear oil. NFMA0019
2. Check oil level.

Oil grade:

API GL-4

Viscosity:

See "RECOMMENDED FLUIDS AND LUBRICANTS", MA-11.

Capacity:

RS5F50A

4.5 - 4.8 l

(9-1/2 - 10-1/8 US pt, 7-7/8 - 8-1/2 Imp pt)

RS5F50V

4.3 - 4.5 l

(9-1/8 - 9-1/2 US pt, 7-5/8 - 7-7/8 Imp pt)

Drain plug:

: 15 - 20 N·m (1.5 - 2.0 kg·m, 11 - 14 ft·lb)

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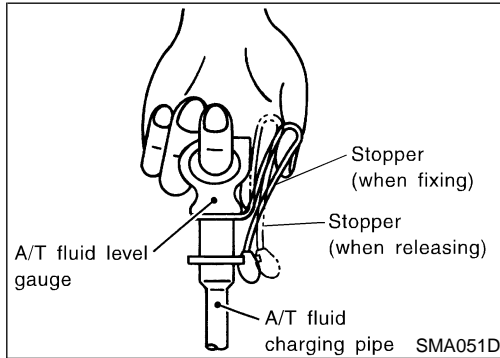
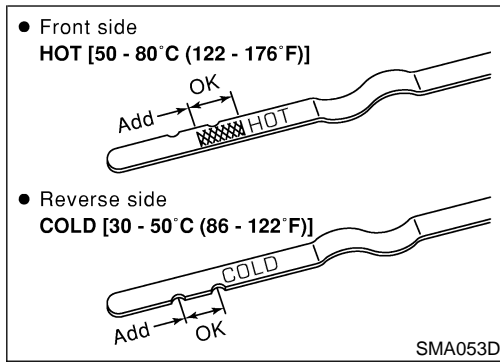
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# CHASSIS AND BODY MAINTENANCE

## Checking A/T Fluid



## Checking A/T Fluid

NFMA0020

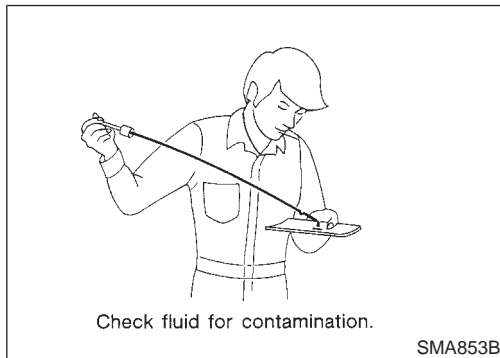
1. Warm up engine.
2. Check for fluid leakage.
3. Before driving, fluid level can be checked at fluid temperatures of 30 to 50°C (86 to 122°F) using “COLD” range on A/T fluid level gauge.
  - a. Park vehicle on level surface and set parking brake.
  - b. Start engine and move selector lever through each gear position. Leave selector lever in “P” position.
  - c. Check fluid level with engine idling.
  - d. Remove A/T fluid level gauge and wipe clean with lint-free paper.
  - e. Re-insert A/T fluid level gauge into charging pipe as far as it will go.
  - f. Remove A/T fluid level gauge and note reading. If reading is at low side of range, add fluid to the charging pipe.

### Do not overfill.

4. Drive vehicle for approximately 5 minutes in urban areas.
5. Re-check fluid level at fluid temperatures of 50 to 80°C (122 to 176°F) using “HOT” range on A/T fluid level gauge.

### CAUTION:

Firmly fix the A/T fluid level gauge to the A/T fluid charging pipe using a stopper attached.



6. Check fluid condition.
  - If fluid is very dark or smells burned, refer to AT section for checking operation of A/T. Flush cooling system after repair of A/T.
  - If A/T fluid contains frictional material (clutches, bands, etc.), replace radiator and flush cooler line using cleaning solvent and compressed air after repair of A/T. Refer to LC-16, “Radiator”.

## Changing A/T Fluid

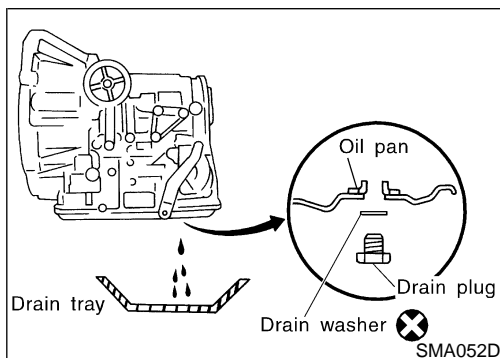
NFMA0021

1. Warm up A/T fluid.
2. Stop engine.
3. Drain A/T fluid from drain plug and refill with new A/T fluid. Always refill same volume with drained fluid.

### Fluid grade:

**Nissan Matic “D” (Continental U.S. and Alaska) or Canada NISSAN Automatic Transmission Fluid**

**Refer to “RECOMMENDED FLUIDS AND LUBRICANTS”, MA-11.**



## Fluid capacity (With torque converter):

RE4F04B/RE4F04W

9.4 l (10 US qt, 8-1/4 Imp qt)

## Drain plug:

: 29 - 39 N·m (3.0 - 4.0 kg·m, 22 - 29 ft·lb)

4. Run engine at idle speed for five minutes.
5. Check fluid level and condition. Refer to "Checking A/T Fluid". If fluid is still dirty, repeat step 2. through 5.

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## Balancing Wheels (Bonding Weight Type)

NFMA0022

### REMOVAL

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

### CAUTION:

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

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

### CAUTION:

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

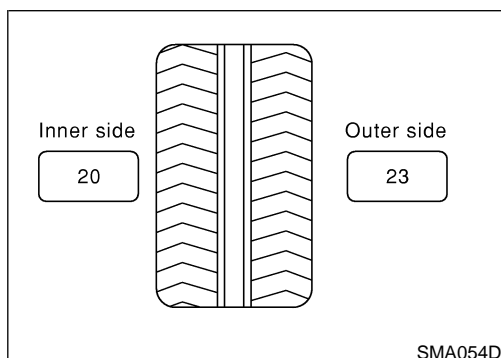
### WHEEL BALANCE ADJUSTMENT

NFMA0022S02

- If a tire balance machine has adhesion balance weight mode settings and drive-in weight mode setting, select and adjust a drive-in weight mode suitable for road wheels.
1. Set road wheel on wheel balancer using the center hole as a guide. Start the tire balance machine.
  2. When 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 above and install it to the designated outer position of, or at the designated angle in relation to the road wheel.

### CAUTION:

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



SMA054D

Indicated unbalance value  $\times$  1.6 = balance weight to be installed

Calculation example:

23 g (0.81 oz)  $\times$  1.6 = 38.33 g (1.35 oz) = 40 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 = 35 g (1.23 oz)

37.5 = 40 g (1.41 oz)

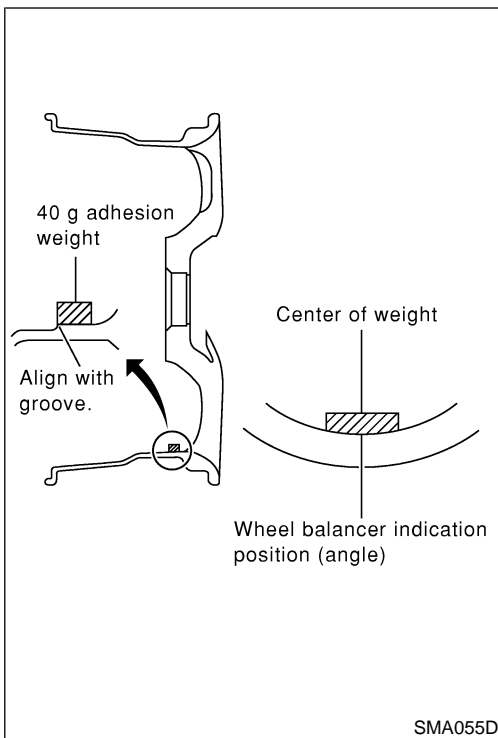
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# CHASSIS AND BODY MAINTENANCE

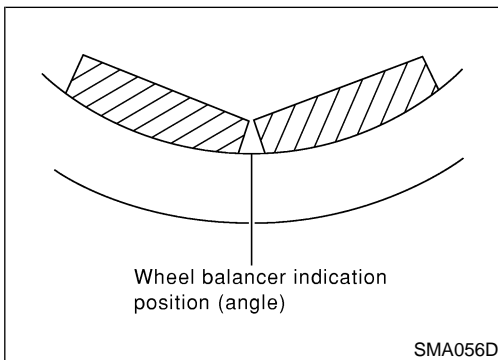
## Balancing Wheels (Bonding Weight Type) (Cont'd)



- Install balance weight in the position shown in the figure at left.
- When installing balance weight to road wheels, set it into the grooved area on the inner wall of the road wheel as shown in the figure at left 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 un reusable; always replace with new ones.
- Do not install more than three sheets of balance weight.



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

### CAUTION:

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

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

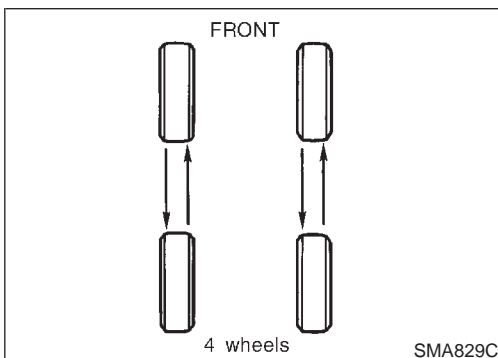
### CAUTION:

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

- Start wheel balancer. Make sure that inner and outer residual unbalance values are 10 g (0.35 oz) each or below.
- If either residual unbalance value exceeds 10 g (0.35 oz), repeat installation procedures.

### Wheel balance (Maximum allowable unbalance):

Maximum allowable unbalance	Dynamic (At rim flange)	10 g (0.35 oz) (one side)
	Static	20 g (0.71 oz)



## Tire Rotation

Do not include the T-type spare tire when rotating the tires. NFMA0023

### Wheel nuts:

: 98 - 118 N-m (10.0 - 12.0 kg-m, 72 - 87 ft-lb)



## Checking Brake Fluid Level and Leaks

NFMA0024

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

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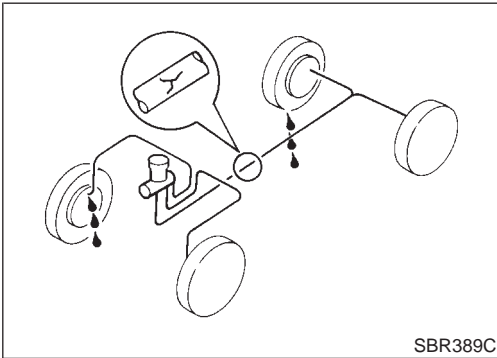
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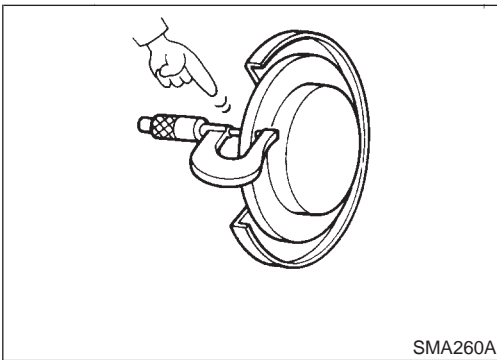


SBR389C

## Checking Brake Lines and Cables

NFMA0025

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



SMA260A

## Checking Disc Brake ROTOR

NFMA0026

NFMA0026S01

Check condition and thickness.

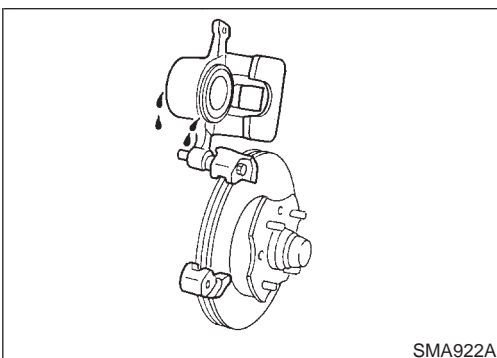
Unit: mm (in)

	Front	Rear
Brake model	CLZ25VC	CL9HB
Standard thickness	26 (1.02)	9 (0.35)
Maximum runout	0.07 (0.0028)	0.07 (0.0028)
Minimum thickness (Wear limit)	24.0 (0.945)	8.0 (0.315)

## CALIPER

Check for leakage.

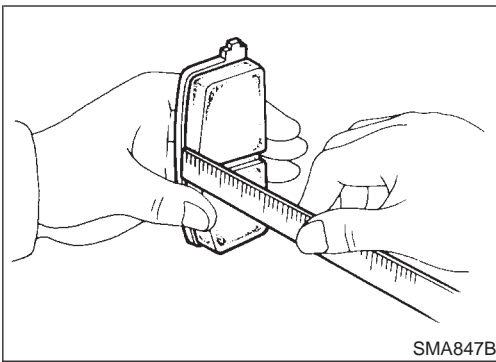
NFMA0026S02



SMA922A

# CHASSIS AND BODY MAINTENANCE

## Checking Disc Brake (Cont'd)



SMA847B

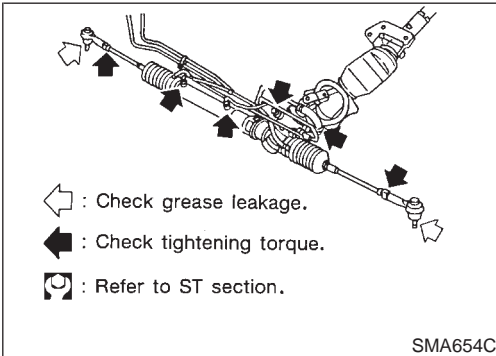
### PAD

Check for wear or damage.

NFMA0026S03

Unit: mm (in)

Brake model	CLZ25VC	CL9HB
Standard thickness	11 (0.43)	10 (0.39)
Minimum thickness (Wear limit)	2.0 (0.079)	1.5 (0.059)



SMA654C

## Checking Steering Gear and Linkage

NFMA0027

### STEERING GEAR

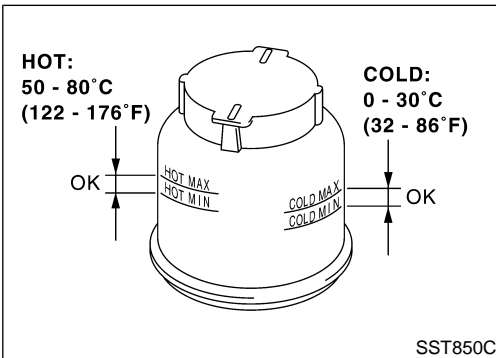
NFMA0027S01

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

### STEERING LINKAGE

NFMA0027S02

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



SST850C

## Checking Power Steering Fluid and Lines

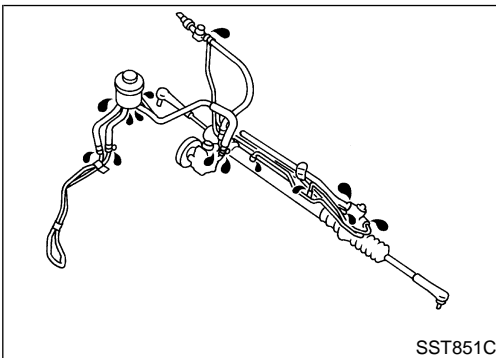
NFMA0028

Check fluid level in reservoir tank with engine off.

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

### CAUTION:

- Do not overfill.
- Recommended fluid is Genuine NISSAN PSF II or equivalent. Refer to "RECOMMENDED FLUIDS AND LUBRICANTS", MA-11.



SST851C

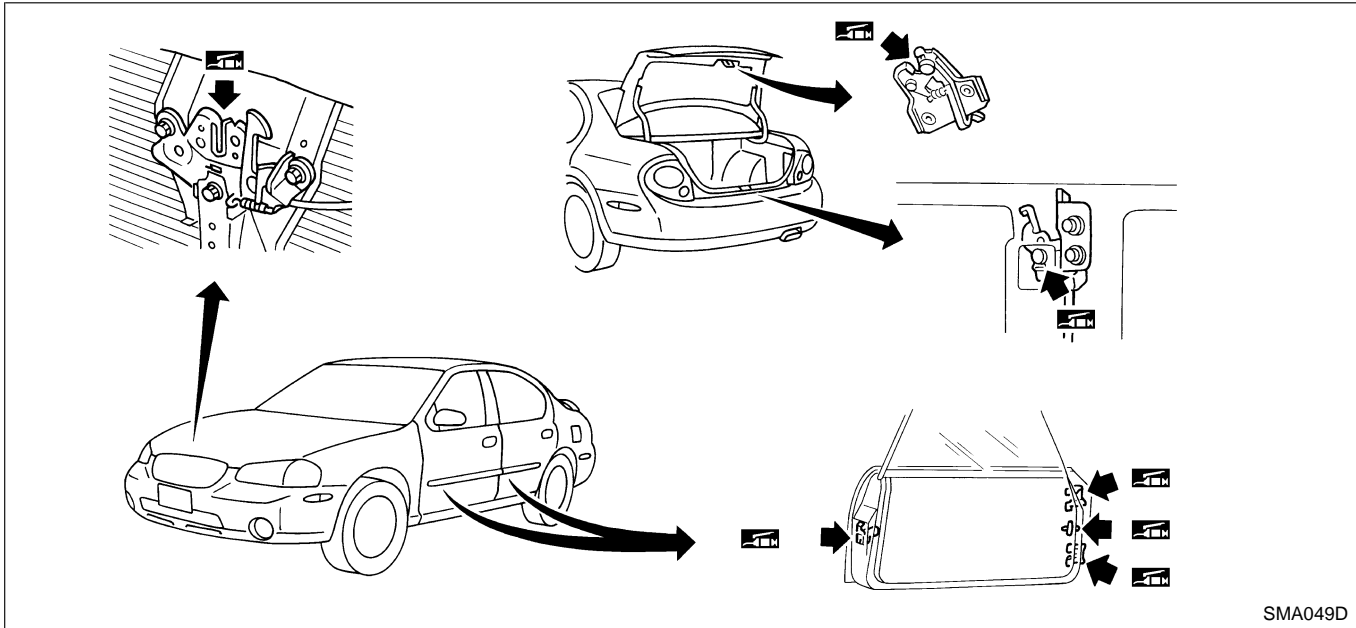
- Check lines for improper attachment, leaks, cracks, damage, loose connections, chafing and deterioration.
- Check rack boots for accumulation of power steering fluid.

# CHASSIS AND BODY MAINTENANCE

Lubricating Locks, Hinges and Hood Latches

## Lubricating Locks, Hinges and Hood Latches

NFMA0029



SMA049D

GI

MA

EM

LC

EC

FE

CL

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

NFMA0030

MT

AT

AX

SU

BR

ST

RS

BT

HA

SC

EL

IDX

### CAUTION:

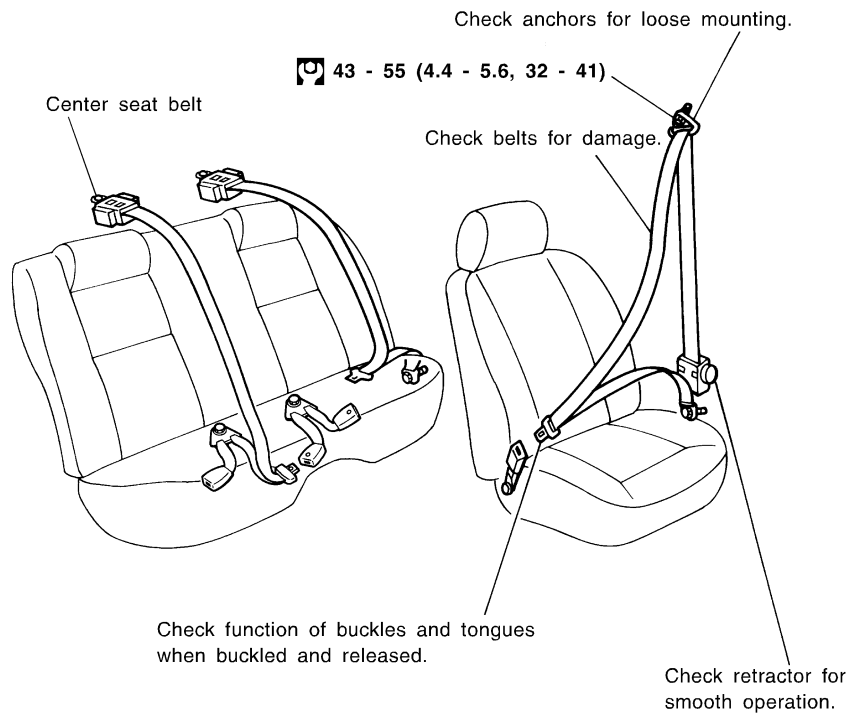
- After any collision, inspect all seat belt assemblies, including retractors and other attached hardware (i.e. anchor bolt, guide rail set). Nissan recommends to replace all seat belt assemblies in use during a collision, unless not damaged and properly operating after minor collision. Also inspect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

For details, refer to "Seat Belt Inspection", "SEAT BELTS" in RS section.

Anchor bolt

43 - 55 (4.4 - 5.6, 32 - 41)

: N·m (kg-m, ft-lb)



SMA042D

## Engine Maintenance

### BELT DEFLECTION AND TENSION

NFMA0031

		Deflection adjustment Unit: mm (in)			Tension adjustment*1 Unit: N (kg, lb)		
		Used belt		New belt	Used belt		New belt
		Limit	After adjustment		Limit	After adjustment	
Alternator	With air conditioner compressor	7 (0.28)	4.2 - 4.6 (0.165 - 0.181)	3.7 - 4.1 (0.146 - 0.161)	294 (30, 66)	730 - 818 (74.5 - 83.5, 164 - 184)	838 - 926 (85.45 - 94.43, 188.4 - 208.2)
	Without air conditioner compressor	10 (0.39)	6.3 - 6.9 (0.248 - 0.272)	5.6 - 6.0 (0.220 - 0.236)	294 (30, 66)	730 - 818 (74.5 - 83.5, 164 - 184)	838 - 926 (85.45 - 94.43, 188.4 - 208.2)
Power steering oil pump		11 (0.43)	7.3 - 8 (0.287 - 0.315)	6.5 - 7.2 (0.256 - 0.283)	196 (20, 44)	495 - 583 (50.5 - 59.5, 111 - 131)	603 - 691 (61.5 - 70.5, 136 - 155)
Applied pushing force		98 N (10 kg, 22 lb)			—		

\*1: If the belt tension gauge cannot be installed at check points shown, check drive belt tension at a different location on the belt.

### SPARK PLUG

NFMA0032

		Platinum tipped type
Make		NGK
Type	Standard	PFR5G-11
	Hot	PFR4G-11
	Cold	PFR6G-11
	Plug gap (Nominal)	1.1 mm (0.043 in)

## Chassis and Body Maintenance

### WHEEL BALANCE

NFMA0033

Maximum allowable unbalance	Dynamic (At rim flange)	10 g (0.35 oz) (one side)
	Static	20 g (0.71 oz)