SECTION **MA**

CONTENTS

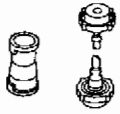
Supplemental Restraint System (SRS) "AIR BAG" and "SEAT BELT PRE-TENSIONER"

The Supplemental Restraint System "Air Bag" and "Seat belt pre-tensioner", used along with a seat belt, help to reduce the risk or severity of injury to the driver and front passenger in a frontal collision. The Supplemental Restraint System consists of air bag modules (located in the center of the steering wheel and on the instrument panel on the passenger side), seat belt pre-tensioner, a diagnosis sensor unit, warning lamp, wiring harness and spiral cable. Information necessary to service the system safely is included in the **RS** section of this Service Manual.

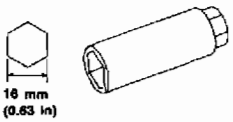
WARNING:

- **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 must be performed by an authorized NISSAN dealer.**
- **Improper maintenance, including incorrect removal and installation of the SRS, can lead to personal injury caused by unintentional activation of the system.**
- **All SRS electrical wiring harnesses and connectors are covered with yellow outer insulation. Do not use electrical test equipment on any circuit related to the SRS.**

Special Service Tools

Tool number Tool name	Description
EG17650301 Radiator cap tester adapter	 NT053
KV10115800 Oil filter wrench 65 mm (2.56 in) dia.	 NT006

Commercial Service Tool

Tool name	Description
Spark plug wrench	 NT047 Wrench with a magnet to hold spark plug

Shown below are Pre-delivery inspection items required for the new vehicle. It is recommended that necessary items other than those listed here be added, paying due regard to the conditions in each country.

Perform applicable items on each model. Consult text of this section for specifications.

UNDER HOOD — engine off

- ☐ Radiator coolant level and coolant hose connections for leaks
- ☐ Battery fluid level, specific gravity and conditions of battery terminals
- ☐ Drive belts tension
- ☐ Fuel filter for water or dusts, and fuel lines and connections for leaks
- ☐ Engine oil level and oil leaks
- ☐ Clutch and brake reservoir fluid level and fluid lines for leaks
- ☒ Windshield and rear window washer and headlamp cleaner reservoir fluid level
- ☐ Power steering reservoir fluid level and hose connections for leaks

ON INSIDE AND OUTSIDE

- ☐ Remove front spring/strut spacer (If applicable)
- ☐ Operation of all instruments, gauges, lights and accessories
- ☐ Operation of horn(s), wiper and washer
- ☐ Steering lock for operation
- ☐ Check air conditioner for gas leaks
- ☐ Front and rear seats, and seat belts for operation
- ☐ All moldings, trims and fittings for fit and alignment
- ☐ All windows for operation and alignment
- ☐ Hood, trunk lid, door panels for fit and alignment
- ☐ Latches, keys and locks for operation
- ☐ Weatherstrips for adhesion and fit
- ☐ Headlamp aiming
- ☐ Tighten wheel nuts (Inc. inner nuts if applicable)
- ☐ Tire pressure (Inc. spare tire)
- ☐ Check front wheels for toe-in
- ☐ Install clock/voltmeter/room lamp fuse (If applicable)
- ☒ Install deodorizing filter to air purifier (If applicable)
- ☒ Remove wiper blade protectors (If applicable)

UNDER BODY

- ☐ Manual transmission/transaxle and differential gear oil level
- ☐ Brake and fuel lines and oil/fluid reservoirs for leaks
- ☐ Tighten bolts and nuts of steering linkage and gear box, suspension, propeller shafts and drive shafts
- ☒ Tighten rear body bolts and nuts (Models with wooden bed only)

ROAD TEST

- ☐ Clutch operation
- ☐ Parking brake operation
- ☐ Service brake operation
- ☐ Automatic transmission/transaxle shift timing and kickdown
- ☐ Steering control and returnability
- ☐ Engine performance
- ☐ Squeaks and rattles

ENGINE OPERATING AND HOT

- ☐ Adjust idle mixture and speed (and ignition timing*1)
- ☐ Automatic transmission/transaxle fluid level
- ☒ Engine idling and stop knob operation (Diesel only)

FINAL INSPECTION

- ☐ Install necessary parts (outside mirror, wheel covers, seat belts, mat, carpet or mud flaps)
- ☐ Inspect for interior and exterior metal and paint damage
- ☐ Check for spare tire, jack, tools (wheel chock), and literature
- ☐ Wash, clean interior and exterior

*1: Not required on models with a direct ignition system

☒: Not applicable on this model

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

Item	Reference pages
OUTSIDE THE VEHICLE The maintenance items listed here should be performed from time to time, unless otherwise specified.	
Tires 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.	—
Windshield wiper blades Check for cracks or wear if they do not wipe properly.	—
Doors and engine hood Check that all doors, the engine hood, the trunk lid and back door operate properly. Also ensure 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 for lubrication frequently.	MA-24
Tire rotation Tires should be rotated every 10,000 km (6,000 miles).	MA-21
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.	
Lights Make sure that the headlights, stop lights, tail lights, turn signal lights, and other lights are all operating properly and installed securely. Also check headlight aim.	—
Warning lights and chimes Make sure that all warning lights and chimes are operating properly.	—
Steering wheel Check for change in the steering conditions, such as excessive free play, hard steering or strange noises. **Free play: Less than 35 mm (1.38 in)**	—
Seat belts Check that all parts of the seat belt system (e.g. buckles, anchors, adjusters and retractors) operate properly and smoothly, and are installed securely. Check the belt webbing for cuts, fraying, wear or damage.	MA-24
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.	
Windshield washer fluid Check that there is adequate fluid in the tank.	—
Engine coolant level Check the coolant level when the engine is cold.	MA-12
Engine oil level Check the level after parking the vehicle on a level spot and turning off the engine.	MA-15
Brake and clutch fluid level Make sure that the brake and clutch fluid level is between the "MAX" and "MIN" lines on the reservoir.	MA-19, 21
Battery Check the fluid level in each cell. It should be between the "MAX" and "MIN" lines.	—

The following tables show the normal maintenance schedule. Depending upon weather and atmospheric conditions, varying road surfaces, individual driving habits and vehicle usage, additional or more frequent maintenance may be required.

Periodic maintenance beyond the last period shown on the tables requires similar maintenance.

MAINTENANCE OPERATION	MAINTENANCE INTERVAL										Reference page
Perform either at number of kilometers (miles) or months, whichever comes first	km x 1,000	1	10	20	30	40	50	60	70	80	
	(Miles x 1,000)	(0.6)	(6)	(12)	(18)	(24)	(30)	(36)	(42)	(48)	
	Months	—	6	12	18	24	30	36	42	48	
ENGINE AND EMISSION CONTROL	**Underhood and under vehicle**										
Check drive belts for cracks, fraying, wear & tension						X				X	MA-12
Change engine anti-freeze coolant (Ethylene glycol base) (LLC)						X				X	MA-12
Check cooling system				X		X		X		X	MA-13
Check fuel lines						X				X	MA-14
Replace air cleaner filter (Viscous paper type)★						X				X	MA-15
Change engine oil (Use API SE, SF, SG or SH oil)★			Every 5,000 km (3,000 miles) or 6 months								MA-15
Change engine oil filter★ (Use Part No. 15208-65F00)			X	X	X	X	X	X	X	X	MA-16
Replace fuel filter★						X				X	MA-15
Replace spark plugs (Use PLATINUM-TIPPED type)			Every 100,000 km (60,000 miles)								MA-16
Check vapor lines and heated oxygen sensor						X				X	MA-17, 18
CHASSIS AND BODY	**Underhood**										
Check brake, clutch & automatic transmission fluid level & leaks★			X	X	X	X	X	X	X	X	MA-19, 20, 21
Change brake fluid★						X				X	MA-22
Check brake booster vacuum hoses, connections & check valve						X				X	MA-22
Check power steering fluid & lines			X	X	X	X	X	X	X	X	MA-23
	Under vehicle										
Check brake, clutch & exhaust systems for proper attachment, leaks, cracks, chafing, abrasion, deterioration, etc.			X	X	X	X	X	X	X	X	MA-19, 21
Check oil level in manual transmission & differential gear★			X	X	X	X	X	X	X	X	MA-19, 21
Check steering gear & linkage, axle & suspension parts & propeller shaft & drive shaft for damaged, loose & missing parts & lubrication★		X		X		X		X		X	MA-20, 23 FA-5, RA-5, 7
	Outside and inside										
Check wheel alignment. If necessary, rotate & balance wheels				X		X		X		X	MA-21 FA-6
Check brake pads, discs & other brake components for wear, deterioration & leaks★			X	X	X	X	X	X	X	X	MA-22
Lubricate locks, hinges & hood latch★			X	X	X	X	X	X	X	X	MA-24
Check seat belts, buckles, retractors, anchors & adjuster				X		X		X		X	MA-24
Check foot brake, parking brake & clutch for free play, stroke & operation			X	X	X	X	X	X	X	X	CL-4, BR-7, 23
Air bag system						See NOTE (1).					RS-5

NOTE: (1) Inspect at the first 10 years and then every 2 years.

(2) Maintenance items with "★" should be performed more frequently according to "Maintenance under severe driving conditions".

Check: Check. Correct or replace if necessary.

MAINTENANCE UNDER SEVERE DRIVING CONDITIONS

The maintenance intervals shown on the preceding pages are for normal operating conditions. If the vehicle is mainly operated under severe driving conditions as shown below, more frequent maintenance must be performed on the following items as shown in the table.

Severe driving conditions

A — Driving under dusty conditions
B — Driving repeatedly short distances
C — Towing a trailer
D — Extensive idling
E — Driving in extremely adverse weather conditions or in areas where ambient temperatures are either extremely low or extremely high
F — Driving in high humidity areas or in mountainous areas
G — Driving in areas using salt or other corrosive materials
H — Driving on rough and/or muddy roads or in the desert
I — Driving with frequent use of braking or in mountainous areas

Driving condition	Maintenance item	Maintenance operation	Maintenance interval	Reference page
A	Air cleaner filter	Replace	More frequently	MA-15
A B C D	Engine oil	Replace	More frequently	MA-15
A B C D	Engine oil filter	Replace	Every 5,000 km (3,000 miles) or 3 months	MA-18
A E	Fuel filter	Replace	Every 20,000 km (12,000 miles) or 12 months	MA-16
F	Brake fluid	Replace	Every 20,000 km (12,000 miles) or 12 months	MA-21
C H	Automatic & manual transmission oil & differential gear oil	Replace	Every 40,000 km (24,000 miles) or 24 months	MA-19, 20, 21
G H	Steering gear & linkage, axle & suspension parts & propeller shaft & drive shafts	Check	Every 10,000 km (6,000 miles) or 6 months	MA-20, 23 FA-5, RA-5, 7
A C G H I	Brake pads, discs & other brake components	Check	Every 5,000 km (3,000 miles) or 3 months	MA-22
G	Lock, hinges & hood latch	Lubricate	Every 5,000 km (3,000 miles) or 3 months	MA-24

Maintenance operation: Check = Check. Correct or replace if necessary.

The following tables show the normal maintenance schedule. Depending upon weather and atmospheric conditions, varying road surfaces, individual driving habits and vehicle usage, additional or more frequent maintenance may be required.

Periodic maintenance beyond the last period shown on the tables requires similar maintenance.

ENGINE OIL SERVICE

Abbreviations: R = Replace.

MAINTENANCE OPERATION		MAINTENANCE INTERVAL								
Perform on kilometer basis or on month basis if not driven 10,000 km (6,000 miles) within a year.	km x 1,000	10	20	30	40	50	60	70	80	Reference page
	(Miles x 1,000)	(6)	(12)	(18)	(24)	(30)	(36)	(42)	(48)	
	Months	12	24	36	48	60	72	84	96	
[Engine oil service]	**Engine compartment and under vehicle**									
Engine oil (Use API SG or SH oil only)★		R	R	R	R	R	R	R	R	MA-15
Engine oil filter (Use Part No. 15208-65F00)★		R	R	R	R	R	R	R	R	MA-16

NOTE: (1) Maintenance items with "★" should be performed more frequently according to "Maintenance under severe driving conditions".

MAJOR SERVICE (Engine)

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

MAINTENANCE OPERATION		MAINTENANCE INTERVAL				
Perform on month basis or on kilometer basis if driven 30,000 km (18,000 miles) within a year.	Months	12	24	36	48	Reference page
	km x 1,000	30	60	90	120	
	(Miles x 1,000)	(18)	(36)	(54)	(72)	
Underhood and under vehicle						
Drive belts	See NOTE (1).		I	I	I	MA-12
Engine anti-freeze coolant (Ethylene glycol base)	See NOTE (2).					MA-12
Cooling system		I	I	I	I	MA-13
Fuel lines			I		I	MA-14
Air cleaner filter (Viscous paper type)★			R		R	MA-15
Fuel filter★				R		MA-15
Spark plug (Use PLATINUM-TIPPED type)				[R]		MA-16
Heated oxygen sensor (Except for Sweden)			I		I	MA-18
Vapor lines	See NOTE (3).		I		I	MA-17

NOTE: (1) After 24 months or 60,000 km (36,000 miles), check every 12 months or 30,000 km (18,000 miles).
(2) Change at 60 months or 90,000 km (54,000 miles), then every 24 months or 60,000 km (36,000 miles).
(3) For Sweden perform at the first 90,000 km (54,000 miles), and then every 60,000 km (36,000 miles) or 24 months, whichever comes first.
(4) Maintenance items with "★" should be performed more frequently according to "Maintenance under severe driving conditions".

MAJOR SERVICE (Chassis and Body)

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

MAINTENANCE OPERATION	MAINTENANCE INTERVAL					Reference page
Perform on month basis or on kilometer basis if driven 30,000 km (18,000 miles) within a year.	Months	12	24	36	48	
	km x 1,000	30	60	90	120	
	(Miles x 1,000)	(18)	(36)	(54)	(72)	
Underhood and under vehicle						
Brake & clutch oil level & leak★		I	I	I	I	MA-19, 21
Automatic transmission fluid (level & leakage)★		I	I	I	I	MA-20
Brake fluid★			R		R	MA-22
Brake booster vacuum hoses, connections & check valve			I		I	MA-22
Power steering fluid & lines		I	I	I	I	MA-23
Brake & clutch system		I	I	I	I	MA-19, 21
Manual transmission & standard differential gear oil (For leakage)★		I	I	I	I	MA-19, 21
Steering gear & linkage, axle & suspension parts, propeller shaft & drive shaft, exhaust system★			I		I	MA-20, 23 RA-5, 7, FA-5
Outside and inside						
Wheel alignment (if necessary, rotate & balance wheels)		I	I	I	I	MA-21 FA-6
Brake pads, discs & other brake components★		I	I	I	I	MA-22
Headlamp aiming		I	I	I	I	EL-64
Seat belts, buckles, retractors & adjuster		I	I	I	I	MA-24
Foot brake, parking brake & clutch (For free play, stroke & operation)		I	I	I	I	CL-4 BR-7, 23
Body corrosion				Annually		
Air bag system				See NOTE (1).		RS-5

NOTE: (1) Inspect at the first 10 years and then every 2 years.

(2) Maintenance items with "★" should be performed more frequently according to "Maintenance under severe driving conditions".

MAINTENANCE UNDER SEVERE DRIVING CONDITIONS

The maintenance intervals shown on the preceding pages are for normal operating conditions. If the vehicle is mainly operated under severe driving conditions as shown below, more frequent maintenance must be performed on the following items as shown in the table.

Severe driving conditions

A — Driving under dusty conditions
B — Driving repeatedly short distances
C — Towing a trailer
D — Extensive idling
E — Driving in extremely adverse weather conditions or in areas where ambient temperature are either extremely low or extremely high
F — Driving in high humidity areas or in mountainous areas
G — Driving in areas using salt or other corrosive materials
H — Driving on rough and/or muddy roads or in the desert
I — Driving with frequent use of braking or in mountainous areas

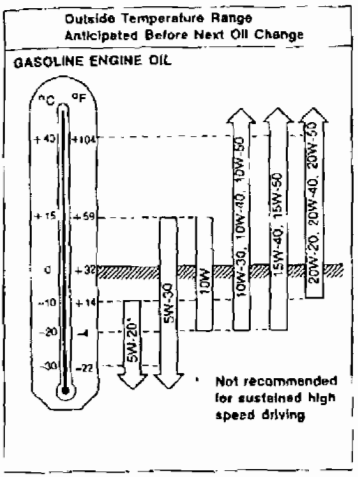
Driving condition	Maintenance item	Maintenance operation	Maintenance interval	Reference page
Engine oil service				
A B C D	Engine oil	Replace	Every 5,000 km (3,000 miles) or 6 months	MA-15
A B C D	Engine oil filter	Replace	Every oil change	MA-16
Major service				
A	Air cleaner filter	Replace	Every 12 months or 30,000 km (18,000 miles)	MA-15
A E	Fuel filter	Replace		MA-16
F	Brake fluid	Replace		MA-21
G H	Steering gear & linkage, axle & suspension parts, propeller shaft & drive shaft, exhaust system	Check		MA-20, 23 FA-5, RA-5, 7
C H	Automatic & manual transmission & differential gear oil	Replace	Every 24 months or 60,000 km (36,000 miles)	MA-19, 20, 21
A C G H I	Brake pads, discs & other brake components	Check	Every 6 months or 15,000 km (9,000 miles)	MA-22

Fluids and Lubricants

	Capacity (Approximate)		Recommended fluids and lubricants
	Liter	Imp measure	
Engine oil (Refill)			
With oil filter	3.7	3-1/4 qt	API SF/CC, SF/CD, SE, SG or SH*1
Without oil filter	3.5	3-1/8 qt	
Cooling system (with reservoir tank)	6.2	5-1/2 qt	Anti-freeze coolant (Ethylene glycol base) or soft water
Manual transmission oil	2.4	4-1/4 pt	API GL-4*
Differential carrier gear oil	1.8	3-1/8 pt	API GL-5*
Automatic transmission fluid	7.9	7 qt	Genuine Nissan ATF or equivalent*2
Power steering fluid	0.9	3/4 qt	Type DEXRON™
Brake and clutch fluid	—	—	For Europe DOT3 or DOT4 (US FMVSS No. 116)*3 Except for Europe DOT3 (US FMVSS No. 116)
Multi-purpose grease	—	—	NLGI No. 2 (Lithium soap base)

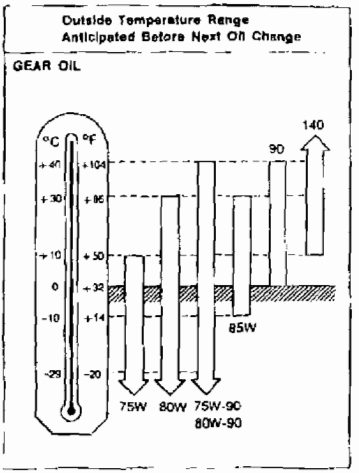
*1: For further details, see "SAE Viscosity Number".
*2: For more information regarding suitable fluids, contact a Nissan dealership.
*3: Never mix different type fluids (DOT3 and DOT4)

SAE Viscosity Number



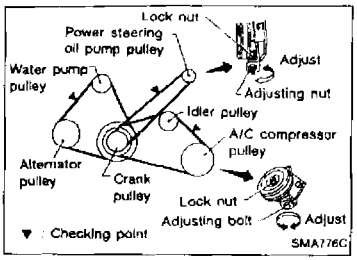
TI0005

- 5W-30 or 10W-30 is preferable regardless of driving conditions.



TI0003

- For warm and cold areas: 75W-90 for transmission and 80W-90 for differential carrier are preferable.
- For hot areas: 90 is suitable for ambient temperatures below 40°C (104°F).



Checking Drive Belts

1. Inspect for cracks, fraying, wear or oil adhesion. If necessary, replace with a new one.
2. Inspect drive belt deflections by pushing on the belt midway between pulleys.

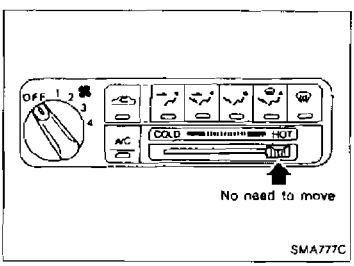
Adjust if belt deflections exceed the limit.

Belt deflection:

Unit: mm (in)

	Used belt deflection		Deflection of new belt
	Limit	Deflection after adjustment	
Alternator	11 (0.43)	7 - 8 (0.28 - 0.31)	4 - 5 (0.16 - 0.20)
Air conditioner compressor	7 (0.28)	5 - 6 (0.20 - 0.24)	6 - 7 (0.24 - 0.28)
Power steering oil pump	15 (0.59)	11 - 12 (0.43 - 0.47)	9 - 10 (0.35 - 0.39)
Applied pushing force	98 N (10 kg, 22 lb)		

Inspect drive belt deflections when engine is cold.

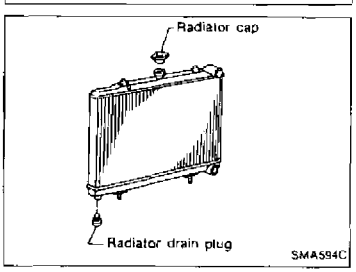


Changing Engine Coolant

WARNING:

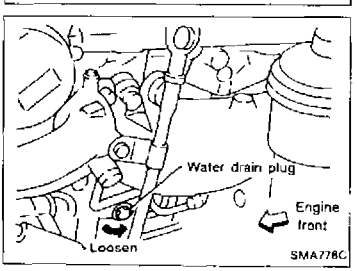
To avoid being scalded, never change the coolant when the engine is hot.

On this model it is unnecessary to move heater "TEMP" control lever or switch before changing the coolant. This is because air mix door is in "HOT" position when ignition switch is "OFF". (This applies to both automatic and manual air conditioners.)



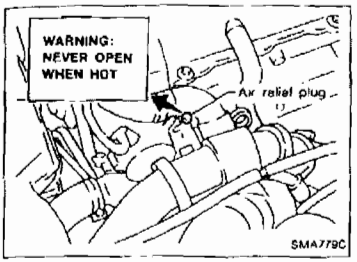
1. Remove radiator drain plug and radiator cap.
2. Remove reservoir tank, drain coolant, then clean reservoir tank.
   Install it temporarily.

- **Be careful not to allow coolant to contact drive belts.**

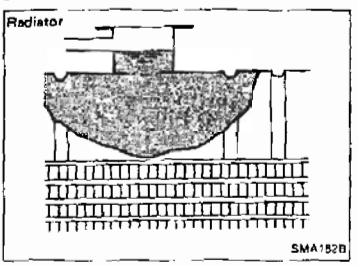


3. Remove cylinder block drain plug, air relief plug and air bleeder cap.
4. Install radiator drain plug and tighten cylinder block drain plug securely.
5. Fill radiator and reservoir tank with water.
   Air relief plug is reinstalled once coolant spills from the air relief hole during refill.
   Then fill radiator and reservoir tank with water.
   Air relief plug:
   : 10 N·m (1.0 kg-m, 7 ft-lb)
6. Reinstall radiator cap and air bleeder cap.

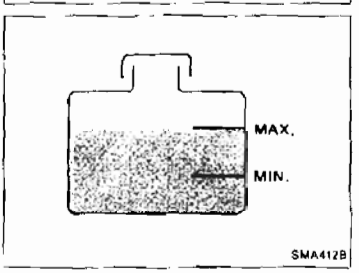
Changing Engine Coolant (Cont'd)



7. Warm up engine until cooling fan operates, then race engine 2 or 3 times under no-load.
- **Make sure that air conditioner switch is "OFF".**
8. Stop engine and wait until it cools down.
9. Repeat step 1 through step 8 until clear water begins to drain from radiator.
10. Drain water.
- **Apply sealant to the thread of drain plug.**
  : 8 - 12 N·m (0.8 - 1.2 kg-m, 5.8 - 8.7 ft-lb)
11. Reinstall reservoir tank.



12. Fill radiator and reservoir tank with coolant up to specified level following step 5 through step 8.
    Follow instructions attached to anti-freeze container for mixing ratio of anti-freeze to water.
    Coolant capacity (With reservoir tank):
    6.2 ℓ (5-1/2 Imp qt)

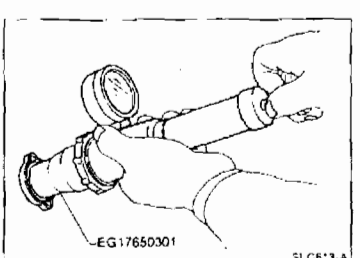


[Reservoir tank capacity for "H" level is 1.8 ℓ (1-5/8 Imp qt).]
Pour coolant through coolant filler neck slowly to allow air in system to escape.
13. If necessary, add coolant.
14. Start and warm up engine, then increase engine speed to 4,000 rpm. Check that radiator coolant level is not lowered, and that no water noise is heard in heater core. If water noise is heard, bleed air by referring to "Refilling Engine Coolant" in section LC.

Checking Cooling System

CHECKING HOSES

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

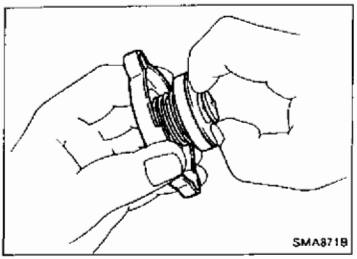


CHECKING RADIATOR CAP

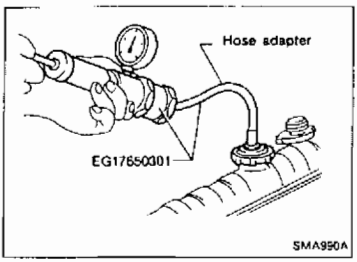
Apply pressure to radiator cap with cap tester to see if it is satisfactory.

Radiator cap relief pressure:
78 - 98 kPa
(0.78 - 0.98 bar, 0.8 - 1.0 kg/cm², 11 - 14 psi)

Checking Cooling System (Cont'd)



Pull the negative-pressure valve to open it. Check that it closes completely when released.



CHECKING COOLING SYSTEM FOR LEAKS

Apply pressure to the cooling system with cap tester to check for leakage.

Testing pressure:

157 kPa (1.57 bar, 1.6 kg/cm^2, 23 psi)

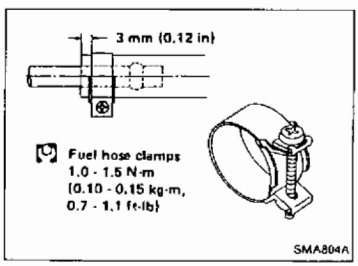
CAUTION:

Higher pressure than the specified value may cause damage to radiator.

Checking Fuel Lines

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

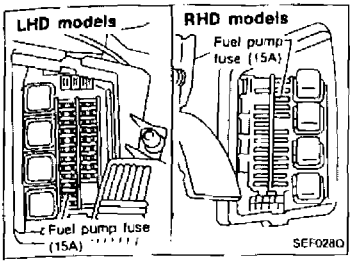
Ensure that screw does not contact adjacent parts.

Changing Fuel Filter

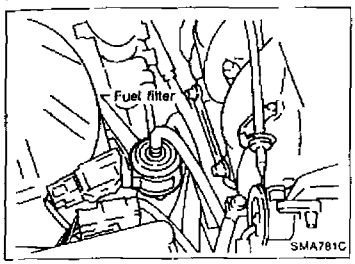
WARNING:

Before removing fuel filter, release fuel pressure from fuel line to eliminate danger.

Changing Fuel Filter (Cont'd)

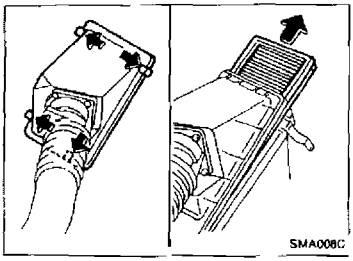


1. Remove fuse for fuel pump.
2. Start engine.
3. After engine stalls, crank engine two or three times to make sure that fuel pressure is released.
4. Turn ignition switch off and install fuse for fuel pump.



5. Loosen fuel hose clamps.
6. Replace fuel filter.

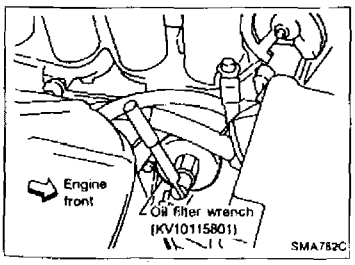
- **Be careful not to spill fuel over engine compartment. Place a shop towel to absorb fuel.**
- **Use a high-pressure type fuel filter. Do not use a synthetic resinous fuel filter.**
- **When tightening fuel hose clamps, refer to "Checking Fuel Lines".**



Changing Air Cleaner Filter

Viscous paper type

The viscous paper type filter does not need cleaning between renewals.



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. Remove drain plug and oil filler cap.
3. Drain oil and refill with new engine oil.

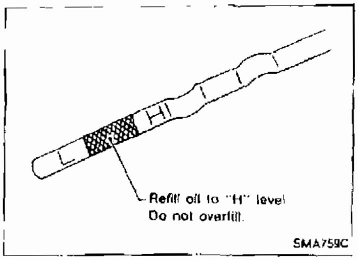
Refill oil capacity (Approximate):

With oil filter change
3.7 ℓ (3-1/4 Imp qt)
Without oil filter change
3.5 ℓ (3-1/8 Imp qt)

CAUTION:

- **Be sure to clean drain plug and install with new washer.**
  Drain plug:
  : 29 - 39 N·m (3.0 - 4.0 kg-m, 22 - 29 ft-lb)
- **Use recommended engine oil.**

Changing Engine Oil (Cont'd)



SMA759C

4. Check oil level.
5. Start engine and check area around drain plug and oil filter for oil leakage.
6. Run engine for a few minutes, then turn it off. After several minutes, check oil level.

Changing Oil Filter

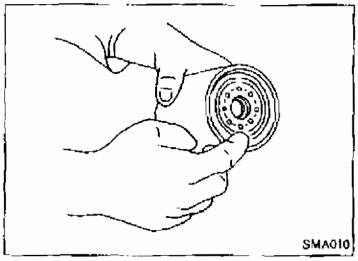
1. Remove oil filter.

WARNING:

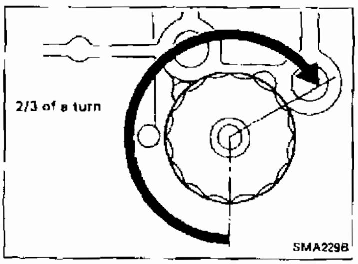
Be careful not to burn yourself, as the engine and the engine oil are hot.

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

Refer to LC section ("OIL FILTER").


SMA010

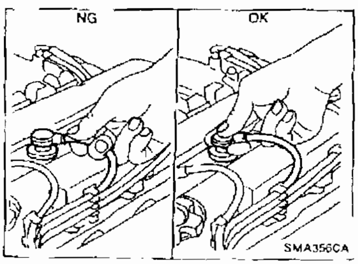
2. Before installing new oil filter, clean the oil filter mounting surface on cylinder block, and coat the rubber seal of oil filter with a little engine oil.



SMA229B

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

Refer to "Changing Engine Oil".



SMA356CA

Changing Spark Plugs

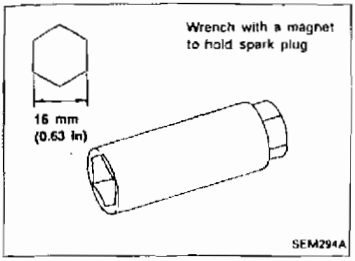
1. Disconnect ignition wires from spark plugs at boot. Do not pull on the wire.
2. Remove spark plugs with 16 mm (0.63 in) spark plug wrench.

Spark plug:

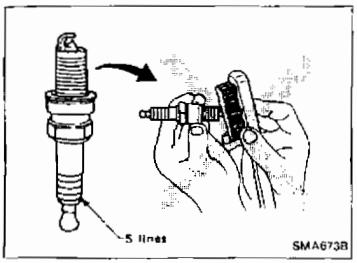
Standard type	**PFR6B-9**
Hot type	**PFR5B-9**
Cold type	**PFR7B-9**

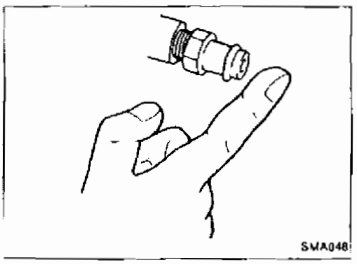
[torque symbol]: 20 - 29 N·m (2.0 - 3.0 kg-m, 14 - 22 ft-lb)

Changing Spark Plugs (Cont'd)



- **Checking and adjusting plug gap are not required between renewals.**
- **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^2, 85 psi)
  Cleaning time:
  Less than 20 seconds





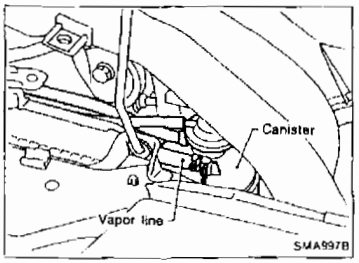
Checking Positive Crankcase Ventilation (PCV) System

Checking PCV valve

With engine running at idle, remove ventilation hose from PCV valve; if valve is working properly, a hissing noise will be heard as air passes through it and a strong vacuum should be felt immediately when a finger is placed over valve inlet.

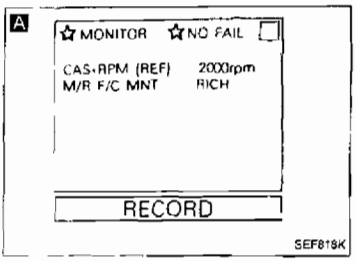
Checking Vacuum Hoses and Connections

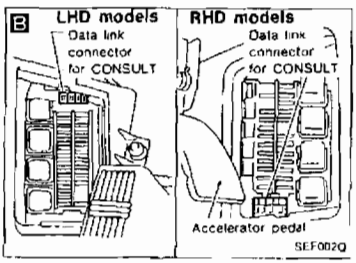
Check vacuum hoses for improper attachment and for leaks, cracks, damage, loose connections, chafing and deterioration.

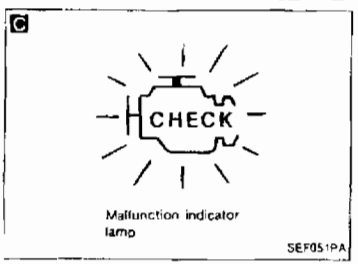


Checking Vapor Lines

1. Visually inspect vapor lines for improper attachment and for cracks, damage, loose connections, chafing and deterioration.
2. Inspect vacuum relief valve of fuel tank filler cap for clogging, sticking, etc.
   Refer to "EVAPORATIVE EMISSION SYSTEM" in EC section.







Checking Heated Oxygen Sensor (HO2S)

Checking procedure

INSPECTION START

Start engine and warm it up until water temperature indicator points to the middle of gauge.

A B C

1. See "M/R F/C MNT" in "Data monitor" mode.
2. Run engine at about 2,000 rpm for about 2 minutes under no-load.
3. Maintaining engine at 2,000 rpm under no-load (engine is warmed up sufficiently.), check that the monitor fluctuates between "LEAN" and "RICH" more than 5 times during 10 seconds.
   - **1 time** **RICH → LEAN → RICH**
   - **2 times** **RICH → LEAN → RICH → LEAN → RICH .....**

— OR —

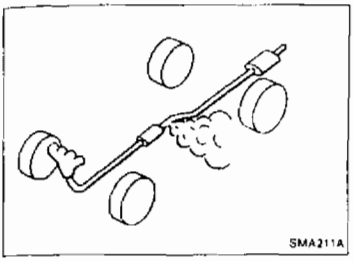
1. Set "Heated oxygen sensor monitor" in the Diagnostic test mode II. (Refer to EC section.)
2. Run engine at about 2,000 rpm for about 2 minutes under no-load.
3. Maintaining engine at 2,000 rpm under no-load, check to make sure that malfunction indicator lamp on the instrument panel goes ON and OFF more than 5 times during 10 seconds.

OK

NG

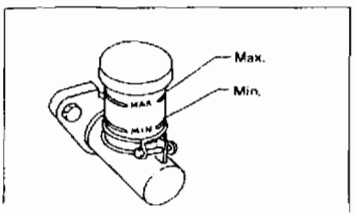
Check and adjustment should be made by referring to IDLE SPEED/ IGNITION TIMING/IDLE MIXTURE RATIO INSPECTION in EC section.

INSPECTION END


SMA211A

Checking Exhaust System

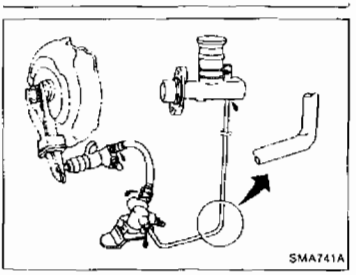
- Check exhaust pipes, muffler and mounting for improper attachment, leaks, cracks, damage, loose connections, chafing and deterioration.



SMA941B

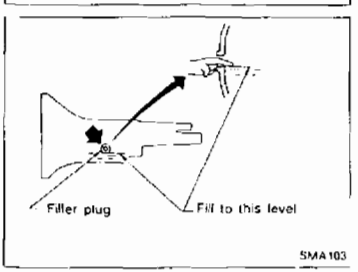
Checking Clutch Fluid Level and Leaks

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


SMA741A

Checking Clutch System

Check fluid lines and operating cylinder for improper attachment, cracks, damage, loose connections, chafing and deterioration.



SMA103

Checking M/T Oil

- Check oil level and for oil leakage.

Never start engine while checking oil level.

Filler plug:

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

Changing M/T Oil

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

Oil grade: API GL-4

Viscosity:

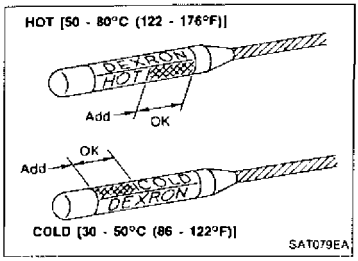
See "RECOMMENDED FLUIDS AND LUBRICANTS".

Capacity: 2.5 ℓ (4-3/8 Imp pt)

Drain plug:

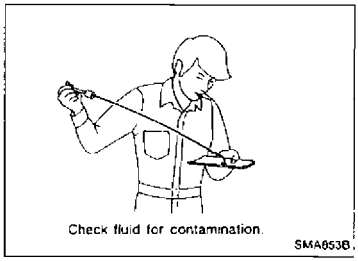
(O): 25 - 34 N·m (2.5 - 3.5 kg-m, 18 - 25 ft-lb)

After refilling oil, leave M/T unattended for about two minutes. Then check oil level again following the above procedure. Add oil if necessary.



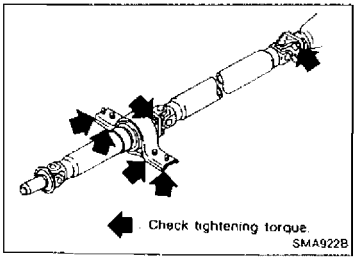
Checking A/T Fluid

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 dipstick.
   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 dipstick and note reading. If level is at low side of either range, add fluid to the charging pipe.
   e. Re-insert dipstick into charging pipe as far as it will go.
   f. Remove dipstick 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 177°F) using "HOT" range on dipstick.
6. Check fluid condition. If fluid is very dark or smells burned, or contains friction material (clutches, band, etc.), check operation of A/T. Refer to AT section for checking operation of A/T.



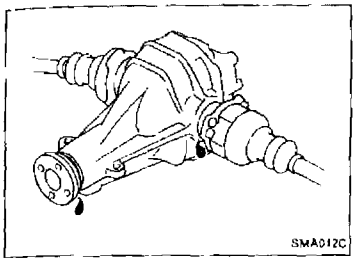
Changing A/T Fluid

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.
   Oil grade:
   Genuine Nissan ATF or equivalent.
   Oil capacity (With torque converter):
   7.9 ℓ (7 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.



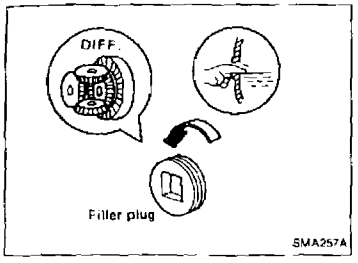
Checking Propeller Shaft

Check propeller shaft and center bearing for damage, looseness or grease leakage. If greasing points are provided, supply grease as necessary.
Refer to PD section.


SMA012C

Checking Differential Gear Oil

- Check oil level and for oil leakage.
  Filler plug:
  [O]: 39 - 59 N·m (4 - 6 kg-m, 29 - 43 ft-lb)



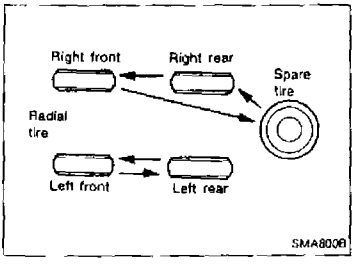
SMA257A

Changing Differential Gear Oil

1. Drain oil from drain plug and refill with new gear oil.
2. Check oil level.
   Oil grade: API GL-5
   Viscosity:
   See "RECOMMENDED FLUIDS AND LUBRICANTS".
   Capacity:
   1.2 - 1.4 ℓ (2-1/8 - 2-1/2 Imp pt)
   Drain plug:
   [O]: 39 - 59 N·m (4 - 6 kg-m, 29 - 43 ft-lb)

Balancing Wheels

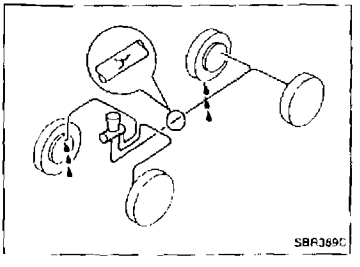
- Adjust wheel balance using road wheel center.
  Wheel balance (Maximum allowable unbalance):
  Refer to SDS (MA-25).



SMA800B

Tire Rotation

- **Do not include the T-type spare tire when rotating the tires.**
  Wheel nuts:
  [O]: 99 - 117 N·m (10.1 - 11.9 kg-m, 73.0 - 86.3 ft-lb)

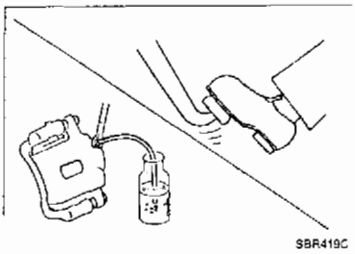

SBR389C

Checking Brake Fluid Level and Leaks

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

Checking Brake Lines and Cables

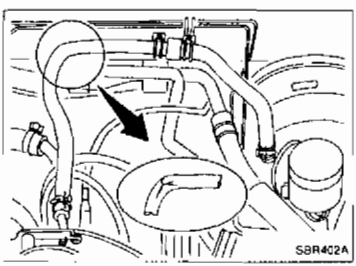
- Check brake fluid lines and parking brake cables for improper attachment, leaks, chafing, abrasions and deterioration, etc.


SBR419C

Changing Brake Fluid

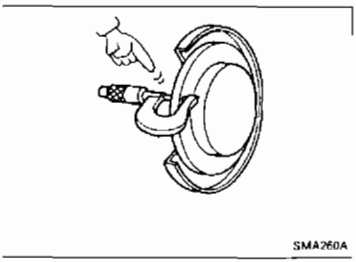
1. Drain brake fluid from each air bleeder valve.
2. Refill until new brake fluid comes out from each air bleeder valve. Use same procedure as in bleeding hydraulic system to refill brake fluid. Refer to BR section.

- **Refill with recommended brake fluid.**
- **Never reuse drained brake fluid.**
- **Never mix different type fluids (DOT3 and DOT4).**
- **Be careful not to splash brake fluid on painted areas.**


SBR402A

Checking Brake Booster, Vacuum Hoses, Connections and Check Valve

Check vacuum lines, connections and check valve for improper attachment, air tightness, chafing and deterioration.


SMA260A

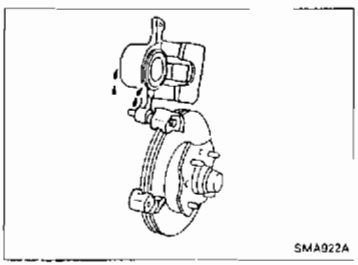
Checking Disc Brake

ROTOR

- Check condition and thickness.

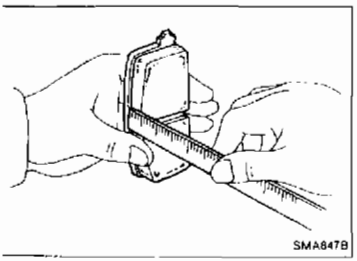
Unit: mm (in)

	Front	Rear
Disc brake type	OPF25V	CL11H
Standard thickness	30.0 (1.181)	9.0 (0.354)
Minimum thickness	28.0 (1.102)	8.0 (0.315)


SMA922A

CALIPER

- Check for leakage.

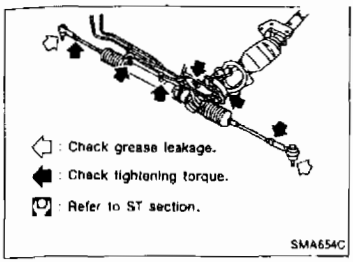

SMA847B

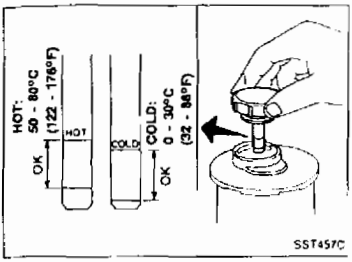
PAD

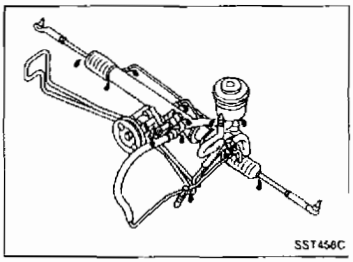
- Check for wear or damage.

Unit: mm (in)

	Front	Rear
Disc brake type	OPF25V	CL11H
Standard thickness	10.0 (0.394)	9.5 (0.374)
Minimum thickness	2.0 (0.079)	







Checking Steering Gear and Linkage

STEERING GEAR

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

STEERING LINKAGE

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

Checking Power Steering Fluid and Lines

CHECKING FLUID LEVEL

Check fluid level with dipstick on reservoir cap. 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).

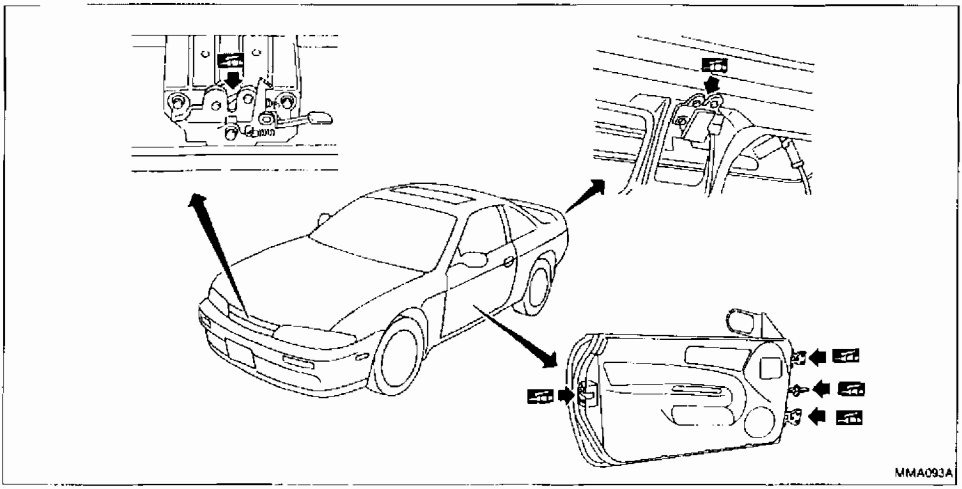
CAUTION:

- **Do not overfill.**
- **Recommended fluid is Automatic Transmission Fluid type "DEXRON™" or equivalent.**

CHECKING LINES

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

Lubricating Locks, Hinges and Hood Latches



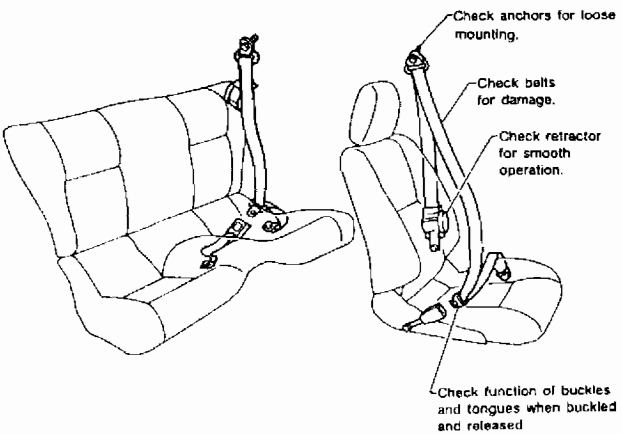
Checking Seat Belts, Buckles, Retractors, Anchors and Adjusters

CAUTION:

- After any collision, inspect all seat belt assemblies, including retractors and other attached hardwares (i.e. 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.
- 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 seat belt pre-tensioner, refer to section RS.

Anchor bolt
43 - 55 N·m
(4.4 - 5.6 kg-m, 32 - 41 ft-lb)



Engine Maintenance

INSPECTION AND ADJUSTMENT

Drive belt deflection

Unit: mm (in)

	Used belt deflection		Deflection of new belt
	Limit	Deflection after adjustment	
Alternator	11 (0.43)	7 - 8 (0.28 - 0.31)	4 - 5 (0.16 - 0.20)
Air conditioner compressor	7 (0.28)	5 - 6 (0.20 - 0.24)	6 - 7 (0.24 - 0.28)
Power steering oil pump	15 (0.59)	11 - 12 (0.43 - 0.47)	9 - 10 (0.35 - 0.39)
Applied pushing force	98 N (10 kg, 22 lb)		

Coolant and oil capacity

Unit: ℓ (Imp qt)

Coolant (with reservoir tank)	Approx. 7.0 (6-1/8)
Reservoir tank	1.8 (1-5/8)
Engine oil	
With oil filter change	Approx. 3.7 (3-1/4)
Without oil filter change	Approx. 3.5 (3-1/8)

Spark plug

Platinum-tipped type

Standard type	PFR6B-9
Hot type	PFR5B-9
Cold type	PFR7B-9

Cooling system

Unit: kPa (bar, kg/cm², psi)

Radiator cap relief pressure	78 - 98 (0.78 - 0.98, 0.8 - 1.0, 11 - 14)
Cooling system leakage testing pressure	157 (1.57, 1.6, 23)

TIGHTENING TORQUE

Unit	N·m	kg-m	ft-lb
Oil pan drain plug	29 - 39	3.0 - 4.0	22 - 29
Spark plug	20 - 29	2.0 - 3.0	14 - 22
Camshaft position sensor	7 - 8	0.7 - 0.8	5.1 - 5.8
Crankshaft pulley	142 - 152	14.5 - 15.5	105 - 112
Timing belt tensioner pulley nut	22 - 29	2.2 - 3.0	16 - 22

Chassis and Body Maintenance

INSPECTION AND ADJUSTMENT

Wheel balance

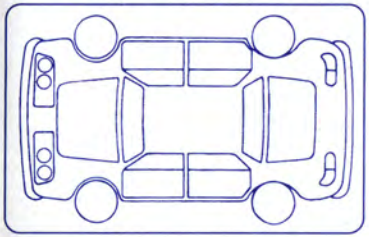
Maximum allowable unbalance	Dynamic (at rim flange)	g (oz)	10 (0.35) (One side)
	Static	g (oz)	20 (0.71)

Brake

Unit: mm (in)

Disc brake	
Pad	
Standard thickness	
OPF25V	10.0 (0.394)
CL11H	9.5 (0.374)
Minimum thickness	
OPF25V	2.0 (0.079)
CL11H	2.0 (0.079)
Rotor	
Standard thickness	
OPF25V	30.0 (1.181)
CL11H	9.0 (0.354)
Minimum thickness	
OPF25V	28.0 (1.102)
CL11H	8.0 (0.315)

NOTE BODY DAMAGE



Turbocharged Petrol and all Diesel Vehicles
(except D22 Pickup TD25 n/a)
1 January 1999 onward
(Lower mileage)

Service Interval: 6,000 miles or 6 months, whichever sooner, travelling less than 18,000 miles per year.

JOB CARD NO. _____ DATE _____ NOTE ANY ADDITIONAL WORK REQUIRED _____

OWNERS NAME _____

REG. NO. _____ MILEAGE _____ VIN _____

3 months or 3,000 miles	6 months or 6,000 miles	9 months or 9,000 miles	1 Year or 12,000 miles	15 months or 15,000 miles	18 months or 18,000 miles	21 months or 21,000 miles	2 Years or 24,000 miles	27 months or 27,000 miles	30 months or 33,000 miles	33 months or 33,000 miles	3 Years or 36,000 miles
DO	D1	DO	D2	DO	D1	DO	D3	DO	D1	DO	D2

Key ✓ Checked/Completed | X Requires Attention | – Not Applicable

	Drive vehicle into workshop - *flat surface*	D0 TICK	D1 TICK	D2 TICK	D3 TICK
	Inside the vehicle				
1	DASH WARNING LAMPS, GAUGES AND LIGHTS ON BUZZER		I	I	I
2	STEERING WHEEL free play		I	I	I
3	SEAT BELTS AND OPERATION		I	I	I
	Outside the vehicle				
4	EXTERIOR BODYWORK VISUAL INSPECTION		I	I	I
5	WIPERS/WIPER BLADES function/condition		I	I	I
6	DOORS/DOOR LOCKS		I	L	L
7	HOOD LATCHES		I	L	L
8	DOOR HINGES, LATCHES, LINKS & ROLLERS		I	L	L
9	ALL EXTERIOR LAMPS/INDICATORS FUNCTIONING	I	I	I	I
10	HEADLAMP AIMING			I	I
	Drive vehicle on to ramp - *ramp work*				
11*	ENGINE OIL	R	R	R	R
12*	ENGINE OIL FILTER	R	R	R	R
13*	MANUAL TRANSMISSION OIL - levels and leaks				
	Y61, R20, F23 (replace oil at 54K miles)			I	I
	Others			I	I
14	TRANSFER AND STANDARD DIFFERENTIAL GEAR OIL - levels and leaks				
	Y61, R20, F23 (replace oil at 36K miles)			I	I
	Others			I	I
15*	A/T FLUID - level, leakage			I	I
16*	L.S.D. GEAR OIL (except viscous coupling type)			I	R
17*	STEERING GEAR & LINKAGE, (4x4)			I	I
	AXLE SUSPENSION, PROPELLER (Others)				I
	SHAFT and EXHAUST SYSTEM				
18*	GREASING POINTS OF STEERING GEAR LINKAGE, (4x4)			L	L
	PROP SHAFT AND SUSPENSION				
19*	DRIVE SHAFTS & STEERING DAMPER (4x4)			I	L
20*	FRONT WHEEL BEARING GREASE (4x4, D21)			I	R
21	FRONT AXLE JOINT GREASE IN KNUCKLE FLANGE (Y61)				I
22*	FREE RUNNING HUB GREASE (4x4)			I	I
23	BODY MOUNTING bolts and nuts (check for security)			T	T
24	BODY CORROSION			I	I
25*	FRONT BRAKE PADS, DISCS & OTHER COMPONENTS			I	I
26*	REAR BRAKE PADS, LININGS, DRUMS & OTHER COMPONENTS			I	I
27	FOOT BRAKE, PARKING BRAKE: operation / free play / stroke		I	I	I
28*	BRAKE FLUID – Check for level and leaks – see additional items		I	I	I
29	TYRES LHF RHF LHR RHR SPARE			Rotate as required	
	PRESSURES	I	I	I	I
	TREAD mm mm mm mm mm	I	I	I	I
				I	I
30	WHEEL NUT TORQUES				I

	Drive vehicle off ramp - *flat surface*			D0 TICK	D1 TICK	D2 TICK	D3 TICK
	Engine Bay						
31	ALL DRIVE BELTS				I	I	I
32	WINDSHIELD WASHER top-up fluid level			I	I	I	I
33	BATTERY fluid level				I	I	I
34	CHECK AIR CONDITIONING HOSES AND CONNECTIONS – if fitted					I	I
35	CHECK COOLING SYSTEM FOR CONDITION AND LEAKS					I	I
36	COOLANT/ANTIFREEZE STRENGTH – see additional items					I	I
37*	AIR CLEANER FILTER (CLEAN DRY PAPER TYPE ON D2 SERVICE)					I	R
38*	DIESEL FUEL FILTER & DRAIN WATER				I	I	R
39	VALVE CLEARANCE (NOT HLA MODELS)					I	I
40	FUEL LINES						I
41		SPARK PLUGS	Conventional Spark Plugs			R	R
			Platinum Spark Plugs – see additional items				
42	PETROL	IGNITION LEADS					I
43*		FUEL FILTER					R
44	ENGINES	VAPOUR LINES					I
45		PCV VALVE AND SYSTEM				I	I
46*	ONLY	PCV FILTER (where applicable)					R
47		IDLE SPEED (including base idle) & IGNITION TIMING				I	I
48		OXYGEN SENSOR/LAMBDA VALUE					I
49	IDLE SPEED					I	I
50	BRAKE BOOSTER VACUUM HOSES, CONNECTIONS, CHECK VALVE						I
51	CLUTCH SYSTEM – Fluid level & leaks, pedal freeplay				I	I	I
52	MANUAL STEERING GEAR OIL (where applicable)					I	I
53	POWER STEERING - levels and leaks					I	I
54*	CABIN AIR FILTER					R	R
55	CHECK CRUISE CONTROL VACUUM HOSES AND CONNECTIONS					I	I
56	ROAD TEST				I	I	I
57	WHEEL ALIGNMENT (if necessary, balance wheels)					I	I
58	CHECK EXHAUST EMISSIONS					I	I

Diesel: If engine power decreases, black exhaust smoke is emitted or engine noise increases, inspect and if necessary, adjust the fuel injector starting pressure and spray pattern.

*CHANGE FREQUENCY AS REQUIRED UNDER SEVERE DRIVING CONDITIONS

I = INSPECT/ADJUST IF REQUIRED | L = LUBRICATE | R = REPLACE | T = TIGHTEN

DO Service is carried out on Cabstar F23 models with 3,000 mile oil and filter change

ADDITIONAL SERVICE ITEMS AT ADDITIONAL COST

	TICK
BRAKE FLUID CHANGE - EVERY 2 YEARS OR 24,000 MILES WHICHEVER SOONER Maintains maximum braking performance by preventing vapour lock	
ANTIFREEZE CHANGE - EVERY 3 YEARS OR 36,000 MILES WHICHEVER SOONER Not only protects against freezing, but prevents corrosion of internal engine parts	
CHANGE INJECTION PUMP TIMING BELT - EVERY 5 YEARS OR 54,000 MILES WHICHEVER SOONER A broken injection pump timing belt would prevent the engine from running and may damage cambelt in the process	
CHANGE CAMBELT - EVERY 5 YEARS OR 54,000 MILES WHICHEVER SOONER A broken cambelt can damage the valve mechanism resulting in a very expensive repair	

	TICK
CHANGE PLATINUM TIPPED SPARK PLUGS – EVERY 5 YEARS OR 54,000 MILES Ensures maximum engine performance and economy	
INSPECT AIR BAG SYSTEM - AFTER 10 YEARS, THEN EVERY 2 YEARS THEREAFTER Ensures the reliability of the air bag system in event of an accident	

Technician Signature ..... **Date** ..... **Customer Signature** .....

CHECKLIST NO: NMGB SSC 3