MAINTENANCE

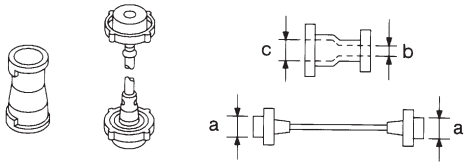
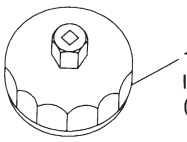
SECTION **MA**

MODIFICATION NOTICE:

- Platinum-tipped spark plugs have been used on models with three way catalyst for the Middle East and Europe. (TB48DE engine)
- Specifications of drive belt deflection have been modified. (TB48DE engine)
- TB48DE engine maintenance information for Europe has been added.
- Chassis and body maintenance information for the Middle East and Europe has been added. (TB48DE engine)

CONTENTS

Special Service Tools

Tool number Tool name	Description		Engine application
			TB48DE
EG17650301 Radiator cap tester adapter	 NT564	Adapting radiator cap tester to radiator filler neck and reservoir tank cap **a: 28 (1.10) dia.** **b: 31.4 (1.236) dia.** **c: 41.3 (1.626) dia.** Unit: mm (in)	X
KV10115801 Oil filter wrench	 NT362	Removing oil filter	X

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 Schedule for Petrol Engines (Annual Mileage < 30,000 km/year)

TB48DE ENGINE

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

MAINTENANCE OPERATION		MAINTENANCE INTERVAL								Reference pages
Perform on a kilometer basis, but on an annual basis when driving less than 15,000 km (9,000 miles) per year	km x 1,000 (miles x 1,000) Months	15 (9) 12	30 (18) 24	45 (27) 36	60 (36) 48	75 (45) 60	90 (54) 72	105 (63) 84	120 (72) 96	
Engine compartment and under vehicle										
Engine oil (Use recommended oil)★		R	R	R	R	R	R	R	R	—
Engine oil filter (Use NISSAN genuine part or equivalent)★		R	R	R	R	R	R	R	R	—
Drive belts		I	I	I	I	I	I	I	I	MA-11
Cooling system		I	I	I	I	I	I	I	I	—
Engine anti-freeze coolant (Use genuine NISSAN Anti-Freeze Coolant (L2N) or equivalent)	See NOTE (1)			I			R		I	—
Air cleaner filter (Viscous paper type)★					R				R	—
Intake and exhaust valve clearance	See NOTE (2)									—
Fuel and EVAP vapour lines			I		I		I		I	—
Spark plugs (Platinum-tipped type)	Replace every 100,000 km (60,000 miles)									MA-14
Fuel filter★							R			—

NOTE: (1) First replace at 90,000 km (54,000 miles)/60 months, then every 60,000 km (36,000 miles)/48 months. Perform "I" (Checking the mixture ratio and correcting the mixture ratio if necessary) at the middle of replacement interval.

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

★ Maintenance items with "★" should be performed more frequently according to "Maintenance Under Severe Driving Conditions".

Chassis and Body Maintenance

Abbreviations: R = Replace, I = Inspect: Correct or replace if necessary, L = Lubricate, T = Tighten, [ ] = At the specified mileage only

MAINTENANCE OPERATION		MAINTENANCE INTERVAL								Reference pages
Perform on a kilometer basis, but on an annual basis when driving less than 15,000 km (9,000 miles) per year.	km x 1,000	15	30	45	60	75	90	105	120	
	(miles x 1,000)	(9)	(18)	(27)	(36)	(45)	(54)	(63)	(72)	
	Months	**12**	**24**	**36**	**48**	**60**	**72**	**84**	**96**	
Underhood and under vehicle										
Headlamp aiming		I	I	I	I	I	I	I	I	—
Wheel alignment (if necessary, balance & rotate wheels)		I	I	I	I	I	I	I	I	—
Brake pads, rotors & other brake components★		I	I	I	I	I	I	I	I	MA-22
Foot brake, parking brake & clutch (for free play, stroke & operation)		I	I	I	I	I	I	I	I	—
Brake booster vacuum hoses, connections & check valve			I		I		I		I	—
Brake & clutch, systems and fluid (for level and leaks)		I	I	I	I	I	I	I	I	—
Brake fluid★			R		R		R		R	—
Power steering fluid and lines (for level and leaks)		I	I	I	I	I	I	I	I	—
Ventilation air filter★			R		R		R		R	—
ASCD vacuum hoses		I	I	I	I	I	I	I	I	—
Greasing point of propeller shaft★	See NOTE (1)	L	L	L	L	L	L	L	L	—
Transfer fluid and differential gear oil (for level & leaks or replace)★	See NOTE (2)	I	I	I	R	I	I	I	R	—
Drive shafts & steering damper★		I	I	I	I	I	I	I	I	—
Front wheel bearing grease★		I	R	I	R	I	R	I	R	—
Front axle joint in knuckle flange			L		L		L		L	—
Free-running hub grease★		I	I	I	I	I	I	I	I	—
Body mounting bolts & nuts		T	T	T	T	T	T	T	T	—
Steering gear & linkage, axle & suspension parts, propeller shaft & exhaust system★		I	I	I	I	I	I	I	I	—
Body corrosion	See NOTE (3)									—

NOTE: (1) The propeller shaft should be re-greased after being immersed in water.
(2) Including differential gear with differential lock.
(3) Inspect once per year.
★ Maintenance items with "★" should be performed more frequently according to "Maintenance under severe driving conditions".

Maintenance Under Severe Driving Conditions (Annual Driving Distance < 30,000 km/year)

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.

A — Driving in dusty conditions
B — Repeatedly driving short distances
C — Towing a trailer or caravan
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 or 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
J — Frequent driving in water

Driving condition										Maintenance item	Maintenance operation	Maintenance interval
A	B	C	D	.	.	.	.	.	.	**Engine oil & engine oil filter**	Replace	Every 7,500 km (4,500 miles) or 6 months
A	.	.	.	.	.	.	.	.	.	**Air cleaner filter**	Replace	Every 30,000 km (18,000 miles) or 24 months
A	.	.	.	E	.	.	.	.	.	**Fuel filter**	Replace	Every 45,000 km (27,000 miles) or 36 months
A	.	C	.	.	.	G	H	I	.	**Brake pads, rotors & other brake components**	Inspect	Every 7,500 km (4,500 miles) or 6 months
.	.	.	.	.	F	.	.	.	.	**Brake fluid**	Replace	Every 15,000 km (9,000 miles) or 12 months
A	.	.	.	.	.	.	.	.	.	**Ventilation air filter**	Replace	Every 15,000 km (9,000 miles) or 12 months
.	.	C	.	.	.	.	H	.	.	**Automatic transmission fluid**	Replace	Every 30,000 km (18,000 miles) or 24 months
.	.	.	.	.	.	G	H	.	J	**Greasing point of propeller shaft**	Lubricate	Every 7,500 km (4,500 miles) or 6 months
.	.	C	.	.	.	.	H	.	.	**Transfer fluid and differential gear oil**	Replace	Every 30,000 km (18,000 miles) or 24 months
.	.	C	.	.	.	.	H	.	.	**Drive shafts & steering damper**	Inspect	Every 7,500 km (4,500 miles) or 6 months
.	.	.	.	.	.	.	.	.	J	**Front wheel bearing grease**	Inspect	Every 7,500 km (4,500 miles) or 6 months
.	.	.	.	.	.	.	.	.	J	**Free-running hub grease**	Inspect	Every 7,500 km (4,500 miles) or 6 months
.	.	.	.	.	.	G	H	.	.	**Steering gear & linkage, axle & suspension parts, propeller shaft & exhaust system**	Inspect	Every 7,500 km (4,500 miles) or 6 months

Maintenance Schedule for Petrol Engines (Annual Mileage > 30,000 km/year)

TB48DE ENGINE

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

MAINTENANCE OPERATION		MAINTENANCE INTERVAL								Reference pages
Perform on a kilometer basis only.	km x 1,000 (miles x 1,000)	15 (9)	30 (18)	45 (27)	60 (36)	75 (45)	90 (54)	105 (63)	120 (72)	
Engine compartment and under vehicle										
Engine oil (Use recommended oil)★		R	R	R	R	R	R	R	R	—
Engine oil filter (Use NISSAN genuine part or equivalent)★		R	R	R	R	R	R	R	R	—
Drive belts		I	I	I	I	I	I	I	I	MA-11
Cooling system			I		I		I		I	—
Engine anti-freeze coolant (Use genuine NISSAN Anti-Freeze Coolant (L2N) or equivalent)	See NOTE (1)			I			R		I	—
Air cleaner filter (Viscous paper type)★					R				R	—
Intake & exhaust valve clearance	See NOTE (2)									—
Fuel and EVAP vapor lines					I				I	—
Spark plugs (Platinum-tipped type)		Replace every 100,000 km (60,000 miles)								MA-14
Fuel filter★							R			—

NOTE: (1) First replace at 90,000 km (54,000 miles), then every 60,000 km (36,000 miles). Perform "I" (checking the mixture ratio and correcting the mixture ratio if necessary) at the middle of replacement interval.
(2) Periodic maintenance is not required. However, if valve noise increases, check valve clearance.
★ Maintenance items with "★" should be performed more frequently according to "Maintenance Under Severe Driving Conditions".

Chassis and Body Maintenance

Abbreviations: R = Replace, I = Inspect: Correct or replace if necessary, L = Lubricate, T = Tighten

MAINTENANCE OPERATION		MAINTENANCE INTERVAL				Reference pages
Perform on a kilometer basis only	km x 1,000 (miles x 1,000)	30 (18)	60 (36)	90 (54)	120 (72)	
Underhood and under vehicle						
Headlamp aiming		I	I	I	I	—
Wheel alignment (if necessary, balance & rotate wheels)		I	I	I	I	—
Brake pads, rotors & other brake components★		I	I	I	I	MA-22
Foot brake, parking brake & clutch (for free play, stroke & operation)		I	I	I	I	—
Brake booster vacuum hoses, connections & check valve			I		I	—
Brake & clutch, systems and fluid (for level and leaks)		I	I	I	I	—
Brake fluid★			R		R	—
Power steering fluid and lines (for level and leaks)		I	I	I	I	—
Ventilation air filter★		R	R	R	R	—
ASCD vacuum hoses		I	I	I	I	—
Greasing point of propeller shaft★	See NOTE (1)	L	L	L	L	—
Transfer fluid and differential gear oil (for level & leaks or replace)★	See NOTE (2)	I	R	I	R	—
Drive shafts & steering damper★		I	I	I	I	—
Front wheel bearing grease★		I	R	I	R	—
Front axle joint in knuckle flange			L		L	—
Free-running hub grease★		I	I	I	I	—
Body mounting bolts & nuts		T	T	T	T	—
Steering gear & linkage, axle & suspension parts, propeller shaft & exhaust system★		I	I	I	I	—
Body corrosion	See NOTE (3)					—

NOTE: (1) The propeller shaft should be re-greased after being immersed in water.
(2) Including differential gear with differential lock.
(3) Inspect once per year.
★ Maintenance items with "★" should be performed more frequently according to "Maintenance under severe driving conditions".

Maintenance Under Severe Driving Conditions (Annual Driving Distance > 30,000 km)

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.

A — Driving in dusty conditions
B — Repeatedly driving short distances
C — Towing a trailer or caravan
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 or 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
J — Frequent driving in water

Driving condition										Maintenance item	Maintenance operation	Maintenance interval
A	B	C	D	.	.	.	.	.	.	**Engine oil & engine oil filter**	Replace	Every 7,500 km (4,500 miles)
A	.	.	.	.	.	.	.	.	.	**Air cleaner filter**	Replace	Every 30,000 km (18,000 miles)
A	.	.	.	E	.	.	.	.	.	**Fuel filter**	Replace	Every 45,000 km (27,000 miles)
A	.	C	.	.	.	G	H	I	.	**Brake pads, rotors & other brake components**	Inspect	Every 15,000 km (9,000 miles)
.	.	.	.	.	F	.	.	.	.	**Brake fluid**	Replace	Every 30,000 km (18,000 miles)
A	.	.	.	.	.	.	.	.	.	**Ventilation air filter**	Replace	Every 15,000 km (9,000 miles)
.	.	C	.	.	.	.	H	.	.	**Automatic transmission fluid**	Replace	Every 60,000 km (36,000 miles)
.	.	.	.	.	.	G	H	.	J	**Greasing point of propeller shaft**	Lubricate	Every 15,000 km (9,000 miles)
.	.	C	.	.	.	.	H	.	.	**Transfer fluid and differential gear oil**	Replace	Every 30,000 km (18,000 miles)
.	.	C	.	.	.	.	H	.	.	**Drive shafts & steering damper**	Inspect	Every 15,000 km (9,000 miles)
.	.	.	.	.	.	.	.	.	J	**Front wheel bearing grease**	Inspect	Every 15,000 km (9,000 miles)
.	.	.	.	.	.	.	.	.	J	**Free-running hub grease**	Inspect	Every 15,000 km (9,000 miles)
.	.	.	.	.	.	G	H	.	.	**Steering gear & linkage, axle & suspension parts, propeller shaft & exhaust system**	Inspect	Every 15,000 km (9,000 miles)

Fluids and Lubricants

				Capacity (Approximate)		Recommended Fluids/Lubricants
				Liter	Imp measure	
Engine oil (Refill)						Gasoline engine: API SE, SF, SG SH, SJ or SL*1 ILSAC grade GF-I, GF-II, GF-III or SG+*1 Diesel engine: API CC, CD, CE, CF, CF-4 or JASO DH-1*1 for TD42, TD42T API CF4 or ACEA B3-96.98 or ACEA B3/E3-96.98 or JASO DH-1*5 for Europe, ZD30DDTi And API CD, CE, CF, CF-4 or JASO DH-1*1, *5 except for Europe, ZD30DDTi
With oil filter	TB45E, TB45S			7.6	6-3/4 qt	
	TB48DE			6.8	6 qt	
	TD42, TD42T			10.5	9-1/4 qt	
	ZD30DDTi			8.2	7-1/4 qt	
Without oil filter	TB45E, TB45S			7.3	6-3/8 qt	
	TB48DE			6.5	5-3/4 qt	
	TD42, TD42T			9.3	8-1/8 qt	
	ZD30DDTi			7.7	6-3/4 qt	
Cooling system (with reservoir tank)						● Except for Europe Nissan Genuine Engine Coolant or equivalent in its quality*6 ● For Europe Genuine Nissan Anti-freeze Coolant (L2N) or equivalent*6
With front heater	TB45E, TB45S			12.0	10-5/8 qt	
	TB48DE	RHD		13.2	11-5/8 qt	
		LHD	Except for the Middle East & Europe	13.0	11-1/2 qt	
			For the Middle East & Europe	13.8	12-1/8 qt	
	TD42, TD42T			15.1	13-1/4 qt	
	ZD30DDTi	RHD	Except Europe	12.7	11-1/8 qt	
			For Europe	13.0	11-1/2 qt	
		LHD	Except Europe	12.9	11-3/8 qt	
			For Europe	13.2	11-5/8 qt	
Without front heater	TB45E, TB45S			11.3	10 qt	
	TB48DE		Except for the Middle East	12.5	11 qt	
			For the Middle East	13.3	11-3/4 qt	
	TD42, TD42T			14.4	12-5/8 qt	
	ZD30DDTi			12.0	10-5/8 qt	
With rear heater	TB48DE	RHD		14.1	12-3/8 qt	
		LHD	Except for the Middle East & Europe	13.9	12-1/4 qt	
			For the Middle East & Europe	14.7	13 qt	
	TD42	LHD		16.0	14-1/8 qt	
	ZD30DDTi	RHD	Except Europe	13.8	12-1/8 qt	
			For Europe	14.1	12-3/8 qt	
		LHD	Except Europe	14.0	12-3/8 qt	
			For Europe	14.3	12-5/8 qt	
Manual transmission oil FS5R50B				3.5	6-1/8 qt	API GL-4, Viscosity SAE 75W-85
Differential carrier gear oil (without limited slip differential)						API GL-5*1
Without diff. lock				2.4	4-1/4 qt	
With diff. lock				3.0	5-1/4 qt	
Differential carrier gear oil (with limited slip differential) Except Europe				2.1	3-3/4 qt	Gear Oil Hypoid LSD (Part No.: KLD31-14002) or equivalent*2
Transfer fluid TX12A				1.9	1-5/8 qt	Genuine Nissan ATF or equivalent*4 or API GL-4*1
Automatic transmission fluid RE5R05A				10.4 - 10.7	9-1/8 - 9-3/8 qt	Genuine Nissan ATF Matic Fluid J*3
RE4R03A				11.8	10-3/8 qt	Genuine Nissan ATF or equivalent*4
Power steering fluid				Refill to the proper oil level according to the instructions in the “Maintenance and do-it-yourself” section of the owner’s manual.		Type DEXRON™III or equivalent
Brake and clutch fluid						For Europe: DOT 3 or DOT 4 (U.S. FMVSS No. 116)*7 Except for Europe: DOT 3 (U.S. FMVSS No. 116)
Multi-purpose grease				—	—	NLGI No. 2 (Lithium soap base)
Propeller shaft grease						NLGI No. 2 (Molybdenum disulphide lithium soap base)
Air conditioning system refrigerant				—	—	HFC-134a (R-134a)
Air conditioning system lubricants				—	—	Nissan A/C System Oil Type S or exact equivalent

*1: For further details, see “SAE viscosity number”.
*2: API GL-5, SAE 140 and 10% volume of LSD Friction Modifier (Part No.: 38469-C6000) is an equivalent.
*3: **Using automatic transmission fluid other than Nissan Genuine ATF Matic Fluid J will cause deterioration in driveability and automatic transmission durability, and may damage the automatic transmission, which is not covered by the warranty.**
*4: For more information regarding suitable fluids, contact a Nissan dealer for correct brand(s) of DEXRON™III/MERCON™ Automatic Transmission Fluid.
*5: Never use API CG-4.
*6: Use Nissan Genuine Engine Coolant [For Europe, use Genuine Nissan Anti-freeze Coolant (L2N)] or equivalent in its quality, in order to avoid possible aluminum corrosion within the engine cooling system caused by the use of non-genuine engine coolant.
Note that any repairs for the incidents within the engine cooling system while using non-genuine engine coolant may not be covered by the warranty even if such incidents occurred during the warranty period.
*7: Never mix DOT 3 & DOT 4.

Checking Tightening Torque

- Checking should be performed while engine is cold.

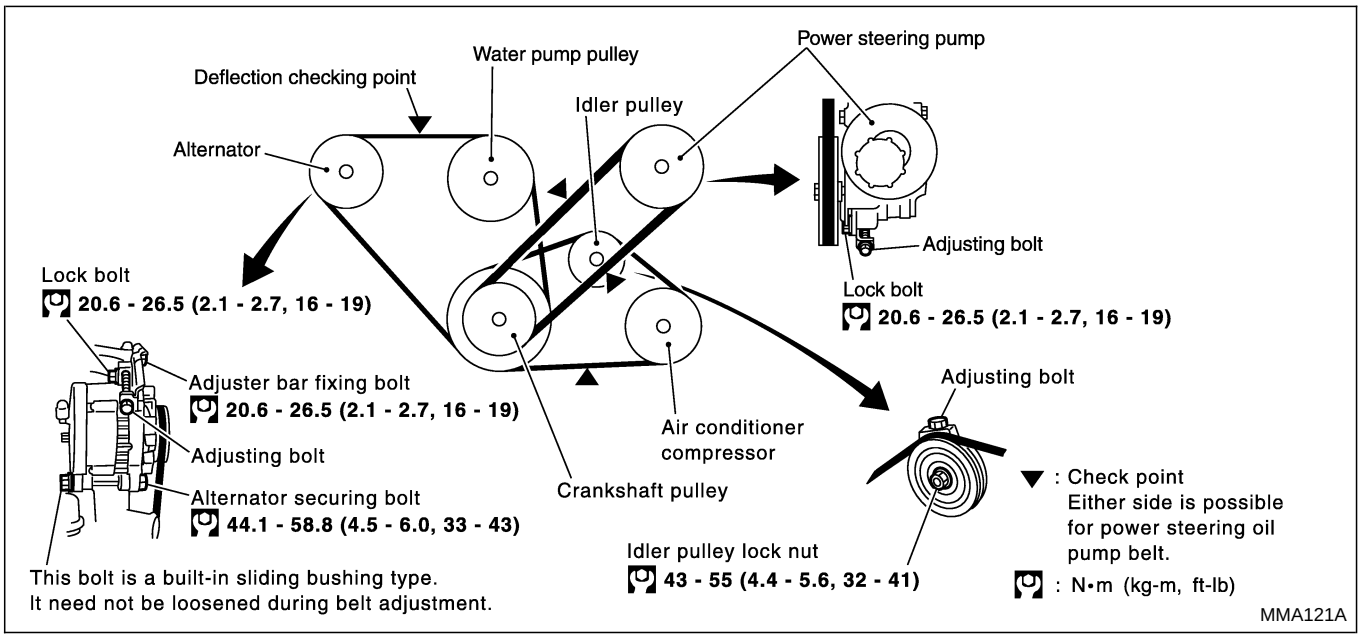
MANIFOLD BOLTS AND NUTS

Intake manifold:
: 24.5 - 31.4 N·m (2.5 - 3.2 kg-m, 18 - 23 ft-lb)
Exhaust manifold:
: 28.4 - 32.4 N·m (2.9 - 3.3 kg-m, 21 - 23 ft-lb)

EXHAUST TUBE NUTS

: 51 - 64.7 N·m (5.2 - 6.5 kg-m, 38 - 47 ft-lb)

Checking Drive Belts



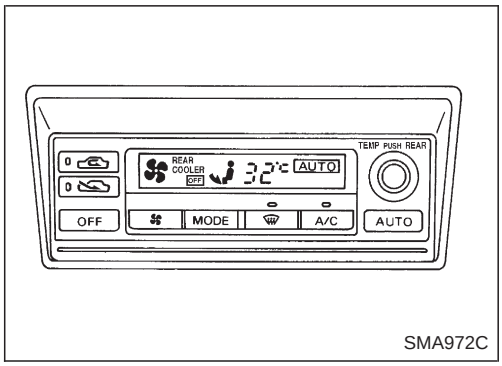
1. Inspect for cracks, fraying, wear or oil adhesion. If necessary, replace with a new one.
2. Inspect drive belt deflections by pushing on the belt midway between pulleys.

Adjust if belt deflections exceed the limit.
Belt deflection:

Unit: mm (in)

	Used belt deflection		Deflection of new belt
	Limit	Deflection after adjustment	
Alternator	10 (0.39)	8 (0.31)	7 (0.28)
Air conditioner compressor	12 (0.47)	9 (0.35)	8 (0.31)
Power steering oil pump	21 (0.83)	17 - 18 (0.67 - 0.71)	13 - 14 (0.51 - 0.55)
Applied pushing force	98 N (10 kg, 22 lb)		

Inspect drive belt deflections when engine is cold.



SMA972C

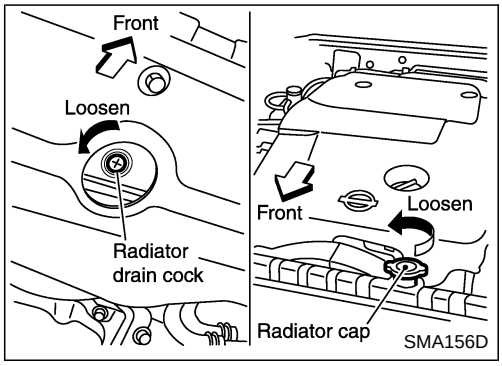
Changing Engine Coolant

EXCEPT FOR THE MIDDLE EAST

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

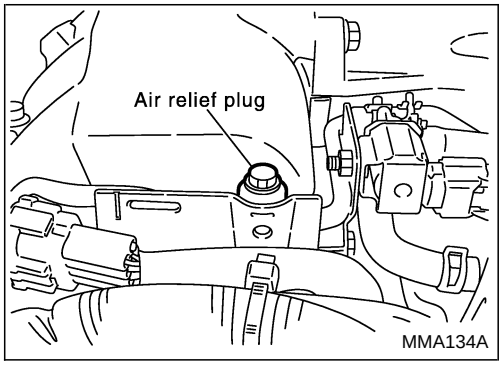
— DRAINING ENGINE COOLANT —

1. Turn the ignition switch from “OFF” to “ON” and make sure that the A/C display indicates “32”. Then turn ignition switch to “OFF” for models with AUTO air conditioner.
   Turn the temperature control knob to full hot position for models with MANUAL air conditioner.



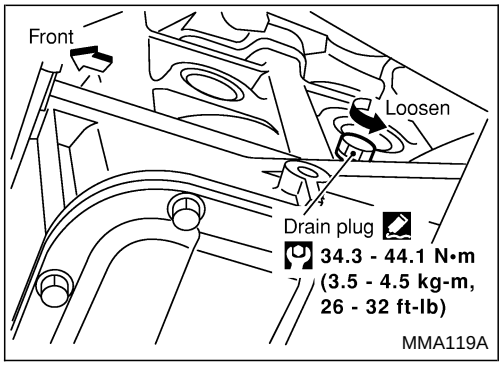
SMA156D

2. Open radiator drain cock at the bottom of radiator, and remove radiator cap to drain.
   - **Be careful not to allow coolant to contact drive belts.**



MMA134A

3. Remove air relief plug at front top of intake manifold collector (upper).



MMA119A

4. Remove cylinder block drain plug to drain.
5. Remove reservoir tank to drain and clean.
6. If drained coolant is contaminated, flush the cooling system.

— FLUSHING COOLING SYSTEM —

7. Close drain cock and drain plug, then install air relief plug.
8. Install reservoir tank.

Changing Engine Coolant (Cont'd)

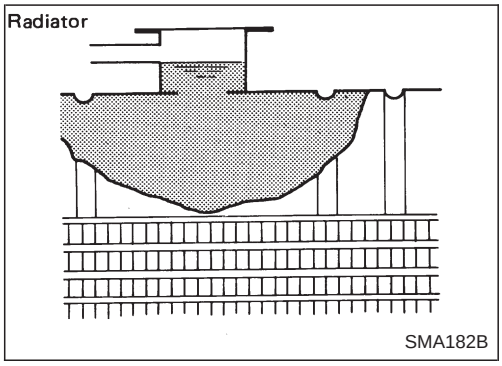
9. Fill radiator and reservoir tank with water, and close radiator cap and reservoir tank cap.
10. Run engine and warm it up to normal operating temperature.
11. Race engine 2 or 3 times under no-load.
12. Stop engine and wait until it cools down.
13. Repeat step 2 through step 11 until clear water begins to drain from radiator.
14. Drain water.

— REFILLING ENGINE COOLANT —

15. Remove air relief plug. Close drain cock and tighten drain plug securely.

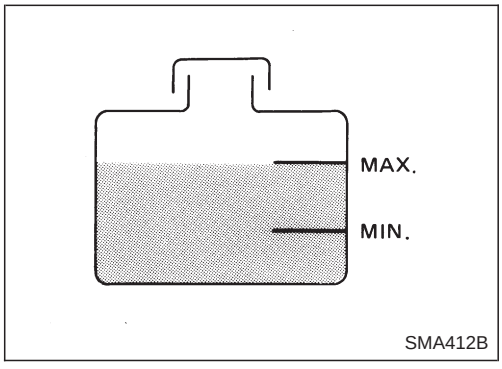
- **Apply sealant to the thread of drain plug.**

Cylinder block drain plug
: 34.3 - 44.1 N·m (3.5 - 4.5 kg-m, 26 - 32 ft-lb)



16. Fill radiator with coolant up to the filler neck and install radiator cap. Install air relief plug when coolant overflows from air relief hole.
    Follow instructions attached to anti-freeze container for mixing ratio of anti-freeze to water.
    For coolant mixture ratio, refer to "RECOMMENDED FLUID AND LUBRICANTS" of original Service Manual.
    Coolant capacity (With reservoir tank): liter (Imp qt)
    With rear heater
    LHD models 13.9 (12-1/4)
    RHD models 14.1 (12-3/8)
    With front heater
    LHD models 13.0 (11-1/2)
    RHD models 13.2 (11-5/8)
    Without front heater
    12.5 (11)
    Reservoir tank capacity (for MAX level):
    0.6 liter (1/2 Imp qt)

Pour coolant through coolant filler neck slowly to allow air in system to escape.



17. Fill reservoir tank with coolant up to "MAX" level and then install cap.
18. Warm up engine to normal operating temperature.
19. Run engine at 2,000 rpm for 10 seconds and return to idle speed.

- Repeat 2 or 3 times.

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

20. Stop engine and cool it down.

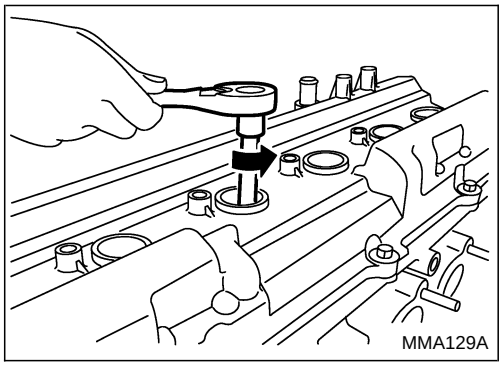
- Cool down using a fan to reduce the time.

21. Refill reservoir tank to Max line with coolant.
22. Repeat step 18 through step 21 two or more times.

Changing Engine Coolant (Cont'd)

23. Warm up engine, and check for sound of coolant flow while running engine from idle up to 2,000 rpm with heater temperature control set at several positions between COOL and HOT.
- Sound may be noticeable at heater water cock.

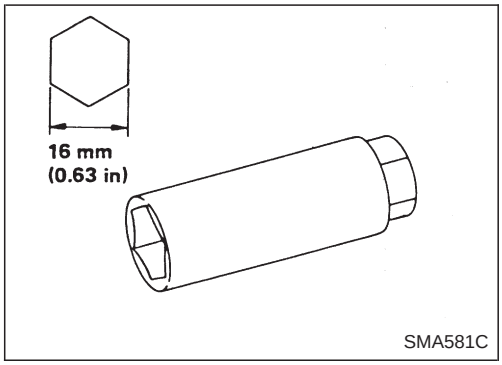
24. If sound is heard, bleed air from cooling system by repeating steps 18 through 23 until coolant level no longer drops.
- **Clean excess coolant from engine.**


MMA129A

Changing Spark Plugs (Platinum-Tipped Type)

MODELS WITH THREE WAY CATALYST FOR THE MIDDLE EAST AND EUROPE

1. Disconnect harness connectors and remove ignition coils from spark plugs.



SMA581C

2. Remove spark plugs with spark plug wrench.

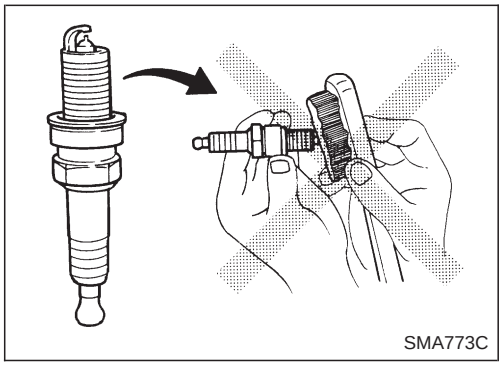
Spark plug:

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

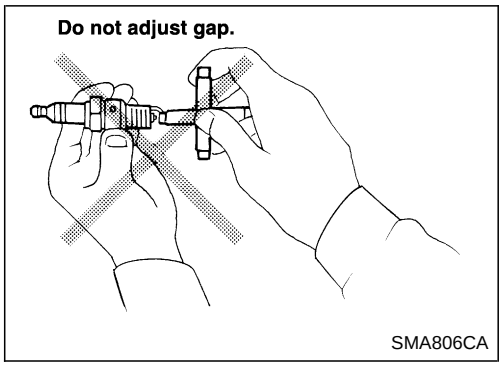
Use standard type spark plug under normal conditions. The hot type spark plug is suitable when fouling occurs with the standard spark plug under conditions such as:
- Frequent engine starts
- Low ambient temperature

The cold type spark plug is suitable when spark knock occurs with the standard spark plug under conditions such as:
- Extended highway driving
- Frequent high engine revolution

3. Check insulator for cracks or chips, gasket for damage or deterioration and electrode for wear and burning. If they are excessively worn away, replace with new spark plugs.
   Gap (Nominal): 1.1 m (0.043 in)


SMA773C

CAUTION:
- **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 (5.88 bar, 6 kg/cm^2, 85 psi)
  Cleaning time:
  Less than 20 seconds



Changing Spark Plugs (Platinum-Tipped Type) (Cont'd)

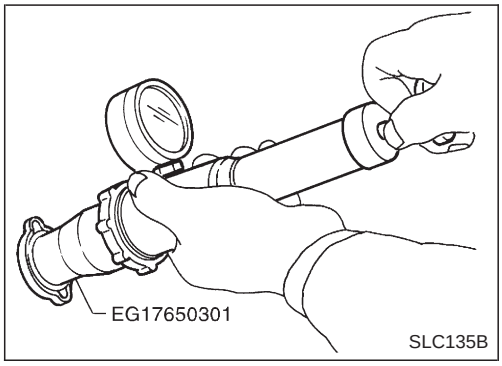
- **Checking and adjusting plug gap is not required between change intervals.**

4. Install spark plugs. Install ignition coils to spark plugs and reconnect harness connector of ignition coil.
   Spark plug:
   : 19.6 - 29.4 N·m (2.0 - 3.0 kg-m, 15 - 21 ft-lb)

Checking Cooling System

CHECKING HOSES

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

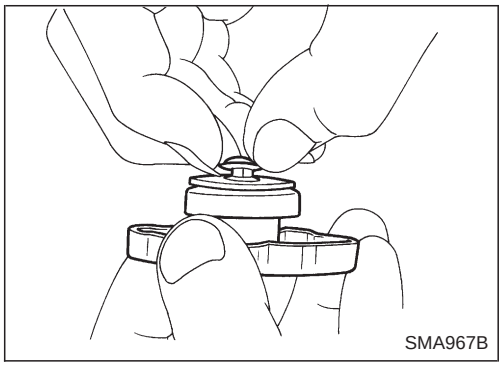


CHECKING RADIATOR CAP

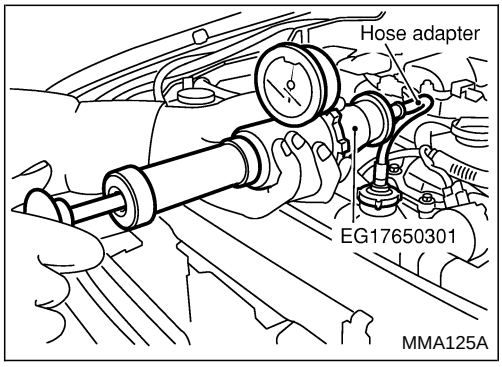
Except for the Middle East

To check radiator cap, apply pressure to cap with a tester.

Radiator cap relief pressure:
Standard
108 - 127 kPa
(1.08 - 1.27 bar, 1.1 - 1.3 kg/cm^2, 16 - 18 psi)
Limit
59 kPa (0.59 bar, 0.6 kg/cm^2, 9 psi)



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



CHECKING COOLING SYSTEM FOR LEAKS

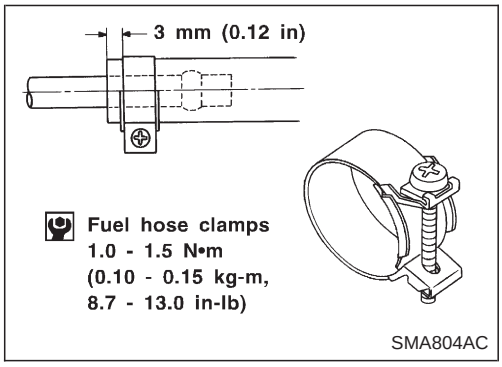
Apply pressure to the cooling system with cap tester to check for leakage.

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 proper attachment and for leaks, cracks, damage, loose connections, chafing and deterioration. If necessary, repair or replace faulty parts.

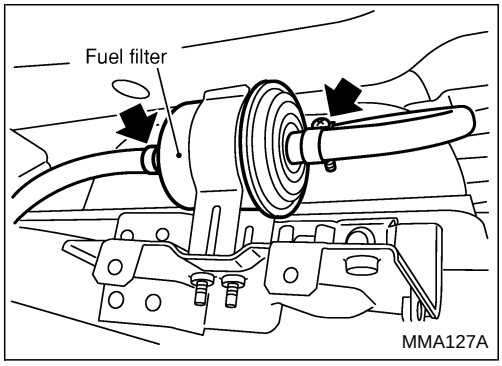


CAUTION:
Tighten high-pressure rubber hose clamp so that clamp end is 3 mm (0.12 in) from hose end.
Tightening torque specifications are the same for all rubber hose clamps.
Ensure that screw does not contact adjacent parts.

Changing Fuel Filter

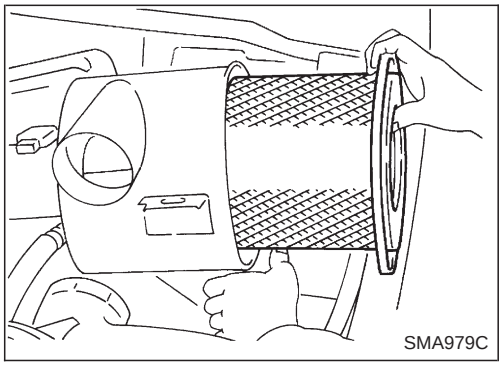
WARNING:
Before removing fuel filter, release fuel pressure from fuel line to eliminate danger.

1. Release fuel pressure from fuel line.
   Refer to EC section (“Fuel Pressure Release”, “BASIC SERVICE PROCEDURE”).



2. Loosen fuel hose clamps.
3. Replace fuel filter.

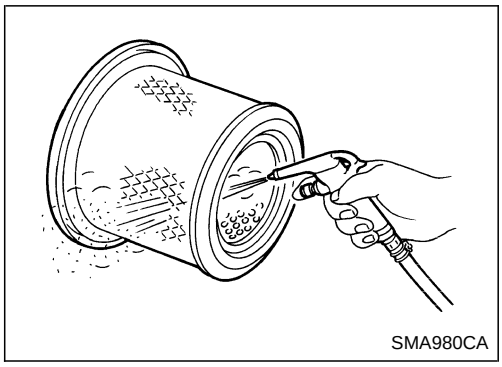
- **Be careful not to spill fuel over engine compartment. Place a shop towel to absorb fuel.**
- **Use a high-pressure type fuel filter. Do not use a synthetic resinous fuel filter.**
- **When tightening fuel hose clamps, refer to “Checking Fuel Lines”.**



Cleaning and Changing Air Cleaner Filter

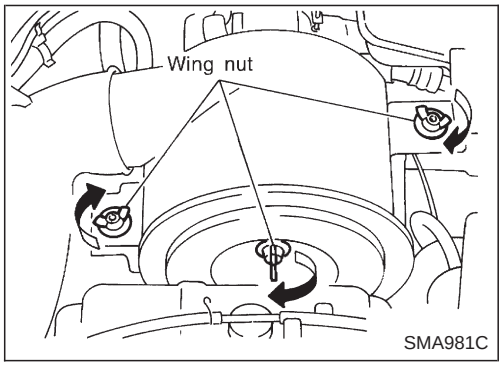
Viscous paper type
The viscous paper type filter does not need cleaning between renewals.

Cleaning and Changing Air Cleaner Filter (Cont'd)


SMA980CA

Dry paper type

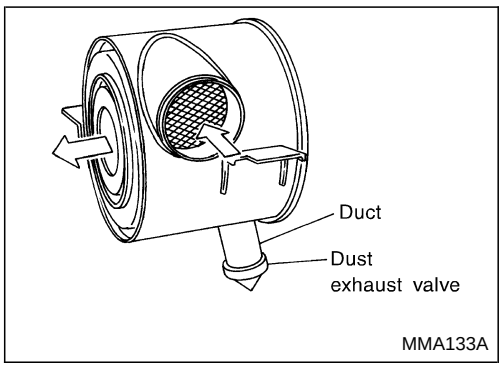
It is necessary to clean the element or replace it at the recommended intervals, more often under dusty driving conditions.



SMA981C

- **To properly tighten wing nuts, position clamps at four places and tighten wing nuts until they touch air cleaner. Then tighten them three more turns.**
- **Clean inside air cleaner body when changing the element, or cleaning for dry paper type.**

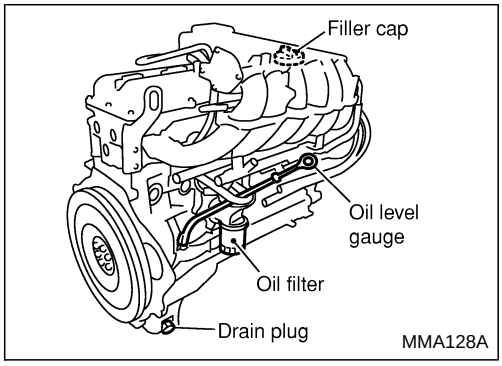
Checking Cyclone Pre-air Cleaner



MMA133A

1. Remove dust exhaust valve and check duct for dust clogging. Clean away any dust.
   Dust exhaust valve can be removed through the front left wheelwell.
2. Install the dust exhaust valve and its cover provided at the wheelwell to original position.

Changing Engine Oil



MMA128A

WARNING:

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

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.
   Oil grade: API SE, SF, SG, SH or SJ
   Viscosity:
   See "RECOMMENDED FLUIDS AND LUBRICANTS".

Refill oil capacity (Approximately):

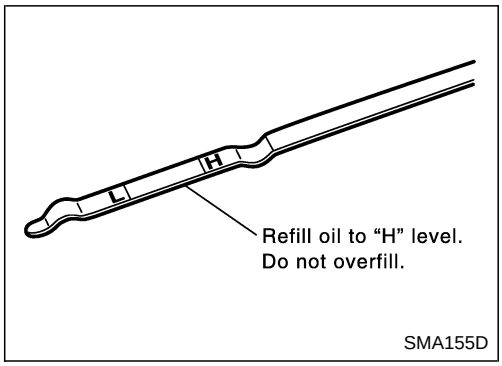
Unit: liter (Imp qt)

With oil filter change	6.8 (6)
Without oil filter change	6.5 (5-3/4)

CAUTION:

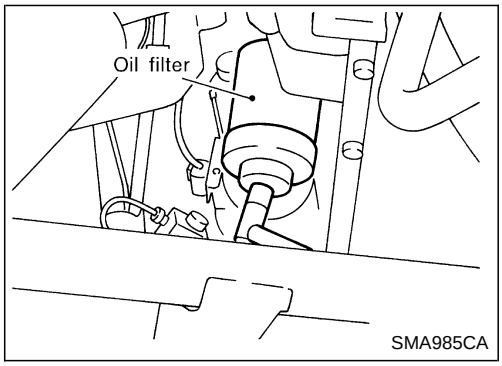
- **Be sure to clean drain plug and install with new washer.**
  Drain plug:
  : 29.4 - 39.2 N·m (3.0 - 4.0 kg-m, 22 - 28 ft-lb)
- **Use recommended engine oil.**

Changing Engine Oil (Cont'd)



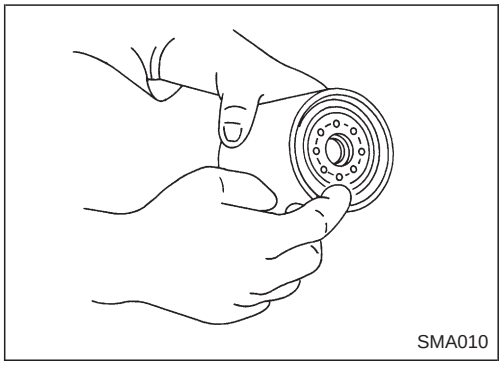
4. Check oil level on a level surface.
5. Start engine and check area around drain plug and oil filter for oil leakage.
6. Run engine for a few minutes, then turn it off. After more than 10 minutes, check oil level.

Changing Oil Filter

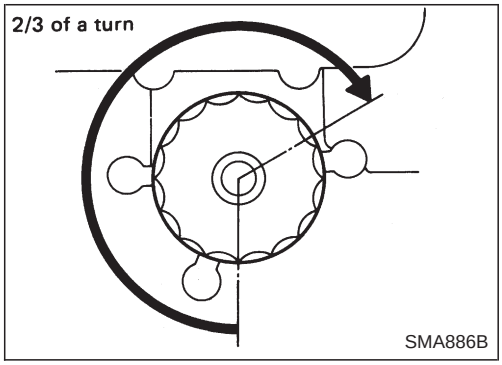


1. Remove oil filter with a suitable tool.

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



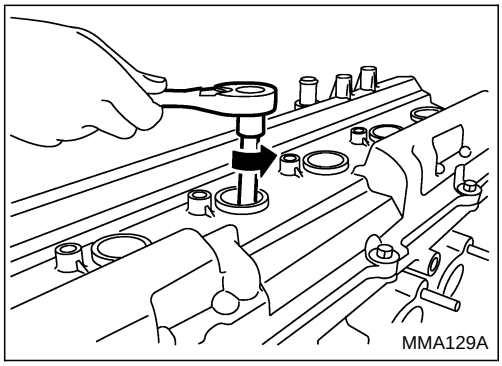
2. Before installing new oil filter, clean the oil filter mounting surface on cylinder block, and coat the rubber seal of oil filter with a little engine oil.



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

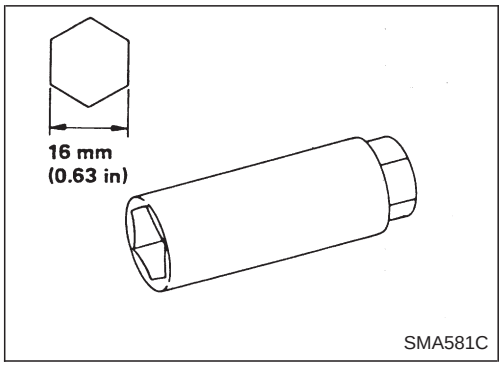
Refer to Changing Engine Oil.

Checking and Changing Spark Plugs



1. Disconnect harness connectors and remove ignition coils from spark plugs.

Checking and Changing Spark Plugs (Cont'd)



SMA581C

2. Remove spark plugs with spark plug wrench.

Spark plug:

Make	NGK
Standard type	LFR5A-11
Hot type	LFR4A-11
Cold type	LFR6A-11

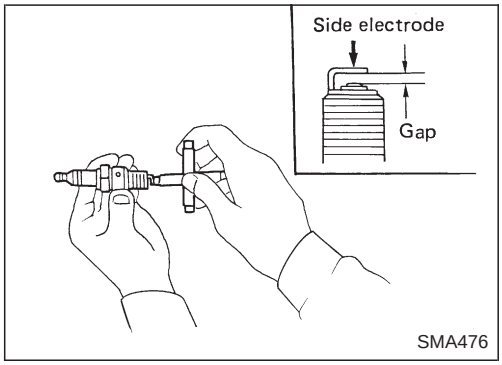
Use standard type spark plug under normal conditions. The hot type spark plug is suitable when fouling occurs with the standard spark plug under conditions such as:

- frequent engine starts
- low ambient temperature

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

- extended highway driving
- frequent high engine revolution

3. Clean plugs in sand blast cleaner.
4. Check insulator for cracks or chips, gasket for damage or deterioration and electrode for wear and burning. If they are excessively worn away, replace with new spark plugs.



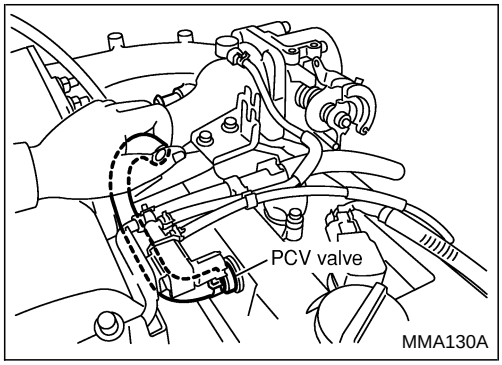
SMA476

5. Check spark plug gap.
   Gap: 1.0 - 1.1 mm (0.039 - 0.043 in)
6. Install spark plugs. Install ignition coils to spark plugs and reconnect harness connector of ignition coil.
   Spark plug:
   : 19.6 - 29.4 N·m (2.0 - 3.0 kg-m, 15 - 21 ft-lb)

Checking Positive Crankcase Ventilation (PCV) System

CHECKING PCV VALVE

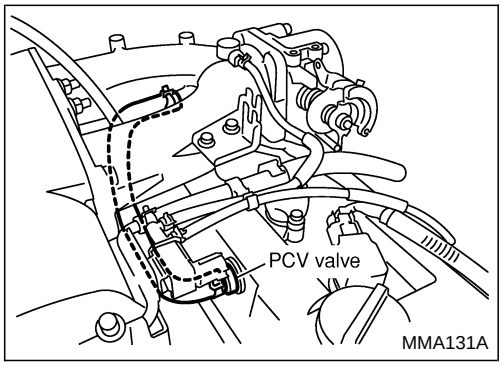
With engine running at idle, remove ventilation hose from rocker cover; if valve is working properly, a hissing noise will be heard as air passes through it and a strong vacuum should be felt immediately when a finger is placed over valve inlet.



MMA130A

CHECKING VENTILATION HOSES

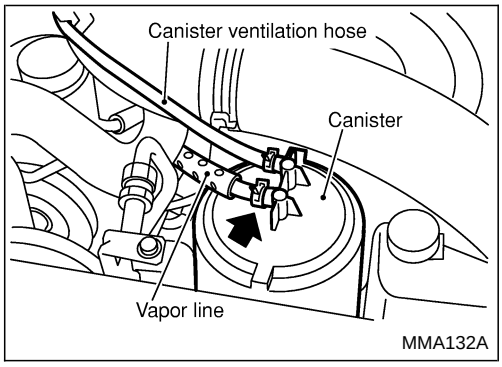
1. Check hoses and hose connections for leaks.
2. Disconnect all hoses and clean with compressed air. If any hose cannot be freed of obstructions, replace.



MMA131A

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 proper 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 CONTROL SYSTEM INSPECTION in EC section.

Checking A/T Fluid

— RE5R05A —

NOTE:
Use only service part of A/T fluid level gauge.

1.Remove the oil charging pipe cap.
2. Insert A/T fluid gauge.
3. Warm up engine.
4. Check for fluid leakage.
5. 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 oil 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 oil charging pipe.

Do not overfill.

6.Drive vehicle for approximately 5 minutes in urban areas.
7. Re-check fluid level at fluid temperature of 50 to 80°C (122 to 176°F) using “HOT” range on A/T fluid level gauge.
8. 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.

9. Make sure AT fluid level gauge is removed then install the oil charging pipe cap.
   Bolt: 4.4 - 5.8 N·m (0.45 - 0.59 kg-m, 39.1 - 51.2 in-lb)

Changing A/T Fluid

— RE5R05A —

NOTE:
Use only service part of A/T fluid level gauge.

1.Warm up A/T fluid.
2. Stop engine.
3. Remove the oil charging pipe cap.
4. Drain A/T fluid from drain plug and refill with new A/T fluid. Always refill same volume with drained fluid.

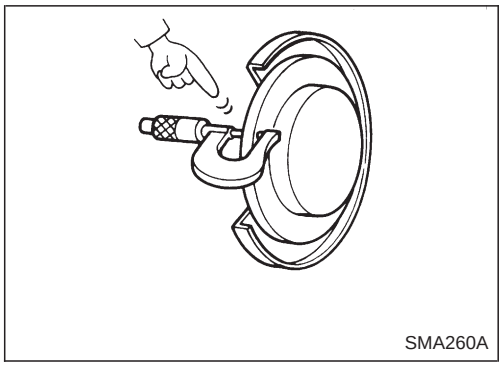
- To replace the A/T fluid, pour in new oil at the oil charging pipe with the engine idling and at the same time drain the old oil from the radiator cooler hose return side.
- When the color of the oil coming out is abut the same as the color of the new oil, the replacement is complete. The amount of new transmission fluid to use should be 30 to 50% of the stipulated amount.
  A/T fluid: Nissan Matic Fluid J
  Fluid capacity: 10.4 - 10.7 liter (9-1/8 - 9-3/8 Imp qt)

CAUTION:

- **Use only Nissan Genuine ATF Matic Fluid J. Do not mix with other fluid.**
- **Using automatic transmission fluid other than Nissan Genuine ATF Matic Fluid J will cause deterioration in driveability and automatic transmission durability, and may damage the automatic transmission, which is not covered by the warranty.**
  Drain plug: 29 - 39 N·m (3.0 - 4.0 kg-m, 22 - 29 ft-lb)

5.Run engine at idle speed for 5 minutes.
6. Check fluid level and condition. Refer to MA-21, “Checking A/T Fluid”. If fluid is still dirty, repeat step 2 through 5.

- Make sure A/T fluid level gauge is removed then install the oil charging pipe cap.
  Bolt: 4.4 - 5.8 N·m (0.45 - 0.59 kg-m, 39.1 - 51.2 in-lb)


SMA260A

Checking Disc Brake

ROTOR

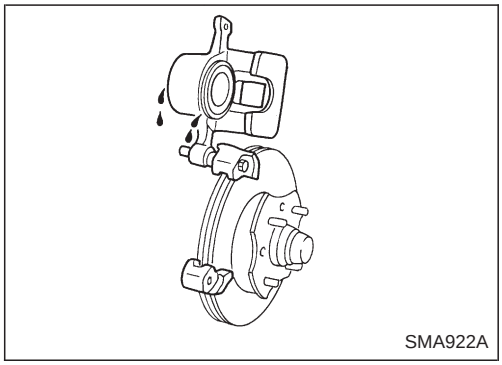
Check condition and thickness.

Standard thickness:

Front	**CL41VA**	**34 mm (1.34 in)**
	CL36VE	**32 mm (1.26 in)**
Rear	**CL20VA**	**18 mm (0.71 in)**
	CL18VF	**18 mm (0.71 in)**

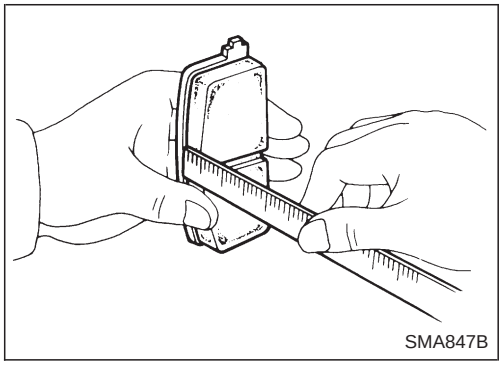
Minimum thickness:

Front	**CL41VA**	**32 mm (1.26 in)**
	CL36VE	**30 mm (1.18 in)**
Rear	**CL20VA**	**16 mm (0.63 in)**
	CL18VF	**16 mm (0.63 in)**


SMA922A

CALIPER

Check for leakage.


SMA847B

PAD

Check for wear or damage.

Standard thickness:

Front	**CL41VA**	**10 mm (0.39 in)**
	CL36VE	**12 mm (0.47 in)**
Rear	**CL20VA**	**11 mm (0.43 in)**
	CL18VF	**10 mm (0.39 in)**

Minimum thickness:

2.0 mm (0.079 in)

Engine Maintenance (TB48DE)

INSPECTION AND ADJUSTMENT

Drive belt deflection

Unit: mm (in)

	Used belt deflection		Deflection of new belt
	Limit	Deflection after adjustment	
Alternator	10 (0.39)	8 (0.31)	7 (0.28)
Air conditioner compressor	12 (0.47)	9 (0.35)	8 (0.31)
Power steering oil pump	21 (0.83)	17 - 18 (0.67 - 0.71)	13 - 14 (0.51 - 0.55)
Applied pushing force	98 N (10 kg, 22 lb)		

Oil capacity (Refill capacity)

Unit: ℓ (Imp qt)

With oil filter change	6.8 (6)
Without oil filter change	6.5 (5-3/4)

Cooling system check

Except for the Middle East

Unit: kPa (bar, kg/cm^2, psi)

Cooling system testing pressure		157 (1.57, 1.6, 23)
Radiator cap relief pressure	Standard	108 - 127 (1.08 - 1.27, 1.1 - 1.3, 16 - 18)
	Limit	59 (0.59, 0.6, 9)

For the Middle East

Unit: kPa (bar, kg/cm^2, psi)

Cooling system testing pressure		157 (1.57, 1.6, 23)
Radiator cap relief pressure	Standard	78 - 98 (0.78 - 0.98, 0.8 - 1.0, 11 - 14)
	Limit	59 (0.59, 0.6, 9)

Spark plug type (Platinum-tipped type)

Models with three way catalyst for the Middle East and Europe

Standard type	PLFR5A-11
Hot type	PLFR4A-11
Cold type	PLFR6A-11
Plug gap (Nominal)	1.1 mm (0.043 in)