MAINTENANCE

SECTION MA

MODIFICATION NOTICE:

- The ZD30DDTi engine has been replaced with the RD28ETi engine.
- Descriptions for the engine coolant mixture ratio have been modified.

CONTENTS

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 Diesel Engines (Annual Mileage < 30,000 km/year)

ZD30DDTi engine

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

MAINTENANCE OPERATION		MAINTENANCE INTERVAL						
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	
	(miles x 1,000)	(9)	(18)	(27)	(36)	(45)	(54)	
	Months	**12**	**24**	**36**	**48**	**60**	**72**	
Engine compartment and under vehicle								Reference pages
Engine oil (Use recommended oil)★		R	R	R	R	R	R	MA-1012
Engine oil filter (Use Eco filter or equivalent)★	See NOTE (1)	R	R	R	R	R	R	MA-1013
Drive belts		I	I	I	I	I	I	MA-1011
Cooling system		I	I	I	I	I	I	MA-1016
Engine anti-freeze coolant (Use genuine NISSAN Anti-freeze Coolant (L2N) or equivalent)	See NOTE (2)			I				MA-1010, 1014
Air cleaner filter★					R			MA-1019
Fuel lines			I		I		I	MA-1018
Injection nozzles	See NOTE (3)							*1
Intake & exhaust valve clearance	See NOTE (4)							MA-1011
Fuel filter★				R			R	MA-1017

NOTE: (1) Oil filter element assembly and O-ring seal are replacement parts.
(2) 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.
(3) If engine power decreases, black exhaust smoke is emitted or engine noise increases, check injection nozzles and, if necessary, replace injection nozzle assembly.
(4) If valve noise increases, check valve clearance.
★ Maintenance items with "★" should be performed more frequently according to "Maintenance under severe driving conditions".

*1: "Injection Tube and Injection Nozzle" in EC section

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						
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	
	(miles x 1,000)	(9)	(18)	(27)	(36)	(45)	(54)	
	Months	**12**	**24**	**36**	**48**	**60**	**72**	
Underhood and under vehicle								Reference pages
Headlamp aiming		I	I	I	I	I	I	—
When alignment (if necessary, balance & rotate wheels)		I	I	I	I	I	I	—
Brake pads, rotors & other brake components★		I	I	I	I	I	I	—
Foot brake, parking brake & clutch (for free play, stroke & operation)		I	I	I	I	I	I	—
Brake booster vacuum hoses, connections & check valve			I		I		I	—
Brake & clutch, systems and fluid (for level and leaks)		I	I	I	I	I	I	—
Brake fluid★			R		R		R	—
Power steering fluid and lines (for level and leaks)		I	I	I	I	I	I	—
Supplemental air bag systems	See NOTE (1)							RS-1007
Ventilation air filter★			R		R		R	—
Manual transmission oil (Inspect for leaks. Replace if leaks are found.)		I	I	I	I	I	[R]	—
Automatic transmission fluid (for level and leaks)★		I	I	I	I	I	I	—
Greasing point of propeller shaft	See NOTE (2)	L	L	L	L	L	L	—
Transfer fluid and limited-slip differential (LSD) gear oil (for level & leaks or replace)★	See NOTE (3)	I	I	I	R	I	I	—
Drive shafts & steering damper★		I	I	I	I	I	I	—
Front wheel bearing grease★		I	R	I	R	I	R	—
Front axle joint in knuckle flange			L		L		L	—
Free-running hub grease★		I	I	I	I	I	I	—
Body mounting bolts & nuts		T	T	T	T	T	T	—
Steering gear & linkage, axle & suspension parts, propeller shaft & exhaust system★		I	I	I	I	I	I	—
Body corrosion	See NOTE (4)							—

NOTE: (1) Inspect after 10 years, then every 2 years.
(2) The propeller shaft should be re-greased after being immersed in water.
(3) Including differential gear with differential lock.
(4) 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 under dusty conditions
B — Driving repeatedly 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 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
J — Frequent off road use or 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 22,500 km (13,500 miles) or 18 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
.	.	C	.	.	.	.	H	.	.	**Transfer fluid and limited-slip differential (LSD) 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 Diesel Engines (Annual Mileage > 30,000 km/year)

ZD30DDTi engine

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

MAINTENANCE OPERATION		MAINTENANCE INTERVAL						
Perform on a kilometer basis only.	km x 1,000	15	30	45	60	75	90	
	(miles x 1,000)	(9)	(18)	(27)	(36)	(45)	(54)	
Engine compartment and under vehicle								Reference pages
Engine oil (Use recommended oil)★		R	R	R	R	R	R	MA-1012
Engine oil filter (Use Eco filter or equivalent)★	See NOTE (1)	R	R	R	R	R	R	MA-1013
Drive belts		I	I	I	I	I	I	MA-1011
Cooling system			I		I		I	MA-1016
Engine anti-freeze coolant (Use genuine NISSAN Anti-freeze Coolant (L2N) or equivalent)	See NOTE (2)			I			R	MA-1010, 1014
Air cleaner filter★					R			MA-1019
Fuel lines					I			MA-1018
Injection nozzles	See NOTE (3)							*1
Intake & exhaust valve clearance	See NOTE (4)							MA-1011
Fuel filter★					R			MA-1017

NOTE: (1) Oil filter element assembly and O-ring seal are replacement parts.
(2) 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.
(3) If engine power decreases, black exhaust smoke is emitted or engine noise increases, check injection nozzles and, if necessary, replace injection nozzle assembly.
(4) If valve noise increases, check valve clearance.
★ Maintenance items with "★" should be performed more frequently according to "Maintenance under severe driving conditions".

*1: "Injection Tube and Injection Nozzle" in EC section

Chassis and Body Maintenance

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

MAINTENANCE OPERATION		MAINTENANCE INTERVAL												
Perform on a kilometer basis only	km x 1,000	10	20	30	40	50	60	70	80	90	100	110	120	
	(miles x 1,000)	(6)	(12)	(18)	(24)	(30)	(36)	(42)	(48)	(54)	(60)	(66)	(72)	
Underhood and under vehicle														Reference pages
Headlamp aiming				I			I			I			I	—
When alignment (if necessary, balance & rotate wheels)				I			I			I			I	—
Brake pads, rotors & other brake components★				I			I			I			I	—
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	—
Supplemental air bag systems	See NOTE (1)													RS-1007
Ventilation air filter★				R			R			R			R	—
Manual transmission oil (Inspect for leaks. Replace if leaks are found.)				I			I			R			I	—
Automatic transmission fluid (for level and leaks)★				I			I			I			I	—
Greasing point of propeller shaft	See NOTE (2)			L			L			L			L	—
Transfer fluid and limited-slip differential (LSD) gear oil (for level & leaks or replace)★	See NOTE (3)			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 (4)													—

NOTE: (1) Inspect after 10 years, then every 2 years.
(2) The propeller shaft should be re-greased after being immersed in water.
(3) Including differential gear with differential lock.
(4) 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 under dusty conditions
B — Driving repeatedly 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 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
J — Frequent off road use or driving in water

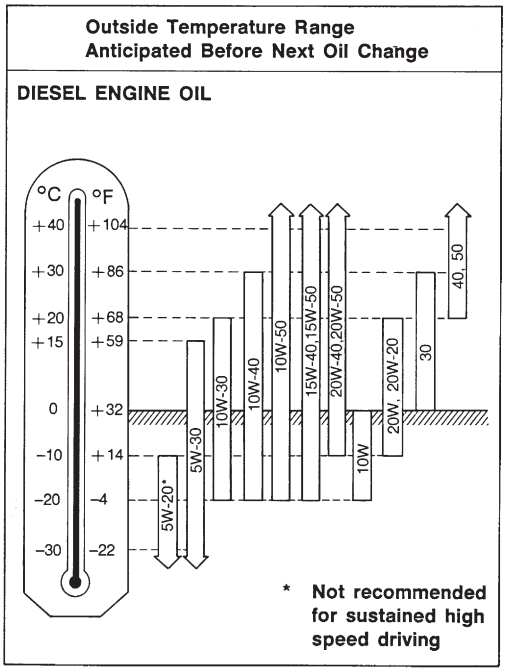
Driving condition										Maintenance item	Maintenance operation	Maintenance interval
A	B	C	D	.	.	.	.	.	.	**Engine oil & engine oil filter**	Replace	Every 7,500 km (4,500 miles)
A	.	.	.	.	.	.	.	.	.	**Air cleaner filter**	Replace	Every 30,000 km (18,000 miles)
A	.	.	.	E	.	.	.	.	.	**Fuel filter**	Replace	Every 30,000 km (18,000 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)
.	.	C	.	.	.	.	H	.	.	**Transfer fluid and limited-slip differential (LSD) 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)						
With oil filter	ZD30DDTi			5.7	5 qt	Diesel engine: API CF4 or ACEA B3-96.98 or ACEA B3/E3-96.98*3 for ZD30DDTi
Without oil filter	ZD30DDTi			5.2	4-5/8 qt	
Cooling system (with reservoir tank)						Genuine Nissan Anti-freeze Coolant (L2N) or equivalent*4
With front heater	ZD30DDTi	M/T, A/T	RHD	12.7	11-1/8 qt	
			LHD	12.9	11-3/8 qt	
Without front heater	ZD30DDTi	M/T, A/T	RHD	12.0	10-5/8 qt	
			LHD	12.2	10-3/4 qt	
With rear heater	ZD30DDTi	M/T, A/T	RHD	13.8	12-1/8 qt	
			LHD	14.0	12-3/8 qt	
Manual transmission				—	—	API GL-4, Viscosity SAE 75W-90 only
Differential carrier gear oil (without limited slip differential)				—	—	API GL-5*1
Transfer fluid				—	—	Genuine Nissan ATF or equivalent*2 or API GL-4*1
Automatic transmission fluid				11.8	10-3/8 qt	Genuine Nissan ATF or equivalent*2
Power steering fluid				Refill to the proper oil level according to the instructions in "Do-it-yourself operations" section of the owner's manual.		Type DEXRON™III or equivalent
Brake and clutch fluid						DOT 3 or DOT 4 (U.S. FMVSS No. 116)*5
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: For more information regarding suitable fluids, contact a Nissan dealer for correct brands of DEXRON™III/MERCON™ Automatic Transmission Fluid.
*3: Never use API CG-4.
*4: 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.
*5: Never mix DOT 3 & DOT 4.

SAE Viscosity Number



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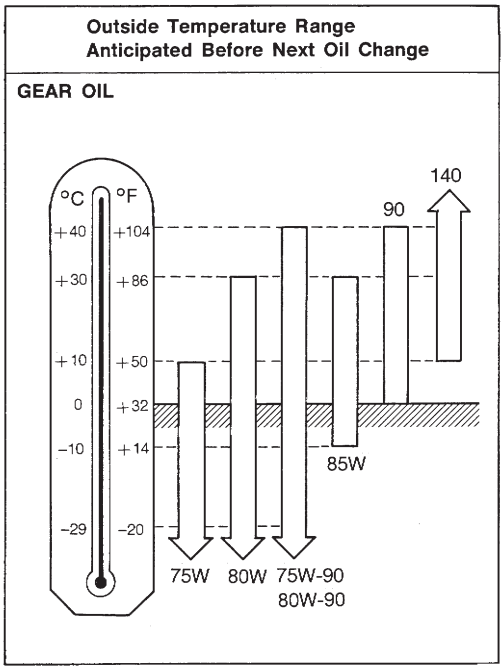

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- **For cold areas:**
  10W-30 is preferable.
  On turbocharger models, 5W-20 is not recommended, and 5W-30 should be used only below 0°C (32°F).
- **For hot and warm areas:**
  20W-40 and 20W-50 are suitable.

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

Engine Coolant Mixture Ratio

The engine cooling system is filled at the factory with a high-quality, year-round and extended life engine coolant. The high quality engine coolant contains the specific solutions effective for the anti-corrosion and the anti-freeze function. Therefore, additional cooling system additives are not necessary.

CAUTION:

- **When adding or replacing coolant, be sure to use only Genuine Nissan Anti-freeze Coolant (L2N) or equivalent. Because L2N is premixed type coolant (Mixture ratio 50%).**

The use of other types of engine coolant may damage your cooling system.

- When checking the engine coolant mixture ratio by the coolant hydrometer, use the chart below to correct your hydrometer reading (specific gravity) according to coolant temperature.

Mixed coolant specific gravity

Unit: Specific gravity

Engine coolant mixture ratio	Coolant temperature °C (°F)			
	15 (59)	25 (77)	35 (95)	45 (113)
30%	1.046 - 1.050	1.042 - 1.046	1.038 - 1.042	1.033 - 1.038
50%	1.076 - 1.080	1.070 - 1.076	1.065 - 1.071	1.059 - 1.065

WARNING:

Never remove the radiator cap when the engine is hot. Serious burns could be caused by high pressure fluid escaping from the radiator. Wait until the engine and radiator cool down.

Checking Tightening Torque

Checking should be performed while engine is cold.

MANIFOLD BOLTS AND NUTS

Intake and exhaust manifolds:

Intake

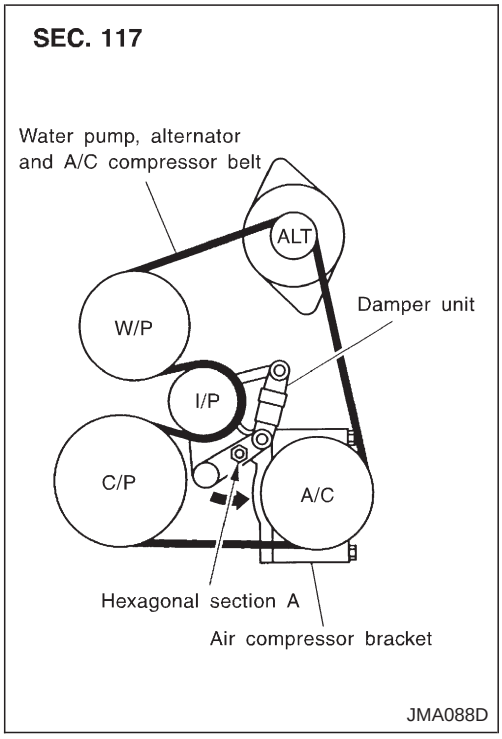
: 25 - 28 N·m (2.5 - 2.9 kg-m, 18 - 20 ft-lb)

Exhaust

: 40 - 49 N·m (4.0 - 4.5 kg-m, 29 - 36 ft-lb)

Adjusting Intake and Exhaust Valve Clearance

Refer to EM section.



Checking Drive Belt

- **Because an auto tensioner adjustment mechanism is provided, it is not necessary to check or adjust the tension of accessory belt.**

1. Inspect for cracks, fraying, wear or oil adhesion. Replace if necessary.

The belts should not touch the bottom of the pulley groove.

2. Check the damper unit of the auto tensioner for oil leaks.

Part	Belt specifications	Tension	Belt deflection
Water pump, alternator, air conditioner compressor belt	V-ribbed belt (7 ribs)	Automatic adjustment by auto tensioner	Automatic adjustment by auto tensioner

Removal

WATER PUMP, ALTERNATOR AND AIR CONDITIONER BELT

1. Remove radiator shroud.
2. Contract and hold the auto tensioner using the following procedure.

a. Securely hold the 19 mm (0.75 in) hexagonal portion A of auto tensioner with a closed wrench.
- Preferably use a tool with a handhold of 500 mm (19.69 in) or more in length.
- No bolts or nuts are required to be loosened during the operation.

b. Turn the hexagonal portion A in the direction shown by the arrow to contract the damper unit of the auto tensioner.

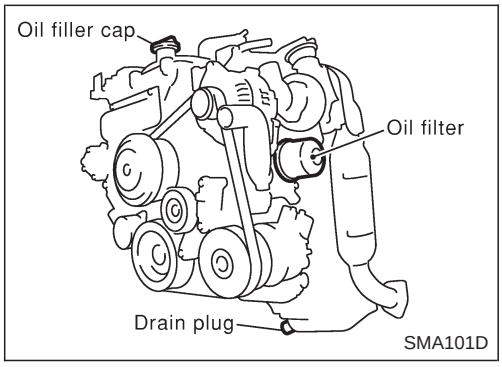
CAUTION:
- **Because the tensioner has a high tension, it shall be securely held and turned with a closed wrench.**
- **Because the hexagonal portion A of the tensioner is made of aluminum and may be damaged by sudden input, turn it slowly according to the contraction of the damper unit.**

3. Remove the belt from the alternator pulley first, and then remove it from the other pulleys.
- If the tensioner is not held firmly, your finger may get caught between the belt and the pulleys. Confirm the holding of the tensioner, and then hold the belt side in the place away from the pulleys to attach or remove the belt, paying attention to prevent your finger from being caught.

CAUTION:
- **When handling the belt, pay attention to prevent the oil or coolant from adhering to the belt.**
- **Do not distort or bend the belt intensively.**

Installation

- Install the belt in the reverse order of removal.
- After installation of the belt, confirm that the belt engages the pulleys securely.
- Depending on the engagement between the belt and the idler pulley, noise (belt noise) may be heard when the engine is started just after installation. This noise will stop with time.



Changing Engine Oil

WARNING:
- **Be careful not to burn yourself, as 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.**

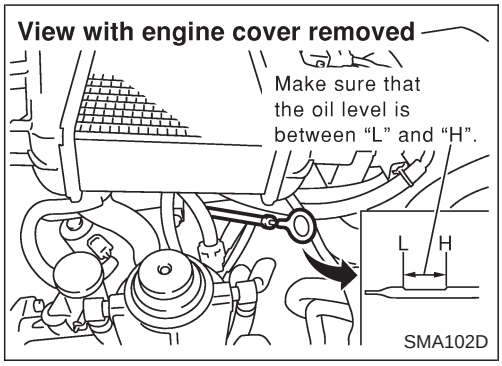
1. Warm up engine, and check for oil leakage from engine components.
2. Remove drain plug and oil filler cap.

Changing Engine Oil (Cont'd)

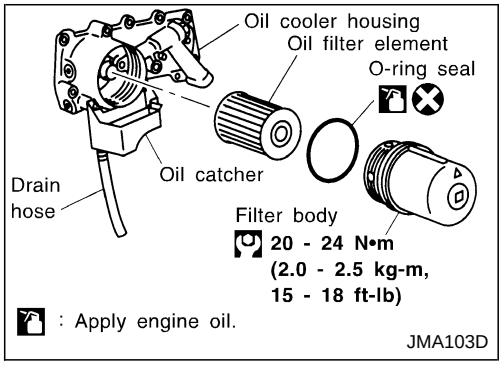
3. Drain oil and fill with new engine oil.
   Oil grade: API CF4 or ACEA B3-96.98 or ACEA B3/E3-96.98
   Viscosity:
   See "RECOMMENDED FLUIDS AND LUBRICANTS", MA-1009.
   Refill oil capacity (approximate):
   Without oil filter change
   5.2ℓ (4-5/8 Imp qt)
   With oil filter change
   5.7ℓ (5 Imp qt)

CAUTION:

- **Be sure to clean and install oil pan drain plug with washer.**
  Drain plug:
  : 54 - 58 N·m (5.5 - 6.0 kg-m, 40 - 43 ft-lb)
- **The refill capacity changes depending on the oil temperature and drain time; use these valves as a reference and be certain to check with the dipstick when changing the oil.**



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

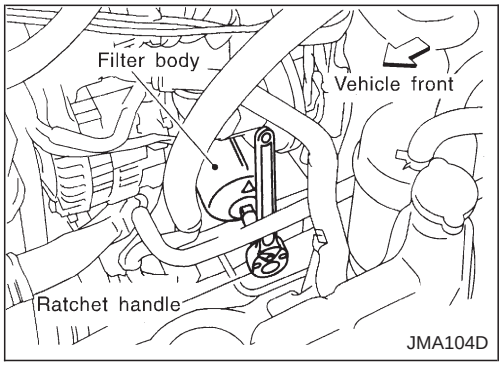


Changing Engine Oil Filter

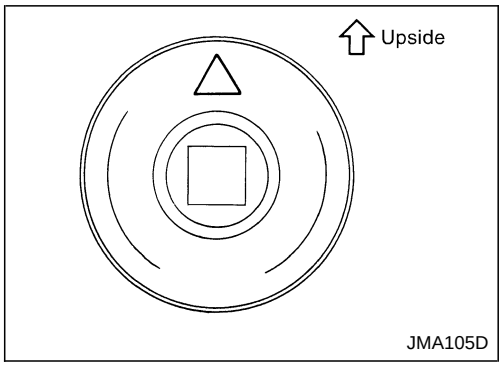
REMOVAL

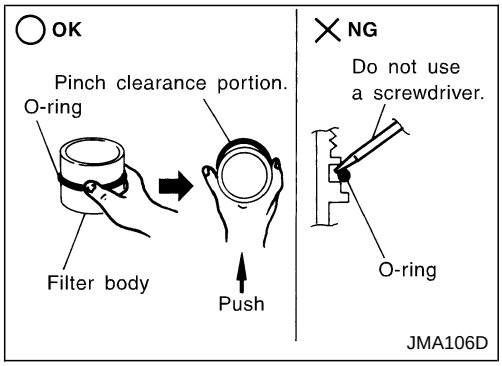
1. Insert a suitable tool with a 12.7 mm square (1/2 inch square) such as an extension bar and ratchet handle into the filter body, and loosen the body by approximately 4 turns.

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



Changing Engine Oil Filter (Cont'd)





2. Set the ▲ mark of the filter body to the top position and discharge the oil.
- Receive the oil discharged from the drain hose in a tray.
- About 500 cc (17.6 Imp fl oz) of oil will be discharged in about 3 minutes.
- The oil is discharged from the oil catcher to under the vehicle through the drain hose.

3. Remove the filter body, and then remove the oil filter element.

CAUTION:
- **If the engine oil gets on the engine or vehicle, thoroughly wipe it off.**
- **Thoroughly wipe off the oil remaining in the oil catcher. (This is to prevent misidentifying oil leaking from the oil catcher as oil leaking from the engine.)**

4. Remove the O-ring from the filter body.
- Press the O-ring in any direction with your finger, and pull on the portion of the O-ring separated from the filter body to remove it.

CAUTION:
Because wire and screwdrivers may cause damage to the filter body, do not use such tools.

INSTALLATION

1. Thoroughly remove foreign matter adhering to the inside of filter body and O-ring mounting areas (of the body and oil cooler).
2. Install the oil filter element and O-ring to the filter body.
- Securely press the oil filter element into the filter body.

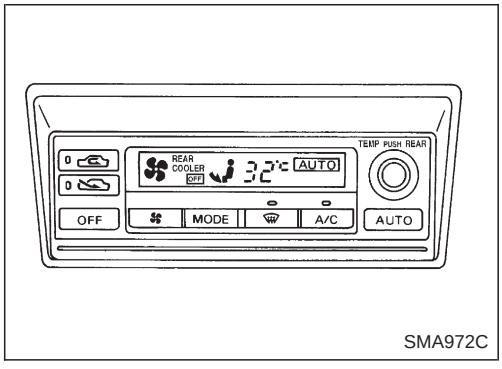
3. Install the filter body.
   : 20 - 24 N·m (2.0 - 2.5 kg-m, 15 - 18 ft-lb)
4. After warming up the engine, check that no engine oil leaks.

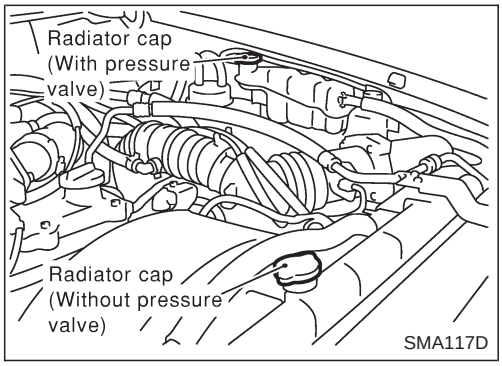
Changing Engine Coolant

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

—DRAINING ENGINE COOLANT—

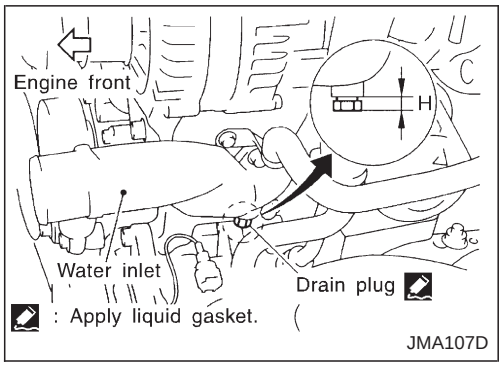
1. Move heater TEMP control knob all the way to HOT.
2. Remove undercover and open radiator drain plug at the bottom of radiator.



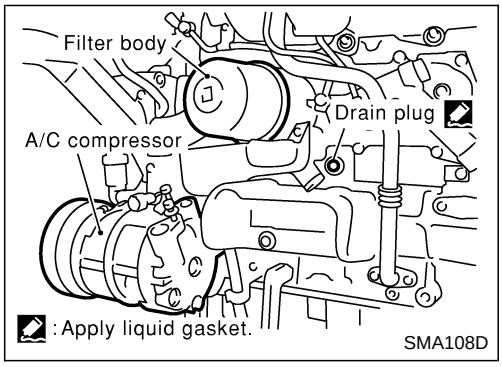


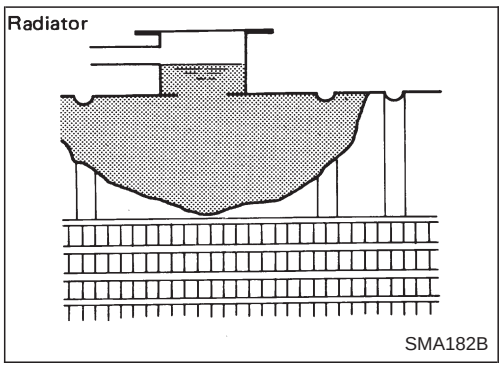
3. Remove radiator filler cap (side with pressure valve).

Changing Engine Coolant (Cont'd)



4. Remove water inlet and cylinder block drain plug located at left center of cylinder block.
5. Remove reservoir tank (sides with pressure valve and without pressure valve) and drain coolant.





—REFILLING ENGINE COOLANT—

6. Install reservoir tank, radiator drain plug, and cylinder block drain plugs.

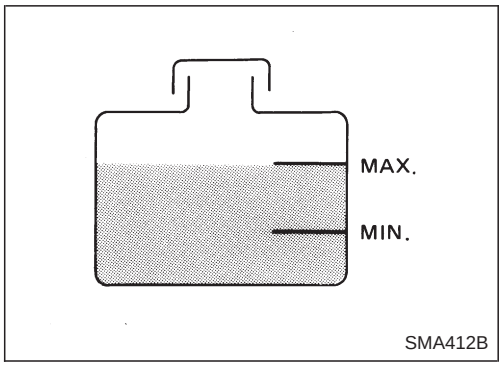
- **Apply sealant to the thread of cylinder block drain plug.**
  Cylinder block drain plug:
  : 24 - 26 N·m (2.4 - 2.7 kg-m, 18 - 19 ft-lb)
  Water inlet drain plug:
  Height (H) mm (in): 5.0 - 7.8 (0.197 - 0.307)

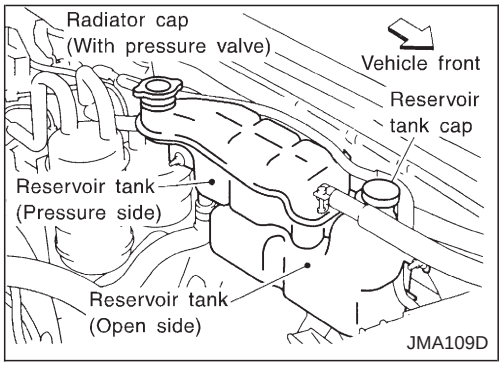
7. Move heater TEMP control knob all the way to HOT.
8. Fill radiator with coolant up to the filler neck and install radiator cap.

For coolant mixture ratio, refer to MA-1010.

9. Fill reservoir tank (with pressure valve) with coolant up to the filler neck.
10. Fill reservoir tank with coolant up to the MAX level.

Changing Engine Coolant (Cont'd)





Coolant capacity (With reservoir tank): ℓ (Imp qt)
RHD models
Without rear heater 11.8 (10-3/8)
With rear heater 12.9 (11-3/8)
LHD models
Without rear heater 11.6 (10-1/4)
With rear heater 12.7 (11-1/8)
Reservoir tank capacity (for MAX level):
1.2 ℓ (1-1/8 Imp qt)

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

11. Install radiator cap (side with pressure valve).
12. Warm up engine to normal operating temperature.
13. 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.

14. Stop engine and cool it down.
- Cool down using a fan to reduce the time.

15. Remove the reservoir tank filler cap (side with pressure valve) and check coolant level.
- If necessary, refill reservoir tank (side with pressure valve) up to filler neck with coolant.

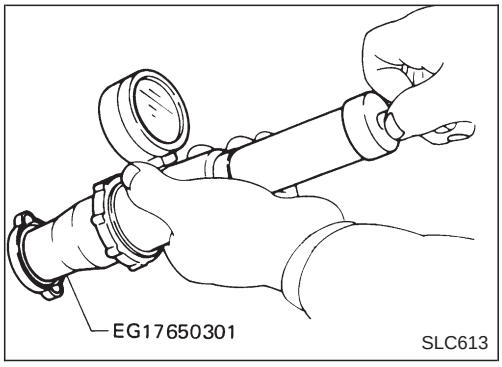
16. Refill reservoir tank to Max line with coolant.
17. Repeat step 10 through step 16 two or more times.
18. Warm up engine, and check for sound of coolant flow while running engine from idle up to 2,000 rpm with heater temperature control set at several positions between COOL and HOT.
- Sound may be noticeable at heater water cock.

19. If sound is heard, bleed air from cooling system by repeating steps 12 through 18 until coolant level no longer drops.
- **Clean excess coolant from engine.**

Checking Cooling System

CHECKING HOSES AND CLAMPS

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

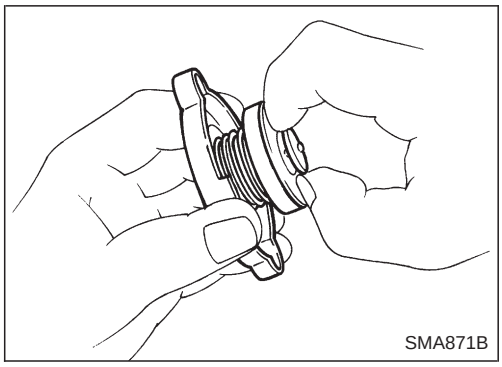


CHECKING RADIATOR CAP

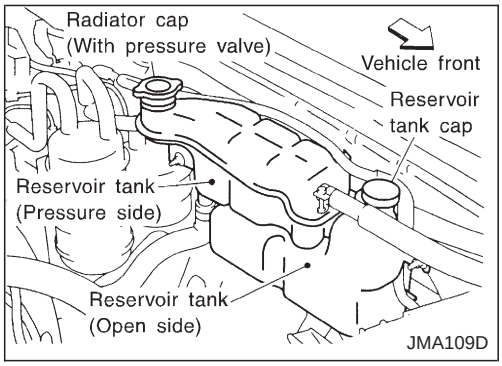
Apply pressure to radiator cap (side with pressure valve) with cap tester to see if it is satisfactory.

Radiator cap relief pressure:
59 - 98 kPa
(0.59 - 0.98 bar, 0.6 - 1.0 kg/cm^2, 9 - 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

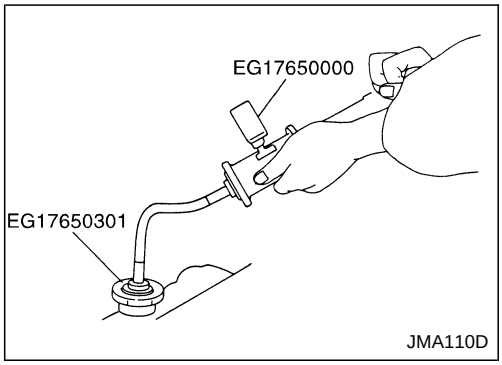
Apply pressure to the cooling system with cap tester to check for leakage.

Testing pressure:

98 kPa (0.98 bar, 1.0 kg/cm^2, 14 psi)

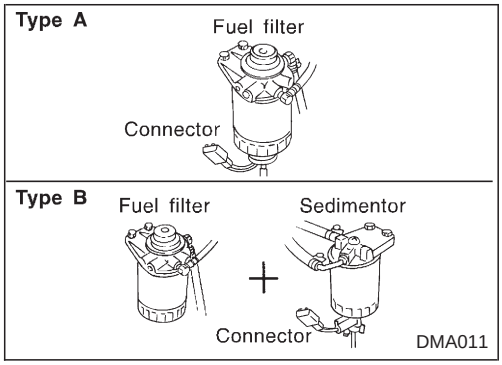
CAUTION:

Use of higher pressure than the specified value may cause damage to radiator.



Checking and Replacing Fuel Filter and Draining Water

Be careful not to spill fuel in engine compartment. Place a rag to absorb fuel.



CHECKING FUEL FILTER

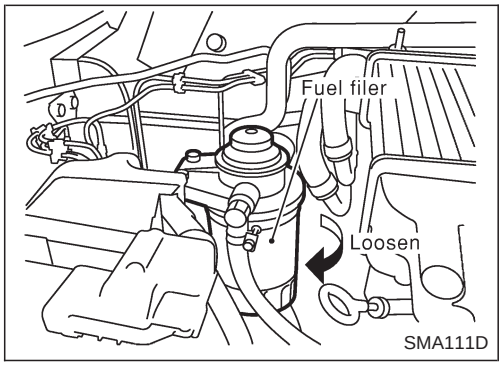
Check fuel filter for fuel leakage, damage and other abnormal signs.

REPLACING FUEL FILTER

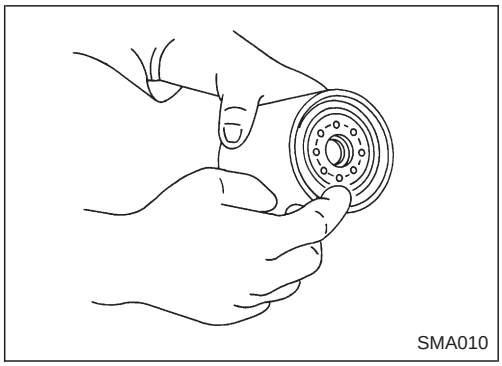
1. Disconnect harness connector and drain fuel.
2. Remove fuel filter using band-type filter wrench.
3. Remove fuel filter and fuel filter sensor.

CAUTION:

Remove fuel filter without spilling fuel. If spilt, wipe off immediately. Be specially careful not to spill fuel on engine mount insulator.



Checking and Replacing Fuel Filter and Draining Water (Cont'd)

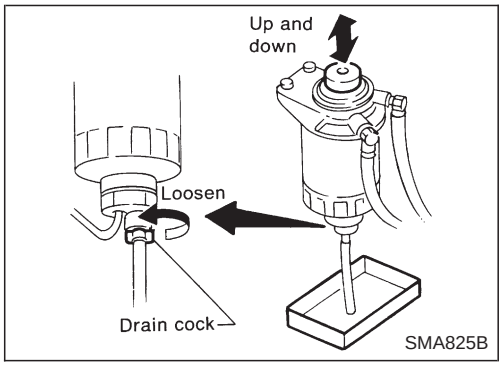

SMA010

4. Wipe clean fuel filter mounting surface on fuel filter bracket and smear a little fuel on rubber seal of fuel filter.
5. Screw fuel filter on until a slight resistance is felt, then tighten an additional more than 2/3 of a turn.
6. Install fuel filter sensor to new fuel filter. (Type A)
7. Bleed air from fuel filter.

Refer to "Air Bleeding" in EC section.

8. Start engine and check for leaks.

DRAINING WATER



SMA825B

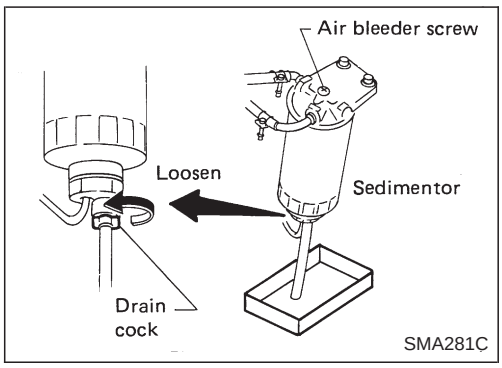
1. Drain water as follows.

Type A

Loosen drain cock and drain water.

Loosening drain cock four to five turns causes water to start draining. Do not remove drain cock by loosening it excessively.

If water does not drain properly, move the priming pump up and down.



SMA281C

Type B

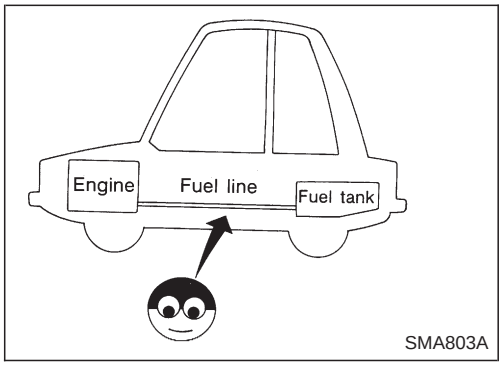
Loosen air bleeder screw from the sedimentor cover and then loosen drain cock and drain water.

Loosening drain cock four to five turns causes water to start draining. Do not remove drain cock by loosening it excessively.

2. Bleed air.

Refer to "Air Bleeding" in EC section.

Checking Fuel Lines

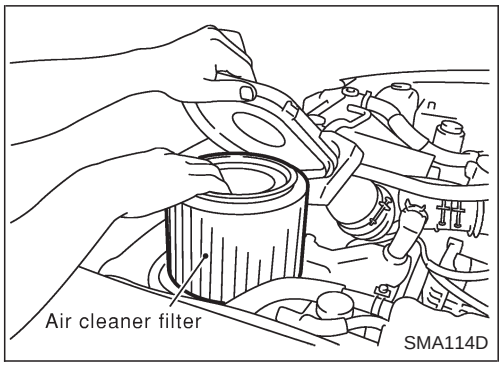


SMA803A

Check fuel lines and tank for proper attachment, leaks, cracks, damage, loose connections, chafing and deterioration.

CAUTION:

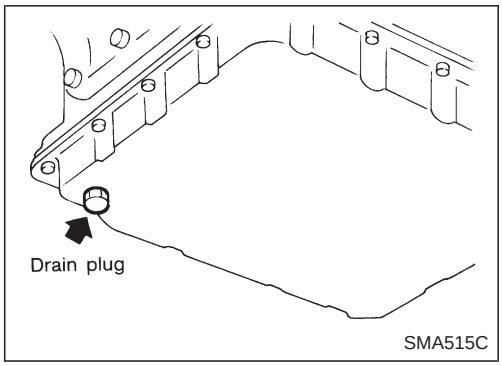
Keep clean parts with compressed air when assembling.

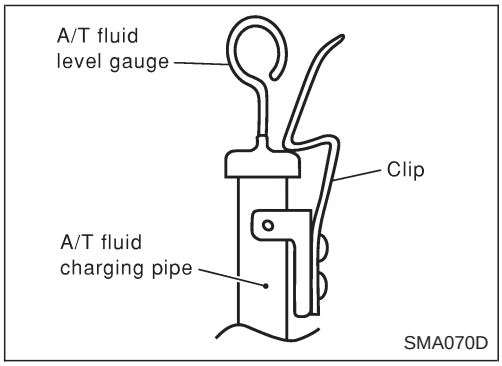


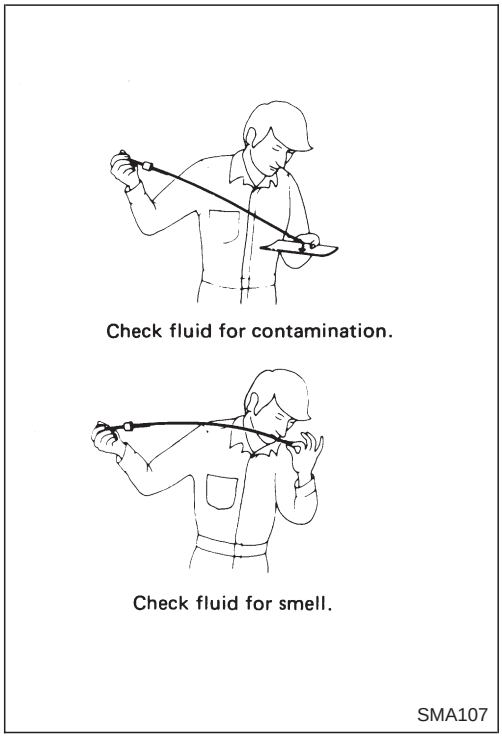
Cleaning and Replacing Air Cleaner Filter

VISCOUS PAPER TYPE

The viscous paper type air cleaner filter does not require any cleaning operation between renewal.







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, and 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.

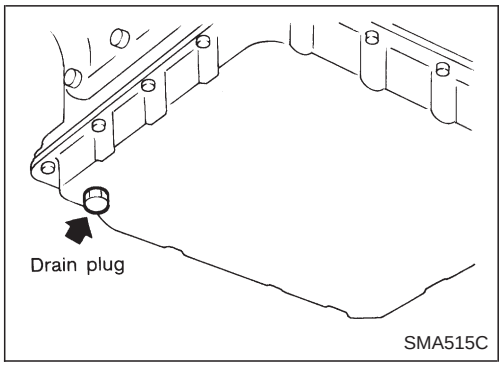
Do not overfill.

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 176°F) using “HOT” range on dipstick.

CAUTION:
Securely install A/T fluid level gauge.

6. Check fluid condition.

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



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.
   Fluid grade:
   Genuine Nissan ATF or equivalent. Refer to "RECOMMENDED FLUIDS AND LUBRICANTS", MA-1008.
   Fluid capacity (With torque converter):
   11.8 ℓ (10-3/8 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 steps 2 through 5.

Engine Maintenance (ZD)

INSPECTION AND ADJUSTMENT

Oil capacity (Refill capacity)

Unit: ℓ (Imp qt)

With oil filter change	5.7 (5)
Without oil filter change	5.2 (4-5/8)

Cooling system check

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

Cooling system testing pressure	98 (0.98, 1.0, 14)
Radiator cap relief pressure	59 - 98 (0.59 - 0.98, 0.6 - 1.0, 9 - 14)