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SECTION CO

ENGINE COOLING SYSTEM

CONTENTS

PRECAUTION		2	
PRECAUTIONS		2	
Precaution for Working Range at a Regular Dealership		2	
Precaution for Supplemental Restraint System (SRS) "AIR BAG" and "SEAT BELT PRE-TENSIONER"		2	
General Precautions		2	
PREPARATION		3	
PREPARATION		3	
Commercial Service Tools		3	
PERIODIC MAINTENANCE		4	
ENGINE COOLANT		4	
Inspection		4	
	Draining	5	F
	Refilling	5	
	Flushing	6	
	RADIATOR	8	G
	RESERVOIR TANK CAP	8	
	RESERVOIR TANK CAP : Inspection	8	H
	RADIATOR	8	
	RADIATOR : Inspection	8	I
	SERVICE DATA AND SPECIFICATIONS (SDS)	10	J
	SERVICE DATA AND SPECIFICATIONS (SDS)	10	
	Periodical Maintenance Specification	10	K
	Radiator	10	

A

CO

C

D

E

F

G

H

I

J

K

L

M

N

O

P

PRECAUTIONS

< PRECAUTION >

PRECAUTION

PRECAUTIONS

Precaution for Working Range at a Regular Dealership

INFOID:000000009164425

CAUTION:

The service items unmentioned on this manual are recommended to be performed by a GT-R certified NISSAN dealer. Because those service items require special equipment and a GT-R certified technical staff who completed special training.

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

INFOID:000000009160407

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

WARNING:

Always observe the following items for preventing accidental activation.

- To avoid rendering the SRS inoperative, which could increase the risk of personal injury or death in the event of a collision that would result in air bag inflation, all maintenance must be performed by an authorized NISSAN/INFINITI dealer.
- Improper maintenance, including incorrect removal and installation of the SRS, can lead to personal injury caused by unintentional activation of the system. For removal of Spiral Cable and Air Bag Module, see "SRS AIR BAG".
- Never use electrical test equipment on any circuit related to the SRS unless instructed to in this Service Manual. SRS wiring harnesses can be identified by yellow and/or orange harnesses or harness connectors.

PRECAUTIONS WHEN USING POWER TOOLS (AIR OR ELECTRIC) AND HAMMERS

WARNING:

Always observe the following items for preventing accidental activation.

- When working near the Air Bag Diagnosis Sensor Unit or other Air Bag System sensors with the ignition ON or engine running, never use air or electric power tools or strike near the sensor(s) with a hammer. Heavy vibration could activate the sensor(s) and deploy the air bag(s), possibly causing serious injury.
- When using air or electric power tools or hammers, always switch the ignition OFF, disconnect the battery, and wait at least 3 minutes before performing any service.

General Precautions

INFOID:000000009160408

CAUTION:

After finishing servicing, check that all the tools and waste are stored in a customary place.

PREPARATION

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PREPARATION

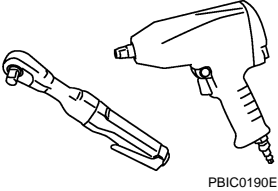
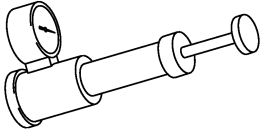
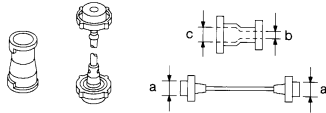
PREPARATION

Commercial Service Tools

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Tool name	Description
<p>Power tool</p>  <p>PBIC0190E</p>	<p>Loosening bolts and nuts</p>
<p>Radiator cap tester</p>  <p>PBIC1982E</p>	<p>Checking radiator and reservoir tank cap</p>
<p>Radiator cap tester adapter</p>  <p>S-NT564</p>	<p>Adapting radiator cap tester to reservoir tank cap and water outlet (front) filler neck a: 28 (1.10) dia. b: 31.4 (1.236) dia. c: 41.3 (1.626) dia. Unit: mm (in)</p>

C

D

E

F

G

H

I

J

K

L

M

N

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ENGINE COOLANT

< PERIODIC MAINTENANCE >

PERIODIC MAINTENANCE

ENGINE COOLANT

Inspection

INFOID:000000009160410

BASIC INSPECTION

Checking Engine Room

- Visually check engine room for smears*¹ and leakage*² of engine coolant when engine is cool.

NOTE:

- *¹: Engine coolant does not drop.
 - *²: Engine coolant drop.
- Check engine assembly and cooling system for smears and leakage of engine coolant.
- Observe the clearance between the engine and radiator to check that there is no engine coolant collected on the front under cover.

Additional Inspection

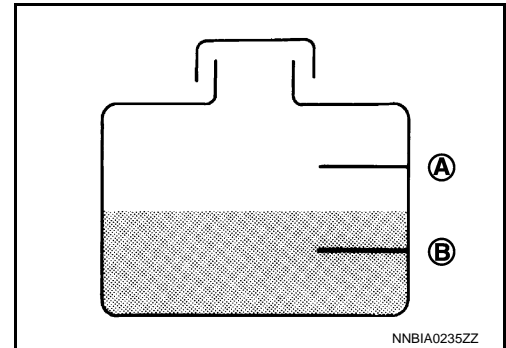
- Check that engine coolant temperature history is not stored in ECM. (This work is recommended to be performed by GT-R certified NISSAN dealer.)
 - Perform this additional inspection after driving under conditions listed below:
 - Higher-RPM (approaching redline) operation
 - Frequent high pedal force braking from moderate and higher speeds
 - Frequent throttle activation
 - Fast revving throughout the RPM range
1. Remove front under cover. Refer to [EXT-37, "FRONT UNDER COVER : Exploded View"](#).
 2. Visually check the bottom of the engine for smears and leakage of engine coolant.

LEVEL

- Check that the reservoir tank engine coolant level is at the mid-point between the "MIN" (B) to "MAX" (A) with the engine cold.

CAUTION:

- If engine coolant level exceeds the MAX line, leakage of engine coolant may occur during the rise in internal pressure in the engine coolant path. Therefore, thoroughly check that engine coolant level is below the MAX line.
 - Refill Genuine NISSAN Long Life Antifreeze/Coolant (blue) or equivalent in its quality mixed with water (distilled or demineralized). Refer to [MA-22, "Fluids and Lubricants"](#).
- Adjust the engine coolant level if necessary.
 - Check that the reservoir tank cap is tightened.



LEAKAGE

Engine Assembly

1. Visually check engine assembly and surround area for smears of engine coolant.
2. Wipe out smeared engine coolant using part cleaner or the equivalent.
3. Check again for engine coolant smears.

Radiator and Cooling System

ENGINE COOLANT

< PERIODIC MAINTENANCE >

- To check for leakage, apply pressure to the cooling system with the radiator cap tester (commercial service tool) (A) and radiator cap tester adapter (commercial service tool) (B).

Testing pressure : Refer to [CO-10, "Radiator"](#).

WARNING:

Never remove radiator cap and reservoir tank cap when engine is hot. Serious burns could occur from high-pressure engine coolant escaping from engine cooling system.

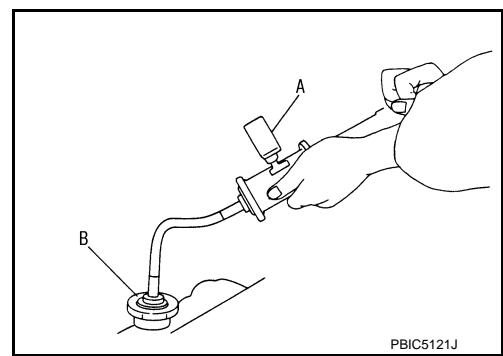
CAUTION:

Higher test pressure than that specified may cause radiator damage.

NOTE:

In a case that engine coolant decreases, fill radiator with engine coolant.

- If anything is found, repair or replace damaged parts.



Draining

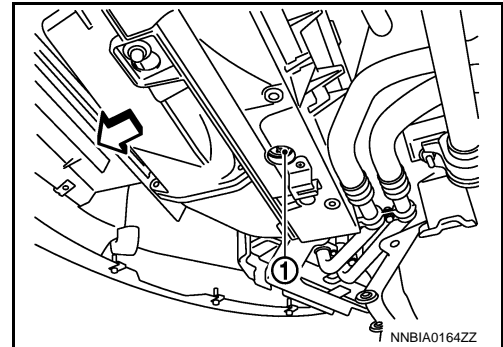
INFOID:000000009160411

WARNING:

- Never change engine coolant when the engine is hot to avoid being scalded.
- Wrap a thick cloth around reservoir tank cap and carefully remove reservoir tank cap. First, turn reservoir tank cap a quarter of a turn to release built-up pressure. Then turn reservoir tank cap all the way.

- Remove engine undercover. Refer to [EXT-35, "ENGINE UNDER COVER : Exploded View"](#).
- Open radiator drain plug (1) at the bottom of radiator, and then remove reservoir tank cap.

↩ : Vehicle front



- Remove reservoir tank if necessary, drain engine coolant, and clean reservoir tank before installing.
- Check drained engine coolant for contaminants such as rust, corrosion or discoloration. If contaminated, flush the engine cooling system. Refer to [CO-6, "Flushing"](#).

Refilling

INFOID:000000009160412

CAUTION:

- Do not reuse O-rings.
- Do not put additive such as waterleak preventive, since it may cause cooling waterway clogging.
- When refilling use Genuine NISSAN Long Life Antifreeze/Coolant (blue) or equivalent in its quality mixed with water (distilled or demineralized). Refer to [MA-22, "Fluids and Lubricants"](#).

- Install reservoir tank if removed.
- Install radiator drain plug.

CAUTION:

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

Tightening torque : 1.2 N-m (0.12 kg-m, 11 in-lb)

- Check that each hose clamp has been firmly tightened.

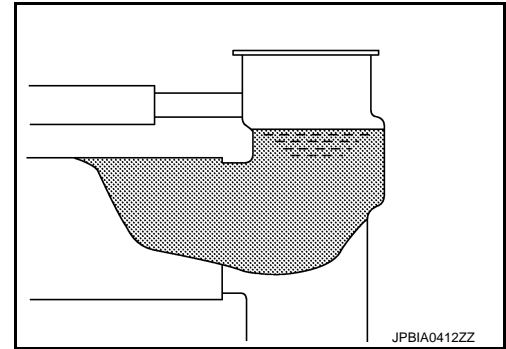
ENGINE COOLANT

< PERIODIC MAINTENANCE >

- Fill radiator to specified level.
 - Pour engine coolant through engine coolant filler neck slowly of less than 2 ℓ (2-1/8 US qt, 1-3/4 Imp qt) a minute to allow air in system to escape.

Engine coolant capacity
(With reservoir tank at
"MAX" level)

: Refer to [CO-10](#),
"[Periodical Maintenance Specification](#)".

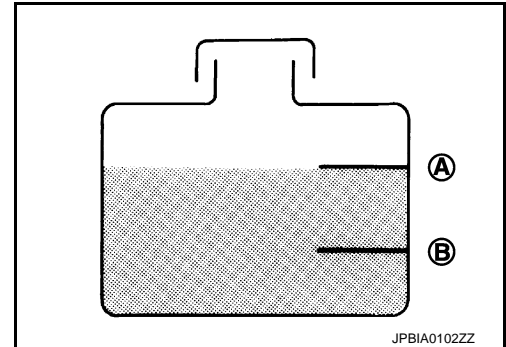


- Install radiator cap.
- Fill reservoir tank to "MAX" level line with engine coolant if necessary.

A : MAX
B : MIN

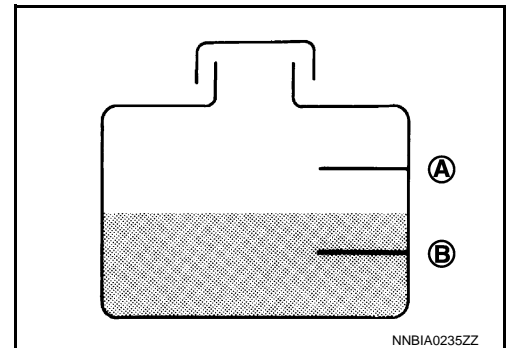
Reservoir tank engine coolant capacity
(At "MAX" level)

: Refer to [CO-10](#),
"[Periodical Maintenance Specification](#)".



- Install reservoir tank cap, and then start the engine.
- Warm up engine until thermostat opens. Standard for warming-up time is approximately 10 minutes at 3,000 rpm.
 - Check thermostat opening condition by touching radiator hose (lower) to see a flow of warm water.

CAUTION:
Watch water temperature gauge so as not to overheat engine.
- Stop the engine and cool down to less than approximately 50°C (122°F).
 - Cool down using fan to reduce the time.
 - If necessary, refill radiator up to filler neck with engine coolant.
- Repeat steps 6 through 9 two or more times with radiator cap and reservoir tank cap installed until engine coolant level no longer drops.
- When the coolant level of the radiator stops lowering, refill reservoir tank to the midpoint between the "MIN" (B) and "MAX" (A) of the reservoir tank.



- Check cooling system for leakage with engine running.
- Warm up the engine, and check for sound of engine coolant flow while running engine from idle up to 3,000 rpm with heater temperature controller set at several positions between "COOL" and "WARM".
 - Sound may be noticeable at heater unit.
- Repeat step 13 three times.
- If sound is heard, bleed air from cooling system by repeating steps from 3 to 13 until engine coolant level no longer drops.
- Recheck reservoir tank engine coolant level with the engine completely cold. Refer to [CO-4](#), "[Inspection](#)".

Flushing

- Install reservoir tank if removed, and radiator drain plug.

INFOID:000000009160413

ENGINE COOLANT

< PERIODIC MAINTENANCE >

CAUTION:

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

Tightening torque : 1.2 N·m (0.12 kg·m, 11 in·lb)

2. Fill radiator and reservoir tank with water.
3. Run the engine and warm it up to normal operating temperature.
4. Rev the engine two or three times under no-load.
5. Stop the engine and wait until it cools down.
6. Drain water from the system. Refer to [CO-5. "Draining"](#).
7. Repeat steps 1 through 6 until clear water begins to drain from radiator.

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RADIATOR

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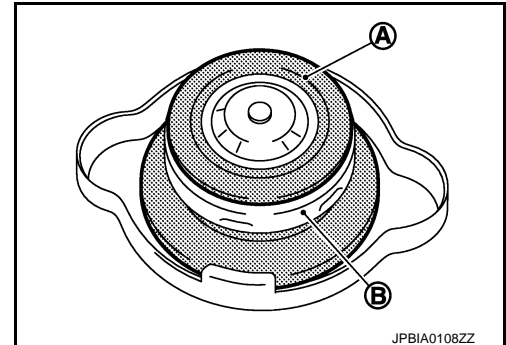
RADIATOR

RESERVOIR TANK CAP

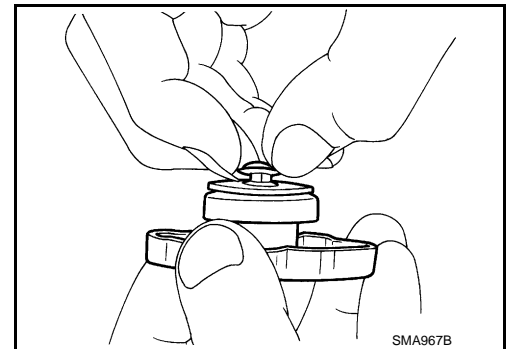
RESERVOIR TANK CAP : Inspection

INFOID:000000009160414

- Check valve seat of reservoir tank cap.
- Check if valve seat (A) is swollen to the extent that the edge of the metal plunger (B) cannot be seen when watching it vertically from the top.
- Check if valve seat has no soil and damage.

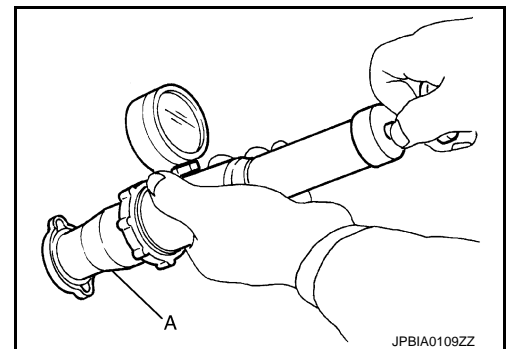


- Pull negative-pressure valve to open it, and check that it close completely when released.
- Check that there is no dirt or damage on the valve seat of reservoir tank cap negative-pressure valve.
- Check that there are no unusualness in the opening and closing conditions of negative-pressure valve.



- Check reservoir tank cap relief pressure.
- When connecting reservoir tank cap to the radiator cap tester (commercial service tool) and the radiator cap tester adapter (commercial service tool) (A), apply engine coolant to the cap seal surface.

Standard and limit : Refer to [CO-10, "Radiator"](#).



- Replace reservoir tank cap if there is an unusualness related to the above three.

CAUTION:

When installing reservoir tank cap, thoroughly wipe out the reservoir tank filler neck to remove any waxy residue or foreign material.

RADIATOR

RADIATOR : Inspection

INFOID:000000009160415

Check radiator for mud or clogging. If necessary, clean radiator as follows:

- Be careful not to bend or damage radiator fins.
 - Tape harness and connectors to prevent water from entering.
1. Apply water by hose to the back side of the radiator core vertically downward.
 2. Apply water again to all radiator core surfaces once per minute.
 3. Stop washing if any stains no longer flow out from radiator.

RADIATOR

< PERIODIC MAINTENANCE >

4. Blow air into the back side of radiator core vertically downward.
 - Use compressed air lower than 490 kPa (5 kg/cm², 71 psi) and keep distance more than 30 cm (11.8 in).
5. Blow air again into all the radiator core surfaces once per minute until no water sprays out.

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CO

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SERVICE DATA AND SPECIFICATIONS (SDS)

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SERVICE DATA AND SPECIFICATIONS (SDS)

SERVICE DATA AND SPECIFICATIONS (SDS)

Periodical Maintenance Specification

INFOID:000000009160431

ENGINE COOLANT CAPACITY (APPROXIMATELY)

Unit: ℓ (US qt, Imp qt)

Engine coolant capacity [With reservoir tank (Between MIN and MAX level)]	11.3 (12, 10)
Reservoir tank engine coolant capacity (Between MIN and MAX level)	1.2 (1-1/4, 1)

Radiator

INFOID:000000009160432

Unit: kPa (kg/cm², psi)

Reservoir tank cap relief pressure	Standard	122.3 - 151.7 (1.2 - 1.5, 18 - 22)
	Limit	107 (1.1, 16)
Leakage testing pressure		157 (1.6, 23)