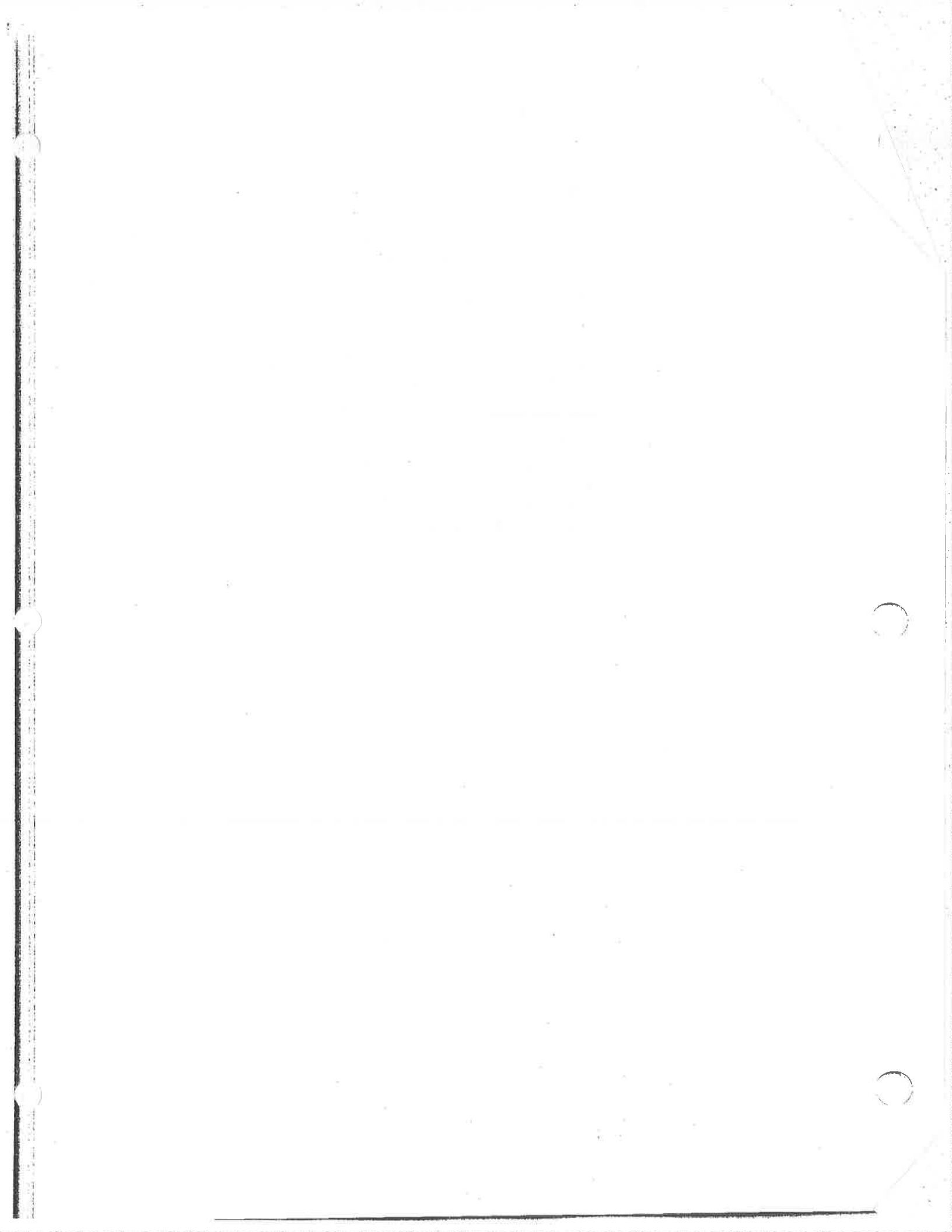


COOLING SYSTEM

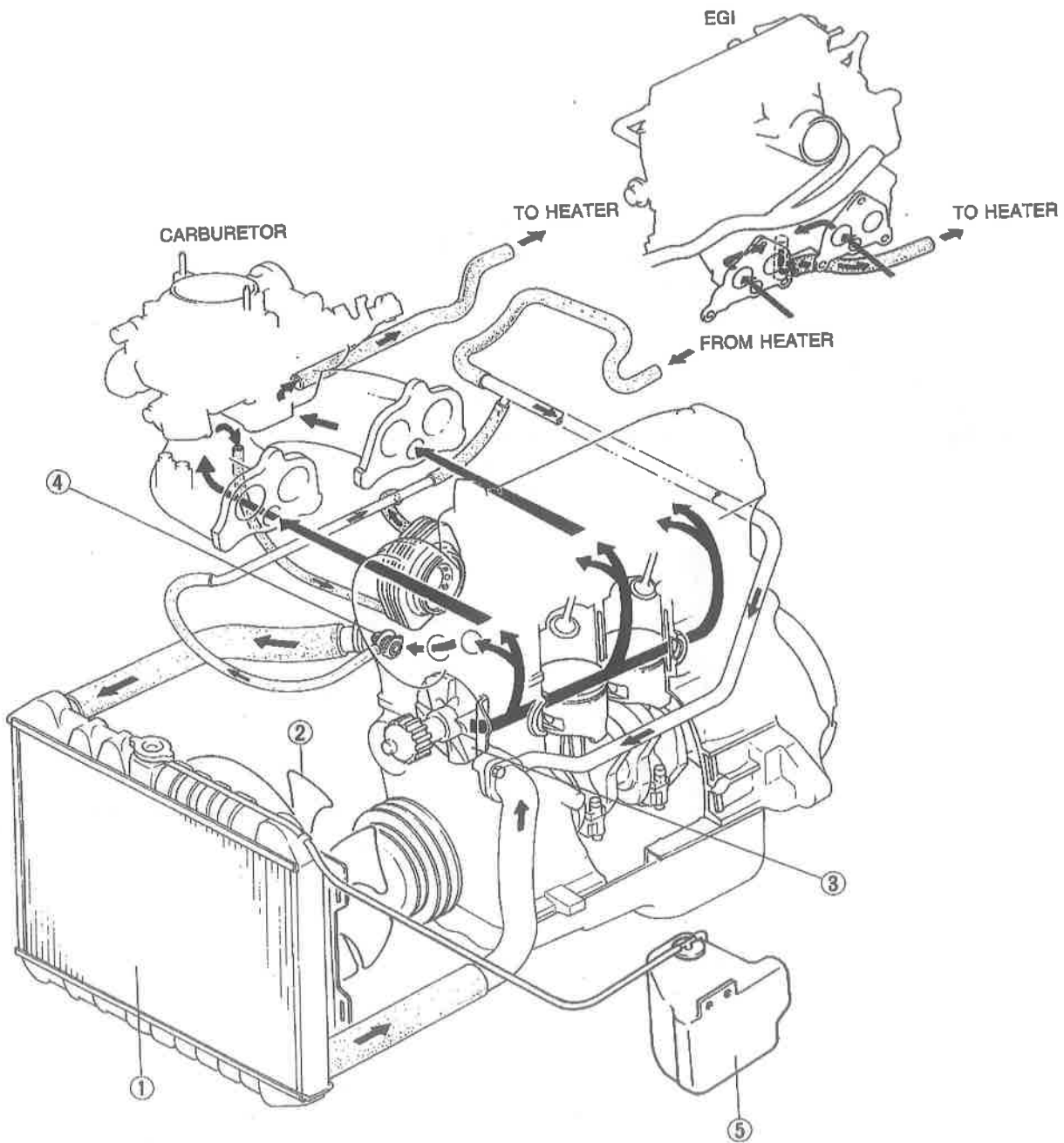
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2BU0EX-001



INDEX

B2200 (F2 ENGINE)

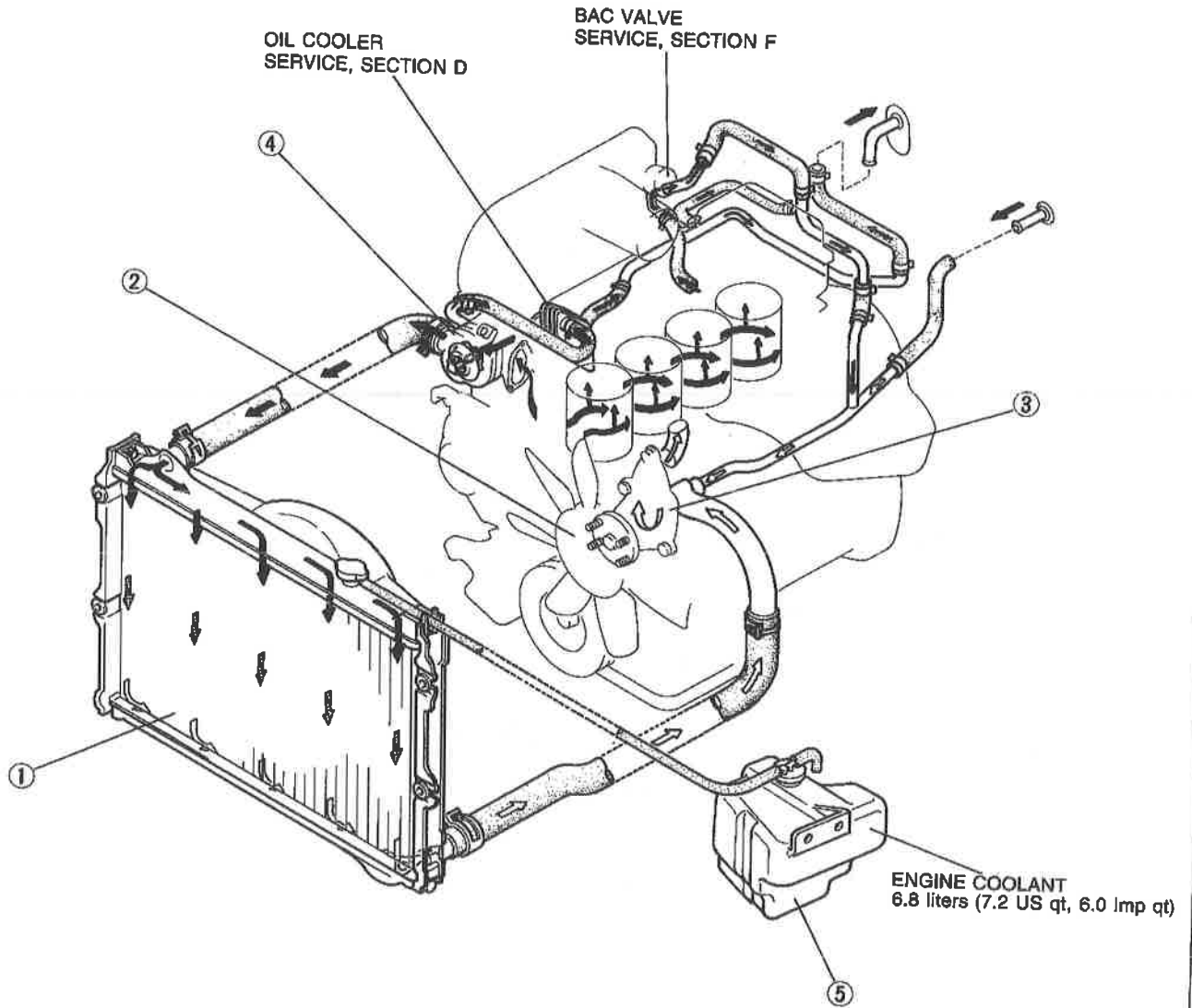


ENGINE COOLANT
 WITH HEATER: 7.5 liters (7.9 US qt, 6.61 Imp qt)
 WITHOUT HEATER: 7.0 liters (7.4 US qt, 6.2 Imp qt)

9MU0EX-002

- | | |
|---|---|
| <p>1. Radiator
 Removal, Inspection, and
 Installation..... page E- 7</p> <p>2. Cooling fan
 Removal and Installation page E- 7
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|---|---|

B26001 (G6 ENGINE)



- 1. Radiator
Removal, Inspection, and
Installation..... page E- 7
- 2. Cooling fan
Removal and Installation page E- 7
Inspection page E- 6

- 3. Water pump
Removal, Inspection, and
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- 4. Thermostat
Removal..... page E-10
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Installation..... page E-11
- 5. Coolant reservoir

2MU0EX-003

OUTLINE, TROUBLESHOOTING GUIDE

OUTLINE

SPECIFICATIONS

Item		Engine model	F2	G6
Cooling system			Water-cooled, forced circulation	
Coolant capacity	liters (US qt, Imp qt)	With heater	7.5 (7.9, 6.6)	7.5 (7.9, 6.6)
		Without heater	6.9 (7.3, 6.1)	6.9 (7.3, 6.1)
Water pump	Type		Centrifugal	
	Water seal		Unified mechanical seal	
Thermostat	Type		Wax	Wax, two-stage
	Opening temperature	°C (°F)	86.5—89.5 (188—193)	Main: 86.5—89.5 (188—193) Sub : 83.5—86.5 (182—188)
	Full-open temperature	°C (°F)	100 (212)	100 (212)
	Full-open lift	mm (in)	8.5 (0.33) min.	Main: 8.0 (0.31) min. Sub : 1.5 (0.06) min.
Radiator	Type		Corrugated fin	
	Cap valve opening pressure	kPa (kg/cm ² , psi)	74—103 (0.75—1.05, 11—15)	
Cooling fan	Type		Thermo-modulated	
	Switching temperature OFF → ON °C (°F)	M/T	55—65 (131—149)..... linear	68—92 (154—198)..... linear
		A/T	65—75 (149—167)..... linear	—
	Number of blades	M/T	7	8
		A/T	8	—
	Outer diameter of blade mm (in)	M/T	380 (15.0)	410 (16.1)
A/T		410 (16.1)	—	

1BU0EX-001


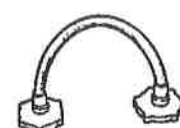

TROUBLESHOOTING GUIDE

Problem	Possible Cause	Remedy	Page
Overheating	Insufficient coolant	Add	E- 5
	Coolant leakage	Repair	—
	Radiator fins clogged	Clean	E- 7
	Radiator cap malfunction	Replace	E- 6
	Cooling fan malfunction	Replace	E- 6
	Thermostat malfunction	Replace	E-10
	Water passage clogged	Clean	E- 5
	Water pump malfunction	Replace	E- 8
Corrosion	Impurities in coolant	Replace	E- 5

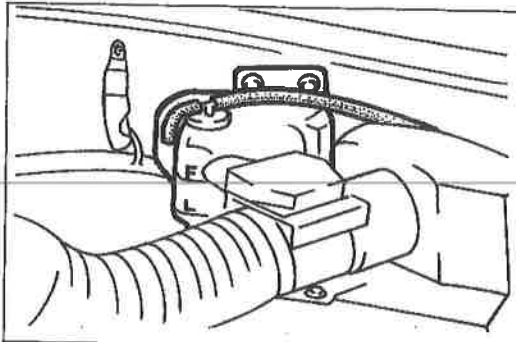
9MU0EX-005

ON-VEHICLE INSPECTION

PREPARATION
SST

<p>49 9200 145</p> <p>Radiator cap tester adapter set</p> 	<p>49 9200 146</p> <p>Adapter A (Part of 49 9200 145)</p> 	<p>49 9200 147</p> <p>Adapter B (Part of 49 9200 145)</p> 
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9MU0EX-006



9MU0EX-007

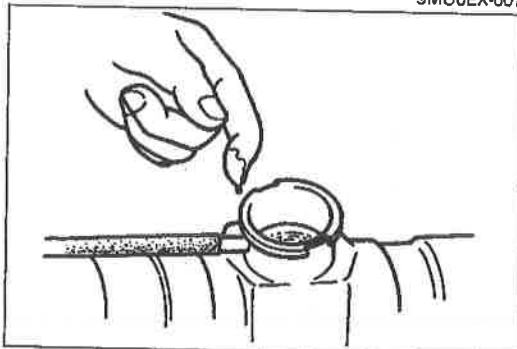
ENGINE COOLANT

Coolant Level (Engine cold)

1. Check that the coolant level is near the radiator inlet port.
2. Check that the coolant level in the coolant reservoir is between the FULL and LOW marks. Add coolant if necessary.

Warning

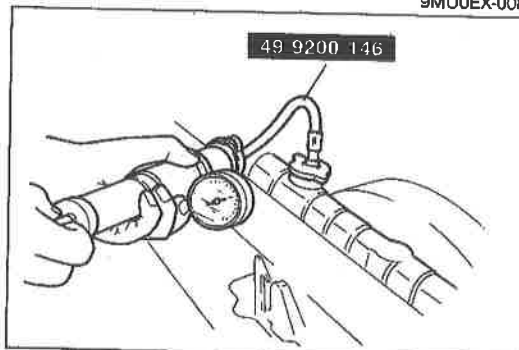
- a) Never remove the radiator cap while the engine is hot.
- b) Wrap a thick cloth around the cap when removing it.



9MU0EX-008

Coolant Quality

1. Check that there is no build up of rust or scales around the radiator cap or radiator filler neck.
2. Check that coolant is free of oil.
3. Replace the coolant if necessary.



9MU0EX-009

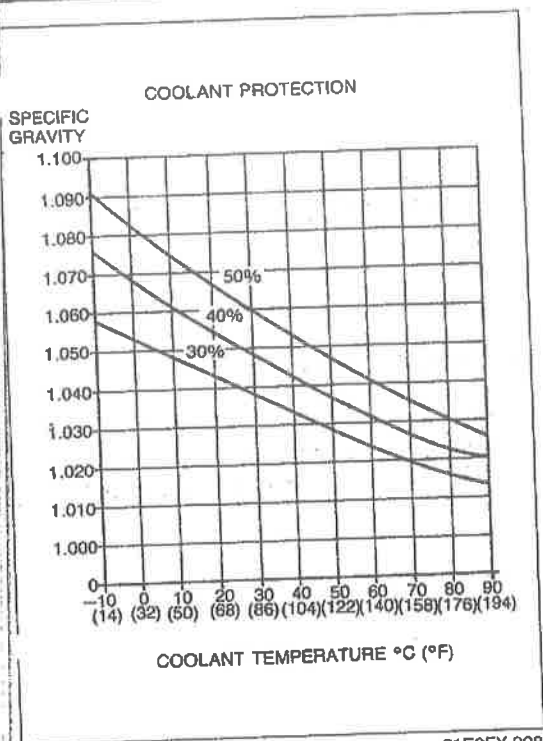
Coolant Leakage

1. Connect a tester and SST to the radiator inlet port.
2. Apply **103 kPa (1.05 kg/cm², 15 psi)** pressure to the system.
3. Check that the pressure is held. If not, check for coolant leakage.

Warning

When removing either the radiator cap or the tester, loosen it slowly until the pressure in the radiator is released, and then remove it.

E REPLACEMENT, AIR BLEEDING AND REFILLING SYSTEM



Coolant Protection

Caution

- a) Do not use alcohol- or methanol-based coolant.
- b) Use only soft (demineralized) water in the coolant mixture.

1. Measure the coolant temperature and specific gravity with a thermometer and a hydrometer.
 2. Determine the coolant protection by referring to the graph shown.
- If the coolant protection is not proper, add water or coolant.

Antifreeze solution mixture percentage

Coolant protection	Volume percentage		Gravity at 20°C (68°F)
	Water	Coolant	
Above -16°C (3°F)	65	35	1.054
Above -26°C (-15°F)	55	45	1.066
Above -40°C (-40°F)	45	55	1.078

05U0EX-010

REPLACEMENT

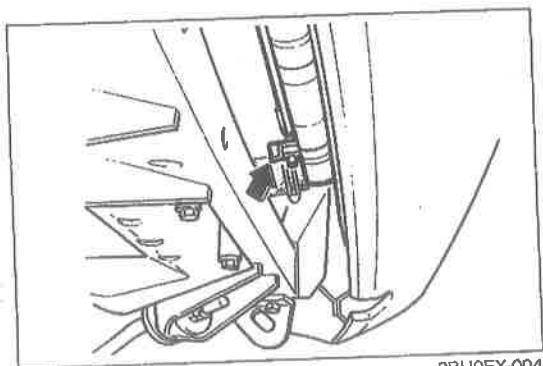
Warning

- a) Never open the radiator cap while the engine is hot.
- b) Wrap a thick cloth around the cap when loosening.
- c) When removing the radiator cap, loosen it slowly to the first stop until the pressure in the radiator is released, and then remove it.
- d) Use caution when draining hot coolant.

Caution

- a) Do not use alcohol- or methanol-based coolant.
- b) Use only soft (demineralized) water in the coolant mixture.
- c) Before loosening the radiator drain plug, verify that the radiator drain hose faces straight down.

1. Remove the radiator cap and loosen the drain plug.
2. Drain the coolant into a suitable container.
3. Fill with the proper amount and mixture of ethylene glycol-based coolant.



AIR BLEEDING AND REFILLING SYSTEM

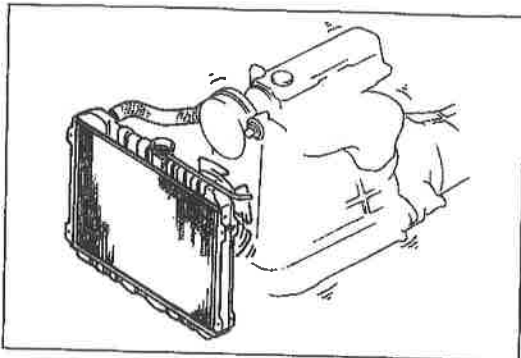
When the coolant is drained, bleed the cooling system after refilling it.

1. Slowly pour the coolant into the radiator up to the coolant filler port.

Filling pace: 2 l (2.1 US qt, 1.8 Imp qt)/min. max.

2. Fill the coolant reservoir up to the FULL level.
3. Install the radiator cap securely and start the engine.

2BU0EX-005



2BU0EX-006

- Run the engine at idle speed until it reaches normal operating temperature.

Caution

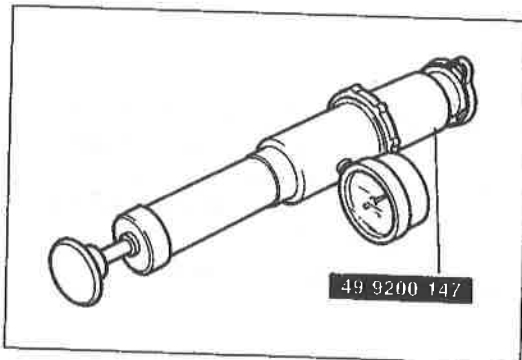
If the temperature increase beyond normal, there is excessive air in the system.

Stop the engine, allow the engine to cool, and repeat Steps 1—3.

- Run the engine above idle several times as specified.

Speed: 2,200—2,800 rpm × 5 sec.

- Stop the engine and wait till the system is cooled down. Remove the radiator cap and check the coolant level. If the coolant level has dropped, repeat the operation from Step 1.



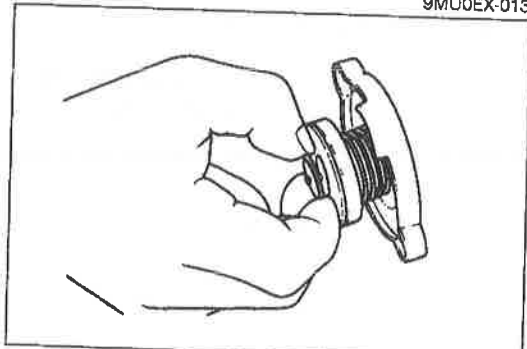
49 9200 147

9MU0EX-013

RADIATOR CAP

Radiator Cap Valve

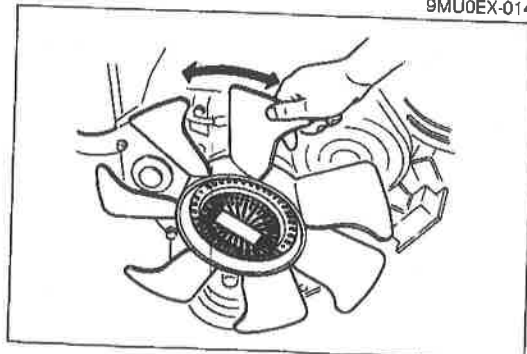
- Remove foreign material (such as water residue) from between the radiator cap valve and the valve seat.
- Attach the radiator cap to a tester with the **SST**. Apply pressure gradually to **74—103 kPa (0.75—1.05 kg/cm², 11—15 psi)**.
- Wait about 10 seconds; then check that the pressure has not decreased.



9MU0EX-014

Negative Pressure Valve

- Pull the negative-pressure valve to open it. Check that it closes completely when released.
- Check for damage on the contact surfaces and for cracked or deformed seal packing.
- Replace the radiator cap if necessary.



9MU0EX-015

COOLING FAN

Inspection

- Inspect the following items. Replace if necessary.
 - Fluid leakage from the fan-drive clutch
 - Deformation of the bimetal
 - Excessive play of the cooling fan bearing
 - Grease leakage from the cooling fan bearing
- When the engine is warm, turn the cooling fan by hand and check that resistance is felt. Replace the fan-drive clutch if necessary.

ON-VEHICLE MAINTENANCE (RADIATOR)

ON-VEHICLE MAINTENANCE

RADIATOR

Removal, Inspection and Installation

1. Drain the engine coolant.
2. Remove in the order shown in the figure.
3. Inspect all parts and repair or replace as necessary.
4. Install in the reverse order of removal.

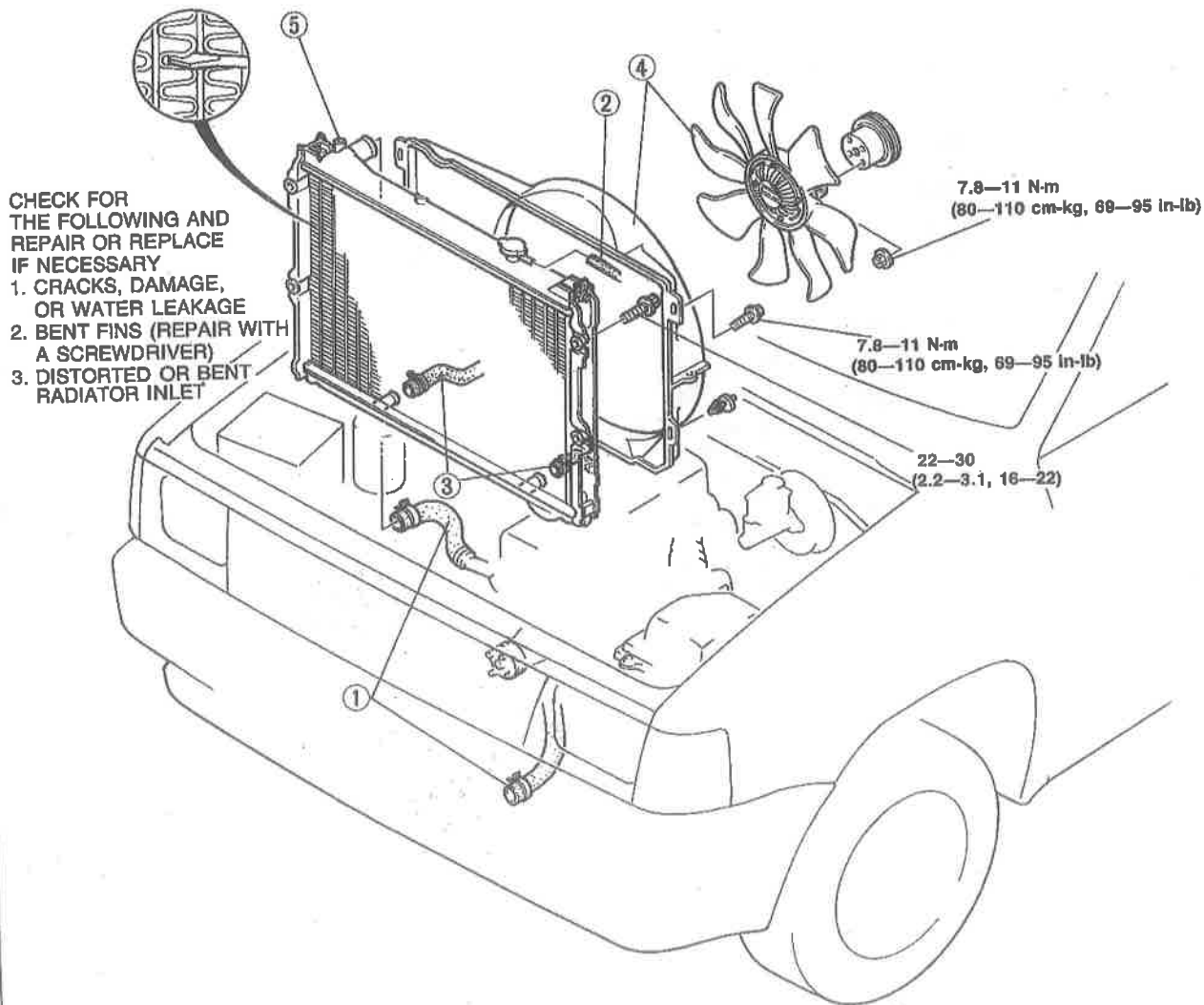
Caution

After radiator cowling installation, rotate the cooling fan by hand and verify that the fan blade does not touch the radiator cowling.

If the fan touches the cowling, adjust the radiator cowling mounting position.

Note

Position the hose clamp in the original location on the hose, and squeeze the clamp lightly with large pliers to ensure a good fit.



N·m (m·kg, ft·lb)

1BU0EX-002

1. Upper and lower radiator hoses
2. Coolant reservoir hose
3. ATF hose (A/T)

4. Cooling fan and radiator cowling
5. Radiator

WATER PUMP

Removal, Inspection, and Installation

1. Disconnect the negative battery cable.
2. Turn the crankshaft so that the No.1 cylinder is at TDC of compression. (F2 Engine)
3. Drain the engine coolant.
4. Remove in the order shown in the figure.
5. Inspect all parts and repair or replace as necessary.
6. Install in the reverse order of removal.

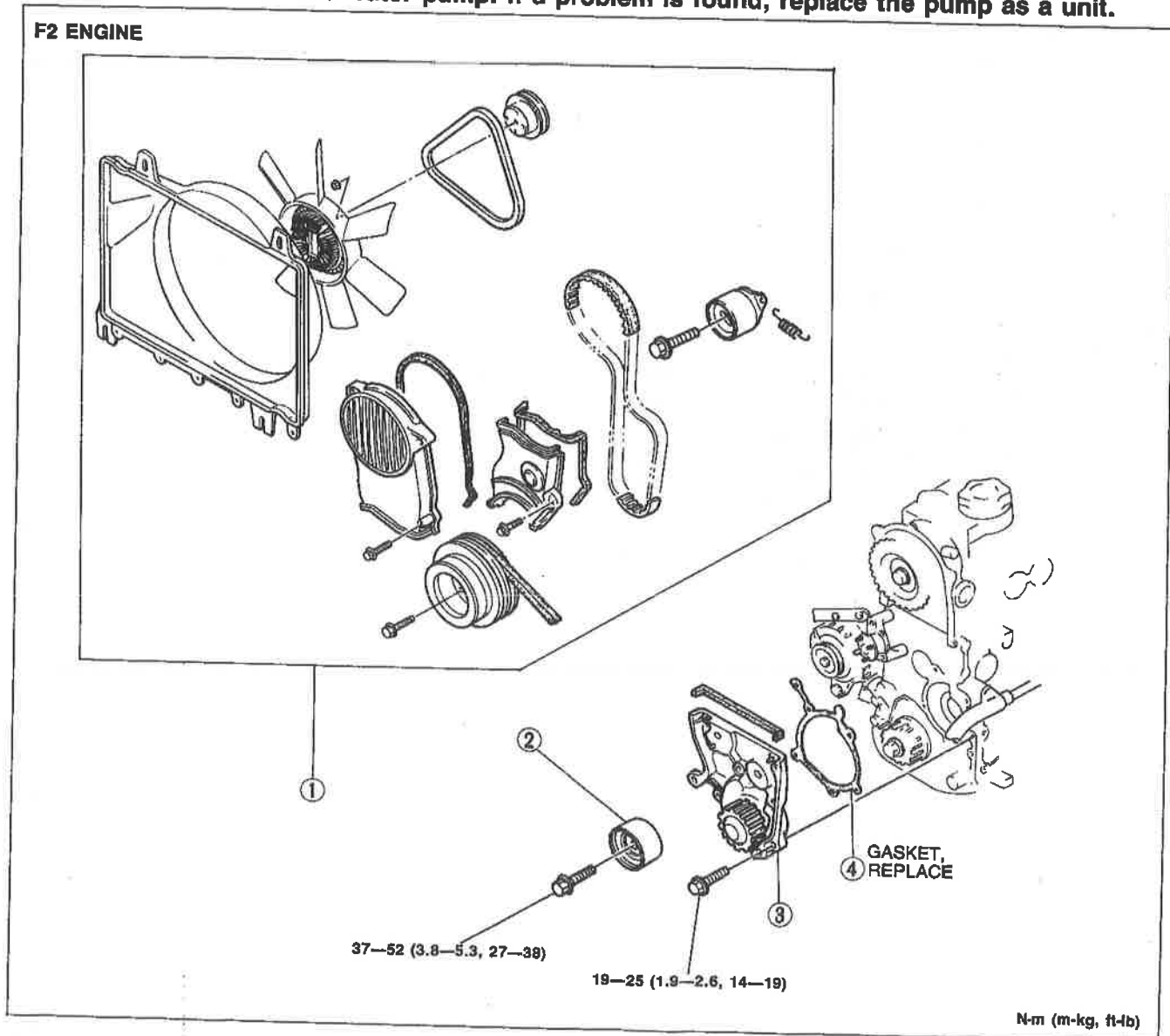
Caution

After radiator cowling installation, rotate the cooling fan by hand and verify that the fan blade does not touch the radiator cowling.

If the fan touches the cowling, adjust the radiator cowling mounting position.

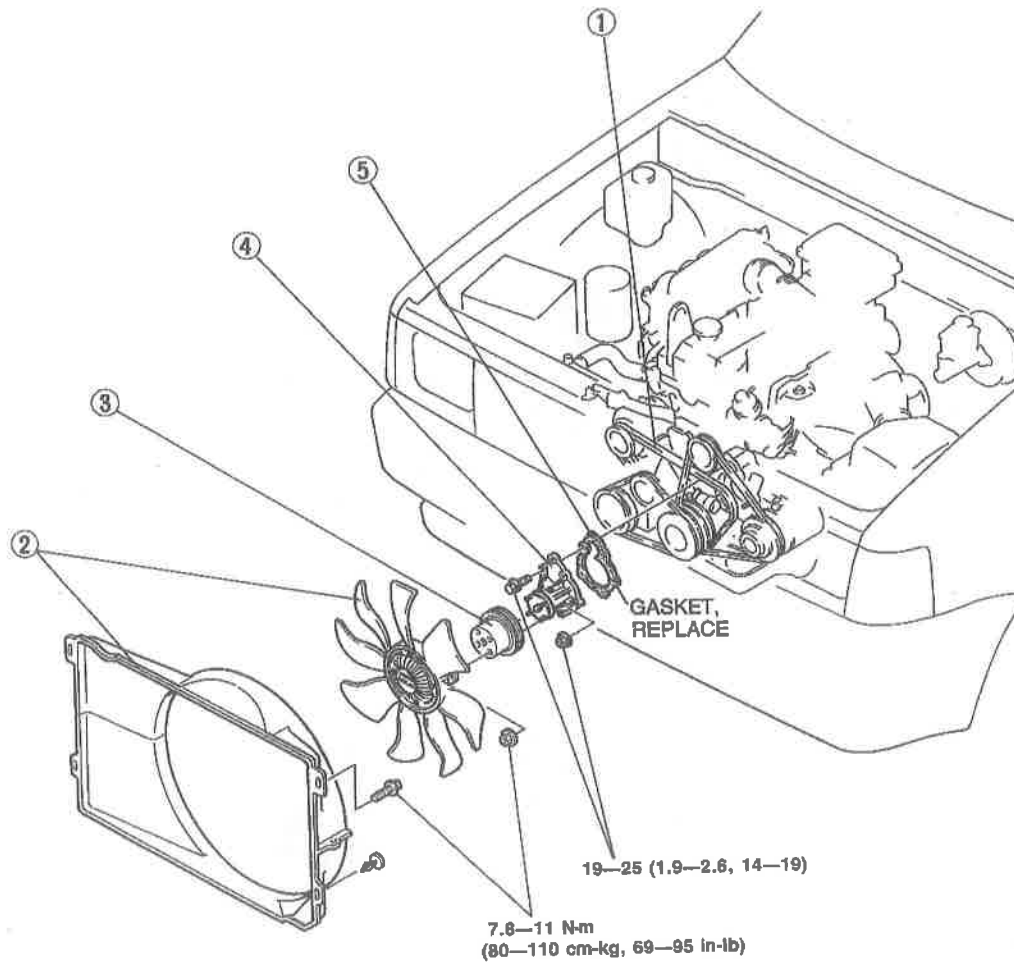
Note

Do not disassemble the water pump. If a problem is found, replace the pump as a unit.



ON-VEHICLE MAINTENANCE (WATER PUMP)

G6 ENGINE



9MU0EX-019

- 1. Drive belt
Adjustment Section B2
- 2. Cooling fan and radiator cowl
- 3. Water pump pulley

- 4. Water pump
Inspect body cracks and damaged gasket surface
- 5. Gasket

Steps After Installation

- 1. Add engine coolant to the specified levels.
- 2. Connect the negative battery cable.
- 3. Start the engine and do the following:
 - (1) Check for leakage of engine coolant.
 - (2) Perform engine adjustments if necessary.
 - (3) Recheck the coolant levels.

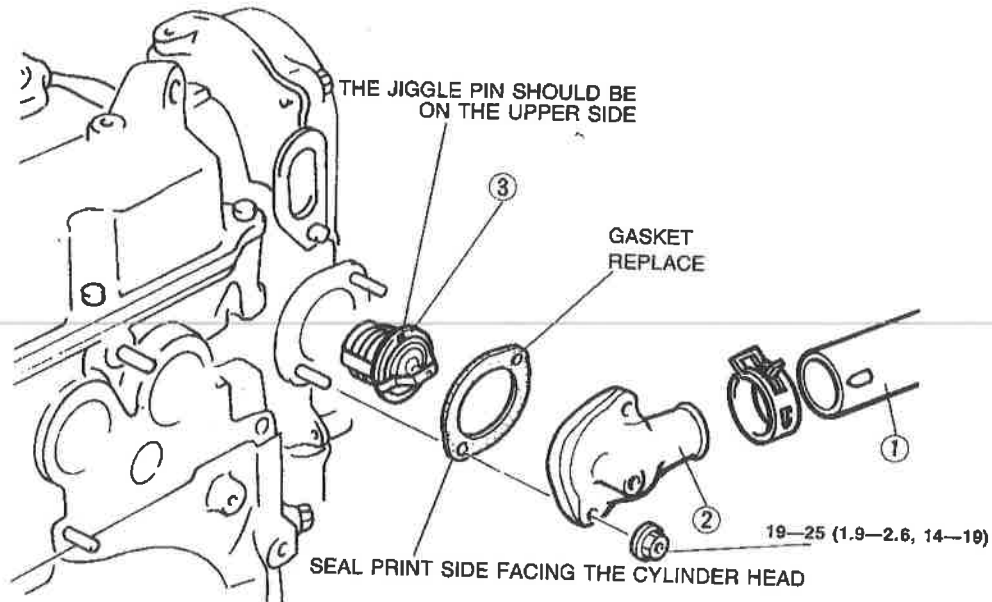
9MU0EX-020

THERMOSTAT

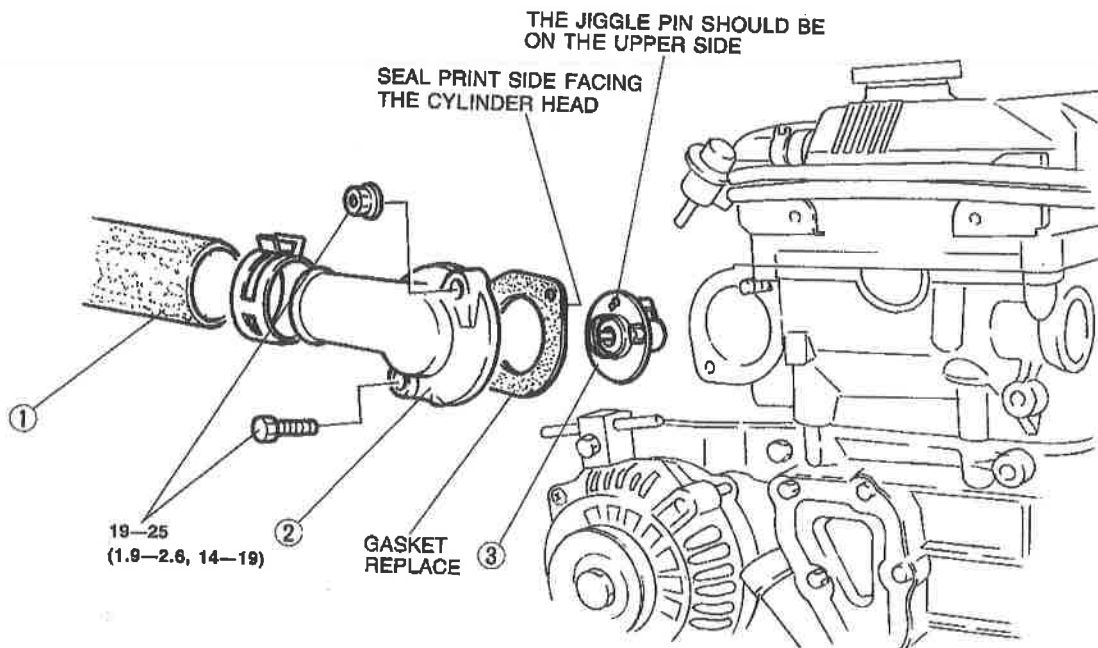
Removal

1. Drain the engine coolant.
2. Remove in the order shown in the figure.

F2 ENGINE



G6 ENGINE



N-m (m-kg, ft-lb)

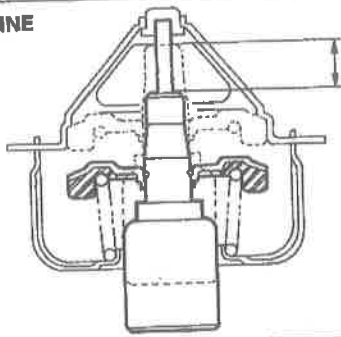
2BU0EX-007

1. Upper radiator hose
2. Thermostat cover

3. Thermostat Inspection page E-12

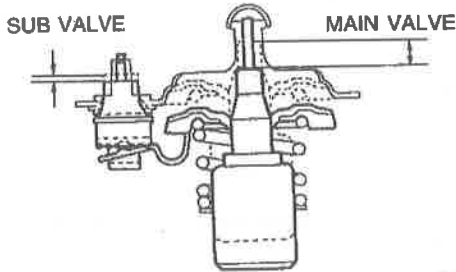
E ON-VEHICLE MAINTENANCE (THERMOSTAT)

F2 ENGINE



9BU0EX-005

G6 ENGINE



9BU0EX-006

Inspection

Check the thermostat and replace if necessary.

1. Visually check that the valve is airtight.
2. Place the thermostat in water with a thermometer. Increase the water temperature, and check the following.

Item	Engine	F2	G6
Initial opening temperature °C (°F)		86.5—89.5 (188—193)	Main: 86.5—89.5 (188—193) Sub : 83.5—86.5 (182—188)
Full-open temperature °C (°F)		100 (212)	100 (212)
Full-open lift mm (in)		8.5 (0.33) min.	Main: 8.0 (0.31) min. Sub : 1.5 (0.06) min.

Installation

Install in the reverse order of removal.

Note

Position the hose clamp in the original location on the hose, and squeeze the clamp lightly with large pliers to ensure a good fit.

9MU0EX-024

Steps After Installation

1. Add engine coolant to the specified levels.
2. Connect the negative battery cable.
3. Start the engine and do the following:
 - (1) Check for leakage of engine coolant.
 - (2) Perform engine adjustments if necessary.
 - (3) Recheck the coolant levels.

9MU0EX-025

FUEL AND EMISSION CONTROL SYSTEMS (CARBURETOR)

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