

COOLING

CONTENTS

E14AA--

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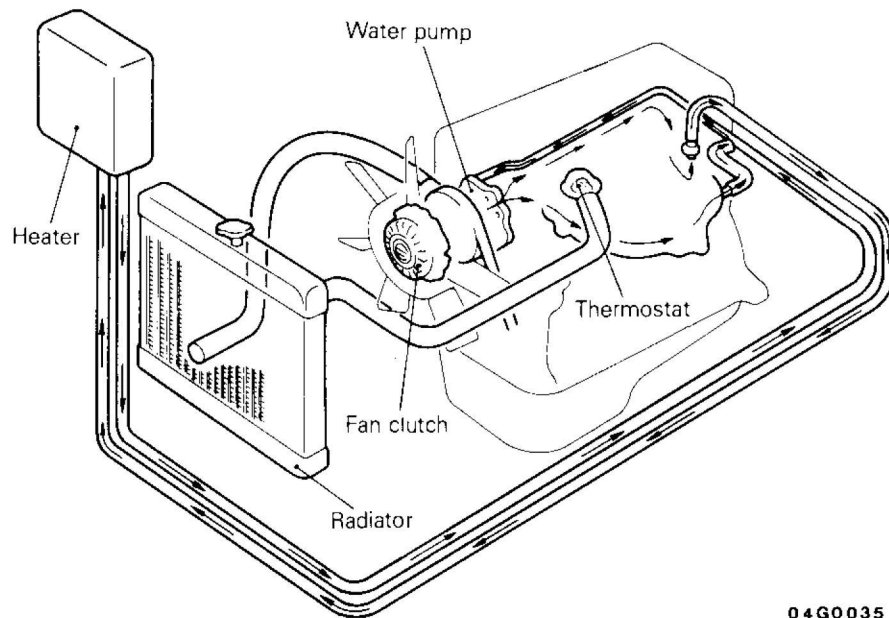
GENERAL INFORMATION

The cooling system is a water cooling type and the coolant is forcibly circulated by the water pump. The temperature control of the coolant is conducted by the thermostat installed in the intake manifold.

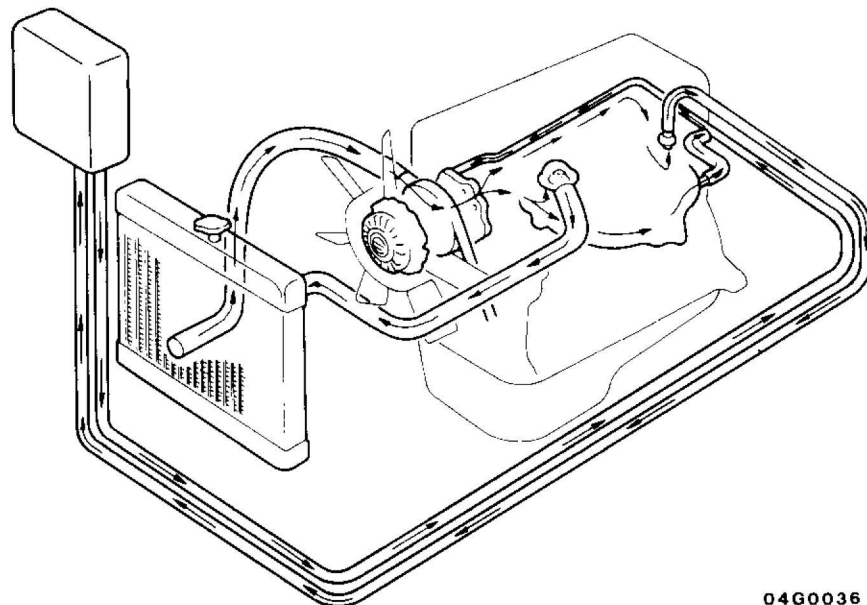
Immediately after engine starting, the coolant does not flow into the radiator until the coolant temperature reaches the thermostat valve opening temperature. The coolant circulates in the engine and it is promptly warmed up to the proper temperature, and at the same time, the temperature of the coolant in the cylinder block and cylinder head is made uniform. When the coolant temperature rises and the thermostat valve opens, the coolant flows into the radiator. The coolant cooled by the radiator is pumped up and pressurized by the water pump and delivered to the cylinders and cools the engine. Also, the cooling fan is installed at the water pump pulley and reduces the coolant temperature in proportion to the engine revolution. Furthermore, between the fan and pulley, the fan clutch is installed, which reduces the engine output loss and noise.

An automatic transmission oil cooler is installed in the radiator of automatic transmission models.

At cold



At hot



SPECIFICATIONS

E14CA--

GENERAL SPECIFICATIONS

Items	Petrol-powered vehicles	Diesel-powered vehicles
Cooling method	Water-cooling, forced circulation type	Water-cooling, forced circulation type
Radiator		
Type	Pressurized corrugated fin type	Pressurized corrugated fin type
Performance J/h (kcal/h, BTU/h)	* ¹ 118,465×10 ³ (28,300, 112,294) * ² 146,512×10 ³ (35,000, 138,888) * ³ 155,721×10 ³ (37,200, 147,610)	* ⁴ 155,721×10 ³ (37,200, 147,610) * ⁵ 214,744×10 ³ (51,300, 203,571) * ⁶ 212,651×10 ³ (50,800, 201,587)
Radiator cap		
High pressure valve opening pressure kPa (kg/cm ² , psi)	75–105 (0.75–1.05, 11–15)	75–105 (0.75–1.05, 11–15)
Vacuum valve opening pressure kPa (kg/cm ² , psi)	–5 or less (–0.05, –0.7 or less)	–5 or less (–0.05, 0.7 or less)
Automatic transmission oil cooler (With automatic transmission)		
Performance J/h (kcal/h, BTU/h)	4,186×10 ³ (1,000, 3,968)	*4,186×10 ³ (1,000, 3,968)
Thermostat		
Type	Wax type with jiggle valve	Wax type
Fan clutch		
Type	Thermo type with spiral type bimetal	Thermo type with plate type bimetal
Water pump		
Type	Centrifugal impeller	Centrifugal impeller

NOTE

- (1) *¹ indicates 4G32, 4G33.
- (2) *² indicates 4G63, G63B.
- (3) *³ indicates 4G64, G64B.
- (4) *⁴ indicates vehicles without a turbocharger. (Except L.H. drive vehicles for Europe built from June 1994)
- (5) *⁵ indicates vehicles with a turbocharger. (Except L.H. drive vehicles for Europe built from June 1994)
- (6) *⁶ indicates L.H. drive vehicles for Europe built from June 1994.

SERVICE SPECIFICATIONS

E14CB-

Items	Specifications
Standard value	
Range of coolant antifreeze concentration %	30–60
Thermostat	
76.5°C (170°F) Type	
Valve opening temperature of thermostat °C (°F)	76.5 (170)
Full-opening temperature of thermostat °C (°F)	90 (194) or more
82°C (180°F) Type	
Valve opening temperature of thermostat °C (°F)	82 (180)
Full-opening temperature of thermostat °C (°F)	95 (203) or more
88°C (190°F) Type	
Valve opening temperature of thermostat °C (°F)	88 (190)
Full-opening temperature of thermostat °C (°F)	100 (212) or more
Engine coolant temperature gauge unit	
Petrol-powered vehicles	
Resistance Ω °C (°F)	104±13.5 70 (158)
Diesel-powered vehicles	
Resistance	
Terminal A Ω °C (°F)	104±13.5 70 (158)
Terminal B kΩ °C (°F)	3.25±0.33 20 (68)
Terminal C Ω °C (°F)	300 80 (176)

Items	Specifications	
Engine coolant temperature sensor		
Resistance		
<Vehicles built up to May 1994>	k Ω °C (°F)	2.45 ± 0.24 20 (68)
	Ω °C (°F)	296 ± 32 80 (176)
<Vehicles built from June 1994>	k Ω °C (°F)	2.37 ± 0.24 20 (68)
	Ω °C (°F)	290 ± 32 80 (176)
Thermo switch		
For Europe 4G63		
Continuity temperature	°C (°F)	Within 65 (149)
With automatic transmission		
Continuity temperature	°C (°F)	More than 50 (122)
Diesel powered vehicles		
Continuity temperature	°C (°F)	More than 115 (239)

TORQUE SPECIFICATIONS

E14CC--

Items	Nm	kgm	ft. lbs.
Radiator attaching bolt	9-14	0.9-1.4	7-10
Reserve tank attaching bolt	4-6	0.4-0.6	3-4
Shroud attaching nut	4-6	0.4-0.6	3-4
Plate attaching nut	4-6	0.4-0.6	3-4
Radiator hose lower bracket attaching bolt <4G92>	9-14	0.9-1.4	7-10
Shroud (upper) attaching nut <4G92>	10-15	1.0-1.5	7-10
Cooling fan attaching bolt			
Except 4G92	10-12	1.0-1.2	7.2-9.0
4G92	8-10	0.8-1.0	6-7
Fan clutch attaching bolt	10-12	1.0-1.2	7.2-9.0
Fan clutch attaching nut	8-10	0.8-1.0	6.0-7.2
Cooling fan bracket attaching bolt	30-42	3.0-4.2	22-30
	8-10	0.8-1.0	6-7
Water outlet fitting attaching bolt			
Petrol-powered vehicles	17-20	1.7-2.0	12-14
Diesel-powered vehicles	10-13	1.0-1.3	7.2-9.4
Water inlet fitting attaching bolt			
4G92	17-20	1.7-2.0	12-14
4G63, 4G64	10-15	1.0-1.5	7-11
Timing belt cover attaching bolt	10-12	1.0-1.2	7.2-9.0
Water pump attaching bolt			
Bolt head mark "4T"	12-15	1.2-1.5	9-11
Bolt head mark "7T"	20-17	2.0-2.7	14-19
Timing belt rear cover attaching bolt	8-12	0.8-1.2	6-9
Alternator brace attaching bolt	35-55	3.5-5.5	25-40

Items	Nm	kgm	ft.lbs.
Crankshaft pulley attaching bolt			
Petrol-powered vehicles			
4G32 and 4G33 engines	15–18	1.5–1.8	11–13
Except 4G32 and 4G33 engines	20–30	2.0–3.0	14–22
Diesel-powered vehicles	170–190	17–19	123–137
Power steering oil pump and bracket attaching bolt	14–21	1.4–2.1	10–15
Power steering oil pump to bracket	25–33	2.5–3.3	18–24
Water pipe attaching bolt			
bolt size (M6)	10–12	1.0–1.2	7.2–8.6
bolt size (M8)	12–15	1.2–1.5	8.6–11
Thermostat case attaching bolt			
4G92	22–25, 43–55	2.2–2.5, 4.3–5.5	16–18, 31–40
4G63, 4G64 – 16 valve	19–28	1.9–2.8	14–20
Water pipe attaching bolt <4G63, 4G64 – 16 valve>	10–15, 43–55	1.0–1.5, 4.3–5.5	7–11, 31–40
Water by-pass fitting attaching bolt	19–28	1.9–2.8	14–20
Water pipe to turbocharger	35–50	3.5–5.0	25–36
Engine coolant temperature gauge unit			
Vehicles built up to September 1987	8–10	0.8–1.0	5.8–7.2
Vehicles built from October 1987	10–12	1.0–1.2	7.2–8.6
Thermo switch			
For Europe 4G63	20–40	2.0–4.0	14–29
4G92, 4G63, 4G64 – 16 valve	20–40	2.0–4.0	14–29
With automatic transmission	6–9	0.6–0.9	4.3–6.5
Diesel powered vehicles <4WD>	7–9	0.7–0.9	5.1–6.5
Engine coolant temperature sensor	20–40	2.0–4.0	14–29

LUBRICANTS

E14CO--

Items	Recommended antifreeze	Engine	Quantity*			
			lit.	U.S.qts.	Imp.qts.	
Engine coolant	HIGH QUALITY ETHYLENE GLYCOL ANTIFREEZE COOLANT	4G33	7.7 (8.2)	8.14 (8.66)	6.78 (7.22)	
		4G32	7.5 (8.0)	7.92 (8.45)	6.60 (7.04)	
		4G63 – 8 valve (Excluding vehicles for Europe)				
		2WD	7.35 (7.85)	7.77 (8.29)	6.47 (6.91)	
		4WD	7.5 (8.0)	7.92 (8.45)	6.60 (7.04)	
		4G63 – 8 valve, G63B (Vehicles for Europe)				
		2WD	7.3 (7.8)	7.71 (8.24)	6.42 (6.86)	
		4WD	7.4 (7.9)	7.82 (8.35)	6.51 (6.95)	
		G64B	7.4 (7.9)	7.82 (8.35)	6.51 (6.95)	
		4G64 – 8 valve				
		2WD	8.15 (8.65)	8.61 (9.14)	7.17 (7.61)	
		4WD	8.3 (8.8)	8.77 (9.30)	7.30 (7.74)	
		4D56				
		Without turbocharger	8.7 (9.2)	9.19 (9.72)	7.66 (8.10)	
		With turbocharger <Vehicles built up to May 1994>	10.0 (10.6)	10.57 (11.10)	8.80 (9.24)	
<Vehicles built from June 1994>	9.0 (9.5)	9.51 (10.03)	7.92 (8.36)			
4G92	6.0	6.34	5.28			
4G63, 4G64 – 16 valve	8.0 (8.5)	8.45 (8.98)	7.04 (7.48)			

NOTE

(1) *Quantity includes 0.9 liters (0.95 U.S. qts., 0.79 imp.qts.) reserve tank capacity.

(2) () indicates figure with rear heater.

SEALANT AND ADHESIVE

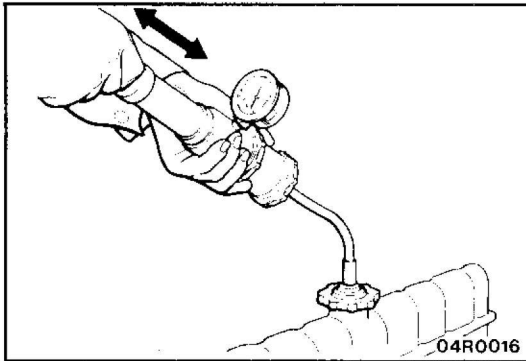
E14CE--

Items	Specified sealant and adhesive	Remarks
Engine coolant temperature gauge unit (Petrol-powered vehicles)	3M ATD Part No. 8660 or equivalent	Semi drying sealant
Engine coolant temperature gauge unit (Diesel-powered vehicles) Engine coolant temperature sensor Thermo switch	3M Nut Locking Part No. 4171 or equivalent	Drying sealant
Water pump (4G92) Water by-pass fitting (4G63, 4G64)	MITSUBISHI GENUINE Part No. 970389 or equivalent	Semi drying sealant

TROUBLESHOOTING

E14EAA0

Symptom	Probable cause	Remedy	Reference page
Overheat	Insufficient coolant	Replenish	14-7
	Antifreeze concentration too great	Correct	14-8
	Loose or broken drive belt	Replace	14-13
	Inoperative fan clutch	Replace	14-13
	Damaged or blocked (insufficiently ventilated) radiator fins	Correct	--
	Water leaks		
	Damaged radiator core joint	Replace	14-9
	Corroded or cracked hoses (radiator hose, heater hose, etc.)	Replace	14-9
	Loose bolt or defective gasket in water outlet fitting (thermostat)	Correct or replace	14-14
	Loose water pump mounting bolt or defective gasket	Correct or replace	14-17, 19, 21
	Faulty radiator cap valve or setting of spring	Replace	14-7
	Loose cylinder head bolt	Correct	Refer to GROUP 11 ENGINE
	Damaged cylinder head gasket	Replace	
	Cracked cylinder block	Replace	
	Cracked cylinder head	Replace	
	Faulty thermostat operation	Replace	14-16
	Faulty water pump operation	Replace	14-18, 20, 22
	Water passage clogged with slime or rust deposit or foreign substance	Clean	--
No rise in temperature	Faulty thermostat	Replace	14-16



SERVICE ADJUSTMENT PROCEDURES

E14FAAA

CHECKING FOR COOLANT LEAKS

1. Confirm that the coolant level is up to the filler neck. Install a radiator cap tester and apply 160 kPa (1.6 kg/cm², 23 psi) pressure, and then check for leakage from the radiator hose or connections.

Caution

1. Be sure to completely clean away any moisture from the places checked.
2. When the tester is taken out, be careful not to spill any coolant from it.
3. Be careful, when installing and removing the tester and when testing, not to deform the filler neck of the radiator.

2. If there is leakage, repair or replace the appropriate part.

CHECKING OF THE RADIATOR CAP VALVE-OPENING PRESSURE

E14FBAB

Refer to GROUP 11 ENGINE—Service adjustment procedures

REPLACEMENT OF THE COOLANT

E14FCAF

1. For vehicles with a heater, set the warm water flow control lever to the hot position.
2. Remove the radiator cap.
3. Remove the drain plug and drain out the coolant.
4. Drain the coolant out of the reserve tank.
5. After draining out the coolant, securely close the drain plug.
6. Pour the specified coolant into the radiator until it is completely full, and then attach the radiator cap.

Recommended antifreeze:

HIGH QUALITY ETHYLENE GLYCOL ANTIFREEZE COOLANT

Quantity lit. (U.S.qts., Imp.qts.)

4G33	7.7 (8.14, 6.78)
	*8.2 (8.66, 7.22)
4G32	7.5 (7.92, 6.60)
	*8.0 (8.45, 7.04)
4G63 – 8 valve (excluding vehicles for Europe)	
2WD	7.35 (7.77, 6.47)
	*7.85 (8.29, 6.91)
4WD	7.5 (7.92, 6.60)
	*8.0 (8.45, 7.04)
4G63 – 8 valve, G63B (vehicles for Europe)	
2WD	7.3 (7.71, 6.42)
	*7.8 (8.24, 6.86)
4WD	7.4 (7.82, 6.51)
	*7.9 (8.35, 6.95)
G64B	7.4 (7.82, 6.51)
	*7.9 (8.35, 6.95)
4G64 – 8 valve	
2WD	8.15 (8.61, 7.17)
	*8.65 (9.14, 7.61)
4WD	8.3 (8.77, 7.30)
	*8.8 (9.30, 7.74)
4D56 Without turbocharger	8.7 (9.19, 7.66)
	*9.2 (9.72, 8.10)
With turbocharger	
<Vehicles built up to May 1994>	
	10.0 (10.57, 8.80)
	*10.5 (11.10, 9.24)

<Vehicles built from June 1994>

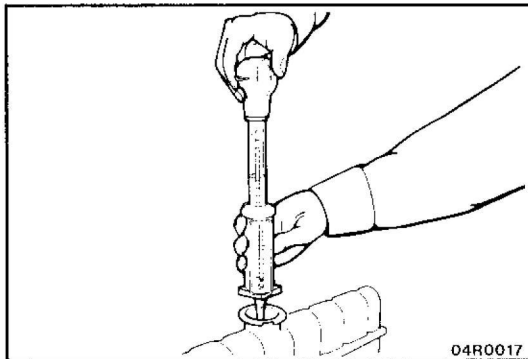
	9.0 (9.51, 7.92)
	*9.5 (10.03, 8.36)
4G92	6.0 (6.34, 5.28)
4G63, 4G64 – 16 valve	8.0 (8.45, 7.04)
	*8.5 (8.98, 7.48)

NOTE

1. (*) indicates vehicles with rear heater.
2. For Norway, the non-amine type of antifreeze should be used.
7. Pour coolant into the reserve tank.
8. After warming up the engine until the thermostat opens, remove the radiator cap and check the amount of coolant.
9. Pour coolant into the radiator until it is completely full, and then attach the radiator cap securely.
10. Pour coolant into the reserve tank until it reaches the FULL line.

NOTE

For vehicles equipped with rear heater (under seat type), refer to GROUP 55 HEATER, AIR CONDITIONER AND VENTILATION—Service Adjustment Procedures.



MEASUREMENT OF CONCENTRATION

E14FDAA

1. Measure the specific gravity of the coolant with a hydrometer.
2. Measure the coolant temperature, and calculate the concentration from the relation between the specific gravity and temperature, using the following table for reference.

RELATIONSHIP BETWEEN ANTIFREEZE CONCENTRATION AND SPECIFIC GRAVITY

Coolant temperature °C (°F) and specific gravity					Freezing temperature °C (°F)	Safe operating temperature °C (°F)	Coolant concentration (Specific volume)
10 (50)	20 (68)	30 (86)	40 (104)	50 (122)			
1.054	1.050	1.046	1.042	1.036	-16 (3.2)	-11 (12.2)	30 %
1.063	1.058	1.054	1.049	1.044	-20 (-4)	-15 (5)	35 %
1.071	1.067	1.062	1.057	1.052	-25 (-13)	-20 (-4)	40 %
1.079	1.074	1.069	1.064	1.058	-30 (-22)	-25 (-13)	45 %
1.087	1.082	1.076	1.070	1.064	-36 (-32.8)	-31 (-23.8)	50 %
1.095	1.090	1.084	1.077	1.070	-42 (-44)	-37 (-35)	55 %
1.103	1.098	1.092	1.084	1.076	-50 (-58)	-45 (-49)	60 %

Example:

How to obtain safe operating temperature of coolant-antifreeze mixture

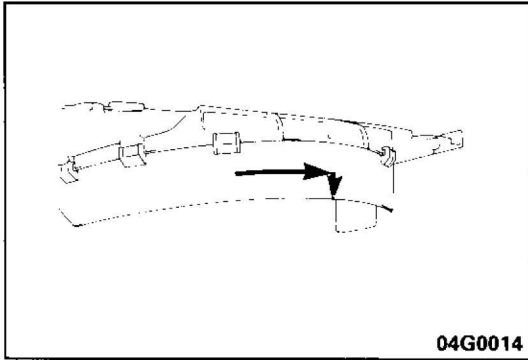
The safe operating temperature is down to -15°C (5°F) when the measured specific gravity is 1.058 at the coolant temperature of 20°C (68°F).

RECOMMENDED ANTIFREEZE

Antifreeze	Allowable concentration
HIGH QUALITY ETHYLENE GLYCOL ANTIFREEZE COOLANT	30-60 %

Caution

If the concentration of the antifreeze is below 30 %, the anti-corrosion property will be adversely affected. In addition, if the concentration is above 60 %, both the anti-freezing and engine cooling properties will decrease, affecting the engine adversely. For these reasons, be sure to maintain the concentration level within the specified range.

**SERVICE POINTS OF REMOVAL**

E14QBAB

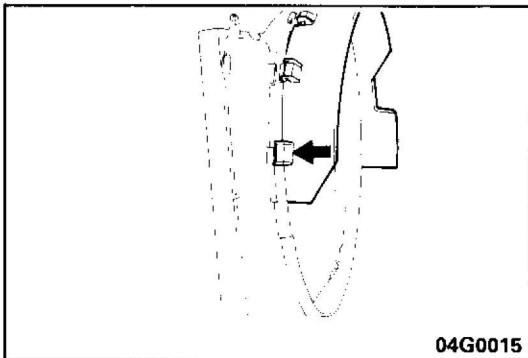
2. REMOVAL OF COVER

Turn cover about 30 mm (1.2 in.) clockwise towards front of vehicles and remove cover towards engine.

INSPECTION

E14QCAA

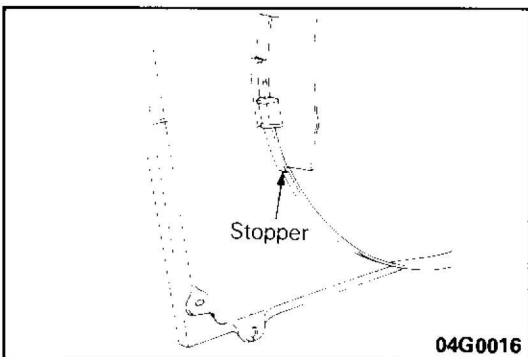
- Check for foreign material between radiator fins.
- Check the radiator fins for bend or damage.
- Check the radiator for corrosion, damage, rust or scale.
- Check the radiator hoses for cracks, damage or deterioration.
- Check the reserve tank for damage.
- Check the spring of radiator cap for deterioration.
- Check the packing of radiator cap for damage or cracks.

**SERVICE POINTS OF INSTALLATION**

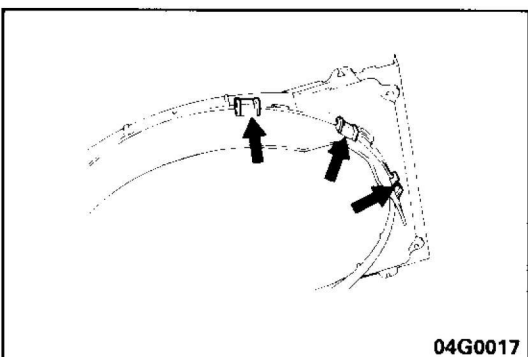
E14QDAC

2. INSTALLATION OF COVER

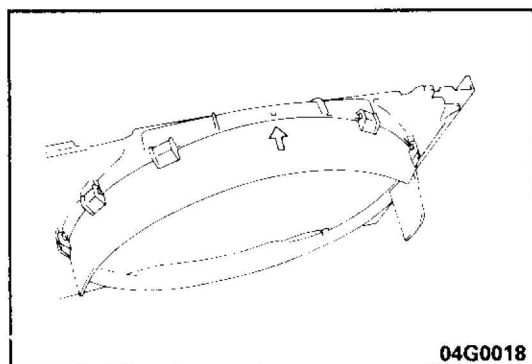
(1) Match the retainer on cover left end to shroud.



(2) Turn cover counterclockwise towards vehicle front to the shroud stopper position.



(3) Engage other cover retainers to shroud.



- (4) Turn cover clockwise until the arrow (or solid line) reaches shroud clip position.

REMOVAL AND INSTALLATION [Vehicles built from June 1994]

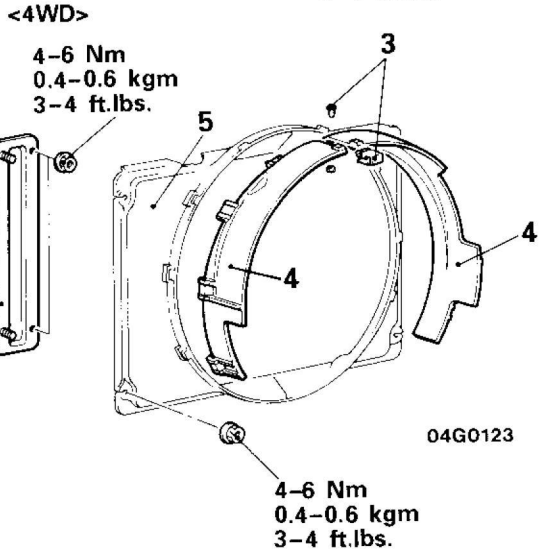
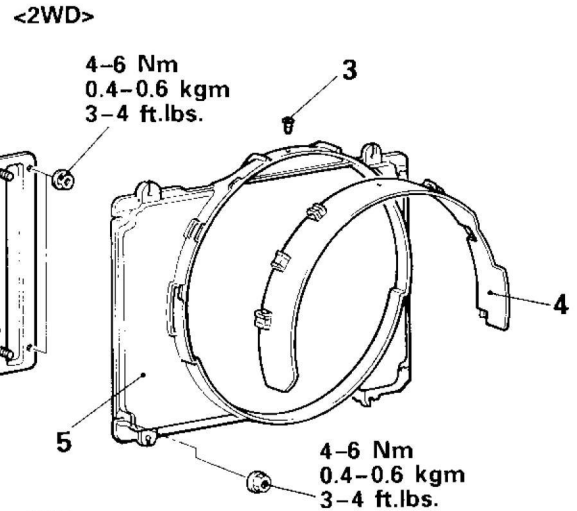
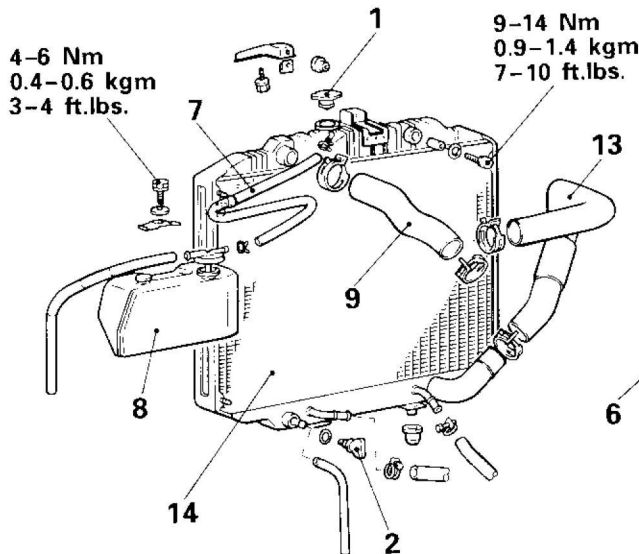
Pre-removal Operation

- Removal of driving seat
- Removal of seat underframe
(Refer to GROUP 01 GENERAL – Engine Compartment Work)
- Drainage of coolant
- Removal of automatic transmission oil hose
(Vehicles with automatic transmission)

Post-installation Operation

- Installation of automatic transmission oil hose and checking of oil volume.
(Refer to GROUP 23 AUTOMATIC TRANSMISSION – Service Adjustment Procedures)
- Supplying of coolant
(Refer to P.14-7.)
- Installation of seat underframe
- Installation of driving seat

4D56



Removal steps

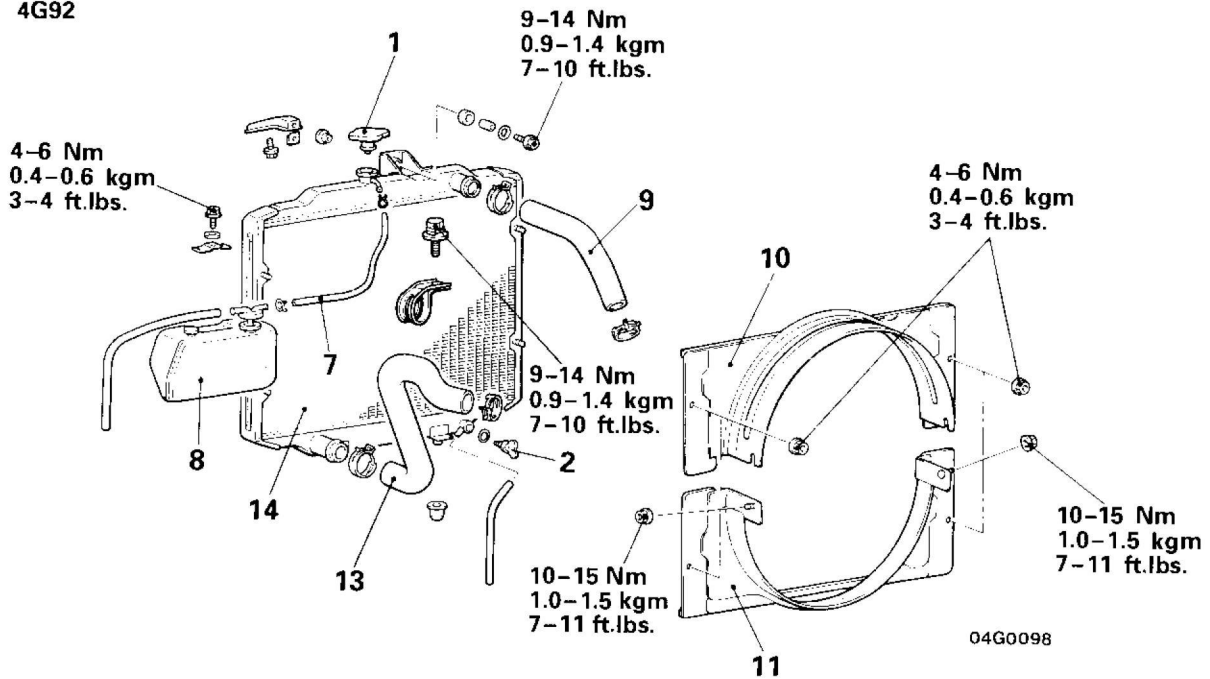
1. Radiator cap
2. Drain plug
3. Clip
- ◆◆ ◆◆ 4. Cover
5. Shroud
6. Plate <L.H. drive vehicles for Europe>
7. Overflow tube
8. Reserve tank
- ◆◆ ◆◆ 9. Radiator hose upper
- ◆◆ ◆◆ 13. Radiator hose lower
14. Radiator

04G0123

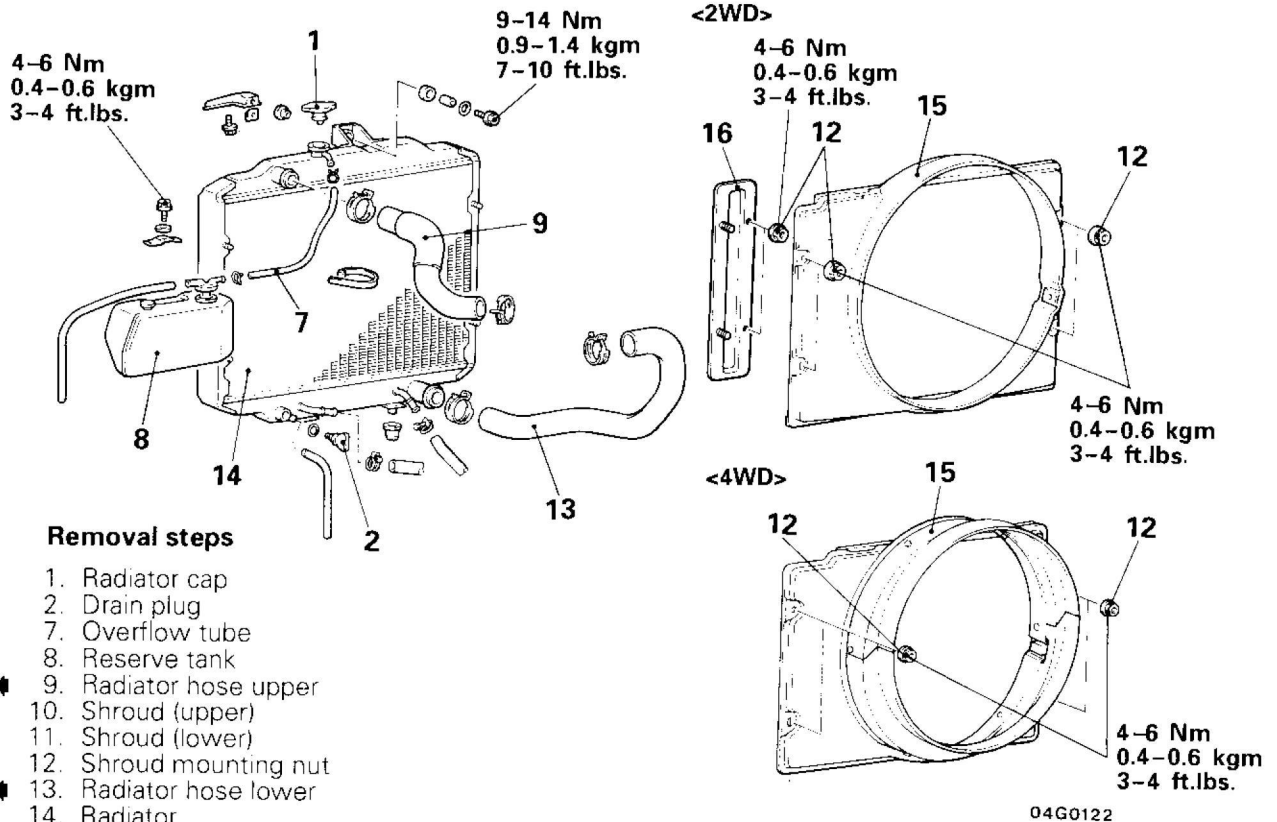
NOTE

- (1) Reverse the removal procedures to reinstall.
- (2) ◆◆ : Refer to "Service Points of Removal".
- (3) ◆◆ : Refer to "Service Points of Installation".

4G92



4G63, 4G64

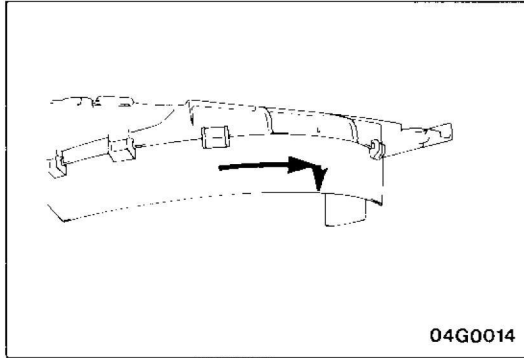


Removal steps

1. Radiator cap
2. Drain plug
7. Overflow tube
8. Reserve tank
- ◆◆ ◆◆ 9. Radiator hose upper
10. Shroud (upper)
11. Shroud (lower)
12. Shroud mounting nut
- ◆◆ ◆◆ 13. Radiator hose lower
14. Radiator
15. Shroud
16. Plate <L.H. drive vehicles for Europe>

NOTE

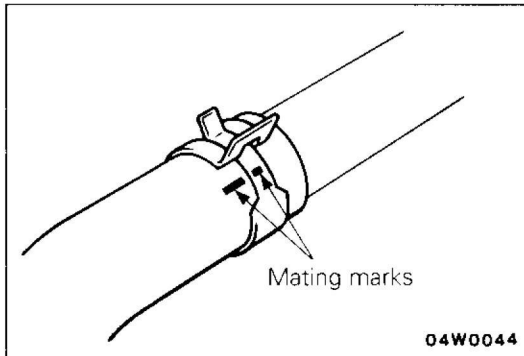
- (1) Reverse the removal procedures to reinstall.
- (2) ◆◆ : Refer to "Service Points of Removal".
- (3) ◆◆ : Refer to "Service Points of Installation".

**SERVICE POINTS OF REMOVAL**

E14QBAB

4. REMOVAL OF COVER

Turn cover about 30 mm (1.2 in.) clockwise towards front of vehicles and remove cover towards engine.

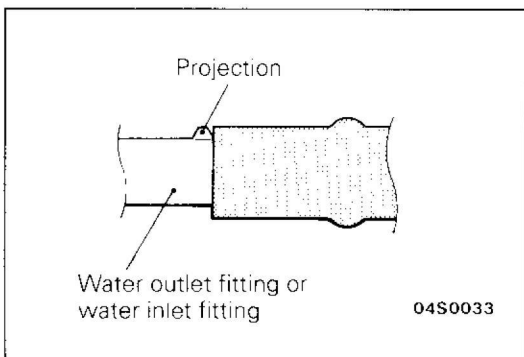
**9. DISCONNECTION OF RADIATOR HOSE UPPER/13. RADIATOR HOSE LOWER**

After making mating marks on the radiator hose and the hose clamp, disconnect the radiator hose.

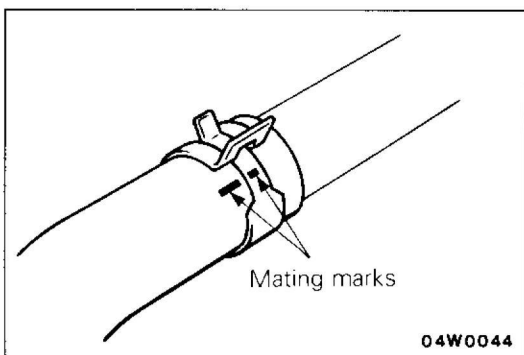
INSPECTION

E14QCAA

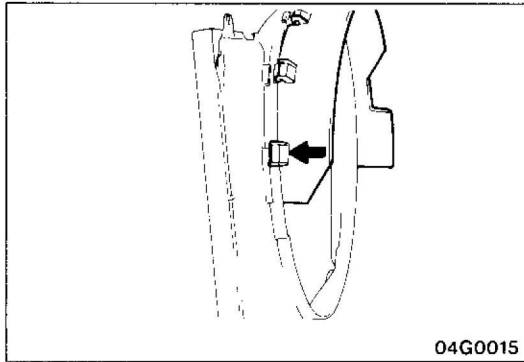
- Check for foreign material between radiator fins.
 - Check the radiator fins for bend or damage.
 - Check the radiator for corrosion, damage, rust or scale.
 - Check the radiator hoses for cracks, damage or deterioration.
 - Check the reserve tank for damage
 - Check the spring of radiator cap for deterioration.
- Check the packing of radiator cap for damage or cracks.

**SERVICE POINTS OF INSTALLATION****13. CONNECTION OF RADIATOR HOSE LOWER/9. RADIATOR HOSE UPPER**

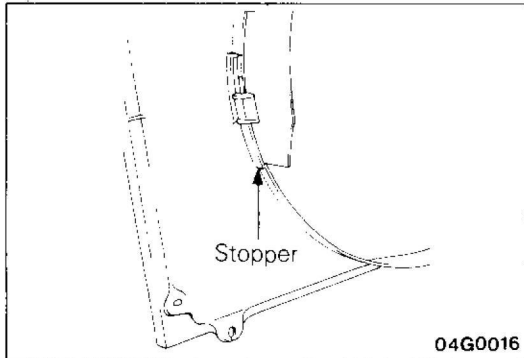
- (1) Insert each hose as far as the projection of the water outlet fitting or water inlet fitting.



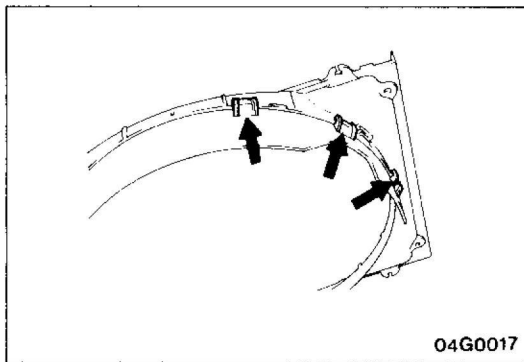
- (2) Align the mating marks on the radiator hose and hose clamp, and then connect the radiator hose.

**4. INSTALLATION OF COVER**

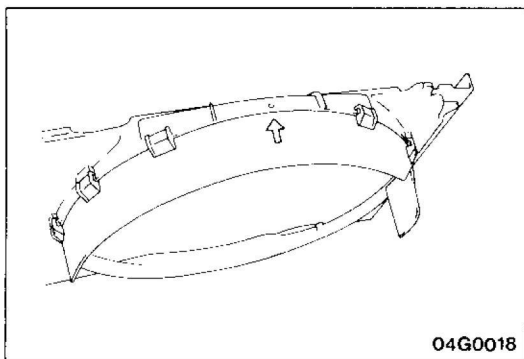
(1) Match the retainer on cover left end to shroud.



(2) Turn cover counterclockwise towards vehicle front to the shroud stopper position.



(3) Engage other cover retainers to shroud.



(4) Turn cover clockwise until the arrow (or solid line) reaches shroud clip position.

COOLING FAN

REMOVAL AND INSTALLATION

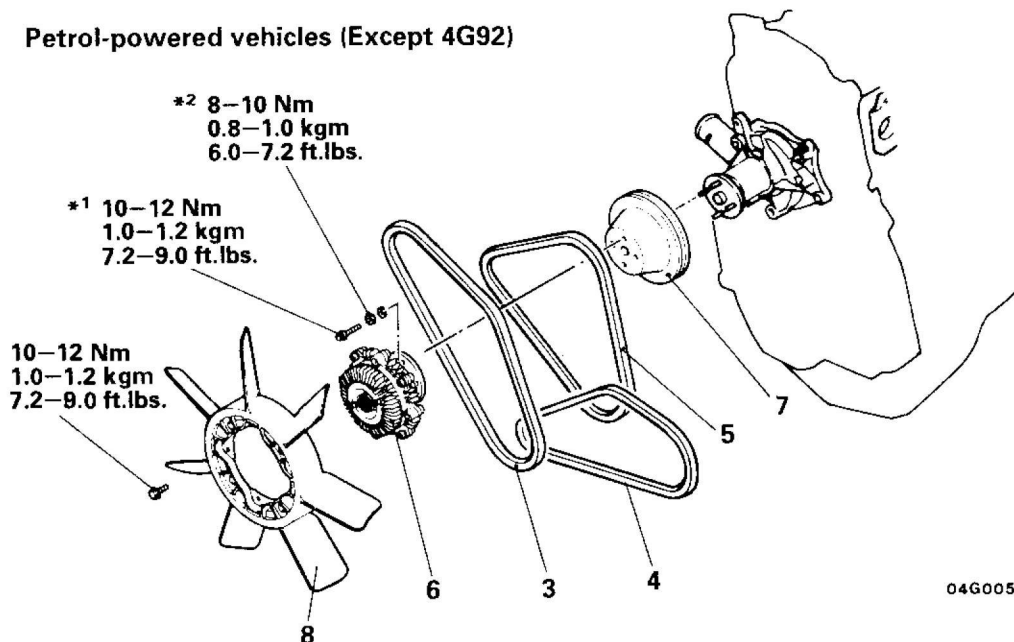
Pre-removal Operation

- Removal of radiator cover and shroud <Except 4G92> (Refer to P. 14-9.)

Post-installation Operation

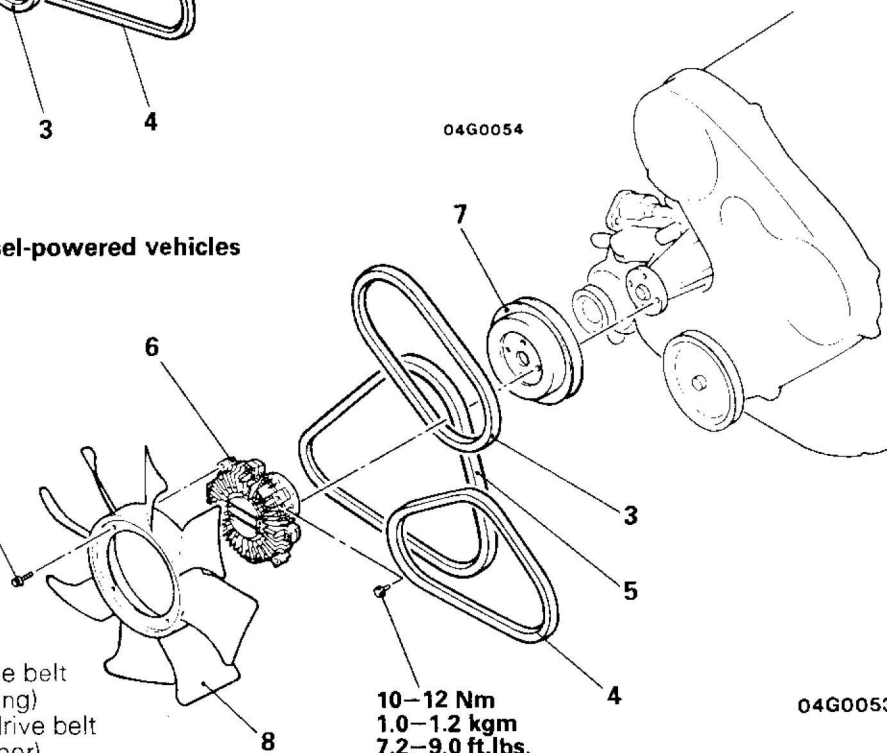
- Installation of radiator cover and shroud <Except 4G92> (Refer to P. 14-9.)

Petrol-powered vehicles (Except 4G92)



Diesel-powered vehicles

10-12 Nm
1.0-1.2 kgm
7.2-9.0 ft.lbs.



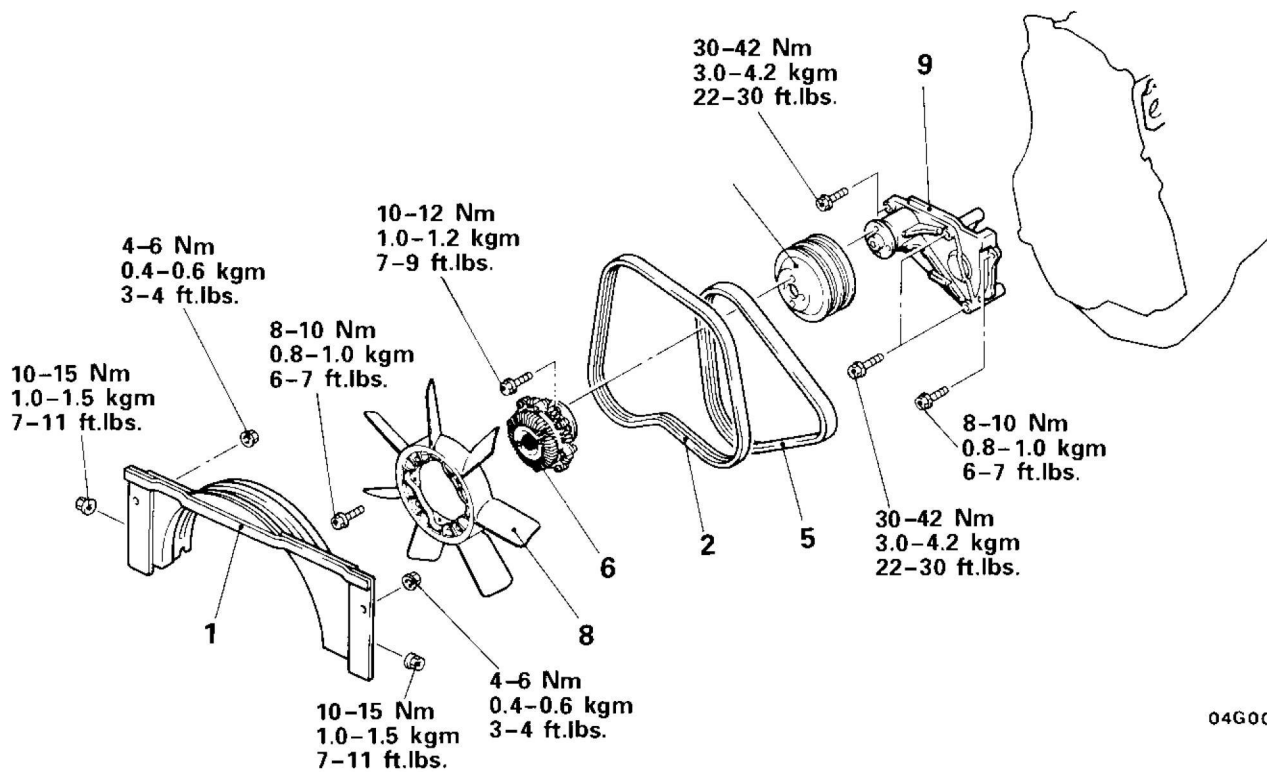
Removal steps

- ◆◆ 3. Power steering oil pump drive belt (vehicles with a power steering)
- ◆◆ 4. Air conditioner compressor drive belt (vehicles with an air conditioner)
- ◆◆ 5. Alternator drive belt
- 6. Fan clutch
- 7. Water pump pulley
- 8. Cooling fan

NOTE

- (1) Reverse the removal procedures to reinstall.
- (2) ◆◆ : Refer to "Service Points of Installation".
- (3) *1 indicates 4G32, 4G33.
- (4) *2 indicates 4G63, 4G64, G63B, G64B.

4G92



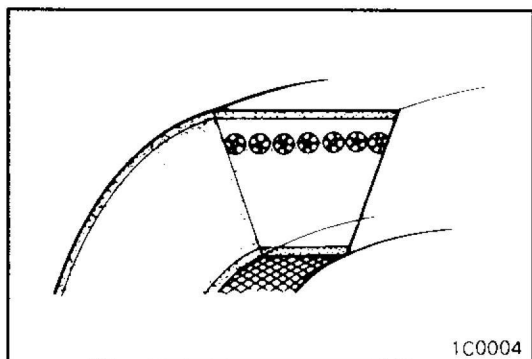
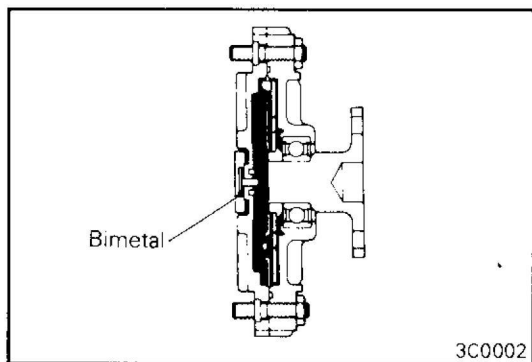
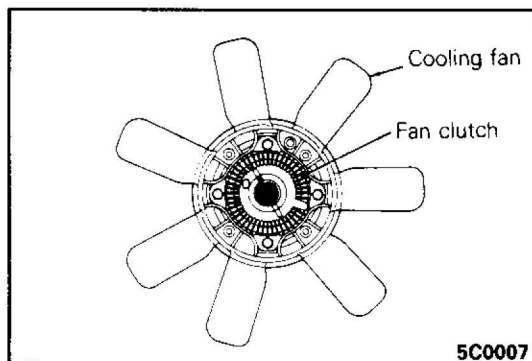
04G0084

Removal steps

1. Shroud (upper)
- ◆◆ 2. Drive belt
- ◆◆ 5. Alternator drive belt
6. Fan clutch
7. Water pump pulley
8. Cooling fan
9. Cooling fan bracket assembly

NOTE

- (1) Reverse the removal procedures to reinstall.
 (2) ◆◆ : Refer to "Service Points of Installation".

**INSPECTION**

E14JCAB

COOLING FAN

- Check the blades for damage and cracks.
- Check for cracks and damage around bolt holes in fan hub.
- If any portion of fan is damaged or cracked, replace cooling fan.

FAN CLUTCH

- Check to ensure that fluid in fan clutch is not leaking at case joint and seals. If fluid quantity decreases due to leakage, fan speed will decrease and engine overheating might result.
- When fan attached to engine is turned by hand, it should give a sense of some resistance. If fan turns lightly, it is defective.
- In case of thermostatic control type, check for a broken bimetal.

BELT

A belt which has following defects should be replaced.

- Damaged, peeled or cracked surface
- Oil or greasy surface
- A belt worn to such an extent that it is in contact with bottom of V groove in pulley
- Worn or hardened rubber

SERVICE POINT OF INSTALLATION

E14JDAC

5. INSTALLATION OF ALTERNATOR DRIVE BELT/4. AIR CONDITIONER COMPRESSOR DRIVE BELT/3. POWER STEERING OIL PUMP DRIVE BELT/2. DRIVE BELT

Install drive belts. Check belt tension.
(Refer to GROUP 11 ENGINE – Service Adjustment Procedures.)

THERMOSTAT

REMOVAL AND INSTALLATION

E14GA--

PETROL-POWERED VEHICLES [Vehicles built up to May 1994]

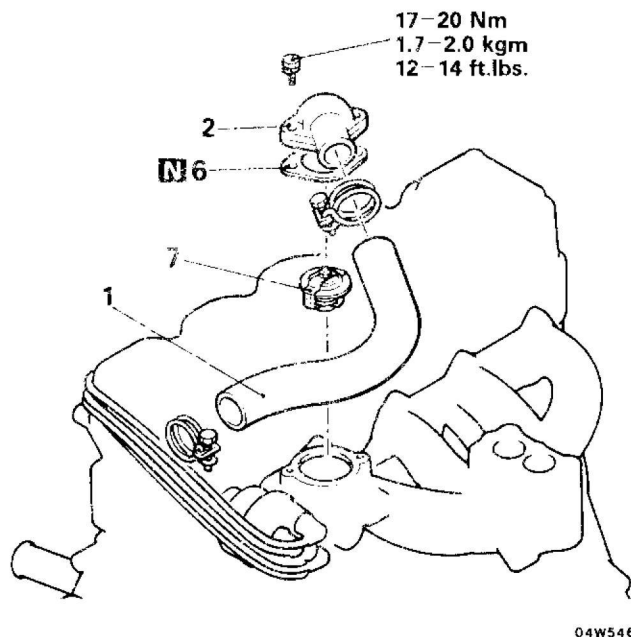
Pre-removal Operation

- Drainage of coolant
- Removal of driving seat (L.H.D.)
- Removal of seat underframe (L.H.D.)
(Refer to GROUP 01-Engine Compartment Work.)

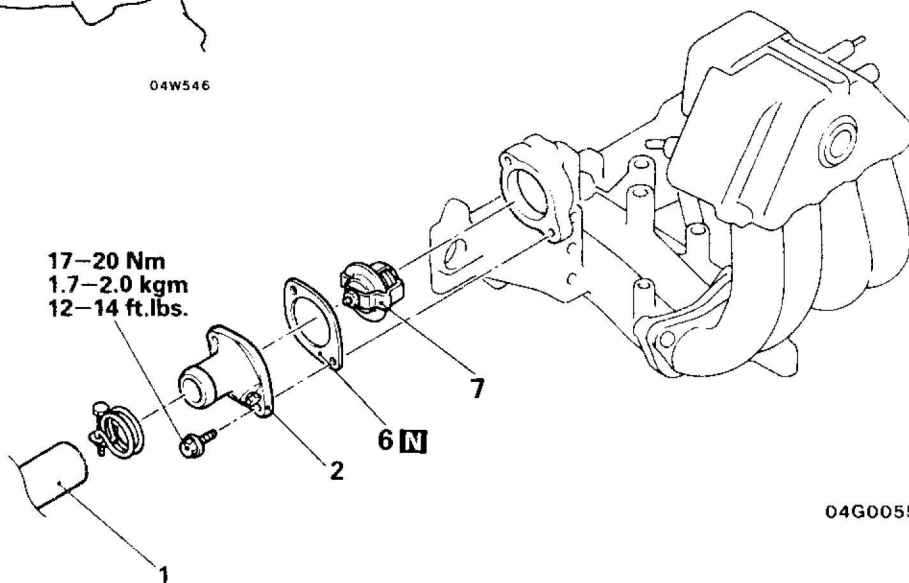
Post-installation Operation

- Installation of seat underframe (L.H.D.)
- Installation of driving seat (L.H.D.)
- Supplying of coolant
(Refer to P. 14-7.)

Petrol-powered vehicles without M.P.I



Petrol-powered vehicles with M.P.I



Removal steps

1. Radiator hose upper
2. Water outlet fitting
6. Gasket
7. Thermostat

NOTE

- (1) Reverse the removal procedures to reinstall.
- (2) ◆◆ : Refer to "Service Points of Installation".
- (3) N : Non-reusable parts

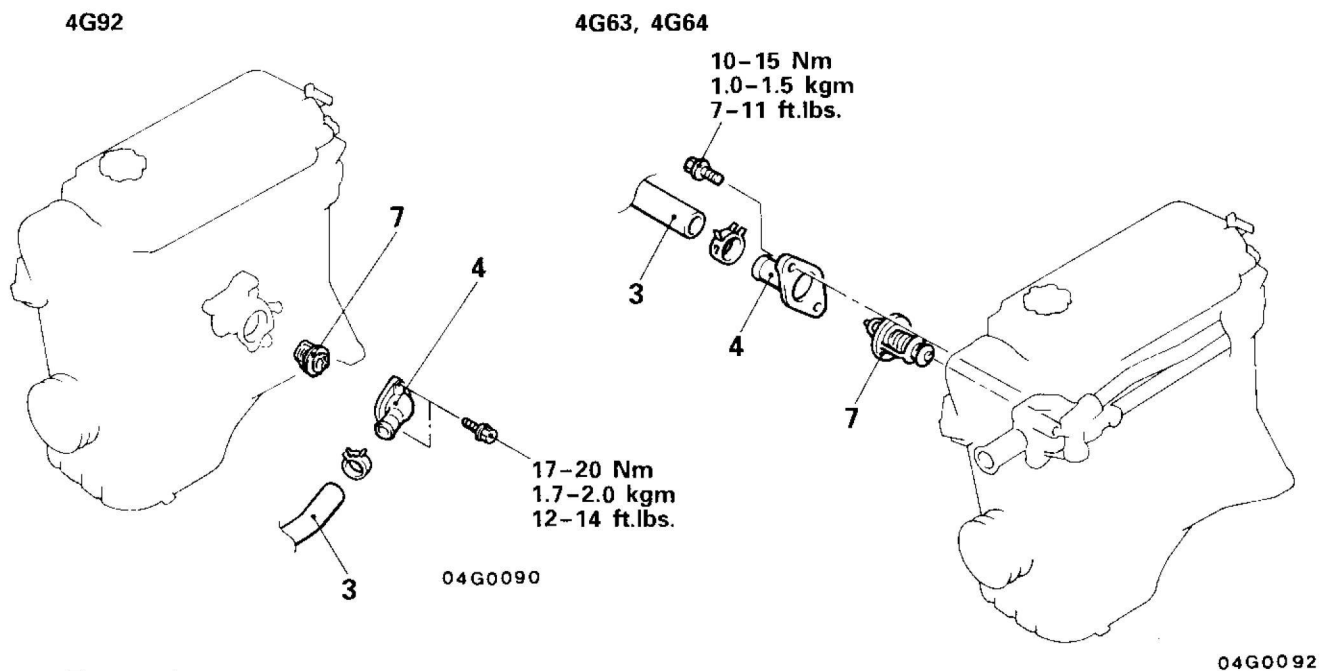
PETROL-POWERED VEHICLES [Vehicles built from June 1994]

Pre-removal Operation

- Drainage of coolant
- Removal of seat underframe (L.H.D.) <4G92>
- Removal of seat underframe (R.H.D.) <4G63>
(Refer to GROUP 01 – Engine Compartment Work.)

Post-installation Operation

- Installation of seat underframe (L.H.D.) <4G92>
- Installation of seat underframe (R.H.D.) <4G63>
- Supplying of coolant
(Refer to P.14-7.)



Removal steps

- ◄◄ ◄◄ 1. Radiator hose lower
- ◄◄ 4. Water inlet fitting
- ◄◄ 7. Thermostat

NOTE

- (1) Reverse the removal procedures to reinstall.
- (2) ◄◄ : Refer to "Service Points of Removal".
- (3) ◄◄ : Refer to "Service Points of Installation".

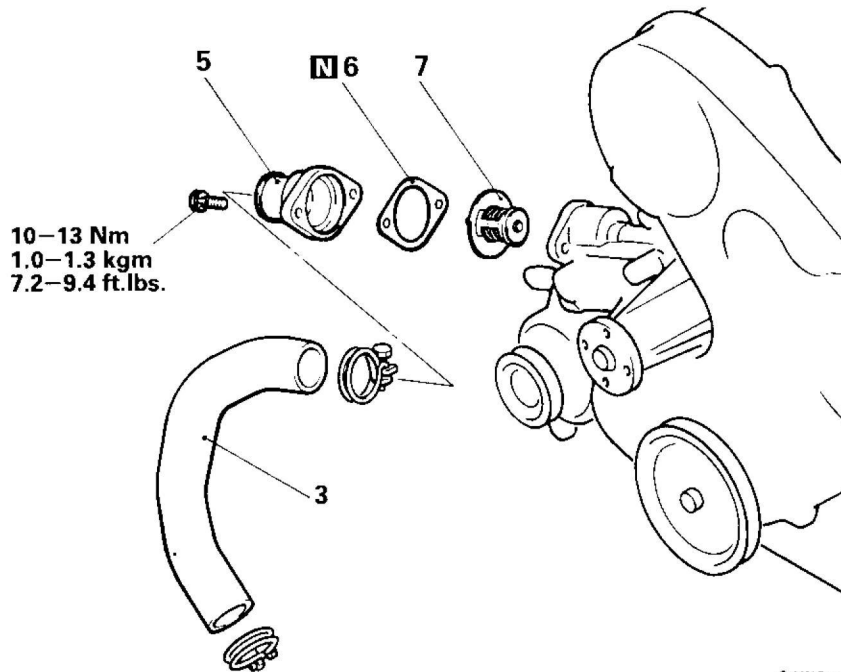
DIESEL-POWERED VEHICLES

Pre-removal Operation

- Removal of driving seat (R.H.D.)
- Removal of seat underframe (R.H.D.) (Refer to GROUP 01 GENERAL—Engine Compartment Work.)
- Removal of power steering oil pump
- Drainage of coolant

Post-installation Operation

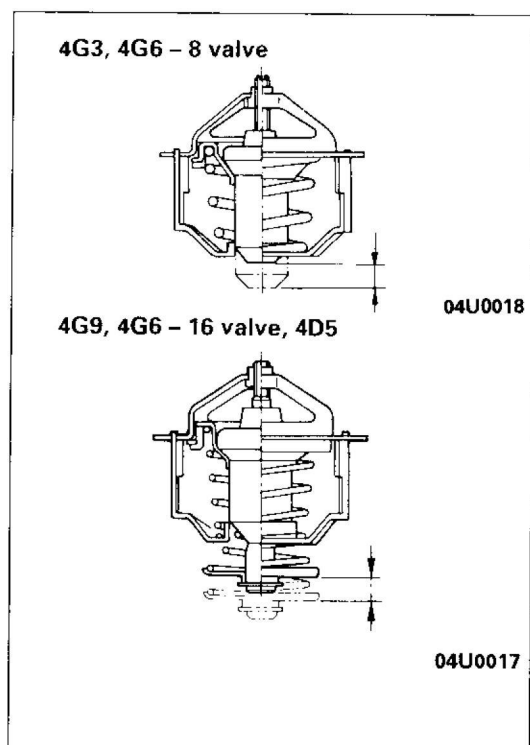
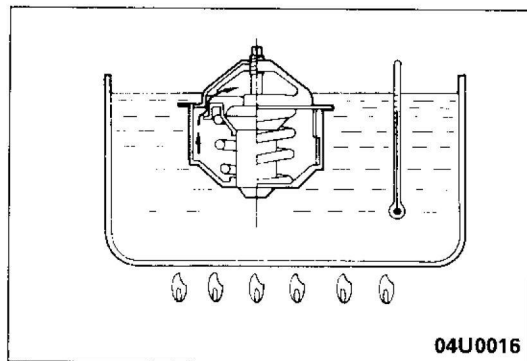
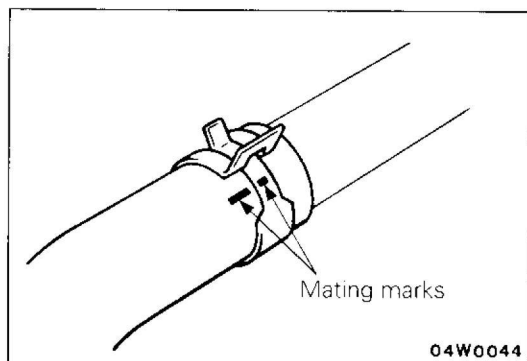
- Supplying of coolant (Refer to P.14-7.)
- Installation of power steering oil pump (Refer to GRDUP 37 STEERING—Oil Pump.)
- Installation of seat underframe (R.H.D.)
- Installation of driving seat (R.H.D.)

**Removal steps**

- ◆◆ ◆◆ 3. Radiator hose lower
- ◆◆ ◆◆ 5. Water pump fitting
- ◆◆ ◆◆ 6. Gasket
- ◆◆ ◆◆ 7. Thermostat

NOTE

- (1) Reverse the removal procedures to reinstall.
- (2) ◆◆ : Refer to "Service Points of Removal".
- (3) ◆◆ : Refer to "Service Points of Installation".
- (4) N : Non-reusable parts



SERVICE POINTS OF REMOVAL

3. DISCONNECTION OF RADIATOR HOSE LOWER

<Vehicles built from June 1994>

After making mating marks on the radiator hose and the hose clamp, disconnect the radiator hose.

INSPECTION

E14GCAI

- Check that valve closes tightly at room temperature.
- Check for defects or damage.
- Check for rust or encrustation on valve. Remove if any.
- Immerse thermostat in container of water. Stir to raise water temperature and check that thermostat opening valve temperature and the temperature with valve fully open [valve lift over 8 mm (0.32 in.)] are at the standard value.

Standard value

Petrol-powered vehicles

Vehicles for Europe

4G32, 4G63 - 8 valve, 4G64 (Cold regions), G64B

Opening valve temperature 88°C (190°F)

Full-open temperature 100°C (212°F)

4G63 - 16 valve (FBC and MPI), G63B, 4G64

Opening valve temperature 82°C (180°F)

Full-open temperature 95°C (203°F)

4G63 - 16 valve (conventional carburettor)

Opening valve temperature 76.5°C (170°F)

Full-open temperature 90°C (194°F)

Vehicles for General Export

4G92 (FBC), 4G63 - 16 valve (Standard specifications for conventional carburettor)

Opening valve temperature 76.5°C (170°F)

Full-open temperature 90°C (194°F)

Other than above

Opening valve temperature 82°C (180°F)

Full-open temperature 95°C (203°F)

Vehicles for Australia

4G64 - 8 valve

Opening valve temperature 88°C (190°F)

Full-open temperature 100°C (212°F)

4G63 - 8 valve, 4G64 - 16 valve

Opening valve temperature 82°C (180°F)

Full-open temperature 95°C (203°F)

4G63 - 16 valve,

Opening valve temperature 76.5°C (170°F)

Full-open temperature 90°C (194°F)

Diesel-powered vehicles

Vehicles without turbocharger

Opening valve temperature 82°C (180°F)

Full-open temperature 95°C (203°F)

Vehicles with turbocharger

Opening valve temperature 76.5°C (170°F)

Full-open temperature 90°C (194°F)

NOTE

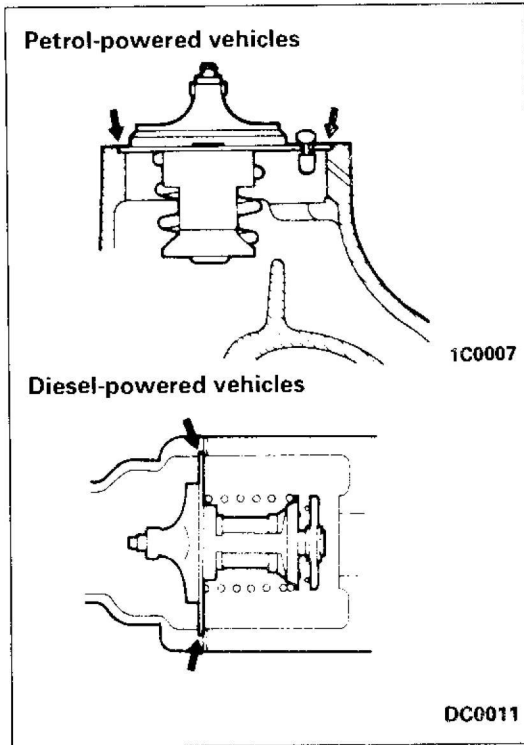
Measure valve height when fully closed. Calculate lift by measuring the height when fully open.

SERVICE POINTS OF INSTALLATION

7. INSTALLATION OF THERMOSTAT
 <Vehicles built up to May 1994>

Caution

1. Check to ensure that flange of thermostat is correctly seated in socket of thermostat housing. If thermostat is installed in wrong direction, bottom of thermostat will touch rib inside inlet manifold, making it impossible to seat flange in position.
2. Make sure that flange is not projecting from socket section.

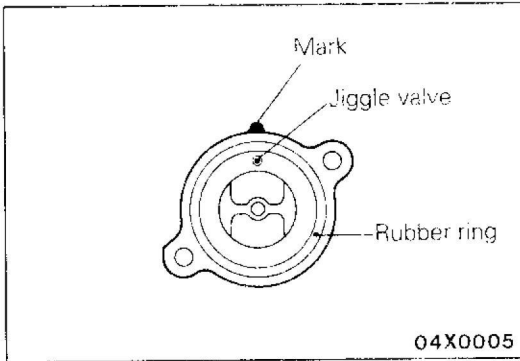


<Vehicles built from June 1994>

Install the thermostat so that the jiggle valve is facing straight up and is aligned with the mark on the thermostat case as shown in the illustration.

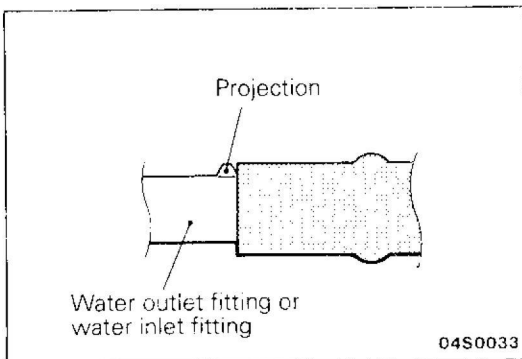
Caution

Make absolutely sure that no oil is adhering to the rubber ring of the thermostat. In addition, be careful not to fold over or scratch the rubber ring when inserting.

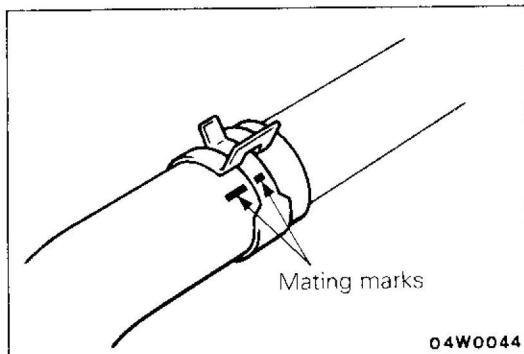


3. CONNECTION OF RADIATOR HOSE LOWER

- (1) Insert each hose as far as the projection of the water outlet fitting or water inlet fitting.



- (2) Align the mating marks on the radiator hose and hose clamp, and then connect the radiator hose.



WATER PUMP (PETROL-POWERED VEHICLES 4G32, 4G33)

E14MA---

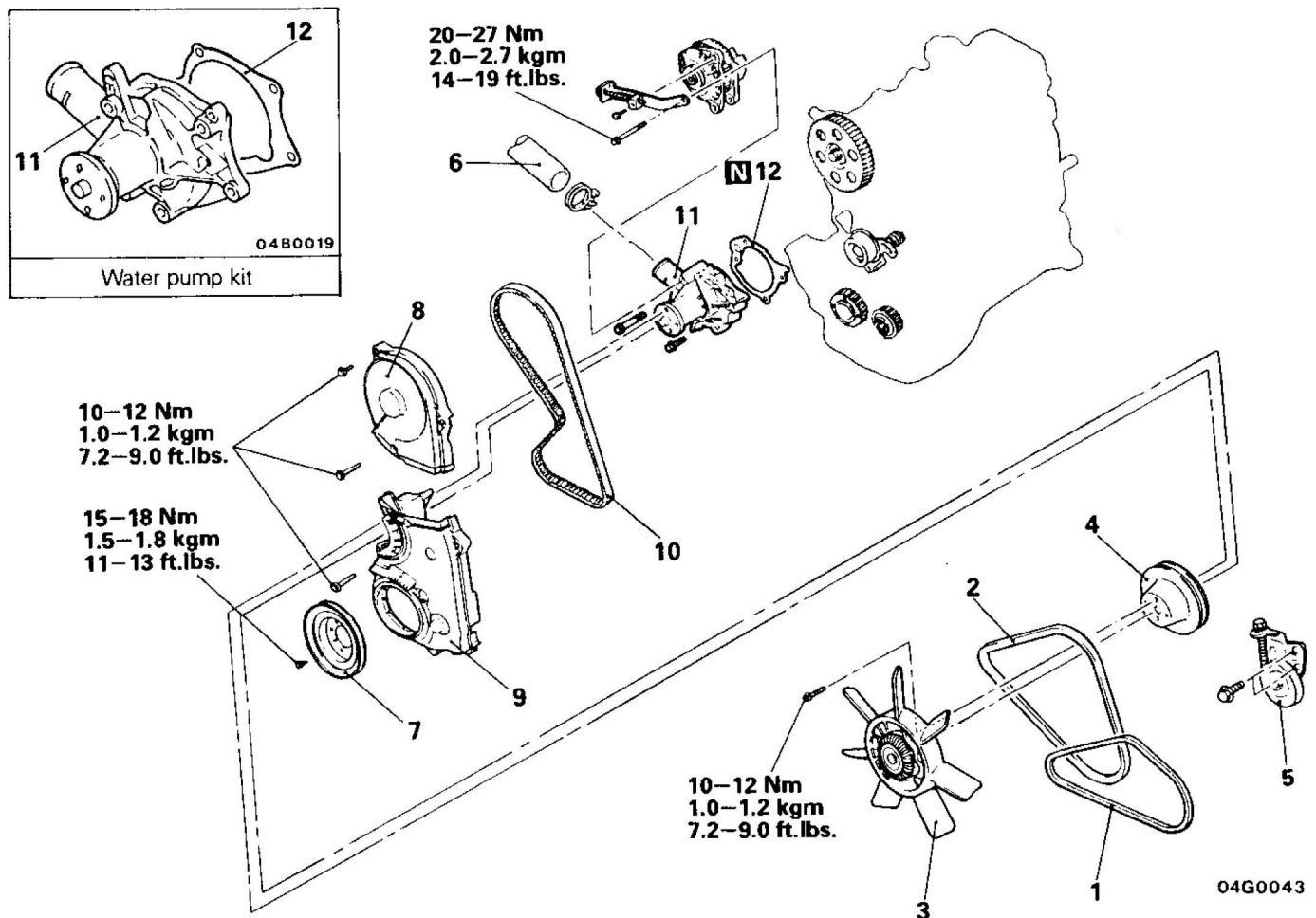
REMOVAL AND INSTALLATION

Pre-removal Operation

- Removal of driving seat
- Removal of seat underframe (Refer to GROUP 01 GENERAL—Engine Compartment Work.)
- Drainage of coolant
- Removal of radiator shroud (Refer to P.14-9.)

Post-installation Operation

- Installation of radiator shroud
- Supplying of coolant (Refer to P. 14-7.)
- Installation of seat underframe
- Installation of driving seat

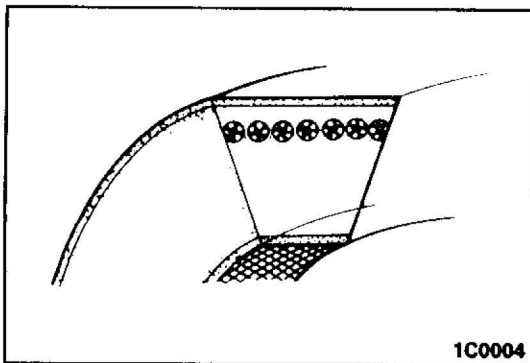


Removal steps

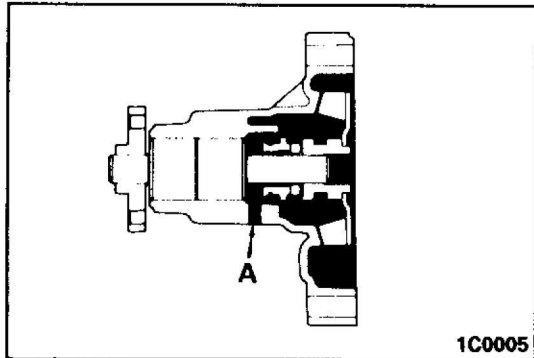
- ◆◆ 1. Air conditioner compressor V-belt (vehicles with an air conditioner)
- ◆◆ 2. Alternator V-belt
- 3. Cooling fan
- 4. Water pump pulley
- 5. Tension pulley bracket (vehicles with an air conditioner)
- 6. Radiator lower hose
- 7. Crank shaft pulley
- 8. Timing belt upper cover
- 9. Timing belt lower cover
- ◆◆◆◆ 10. Timing belt
- ◆◆◆ 11. Water pump
- ◆◆◆◆ 12. Water pump gasket

NOTE

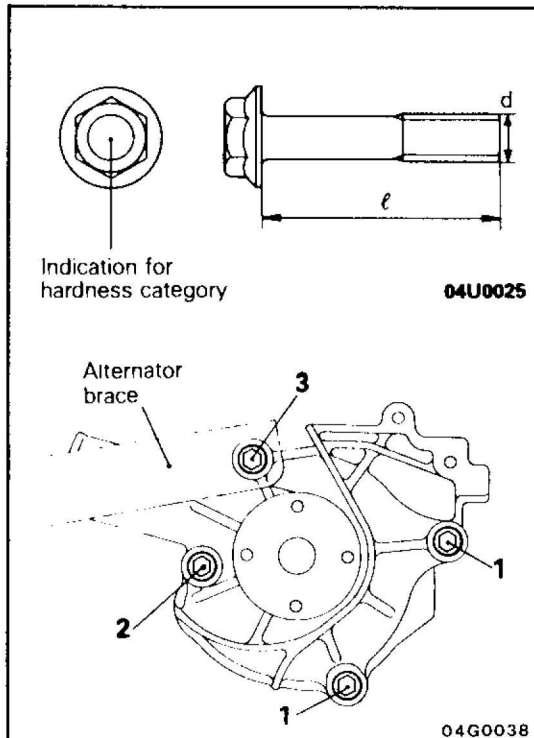
- (1) Reverse the removal procedures to reinstall.
- (2) ◆◆ : Refer to "Service Points of Removal".
- (3) ◆◆◆ : Refer to "Service Points of Installation".
- (4) N : Non-reusable parts



1C0004



1C0005



04U0025

04G0038

SERVICE POINTS OF REMOVAL

E14MBAD

10. REMOVAL OF TIMING BELT

Refer to GROUP 11 ENGINE—Timing Belt

INSPECTION

E14MCAC

BELT

- Check the surface for damage, peeling or cracks.
- Check the surface for presence of oil or grease.
- Check the rubber for wear or hardening.

WATER PUMP

- Check the each part for cracks, damage or wear, and replace the water pump assembly if necessary.
- Check the bearing for damage, abnormal noise and sluggish rotation, and replace the water pump assembly if necessary.
- Check the seal unit for leaks, and replace the water pump assembly if necessary.
- Check for water leakage. If water leaks from hole "A" seal unit is faulty. Replace as an assembly.

SERVICE POINTS OF INSTALLATION

E14MDAE

11. INSTALLATION OF WATER PUMP

Water pump installation bolt size are different and caution must be paid to ensure that they are properly installed.

No.	Hardness category (Head mark)	d × ℓ mm (in.)	Torque Nm (kgm, ft.lbs.)
1	4T	8×28 (0.31×1.10)	12–15 (1.2–1.5, 9–11)
2	4T	8×55 (0.31×2.17)	
3	7T	8×70 (0.31×2.76)	20–27 (2.0–2.7, 14–19)

10. INSTALLATION OF TIMING BELT

Refer to GROUP 11 ENGINE—Timing Belt

2. INSTALLATION OF ALTERNATOR V-BELT/1. AIR CONDITIONER COMPRESSOR V-BELT

Install V-belts. Check belt tension.

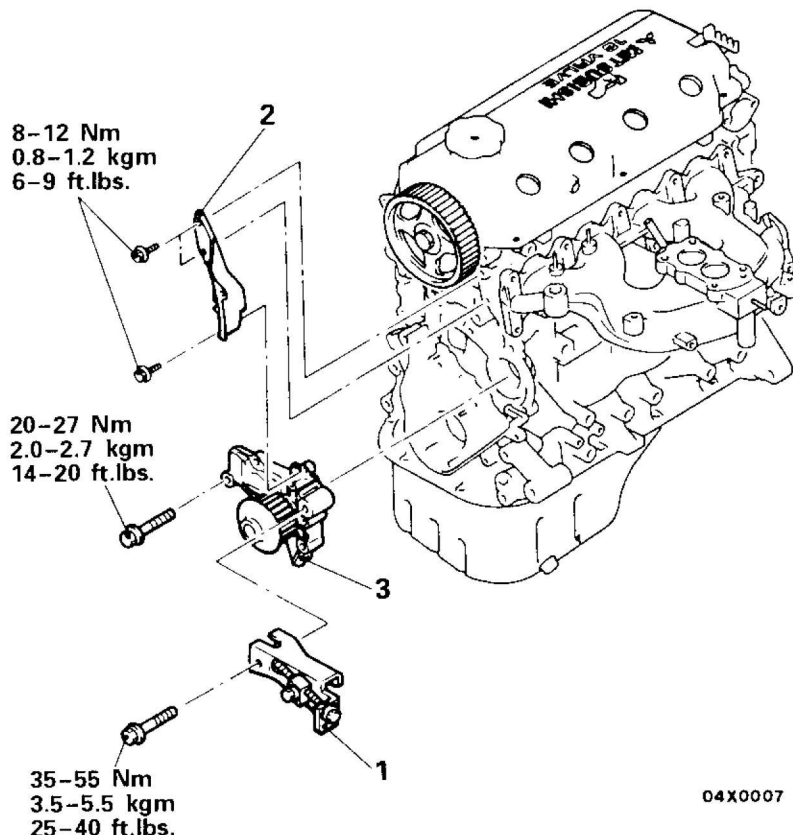
(Refer to GROUP 11 ENGINE—Service Adjustment Procedures.)

WATER PUMP (4G92)

REMOVAL AND INSTALLATION

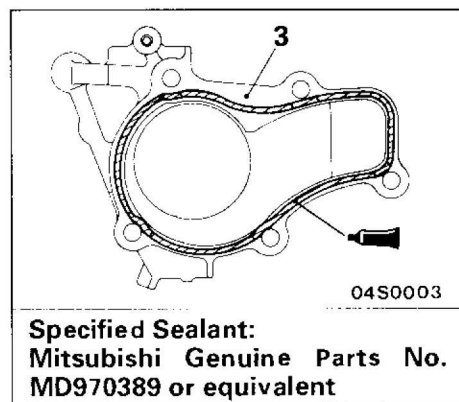
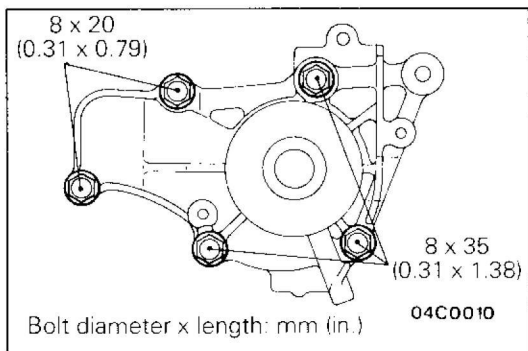
Pre-removal and Post-installation Operation

- Engine Coolant Draining and Supplying (Refer to P.14-7.)
- Timing Belt Removal and Installation (Refer to GROUP 11 – Timing Belt.)



Removal steps

1. Alternator brace
 2. Timing belt rear cover
 3. Water pump
- ◆◆



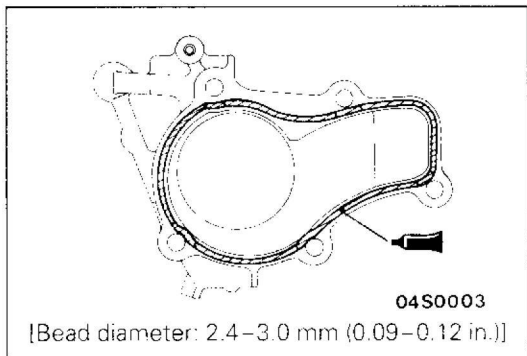
NOTE
(1) Reverse the removal procedures to reinstall.
(2) ◆◆ : Refer to "Service Points of Installation".

SERVICE POINTS OF INSTALLATION

3. INSTALLATION OF WATER PUMP

Squeeze out the sealant from the tube evenly and apply it so that there is not too much sealant and no places without sealant.

Specified Sealant: Mitsubishi Genuine Parts No. MD970389 or equivalent



WATER PUMP (PETROL-POWERED VEHICLES 4G63-8 VALVE, 4G64 – 8 VALVE, G63B, G64B)

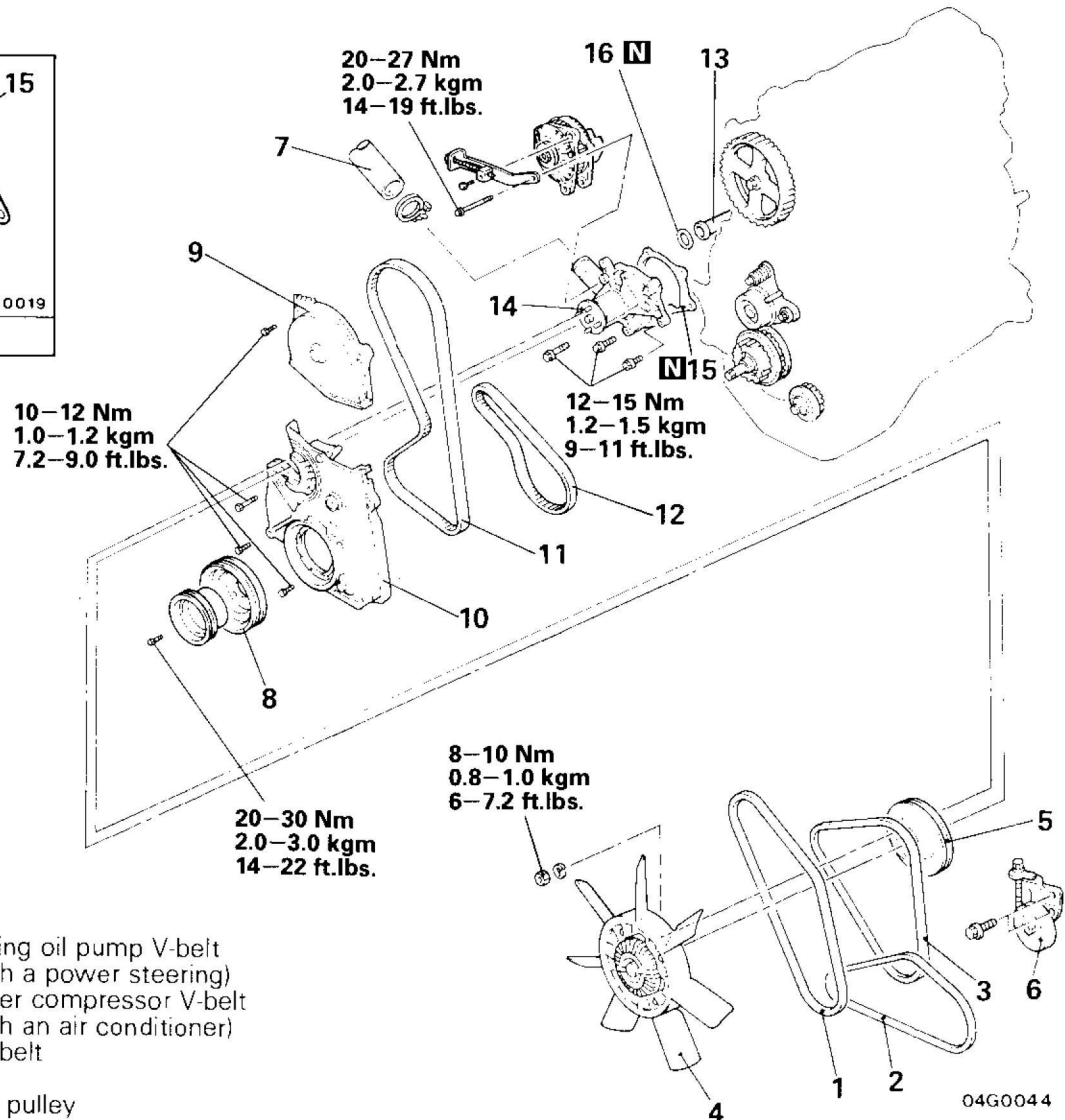
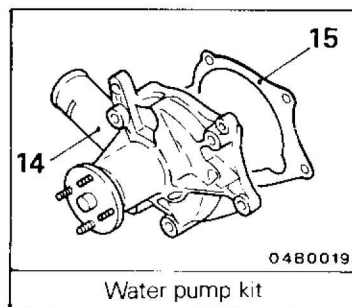
REMOVAL AND INSTALLATION

Pre-removal Operation

- Removal of driving seat
- Removal of seat underframe
Refer to GROUP 01 GENERAL—
Engine Compartment Work.)
- Drainage of coolant
- Removal of radiator cover or shroud
(Refer to P.14-9.)

Post-installation Operation

- Supplying of coolant
(Refer to P. 14-7.)
- Installation of radiator cover or shroud
(Refer to P. 14-9.)
- Installation of seat underframe
- Installation of driving seat

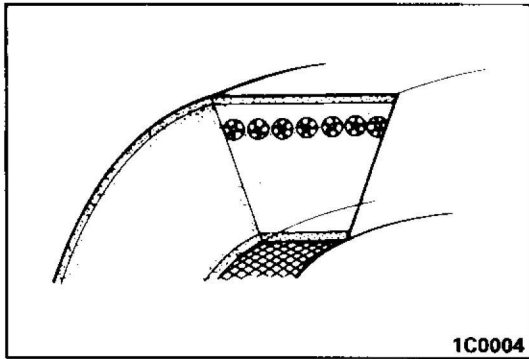


Removal steps

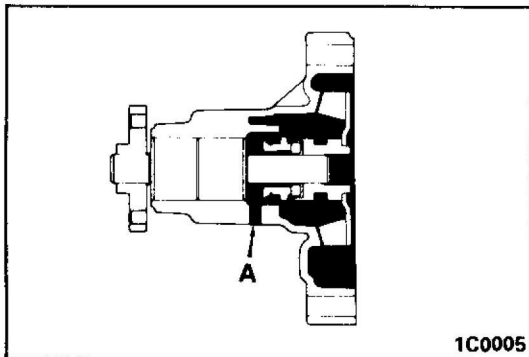
- ◆◆ 1. Power steering oil pump V-belt
(vehicles with a power steering)
- ◆◆ 2. Air conditioner compressor V-belt
(vehicles with an air conditioner)
- ◆◆ 3. Alternator V-belt
- 4. Cooling fan
- 5. Water pump pulley
- 6. Tension pulley
(vehicles with an air conditioner)
- 7. Radiator lower hose
- 8. Crankshaft pulley
- 9. Timing belt upper cover
- 10. Timing belt lower cover
- ◆◆◆◆ 11. Timing belt
- ◆◆◆◆ 12. Timing belt B
(vehicles for Europe and Australia)
- ◆◆ 13. Water pipe connection
- ◆◆ 14. Water pump
- ◆◆ 15. Water pump gasket
- ◆◆ 16. O-ring

NOTE

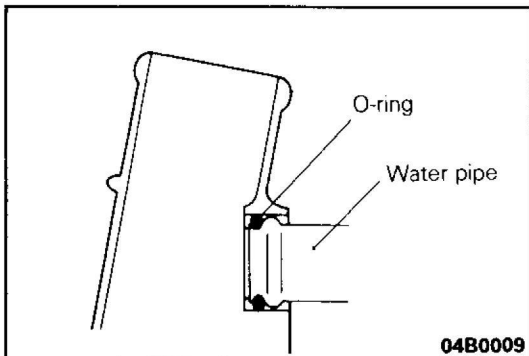
- (1) Reverse the removal procedures to reinstall.
- (2) ◆◆ : Refer to "Service Points of Removal".
- (3) ◆◆◆ : Refer to "Service Points of Installation".
- (4) [N] : Non-reusable parts



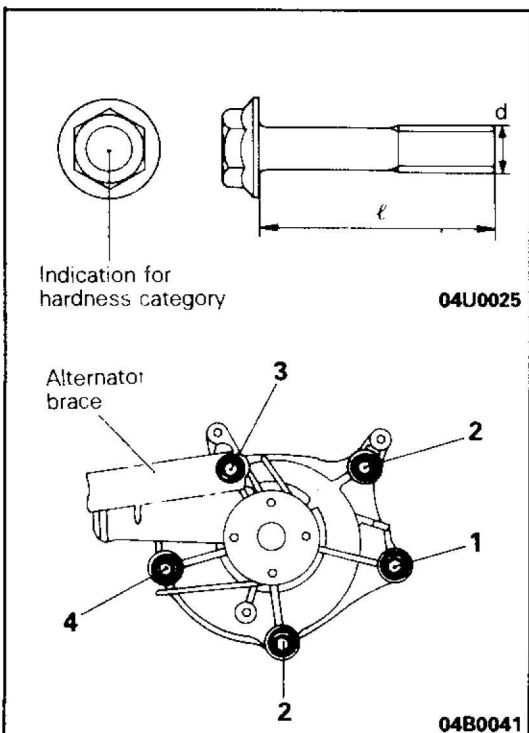
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04U0025

04B0041

SERVICE POINTS OF REMOVAL

E14MBAE

11. REMOVAL OF TIMING BELT/12. TIMING BELT B

Refer to GROUP 11 ENGINE—Timing Belt, Timing Belt B

INSPECTION

E14MCAC

BELT

- Check surface for damage, peeling or cracks.
- Check surface for presence of oil or grease.
- Check the rubber for wear or hardening.

WATER PUMP

- Check each part for cracks, damage or wear, and replace the water pump assembly if necessary.
- Check the bearing for damage, abnormal noise and sluggish rotation, and replace the water pump assembly if necessary.
- Check the seal unit for leaks, and replace the water pump assembly if necessary.
- Check for water leakage. If water leaks from hole "A" seal unit is faulty. Replace as an assembly.

SERVICE POINTS OF INSTALLATION

E14MDAF

16. INSTALLATION OF WATER PIPE O-RING

Fit water pipe O-ring in the groove provided at water pipe end, wet the periphery of water pipe O-ring and insert water pipe.

Caution

1. Do not apply oil and grease to water pipe O-ring.
2. Keep the water pipe connections free of sand, dust, etc.
3. Insert water pipe until its end bottoms.

14. INSTALLATION OF WATER PUMP

Water pump installation bolt size are different and caution must be paid to ensure that they are properly installed.

No.	Hardness category (Head mark)	d × ℓ mm (in.)	Torque Nm (kgm, ft.lbs.)
1	4T	8×20 (0.31×0.79)	12–15 (1.2–1.5, 9–11)
2	4T	8×30 (0.31×1.18)	12–15 (1.2–1.5, 9–11)
3	7T	8×65 (0.31×2.26)	20–27 (2.0–2.7, 14–19)
4	4T	8×40 (0.31×1.57)	12–15 (1.2–1.5, 9–11)

12. INSTALLATION OF TIMING BELT B/11. TIMING BELT

Refer to GROUP 11 ENGINE—Timing Belt, Timing Belt B.

3. INSTALLATION OF ALTERNATOR V-BELT/2. AIR CONDITIONER COMPRESSOR V-BELT/1. POWER STEERING OIL PUMP V-BELT

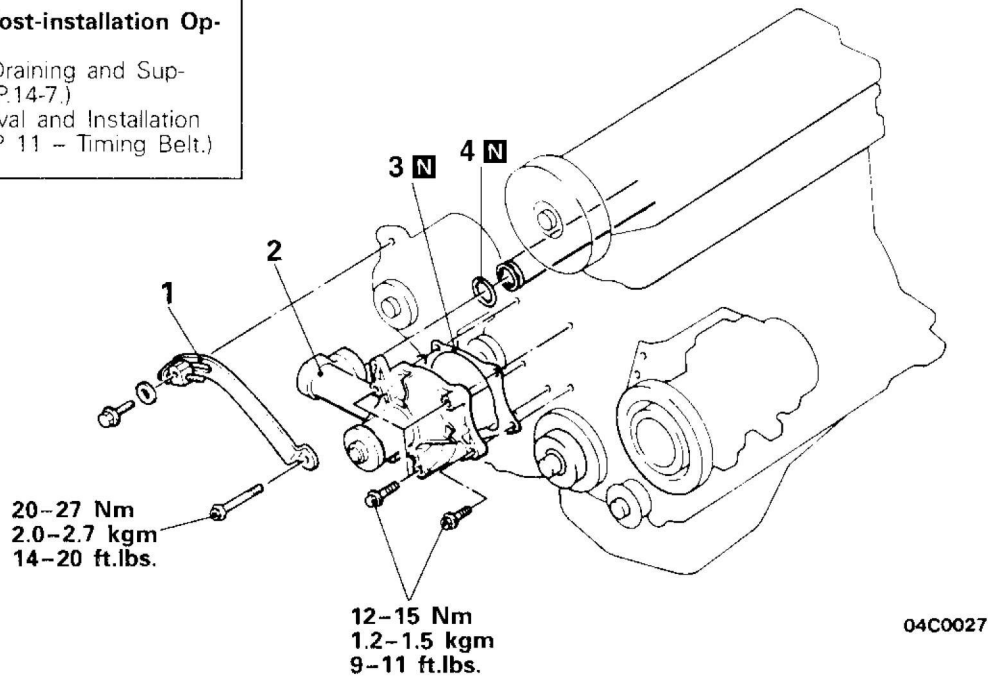
Install V-belt. Check belt tension. (Refer to GROUP 11 ENGINE—Service Adjustment Procedures.)

WATER PUMP (4G63, 4G64 – 16 VALVE)

REMOVAL AND INSTALLATION

Pre-removal and Post-installation Operation

- Engine Coolant Draining and Supplying (Refer to P.14-7.)
- Drive Belt Removal and Installation (Refer to GROUP 11 – Timing Belt.)

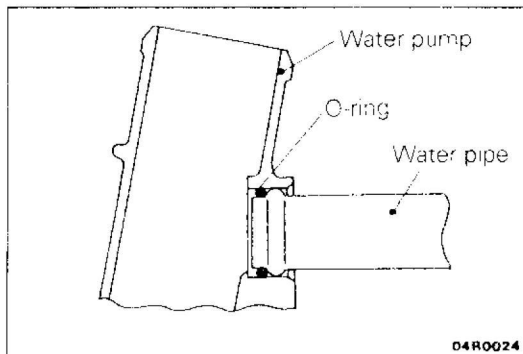
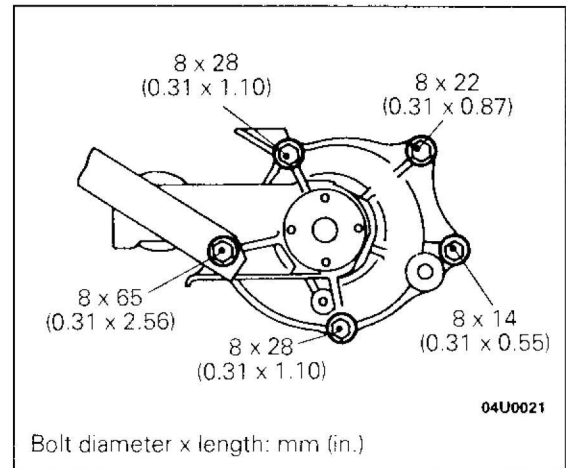


Removal steps

1. Alternator brace
2. Water pump
3. Water pump gasket
4. O-ring

NOTE

- (1) Reverse the removal procedures to reinstall.
- (2) ◆◆ : Refer to "Service Points of Installation".
- (3) N : Non-reusable parts



SERVICE POINTS OF INSTALLATION

4. INSTALLATION OF O-RING

Insert the O-ring to the water inlet pipe, and coat the outlet circumference of the O-ring with water. By coating with water, the insertion to the water pump will become easier.

Caution

1. Care must be taken not to permit engine oil or other greases to adhere to the O-ring.
2. When inserting the pipe, check to be sure that there is no sand, dirt, etc. on its inner surface.

WATER PUMP (DIESEL-POWERED VEHICLES)

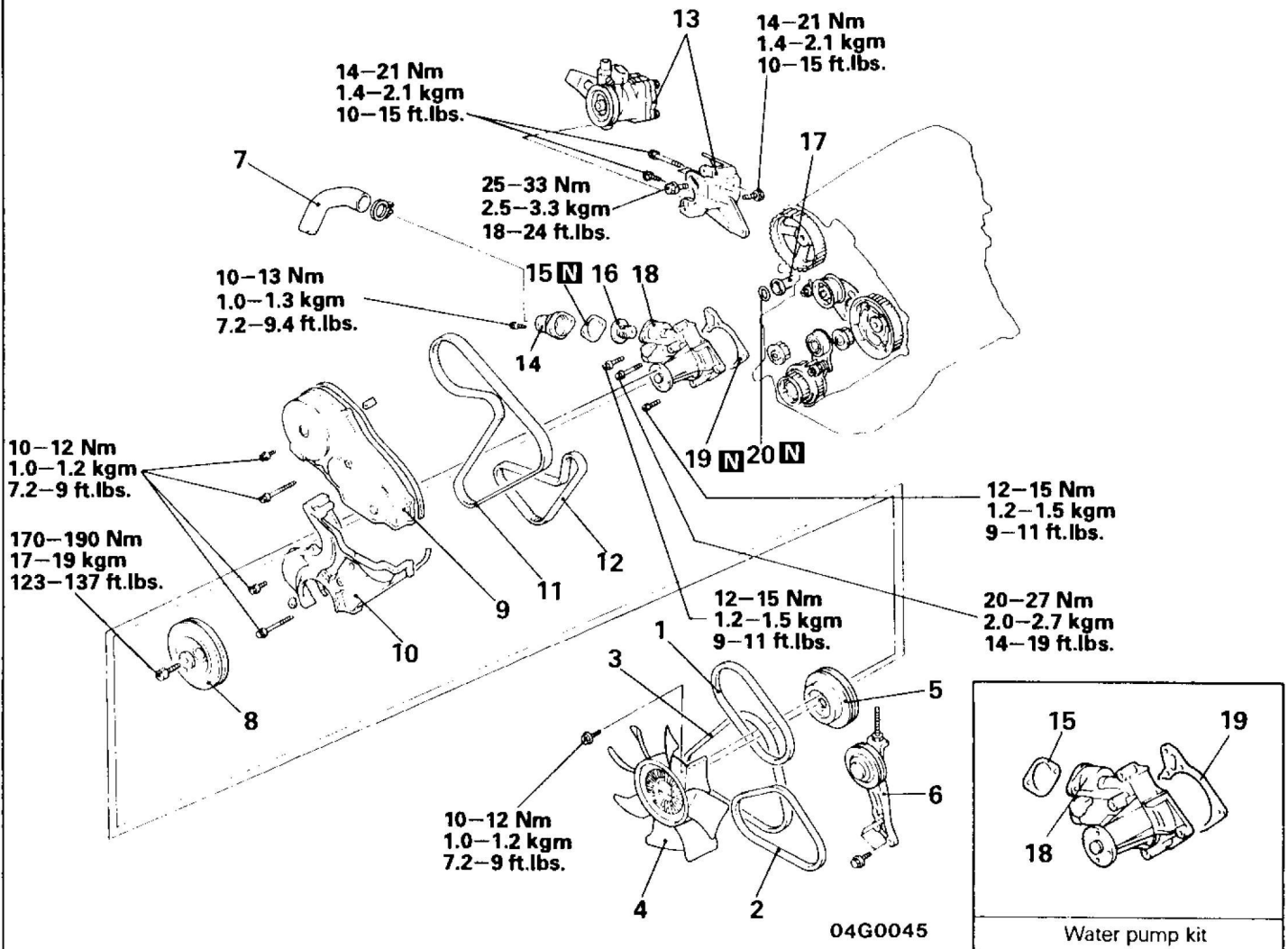
REMOVAL AND INSTALLATION

Pre-removal Operation

- Removal of driving seat
- Removal of seat underframe (Refer to GROUP 01 GENERAL—Engine Compartment Work.)
- Drainage of coolant
- Removal of radiator cover (Refer to P. 14-9.)

Post-installation Operation

- Supplying of coolant (Refer to P. 14-7.)
- Installation of radiator cover (Refer to P. 14-9.)
- Installation of seat underframe
- Installation of driving seat



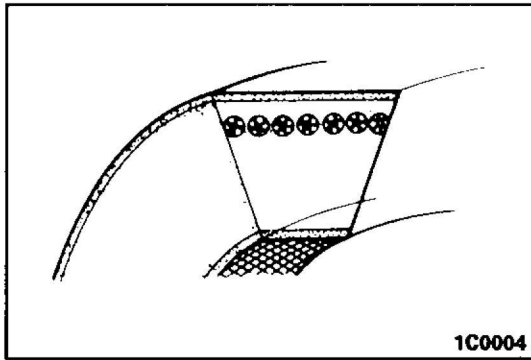
Removal steps

- ◆◆ 1. Power steering oil pump V-belt (vehicles with a power steering)
- ◆◆ 2. Air conditioner compressor V-belt (vehicles with an air conditioner)
- ◆◆ 3. Alternator V-belt
- 4. Cooling fan
- 5. Water pump pulley
- 6. Tension pulley bracket (vehicles with an air conditioner)
- 7. Radiator lower hose
- 8. Crankshaft pulley
- 9. Timing belt upper cover
- 10. Timing belt lower cover
- ◆◆◆◆ 11. Timing belt
- ◆◆◆◆ 12. Timing belt B

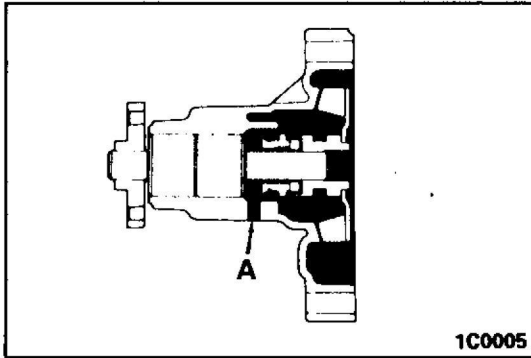
- ◆◆ 13. Power steering oil pump and bracket
- 14. Water pump fitting
- 15. Water pump fitting gasket
- 16. Thermostat
- 17. Water pipe connection
- ◆◆ 18. Water pump
- ◆◆ 19. Water pump gasket
- ◆◆ 20. Water pipe O-ring

NOTE

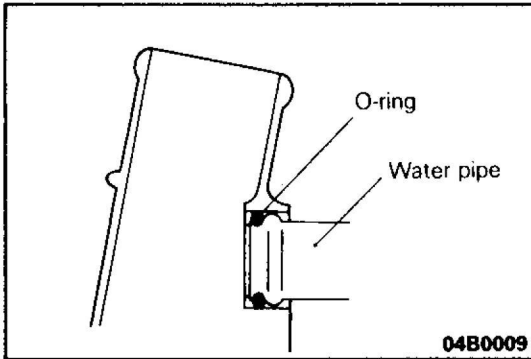
- (1) Reverse the removal procedures to reinstall.
- (2) ◆◆ : Refer to "Service Points of Removal".
- (3) ◆◆◆ : Refer to "Service Points of Installation".
- (4) N : Non-reusable parts



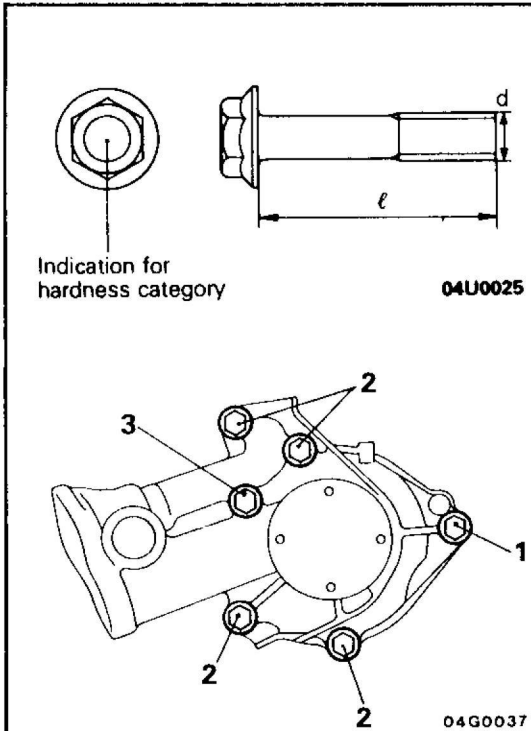
1C0004



1C0005



04B0009



04U0025

04G0037

SERVICE POINTS OF REMOVAL

E14MBAE

11. REMOVAL OF TIMING BELT/12. TIMING BELT B

Refer to GROUP 11 ENGINE—Timing Belt, Timing Belt B

INSPECTION

E14MCAC

BELT

- Check the surface for damage, peeling or cracks.
- Check the surface for presence of oil or grease.
- Check the rubber for wear or hardening.

WATER PUMP

- Check each part for cracks, damage or wear, and replace the water pump assembly if necessary.
- Check the bearing for damage, abnormal noise and sluggish rotation, and replace the water pump assembly if necessary.
- Check the seal unit for leaks, and replace the water pump assembly if necessary.
- Check for water leakage. If water leaks from hole "A" seal unit is defective. Replace as an assembly.

SERVICE POINTS OF INSTALLATION

E14MDAG

20. INSTALLATION OF WATER PIPE O-RING

Fit water pipe O-ring in the groove provided at water pipe end, wet the periphery of water pipe O-ring and insert water pipe.

Caution

1. Do not apply oil and grease to water pipe O-ring.
2. Keep the water pipe connections free of sand, dust, etc.
3. Insert water pipe until its end bottoms.

18. INSTALLATION OF WATER PUMP

Water pump installation bolt size are different and caution must be paid to ensure that they are properly installed.

No.	Hardness category (Head mark)	d x ℓ mm (in.)	Torque Nm (kgm, ft.lbs.)
1	4T	8×25 (0.31×0.98)	12–15 (1.2–1.5 9–11)
2	4T	8×40 (0.31×1.57)	20–27 (2.0–2.7 14–19)
3	7T	8×70 (0.31×2.76)	20–27 (2.0–2.7 14–19)

13. INSTALLATION OF POWER STEERING OIL PUMP AND BRACKET

Refer to GROUP 37 STEERING—Power Steering Oil Pump.

12. INSTALLATION OF TIMING BELT B/11. TIMING BELT

Refer to GROUP 11 ENGINE—Timing Belt, Timing Belt B.

3. INSTALLATION OF ALTERNATOR V-BELT/2. AIR CONDITIONER COMPRESSOR V-BELT/1. POWER STEERING OIL PUMP V-BELT

Install V-belts. Check belt tension.

(Refer to GROUP 11 ENGINE—Service Adjustment Procedures.)

WATER HOSE AND WATER PIPE

REMOVAL AND INSTALLATION

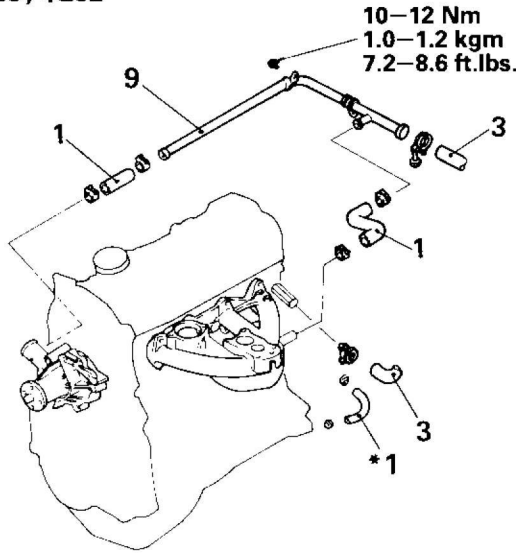
Pre-removal Operation

- Drainage of coolant
- Removal of driving seat
- Removal of seat underframe
(Refer to GROUP 01 GENERAL—Engine Compartment Work.)

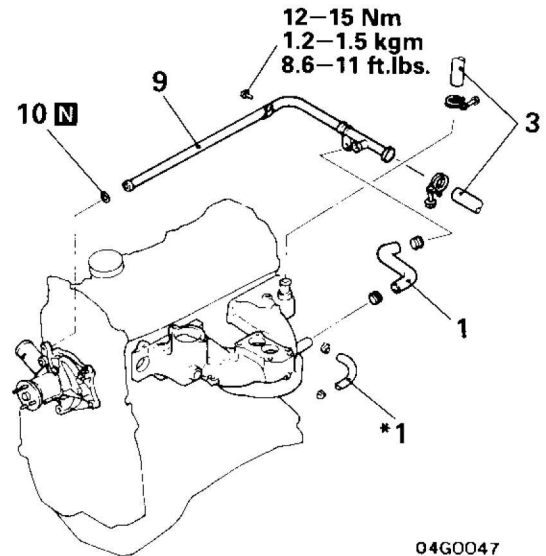
Post-installation Operation

- Supplying of coolant
(Refer to P. 14-7.)
- Installation of driving seat
- Installation of seat underframe

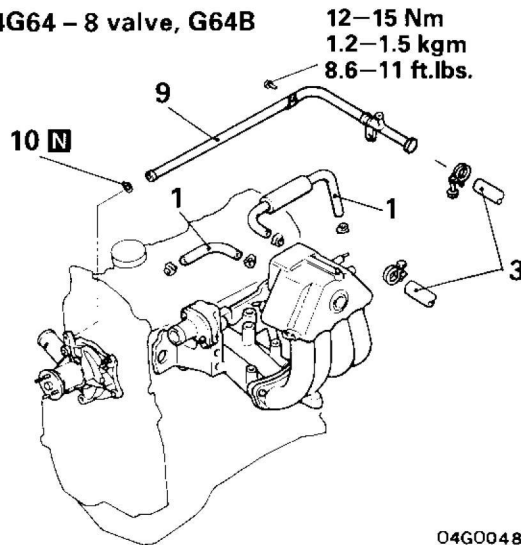
4G33, 4G32



4G63 – 8 valve, G63B

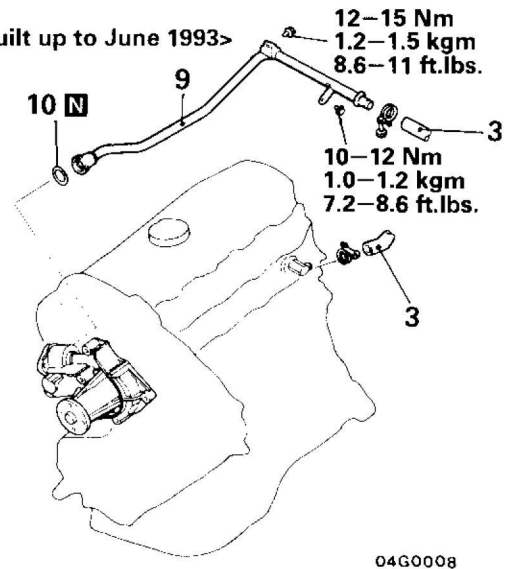


4G64 – 8 valve, G64B



4D56

<Vehicles built up to June 1993>



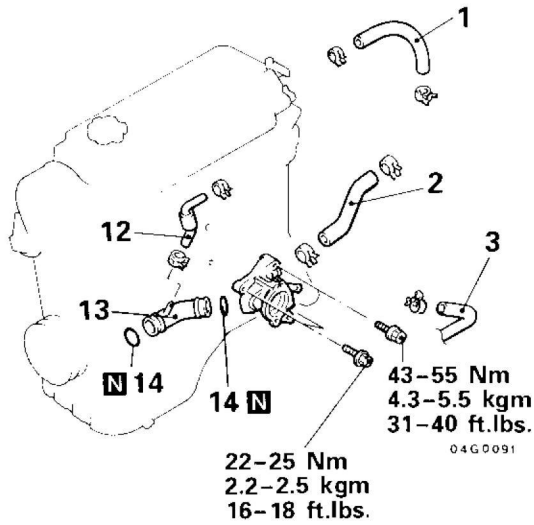
Removal steps

1. Water hose
3. Heater hose
9. Water pipe assembly
- ◆◆ 10. O-ring

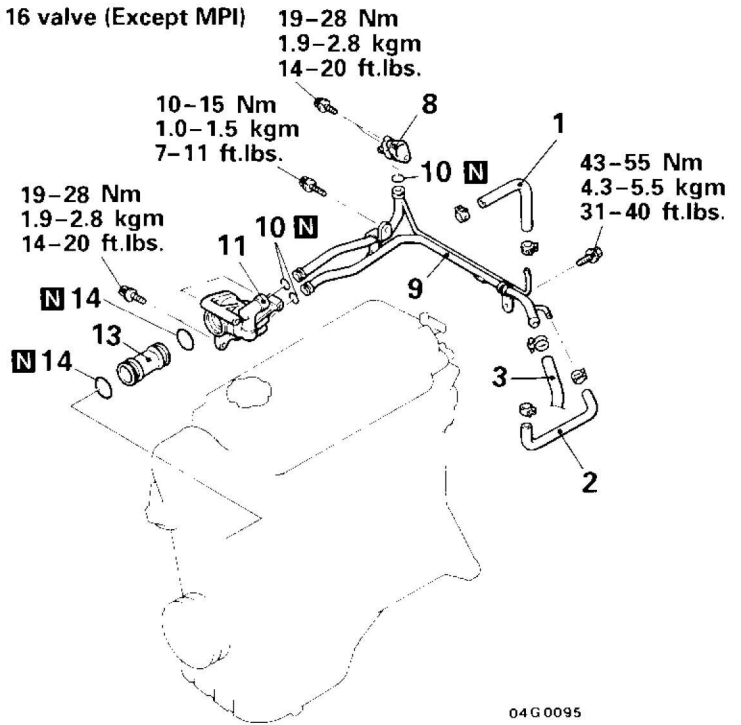
NOTE

- (1) Reverse the removal procedures to reinstall.
- (2) ◆◆ : Refer to "Service Points of Installation".
- (3) [N] : Non-reusable parts
- (4) * indicates vehicles for Europe and Australia.

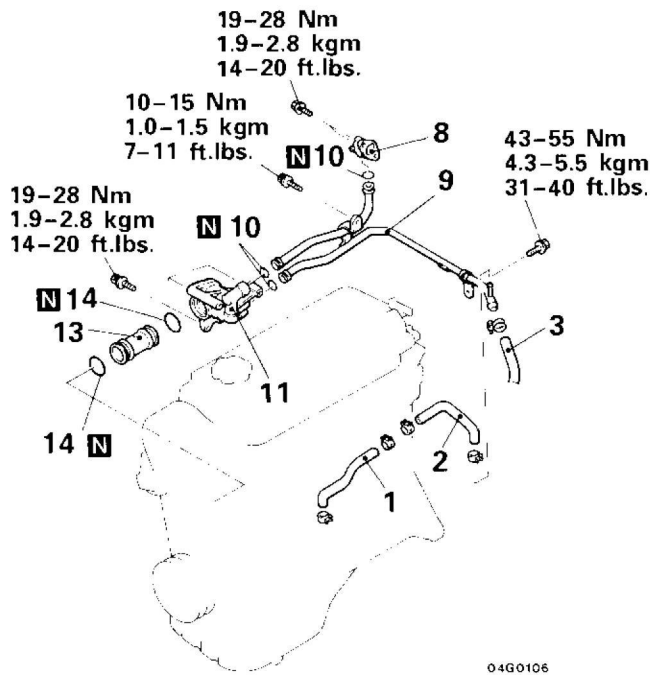
4G92



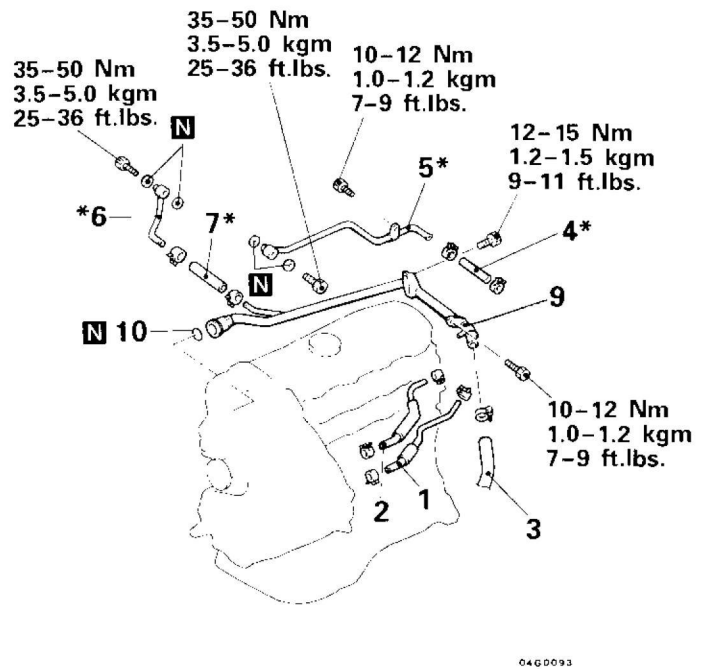
4G63 – 16 valve (Except MPI)



4G63, 4G64 – 16 valve (MPI)



4D56 <Vehicles built from July 1993>



Removal steps

1. Water hose
2. Water hose
3. Heater hose
4. Water hose
5. Water pipe assembly (B)
6. Water pipe assembly (A)
7. Water hose
- ◆◆ 8. Water by-pass fitting

9. Water pipe assembly
- ◆◆ 10. O-ring
11. Thermostat case assembly
12. Water hose
13. Water inlet pipe
- ◆◆ 14. O-ring

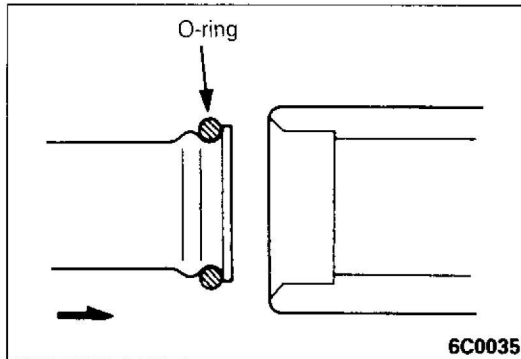
NOTE

* : Vehicles with turbocharger.

INSPECTION

E14TCA13

- Check the water pipe for cracks, damage or clogging.
- Check the water hose for crack, damage, wear or clogging.

**SERVICE POINTS OF INSTALLATION**

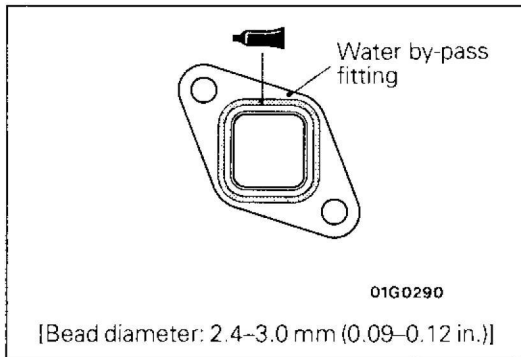
E14TDAB

14./10 INSTALLATION OF O-RING

Replace O-ring on water inlet pipe front end. Wet O-ring for easy insertion into water pump.

Caution

Do not apply grease (engine oil or other) on O-ring.

**8. INSTALLATION OF WATER BY-PASS FITTING**

- (1) Use a gasket scraper or wire brush to clean all foreign materials from the surface of the gasket.
- (2) Apply an even amount of specified sealant to the surface of the gasket.

Specified sealant:

**Mitsubishi Genuine Parts No.
MD970389 or equivalent**

- (3) Before the sealant has dried (within 15 minutes), install the water bypass fitting.

ENGINE COOLANT TEMPERATURE GAUGE UNIT, THERMO SWITCH AND ENGINE COOLANT TEMPERATURE SENSOR

REMOVAL AND INSTALLATION

E14UA--

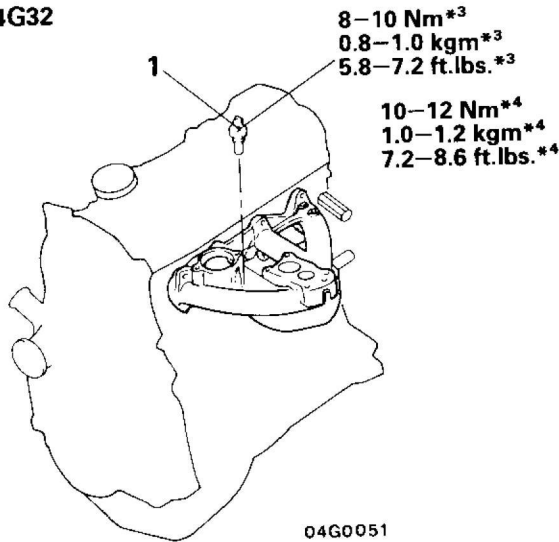
Pre-removal Operation

- Drainage of coolant
- Removal of driving seat and seat underframe (L.H.D.) (Refer to GROUP 01—Engine Compartment Work.)

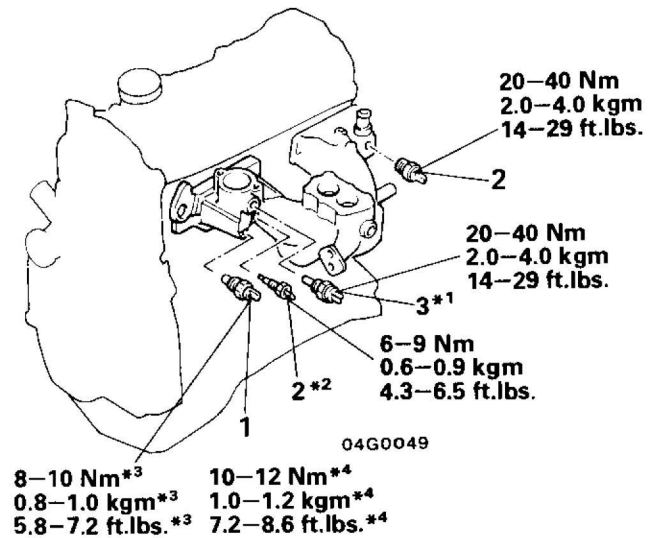
Post-installation Operation

- Supplying of coolant (Refer to P. 14-7.)
- Installation of driving seat and seat underframe (L.H.D.)

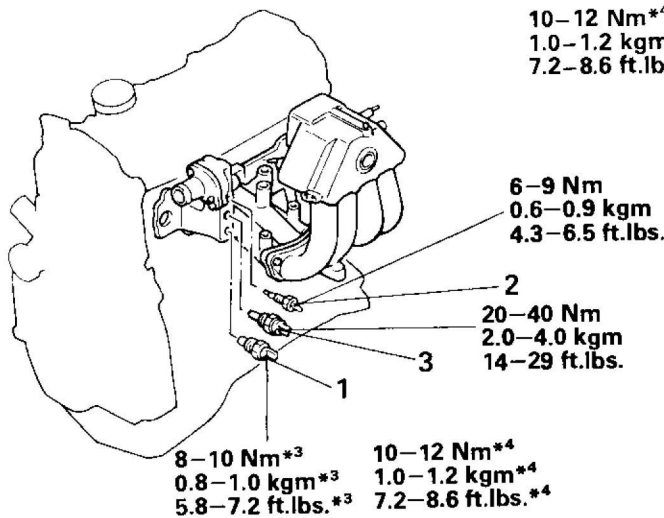
4G33, 4G32



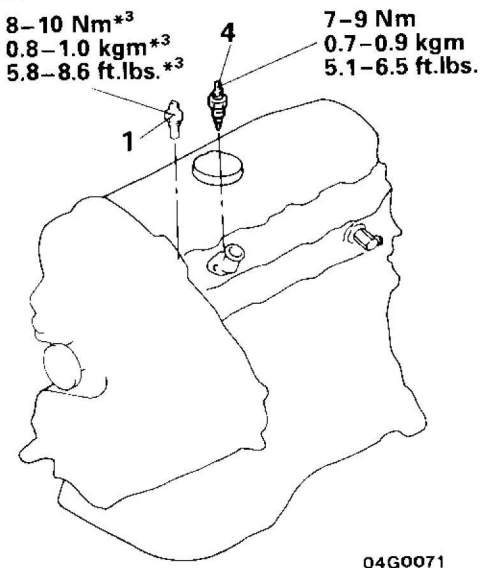
4G63 - 8 valve, G63B



4G64 - 8 valve, G64B



4D56



- ◆◆1. Engine coolant temperature gauge unit
- ◆◆2. Thermo switch (only for Europe 4G63 and automatic transmission equipped vehicles for Australia)
- ◆◆3. Engine coolant temperature sensor
- ◆◆4. Thermo switch <4WD>

NOTE

- (1) ◆◆: Refer to "Service Points of Installation".
- (2) *1 indicates for G63B.
- (3) *2 indicates vehicles with automatic transmission.
- (4) *3 indicates vehicles built up to September 1987.
- (5) *4 indicates vehicles built from October 1987.

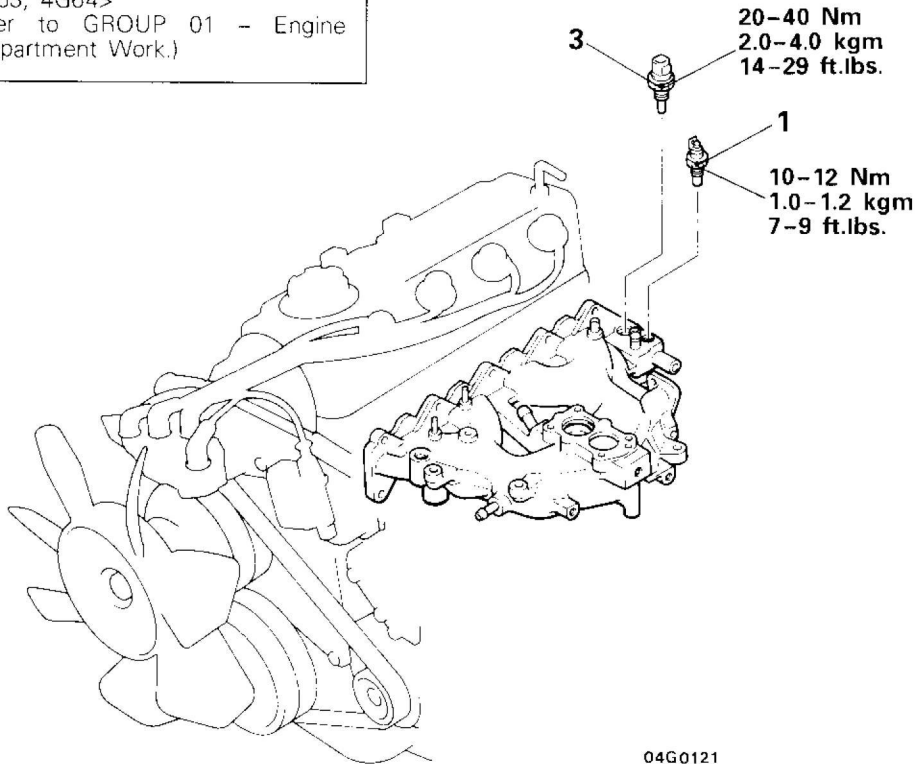
Pre-removal Operation

- Drainage of coolant
 - Removal of driving seat and seat underframe (L.H.D.)
 - Removal of driving seat and seat underframe (R.H.D.)
- <4G63, 4G64>
(Refer to GROUP 01 – Engine Compartment Work.)

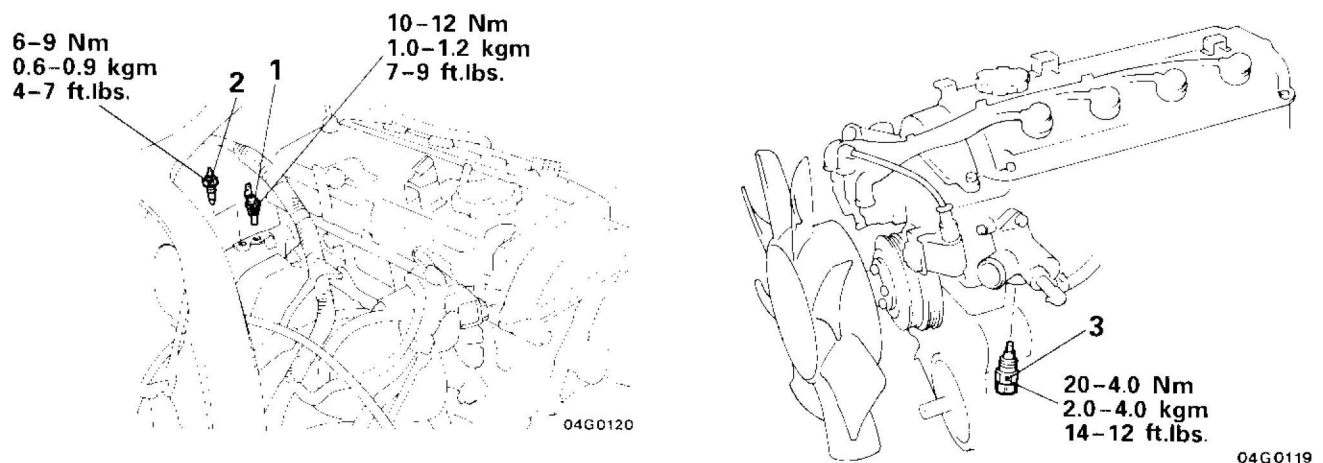
Post-installation Operation

- Supplying of coolant
(Refer to P. 14-7.)
- Installation of driving seat and seat underframe

4G92



4G63, 4G64 – 16 valve

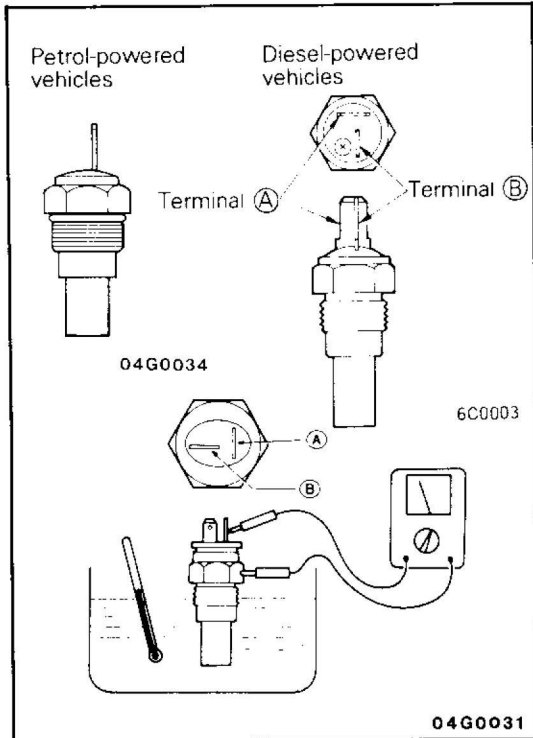


- ◆◆ 1. Engine coolant temperature gauge unit
- ◆◆ 2. Thermo switch <Vehicles with automatic transmission>
- ◆◆ 3. Engine coolant temperature sensor
<Except vehicles with conventional carburetor>

NOTE

(1) ◆◆ : Refer to "Service Points of Installation".

E14UCAAA



INSPECTION

ENGINE COOLANT TEMPERATURE GAUGE UNIT AND ENGINE COOLANT TEMPERATURE SENSOR

Raise the water temperature and measure the resistance if within the standard value.

Engine coolant temperature gauge unit

Standard value

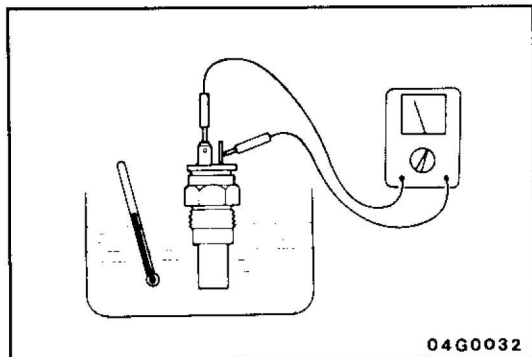
Petrol-powered vehicles
 $104 \pm 13.5 \Omega$ [at 70°C (158°F)]

Diesel-powered vehicles
Terminal A
 $104 \pm 13.5 \Omega$ [at 70°C (158°F)]

Terminal B
 $3.25 \pm 0.33 \text{ k}\Omega$ [at 20°C (68°F)]
 300Ω [at 80°C (176°F)]

NOTE

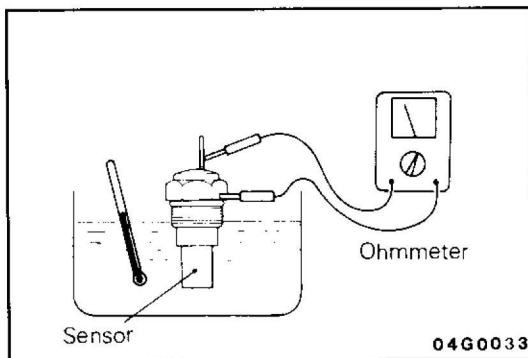
Terminal A is for engine coolant temperature gauge. Terminal B is for glow control.



Engine coolant temperature sensor

Standard value

<Vehicles built up to May 1994>
 $2.45 \pm 0.24 \text{ k}\Omega$ [at 20°C (68°F)]
 $296 \pm 32 \Omega$ [at 80°C (176°F)]
 <Vehicles built from May 1994>
 $2.37 \pm 0.24 \text{ k}\Omega$ [at 20°C (68°F)]
 $290 \pm 32 \Omega$ [at 80°C (176°F)]

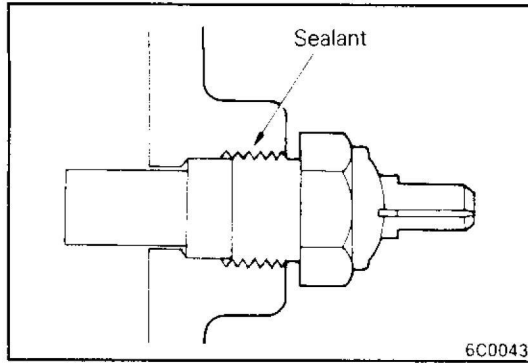


THERMO SWITCH

Raise water temperature and check continuity when it reaches the specified temperature.

Standard value

4G63 for Europe
 65°C (149°F) or more **No continuity**
 65°C (149°F) dimmer **Continuity**
Vehicles with automatic transmission
 50°C (122°F) or more **Continuity**
 50°C (122°F) dimmer **No continuity**
Diesel powered vehicles <4WD>
 115°C (239°F) or more **Continuity**
 115°C (239°F) dimmer **No continuity**



SERVICE POINTS OF INSTALLATION

E14UDAAa

4. INSTALLATION OF THERMO SWITCH/3. ENGINE COOLANT TEMPERATURE SENSOR/2. THERMO SWITCH/1. ENGINE COOLANT TEMPERATURE GAUGE UNIT

Specified sealant

Thermo switch, Engine coolant temperature sensor, Engine coolant temperature gauge unit (Diesel-powered vehicles)

3M Nut Locking Part No.4171 or equivalent

Engine coolant temperature gauge unit (Petrol-powered vehicles)

3M ATD Part No.8660 or equivalent