

COOLING

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SPECIFICATIONS

GENERAL SPECIFICATIONS

Items	Specifications
Cooling method	Liquid-cooled pressurized, forced circulation
Radiator	
Type	Pressurized corrugated fin type
Performance J/h (kcal/h, BTU/h)	
<4G13, 4G15, 4G16>	
A/T	145,256 x 10 ³ (34,700, 137,698)
M/T	111,768 x 10 ³ (26,700, 105,952)
<4G37>	153,209 x 10 ³ (36,600, 145,238)
<4G61, 4G67, 4G93, 4D68>	
Vehicles for Europe and Gulf Countries, Australia	192,977 x 10 ³ (46,100, 182,936)
Vehicles for General Export	153,209 x 10 ³ (36,600, 145,238)
<4G92>	
A/T	192,977 x 10 ³ (46,100, 182,936)
M/T	153,209 x 10 ³ (36,600, 145,238)
4WD	145,256 x 10 ³ (34,700, 137,698)
<4D65>	
Taxi	176,232 x 10 ³ (42,100, 167,063)
Except Taxi	192,977 x 10 ³ (46,100, 182,936)
Radiator cap	
High pressure valve opening pressure kPa (kg/cm ² , psi)	75 – 105 (0.75 – 1.05, 11 – 15)
Vacuum valve opening pressure kPa (kg/cm ² , psi)	–5 (–0.05, –0.7) or less
Automatic transmission oil cooler (Vehicles with A/T)	
Performance J/h (kcal/h, BTU/h)	5,233 x 10 ³ (1,250, 4,960)
Thermostat	
Type	Wax pellet type with jiggle valve
Water pump	
Type	Impeller of centrifugal type
Engine oil cooler	
Performance J/h (kcal/h, BTU/h)	10,883 x 10 ³ (2,600, 10,317)

SERVICE SPECIFICATIONS

E14CB-

Items	Specifications
Standard value	
Range of engine coolant antifreeze concentration %	30 – 60
Thermostat	
Vehicles for Europe	
<4G61, 4G67, 4D65>	
Valve opening temperature of thermostat °C (°F)	82 (180)
Full-opening temperature of thermostat °C (°F)	95 (203) or more
<4G13, 4G15, 4G16, 4G37, 4G61, 4G67 for cold weather regions>	
Valve opening temperature of thermostat °C (°F)	88 (190)
Full-opening temperature of thermostat °C (°F)	100 (212) or more
<4G92, 4G93, 4D68>	
Valve opening temperature of thermostat °C (°F)	76.5 (170)
Full-opening temperature of thermostat °C (°F)	90 (194) or more
Vehicles for General Export	
<4G13, 4G15, 4G61, 4D65>	
Valve opening temperature of thermostat °C (°F)	82 (180)
Full-opening temperature of thermostat °C (°F)	95 (203) or more
<4G15-MPI, 4G13 and 4G15 for cold weather regions>	
Valve opening temperature of thermostat °C (°F)	88 (190)
Full-opening temperature of thermostat °C (°F)	100 (212) or more
<4G92>	
Valve opening temperature of thermostat °C (°F)	76.5 (170)
Full-opening temperature of thermostat °C (°F)	90 (194) or more
Vehicles for Australia	
<4G15, 4G61>	
Valve opening temperature of thermostat °C (°F)	82 (180)
Full-opening temperature of thermostat °C (°F)	95 (203) or more
<4G92>	
Valve opening temperature of thermostat °C (°F)	76.5 (170)
Full-opening temperature of thermostat °C (°F)	90 (194) or more
Engine coolant temperature gauge unit	
Resistance	
<4G13, 4G15, 4G16, 4G37, 4G61, 4G67, 4G92, 4G93> [at 70°C (158°F)] Ω	104 ± 13.5
<4D65, 4D68>	
Element I [at 70°C (158°F)] Ω	104 ± 13.5
Element II [at 20°C (68°F)] kΩ	3.25 ± 0.33

Items	Specifications
Engine coolant temperature sensor	
Resistance	
Vehicles built up to May 1992	
At 20°C (68°F) kΩ	2.45 ± 0.24
At 80°C (176°F) Ω	296 ± 32
Vehicles built from June 1992	
<4G13 – MPI>	
At 20 °C (68°F) kΩ	2.37 ± 0.24
At 80°C (175°F) Ω	290 ± 32
<4G92, 4G93>	
At 20°C (68°F) kΩ	2.45 ± 0.14
At 110°C (230°F) Ω	1471 ± 2
Engine coolant temperature switch	
Continuity temperature °C (°F)	Less than 70 (158)

TORQUE SPECIFICATIONS

E14CC-

Items	Nm	kgm	ft.lbs.
Thermostat			
Water outlet fitting bolt	17 – 20	1.7 – 2.0	12 – 14
Water pump			
Water pump installation bolt			
Bolt head mark "4T"	12 – 15	1.2 – 1.5	9 – 11
Bolt head mark "7T"	20 – 27	2.0 – 2.7	14 – 20
Alternator adjusting bolt	8 – 12	0.8 – 1.2	6 – 9
Alternator brace <4G92, 4G93>	20 – 25 39 – 60	2.0 – 2.5 3.9 – 6.0	14 – 18 28 – 43
Alternator brace (Other model)	12 – 15	1.2 – 1.5	9 – 11
Timing belt idler installation bolt	43 – 55	4.3 – 5.5	31 – 40
Timing belt tensioner installation bolt	20 – 27	2.0 – 2.7	14 – 20
Power steering oil pump bracket installation bolt	25 – 33	2.5 – 3.3	18 – 24
Timing belt cover rear left installation bolt	8 – 12	0.8 – 1.2	6 – 9
Rocker cover installation bolt	5 – 7	0.5 – 0.7	4 – 5
Grow plug installation nut	1.0 – 1.5	0.10 – 0.15	0.7 – 1.0
Water pipe and hose <Petrol-powered vehicles> <SOHC-carburettor>			
Air cleaner installation bolt	8 – 10	0.8 – 1.0	6 – 7
Air cleaner installation nut	16 – 19	1.6 – 1.9	12 – 14
Exhaust manifold cover (A) to exhaust manifold	27 – 33	2.7 – 3.3	20 – 24
Exhaust manifold	15 – 20	1.5 – 2.0	11 – 14
Air pipe to exhaust manifold	70 – 100	7.0 – 10	51 – 72
Air pipe to reed valve	50 – 60	5.0 – 6.0	36 – 43
Air pipe to engine	10 – 14	1.0 – 1.4	7 – 10
Exhaust manifold cover (A) to exhaust manifold cover (B)	8 – 10	0.8 – 1.0	6 – 7
Exhaust manifold cover (B) to exhaust manifold	27 – 33	2.7 – 3.3	20 – 24
Front exhaust pipe to exhaust manifold	30 – 40	3.0 – 4.0	22 – 29
Front exhaust pipe to engine	20 – 30	2.0 – 3.0	14 – 22
Heat cowl	27 – 33	2.7 – 3.3	20 – 24
Water inlet pipe mounting bolt			
Bolt which secures the transmission also	43 – 55	4.3 – 5.5	31 – 40
Bolt which secures the water inlet pipe to cylinder block	12 – 15	1.2 – 1.5	9 – 11
Water pipe and hose <Petrol-powered vehicles> <SOHC-MPI>			
Exhaust manifold cover (A) to exhaust manifold	27 – 33	2.7 – 3.3	20 – 24
Exhaust manifold	15 – 20	1.5 – 2.0	11 – 14
Exhaust manifold cover (A) to exhaust manifold cover (B)	8 – 10	0.8 – 1.0	6 – 7
Exhaust manifold cover (B) to exhaust manifold	27 – 33	2.7 – 3.3	20 – 24
Front exhaust pipe to exhaust manifold	30 – 40	3.0 – 4.0	22 – 29
Front exhaust pipe to engine	20 – 30	2.0 – 3.0	14 – 22
Thermostat case installation bolt	22 – 25	2.2 – 2.5	16 – 18
Water inlet pipe mounting bolt			
Bolt which secures the transmission also	43 – 55	4.3 – 5.5	31 – 40
Bolt which secures the water inlet pipe to cylinder block	12 – 15	1.2 – 1.5	9 – 11

Items	Nm	kgm	ft.lbs.
Water pipe and hose <Petrol-powered vehicles>			
<DOHC>			
Heat protector (A)	12 – 15	1.2 – 1.5	9 – 11
Heat protector (B)	12 – 15	1.2 – 1.5	9 – 11
Exhaust manifold	25 – 30	2.5 – 3.0	18 – 22
Engine hanger to engine	12 – 15	1.2 – 1.5	9 – 11
Front exhaust pipe to exhaust manifold	30 – 40	3.0 – 4.0	22 – 29
Front exhaust pipe to engine	20 – 30	2.0 – 3.0	14 – 22
Thermostat case installation bolt	22 – 25	2.2 – 2.5	16 – 18
Water inlet pipe mounting bolt			
Bolt which secures the transmission also	43 – 55	4.3 – 5.5	31 – 40
Bolt which secures the water inlet pipe to cylinder block	12 – 15	1.2 – 1.5	9 – 11
Water pipe and hose <Diesel-powered vehicles>			
Water inlet pipe mounting bolt			
Bolt which secures the transmission also	43 – 55	4.3 – 5.5	31 – 40
Bolt which secures the water inlet pipe to cylinder block <4D65>	12 – 15	1.2 – 1.5	9 – 11
Thermostat case installation bolt	19 – 28	1.9 – 2.8	14 – 20
Bolt which secures the water inlet pipe to cylinder block <4D68>	10 – 15	1.0 – 1.5	7 – 11
Engine coolant temperature gauge unit			
Engine coolant temperature gauge unit			
<4G13, 4G15, 4G16, 4G37, 4G61, 4G67, 4G92, 4G93>	10 – 12	1.0 – 1.2	7 – 9
<4D65, 4D68>	30 – 40	3.0 – 4.0	22 – 29
Engine coolant temperature sensor	20 – 40	2.0 – 4.0	14 – 29
Engine coolant temperature switch	20 – 40	2.0 – 4.0	14 – 29
Radiator			
Battery holder	2 – 3	0.2 – 0.3	1.4 – 2.2

LUBRICANTS

E14CD--

Items	Specified lubricants	Quantity
Engine coolant lit. (U.S.qts., Imp.qts.)	High quality ethylene glycol	
<4G13, 4G15, 4G16>		5.0 (5.3, 4.4)
<4G37, 4G61, 4G67, 4G92, 4G93, 4D65, 4D68>		6.0 (6.3, 5.3)
Automatic transmission fluid lit. (U.S.qts., Imp.qts.)	Automatic transmission fluid DEXRON type	6.1 (6.4, 5.4)

SEALANTS AND ADHESIVES

E14CE-

Items	Specified adhesive	Quantity
Semi-circular packing Engine coolant temperature switch	3M ATD Part No. 8660 or equivalent	As required
Engine coolant temperature gauge unit Engine coolant temperature sensor	3M Adhesive Nut Locking 4171 or equivalent	
Water pump Thermostat case, thermostat and water inlet fitting	Mitsubishi Genuine Parts No. MD970389 or equivalent	

Items	Specified Lubricant	Quantity
Engine oil (4.2 liter, 10W/40)	High quality engine oil	4.2 liter (4.2)
Automatic transmission fluid	Automatic transmission fluid	6.0 liter (6.0)
Power steering fluid	Power steering fluid	1.0 liter (1.0)

NOTES

1. Confirm that the engine coolant level is up to the filler neck. Install a radiator cap tester and apply 150 kPa (11.5 lb/sq in.) 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 removed, be careful not to spill any engine 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.

RADIATOR CAP VALVE OPENING PRESSURE CHECK

Refer to GROUP 11 ENGINE - Engine Adjustment

ENGINE COOLANT REPLACEMENT

1. Set the temperature control lever to the hot position.
2. Remove the radiator cap.
3. Remove the drain plug and drain out the engine coolant.
4. Drain the engine coolant out of the reserve tank.
5. After draining out the engine coolant, securely close the drain plug.
6. Pour the specified grade coolant into the radiator until the container is full and then attach the radiator cap.

Recommended antifreeze:

HIGH QUALITY ETHYLENE GLYCOL ANTIFREEZE

COOLANT

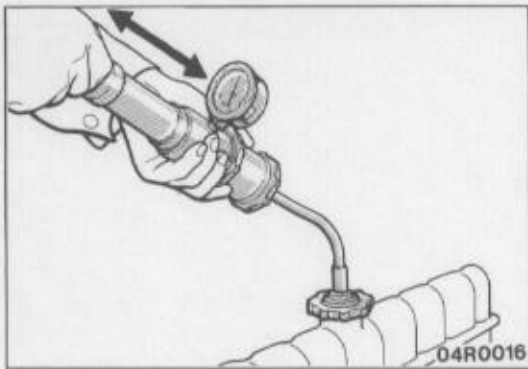
Quantity	
<4013, 4015, 4016>	lit. (U.S. qt., Imp. qt.)
<4037, 4039, 4041, 4042>	5.0 (5.3, 4.4)
<4033, 4035, 4036>	6.0 (6.3, 5.3)

NOTE

For Norway, the non-mine type of antifreeze should be used.

7. Pour engine coolant into the reserve tank.
8. After warming up the engine until the thermostat opens, remove the radiator cap and check the amount of engine coolant.
9. Pour engine coolant into the radiator until it is completely full and then attach the radiator cap securely.
10. Pour engine coolant into the reserve tank until it reaches the FULL line.





SERVICE ADJUSTMENT PROCEDURES

ENGINE COOLANT LEAKS CHECK

E14FAAAa

1. Confirm that the engine 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 removed, be careful not to spill any engine 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.

RADIATOR CAP VALVE OPENING PRESSURE CHECK

E14FBABa

Refer to GROUP 11 ENGINE – Engine Adjustment.

ENGINE COOLANT REPLACEMENT

E14FCAM

1. Set the temperature control lever to the hot position.
2. Remove the radiator cap.
3. Remove the drain plug and drain out the engine coolant.
4. Drain the engine coolant out of the reserve tank.
5. After draining out the engine coolant, securely close the drain plug.
6. Pour the specified engine coolant into the radiator until it is completely full, and then attach the radiator cap.

Recommended antifreeze:

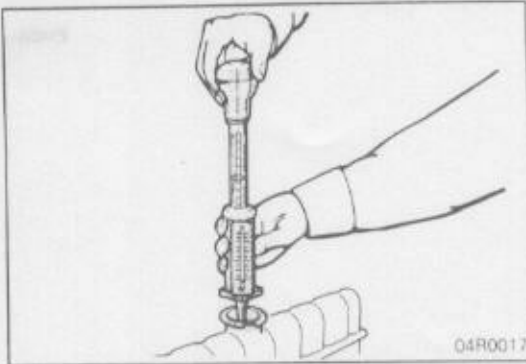
HIGH QUALITY ETHYLENE GLYCOL ANTIFREEZE COOLANT

Quantity	lit. (U.S.qts., Imp.qts.)
<4G13, 4G15, 4G16>	5.0 (5.3, 4.4)
<4G37, 4G61, 4G67, 4G92, 4G93, 4D65, 4D68>	6.0 (6.3, 5.3)

NOTE

For Norway, the non-amine type of antifreeze should be used.

7. Pour engine coolant into the reserve tank.
8. After warming up the engine until the thermostat opens, remove the radiator cap and check the amount of engine coolant.
9. Pour engine coolant into the radiator until it is completely full, and then attach the radiator cap securely.
10. Pour engine coolant into the reserve tank until it reaches the FULL line.

**CONCENTRATION MEASUREMENT**

E14FDAA

1. Measure the specific gravity of the engine coolant with a hydrometer.
2. Measure the engine 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

Engine coolant temperature °C (°F) and specific gravity					Freezing temperature °C (°F)	Safe operating temperature °C (°F)	Engine 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 engine coolant-antifreeze mixture

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

DRIVE BELT TENSION INSPECTION

E14FGAF

Refer to GROUP 11 – Engine Adjustment.

DRIVE BELT TENSION ADJUSTMENT

E14FGAG

Refer to GROUP 11 – Engine Adjustment.

THERMOSTAT

REMOVAL AND INSTALLATION

E14GA--

Pre-removal Operation

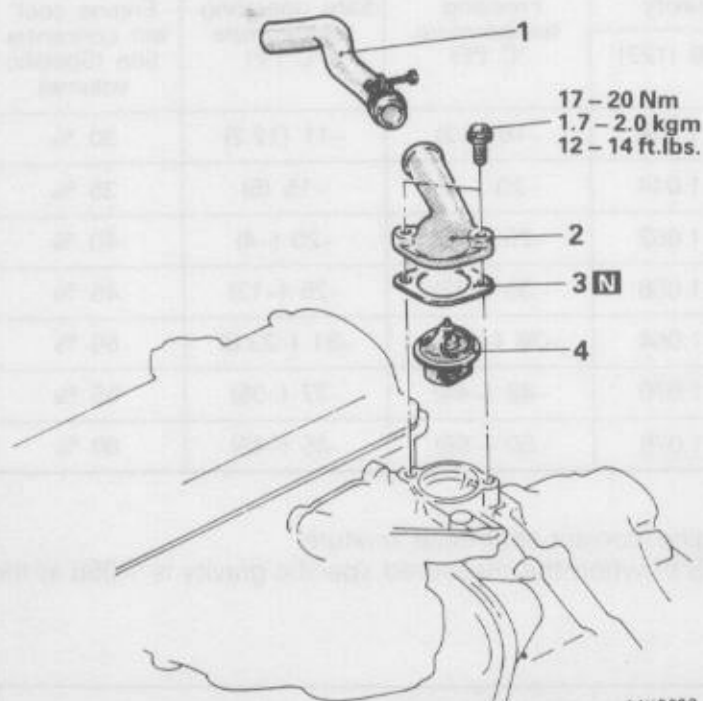
- Draining Engine Coolant
(Refer to P.14-6.)

Post-installation Operation

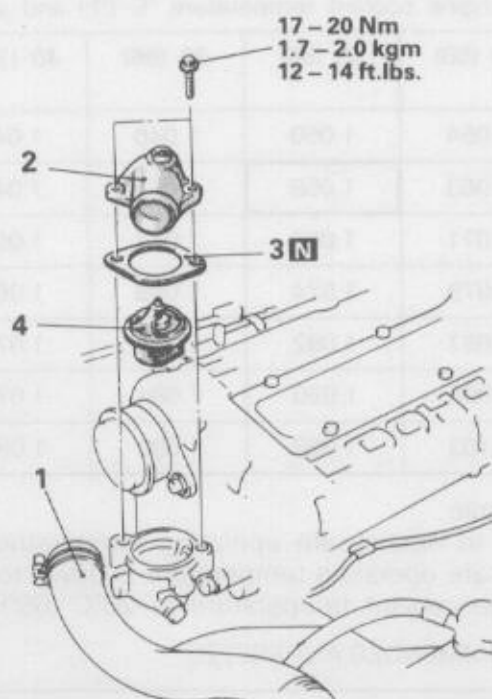
- Pouring Engine Coolant
(Refer to P.14-6.)

<4G13, 4G15, 4G16>

<4G61>



04U0020



04P0014

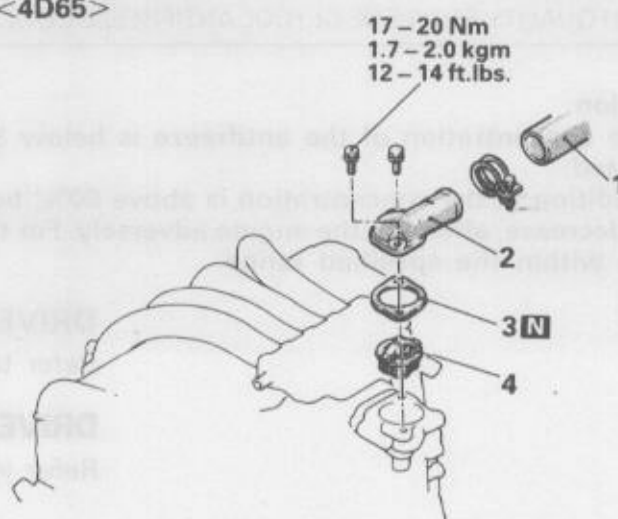
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Removal steps

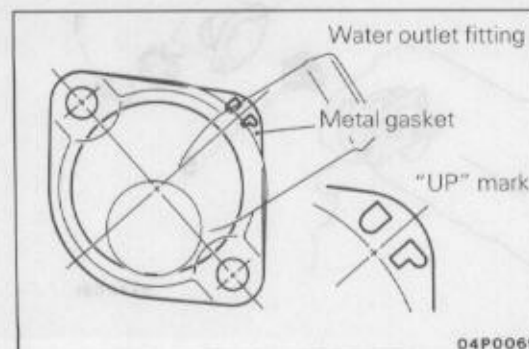
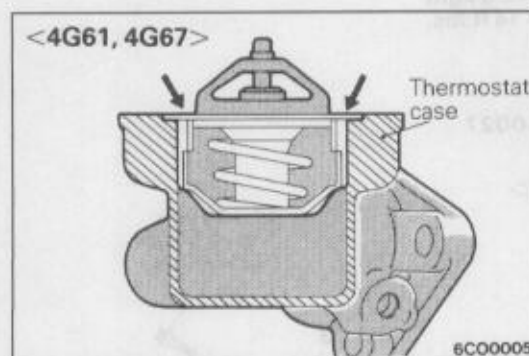
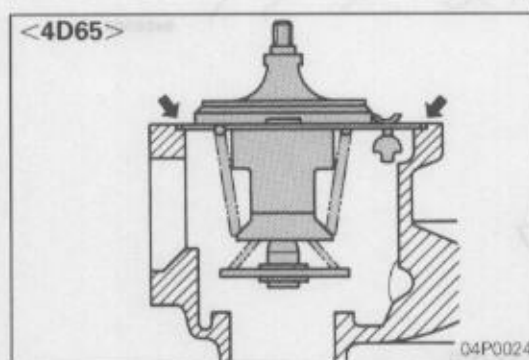
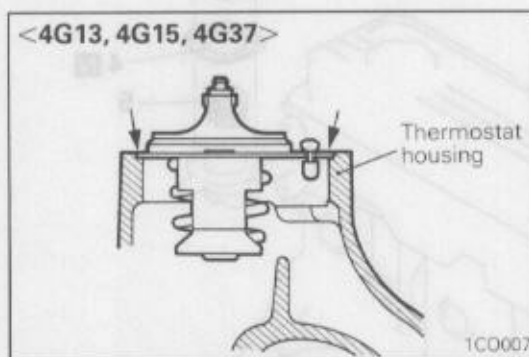
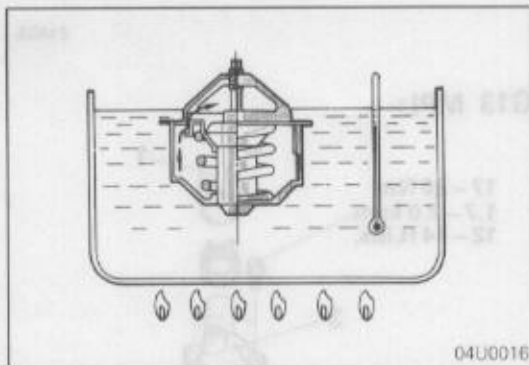
1. Radiator upper hose (Engine side)
2. Water outlet fitting
3. Water outlet fitting gasket
- ◆◆ 4. Thermostat

NOTE

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



04P0031



INSPECTION

E14GCAQ

- 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 (0.31 in.)] are at the standard value.

Standard value:

Vehicles for Europe

<4G61, 4G67, 4D65>

Opening valve temperature 82°C (180°F)

Full-open temperature 95°C (203°F)

<4G13, 4G15, 4G16, 4G37, 4G61, 4G67 for cold weather regions>

Opening valve temperature 88°C (190°F)

Full-open temperature 100°C (212°F)

Vehicles for General Export

<4G13, 4G15, 4G61, 4D65>

Opening valve temperature 82°C (180°F)

Full-open temperature 95°C (203°F)

<4G15-MPI, 4G13 and 4G15 for cold weather regions>

Opening valve temperature 88°C (190°F)

Full-open temperature 100°C (212°F)

Vehicles for Australia

<4G15, 4G61>

Opening valve temperature 82°C (180°F)

Full-open temperature 95°C (203°F)

NOTE

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

SERVICE POINTS OF INSTALLATION

E14GDAH

4. INSTALLATION OF THERMOSTAT

Caution

Check 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 or thermostat case, making it impossible to seat flange in position.

3. INSTALLATION OF WATER OUTLET FITTING GASKET

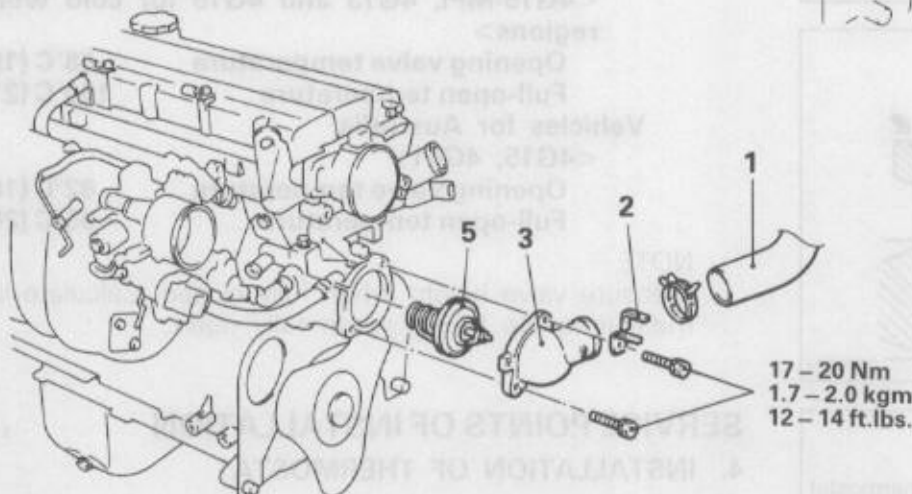
In case a metal gasket is used, install the metal gasket with its "UP" mark facing upward.

REMOVAL AND INSTALLATION

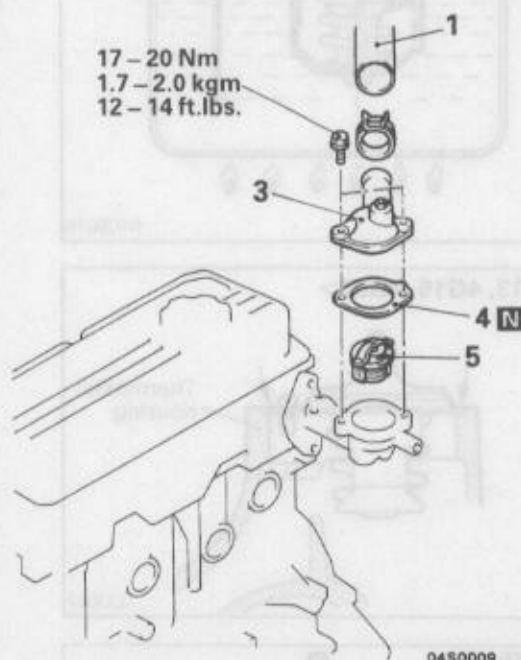
Pre-removal and post-installation Operation

- Draining and Supplying of Coolant (Refer to P. 14-6.)
- Removal and Installation of Air Intake Hose and Air Cleaner Body (Refer to GROUP 15 – Air Cleaner.)

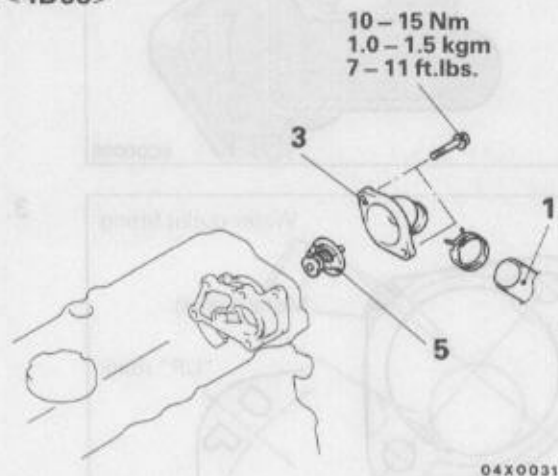
<4G92, 4G93>



<4G13 MPI>



<4D68>



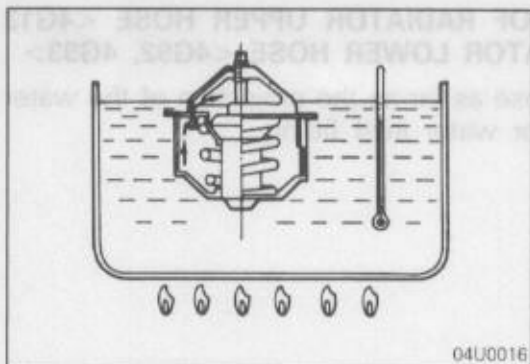
Removal Steps

1. Radiator upper hose <4G13MPI> or radiator lower hose <4G92, 4G93, 4D68>
2. Harness clamp <4G92, 4G93>
3. Water outlet fitting <4G13MPI> or water inlet fitting <4G92, 4G93, 4D68>
4. Water outlet fitting gasket <4G13MPI>
5. Thermostat

NOTE

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

E14GCAW



INSPECTION

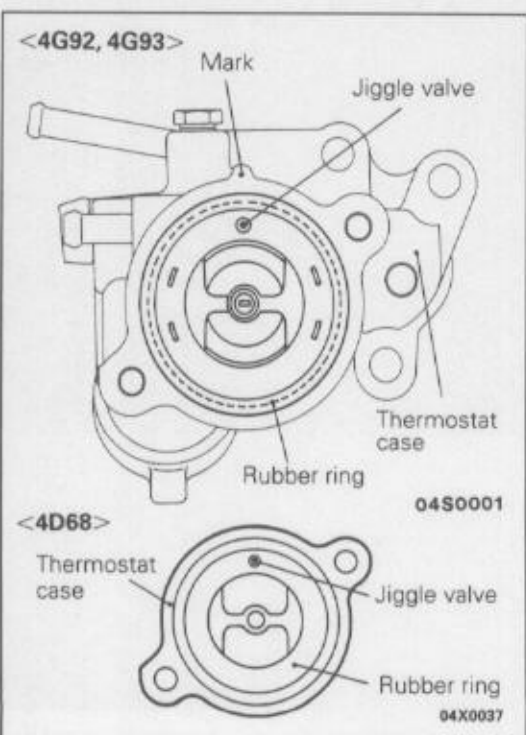
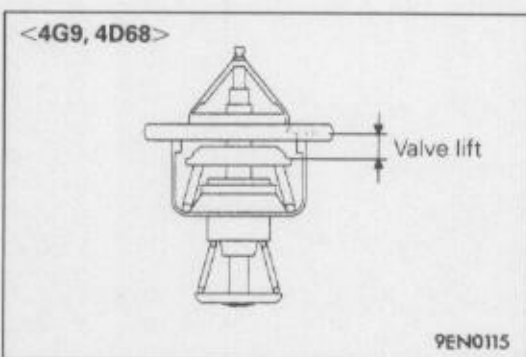
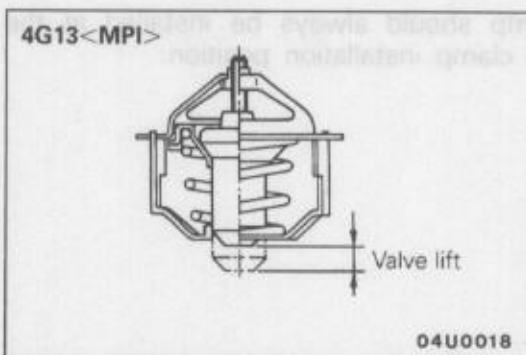
Immerse the thermostat in water, and heat the water while stirring. Check that the thermostat valve opening and fully open temperatures.

Standard value

Item	4G13 <MPI>	4G92, 4D68	4G93
Valve opening temperature °C (°F)	88 (190)	76.5 (170)	76.5 (170)
Fully open temperature °C (°F)	100 (212)	90 (194)	90 (194)
Valve lift amount	8 (0.31)	10 (0.39)	8 (0.31)

NOTE

1. Measure valve height when fully closed. Calculate lift by measuring the height when fully open.
2. If valve opens even a little at normal temperature, the thermostat should be replaced.
3. If there is any serious warping, visible damage or break age, the thermostat should be replaced.
4. Remove any rust or deposits if present.



SERVICE POINTS OF INSTALLATION

E14GDAN

5. INSTALLATION OF THERMOSTAT <4G92, 4G93, 4D68>

- (1) Install the thermostat so that the jiggle valve of the thermostat is facing straight up (mark position shown in the illustration).

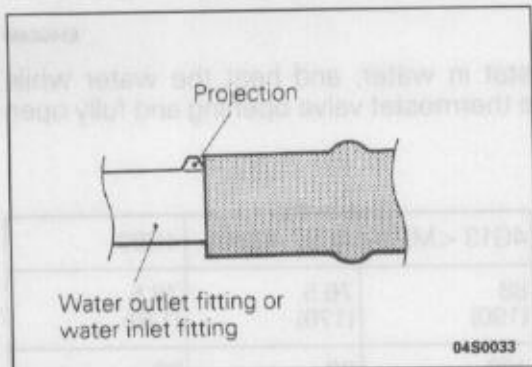
Caution

Be sure that there is no oil adhering to the rubber ring of the thermostat.

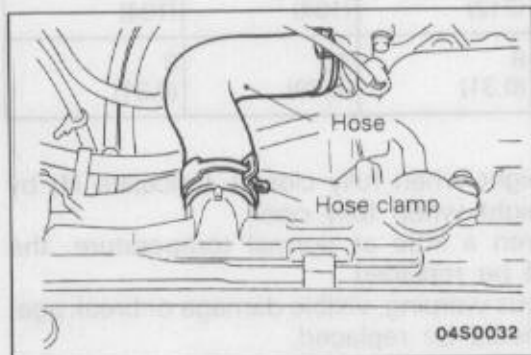
- (2) Install the thermostat so that the rubber ring is not curled or damaged.

1. INSTALLATION OF RADIATOR UPPER HOSE <4G13 MPI> OR RADIATOR LOWER HOSE <4G92, 4G93>

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



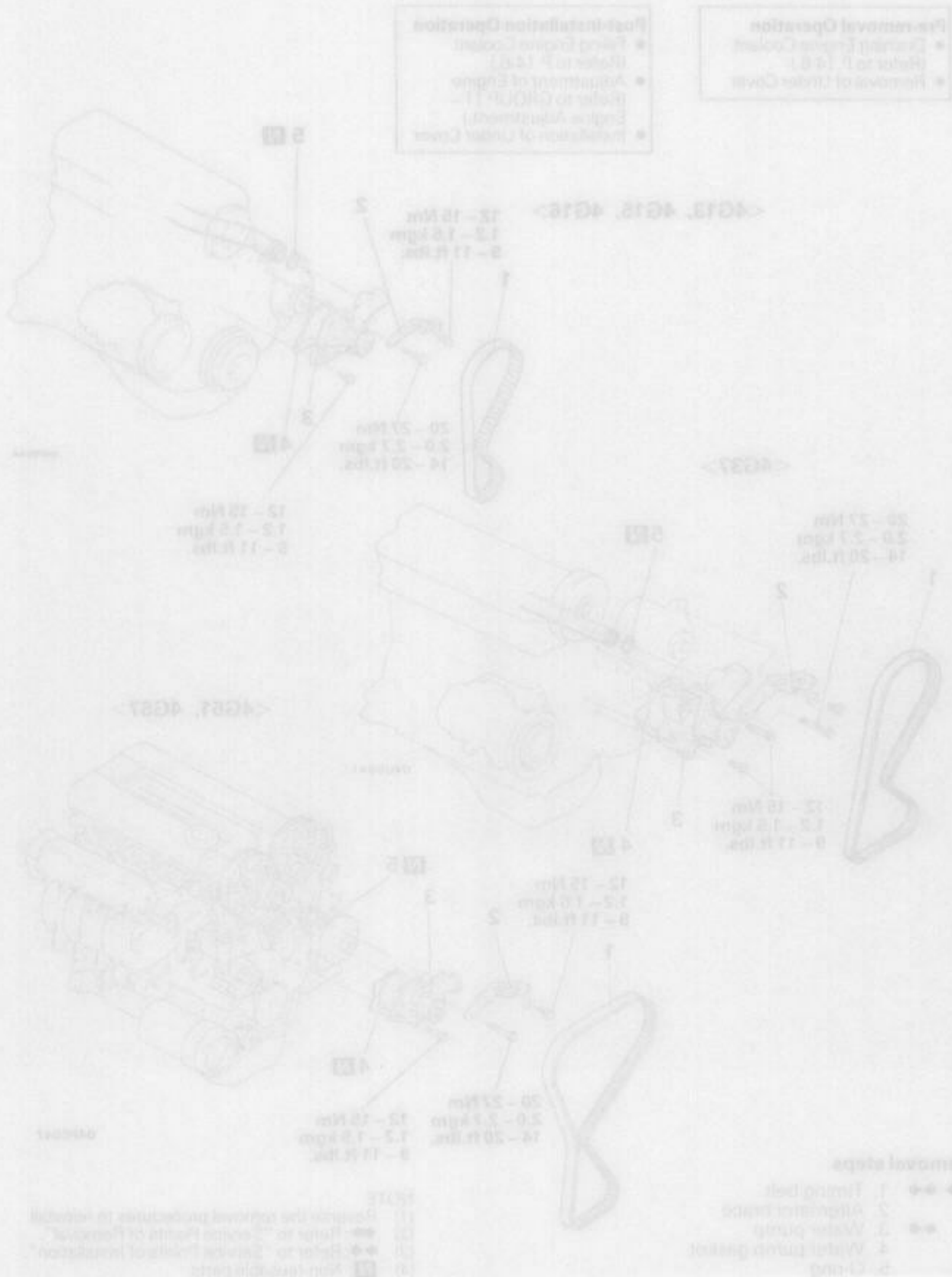
- (2) The hose clamp should always be installed at the previous hose clamp installation position.



WATER PUMP

REMOVAL AND INSTALLATION

NOTES



WATER PUMP

REMOVAL AND INSTALLATION

Pre-removal Operation

- Draining Engine Coolant (Refer to P.14-6.)
- Removal of Under Cover

Post-installation Operation

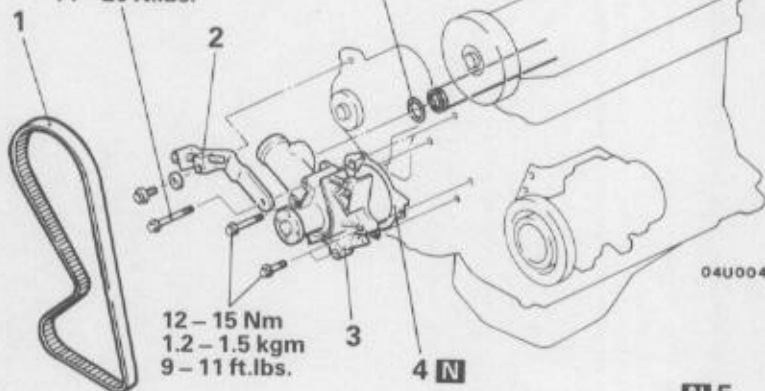
- Filling Engine Coolant (Refer to P.14-6.)
- Adjustment of Engine (Refer to GROUP 11 – Engine Adjustment.)
- Installation of Under Cover

<4G13, 4G15, 4G16>

12 – 15 Nm
1.2 – 1.5 kgm
9 – 11 ft.lbs.

<4G37>

20 – 27 Nm
2.0 – 2.7 kgm
14 – 20 ft.lbs.

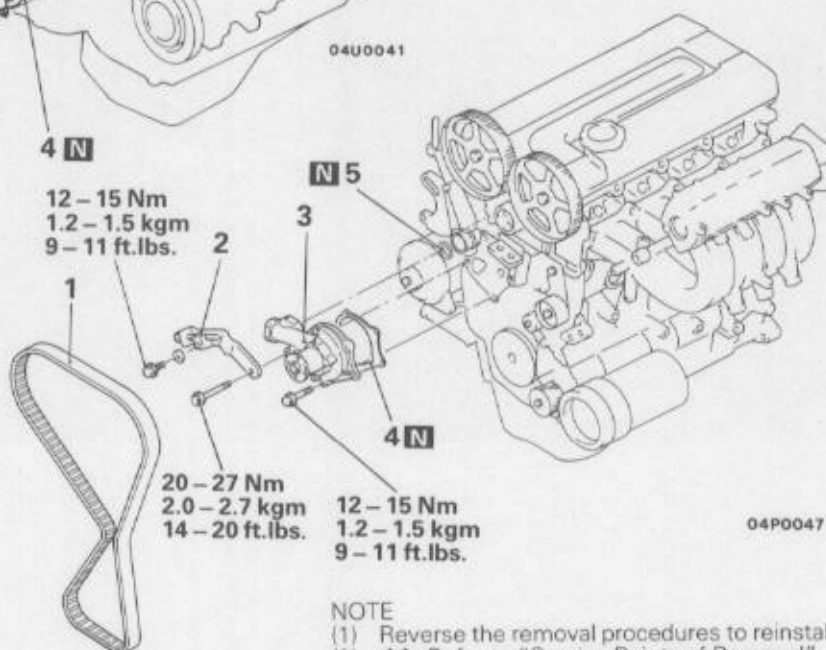


<4G61, 4G67>

12 – 15 Nm
1.2 – 1.5 kgm
9 – 11 ft.lbs.

20 – 27 Nm
2.0 – 2.7 kgm
14 – 20 ft.lbs.

12 – 15 Nm
1.2 – 1.5 kgm
9 – 11 ft.lbs.

**Removal steps**

- ◆◆ ◆◆ 1. Timing belt
- ◆◆ ◆◆ 2. Alternator brace
- ◆◆ ◆◆ 3. Water pump
- ◆◆ ◆◆ 4. Water pump gasket
- ◆◆ ◆◆ 5. O-ring

NOTE

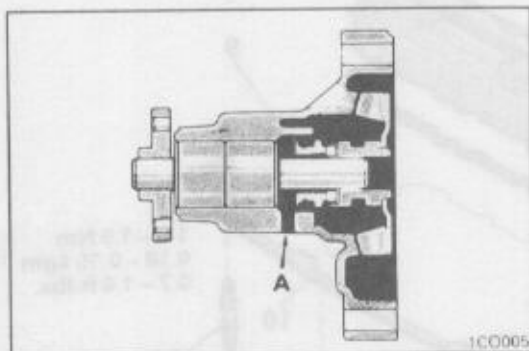
- (1) Reverse the removal procedures to reinstall.
- (2) ◆◆: Refer to "Service Points of Removal".
- (3) ◆◆: Refer to "Service Points of Installation".
- (4) N: Non-reusable parts.

SERVICE POINT OF REMOVAL

E14MBAL1

1. REMOVAL OF TIMING BELT

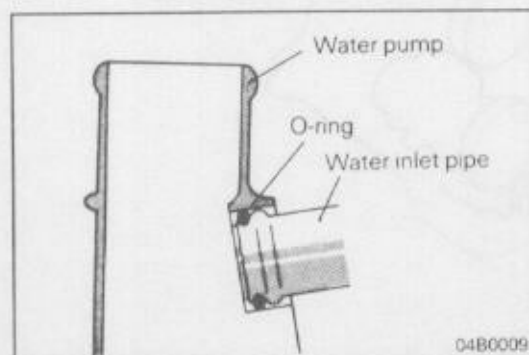
Refer to GROUP 11 – Timing Belt.



INSPECTION

E14MCAH

- 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 leaking. Replace as an assembly.



SERVICE POINTS OF INSTALLATION

E14MDAO

3. INSTALLATION OF WATER PUMP

- (1) Clean both gasket surfaces of water pump body and cylinder block.
- (2) Install the new O-ring onto the groove on the front end of the water inlet pipe then wet the O-ring with water.

Caution

1. Do not apply oils or greases to O-ring.
2. When pipe is installed, make sure that there is no sand, dirt, etc. on its inner surface.

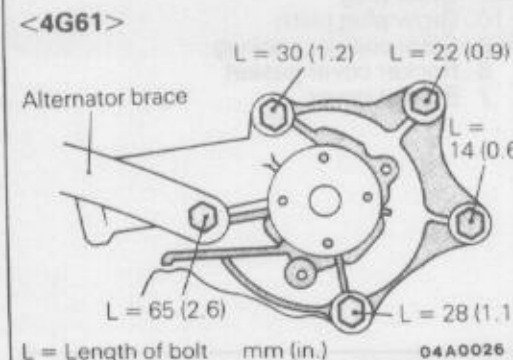
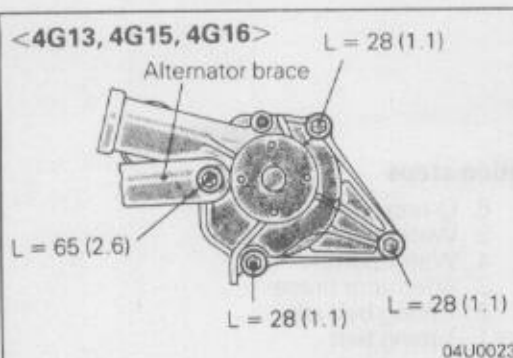
- (3) Install new water pump gasket and water pump assembly and tighten the bolts.

Tightening torque:**Water pump to cylinder block****Head mark "4" bolt**

12 – 15 Nm (1.2 – 1.5 kgm, 9 – 11 ft.lbs.)

Head mark "7" bolt

20 – 27 Nm (2.0 – 2.7 kgm, 14 – 20 ft.lbs.)



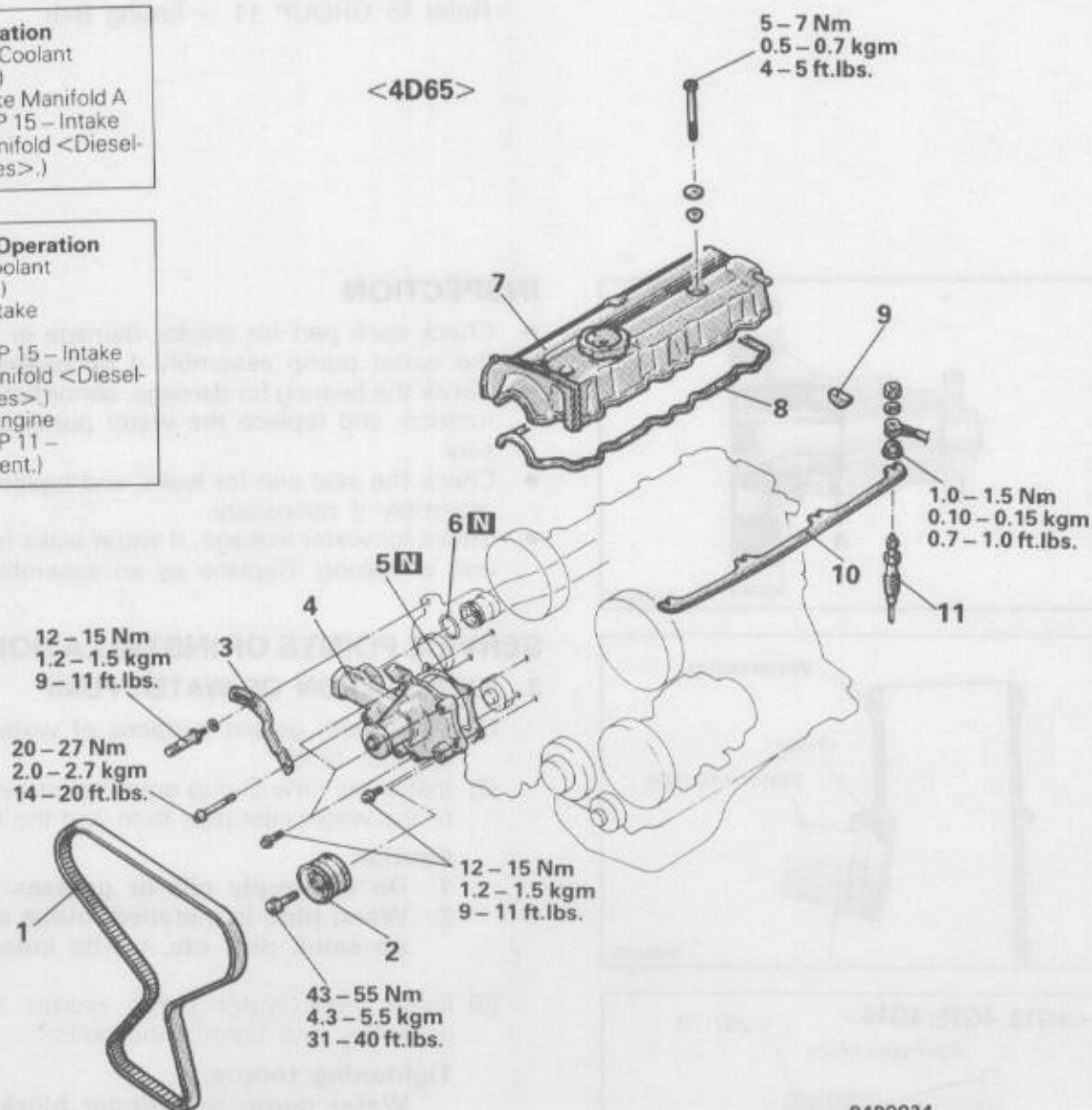
REMOVAL AND INSTALLATION

Pre-removal Operation

- Draining Engine Coolant (Refer to P.14-6.)
- Removal of Intake Manifold A (Refer to GROUP 15 – Intake and Exhaust Manifold <Diesel-Powered Vehicles>.)

Post-installation Operation

- Filling Engine Coolant (Refer to P.14-6.)
- Installation of Intake Manifold A (Refer to GROUP 15 – Intake and Exhaust Manifold <Diesel-Powered Vehicles>.)
- Adjustment of Engine (Refer to GROUP 11 – Engine Adjustment.)



04P0034

Removal steps

1. Timing belt
2. Timing belt idler
3. Alternator brace
4. Water pump
5. Water pump gasket
6. O-ring
7. Rocker cover
8. Rocker cover gasket
9. Semi-circular packing
10. Grow plug plate
11. Grow plug

Installation steps

6. O-ring
5. Water pump gasket
4. Water pump
3. Alternator brace
2. Timing belt idler
1. Timing belt
11. Grow plug
10. Grow plug plate
9. Semi-circular packing
8. Rocker cover gasket
7. Rocker cover

NOTE

- (1) Removal of parts 7 through 11 is necessary for adjusting the timing belt tension.
- (2) Reverse the removal procedures to reinstall.
- (3) ♦♦♦ Refer to "Service Points of Removal".
- (4) ♦♦♦ Refer to "Service Points of Installation".
- (5) [N] Non-reusable parts

SERVICE POINT OF REMOVAL

E14MBAL2

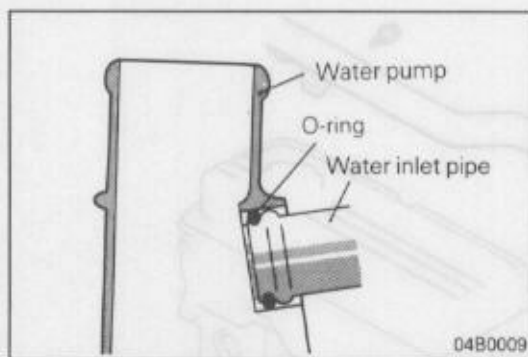
1. REMOVAL OF TIMING BELT

Refer to GROUP 11 – Timing Belt.

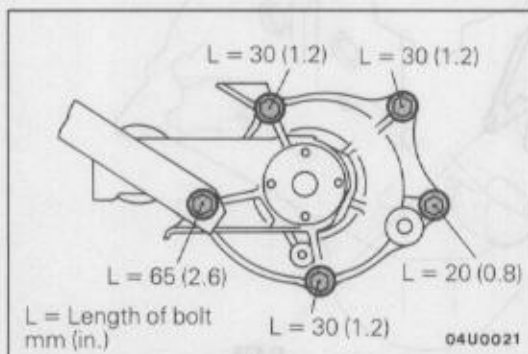
INSPECTION

Refer to P.14-11.

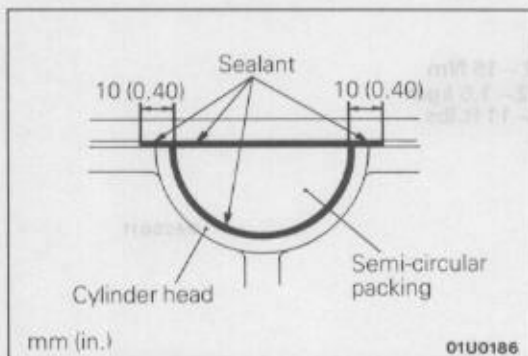
E14MCAJ



04B0009



04U0021



01U0186

SERVICE POINTS OF INSTALLATION

E14MDAP

4. INSTALLATION OF WATER PUMP

- (1) Clean both gasket surfaces of water pump body and cylinder block.
- (2) Install the new O-ring onto the groove on the front end of the water inlet pipe then wet the O-ring with water.

Caution

1. Do not apply oils or greases to O-ring.
2. When pipe is installed, make sure that there is no sand, dirt, etc. on its inner surface.

- (3) Install the new water pump gasket and water pump assembly and tighten the bolts.

Tightening torque:**Water pump to cylinder block****Head mark "4" bolt**

12 – 15 Nm (1.2 – 1.5 kgm, 9 – 11 ft.lbs.)

Head mark "7" bolt

20 – 27 Nm (2.0 – 2.7 kgm, 14 – 20 ft.lbs.)

1. INSTALLATION OF TIMING BELT

Refer to GROUP 11 – Timing Belt.

9. INSTALLATION OF SEMI-CIRCULAR PACKING

- (1) Apply specified sealant to the sections of the semi-circular packing indicated in the illustration.

Specified sealant: 3M ATD Part No. 8660 or equivalent

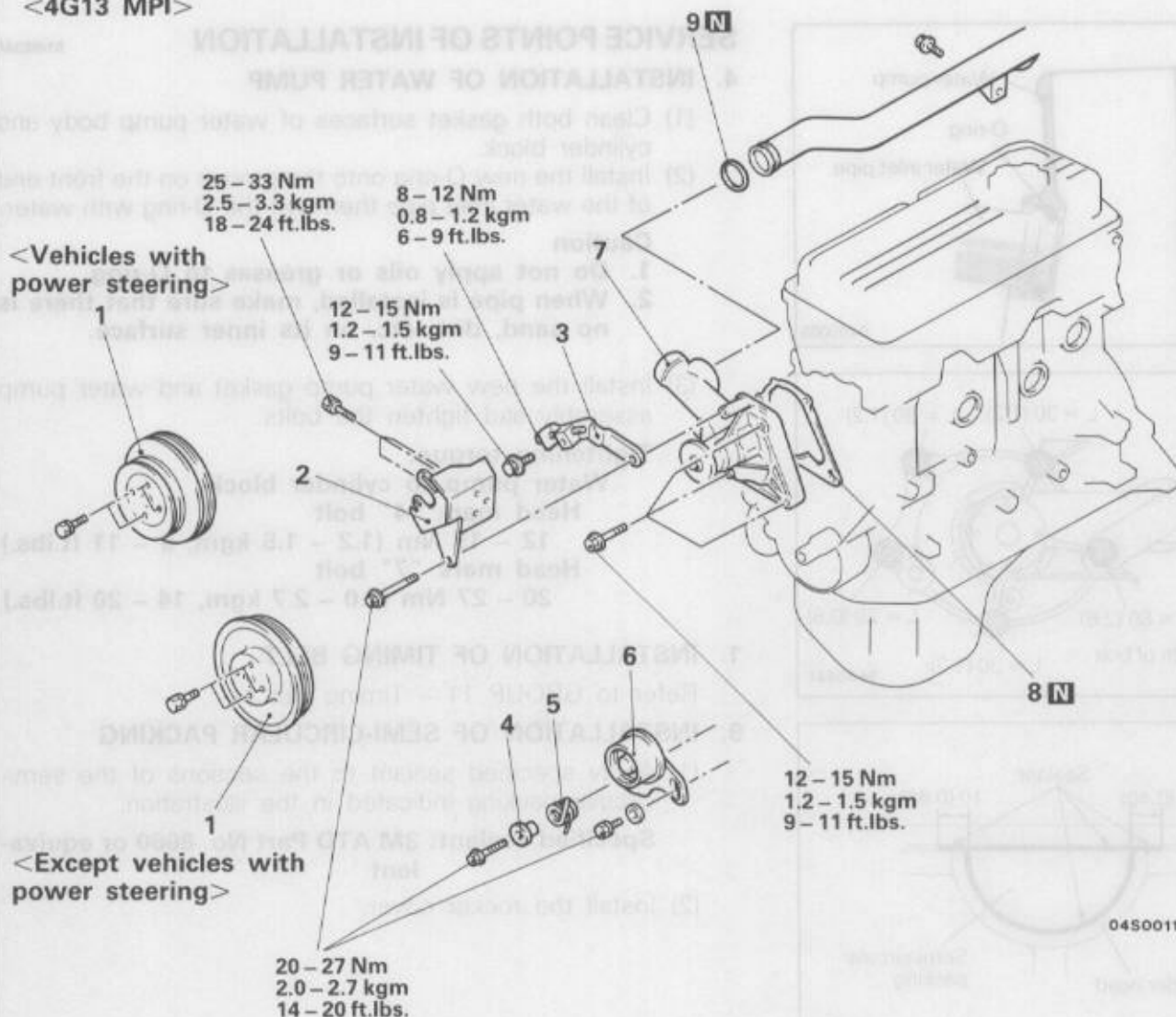
- (2) Install the rocker cover.

REMOVAL AND INSTALLATION

Pre-removal and Post-installation Operation

- Draining and Supplying of Engine Coolant (Refer to P. 14-6.)
- Removal and Installation of Timing Belt (Refer to GROUP 11 – Timing Belt.)
- Removal and Installation of Power Steering Oil Pump (Refer to GROUP 37 – Power Steering Oil Pump.)

<4G13 MPI>

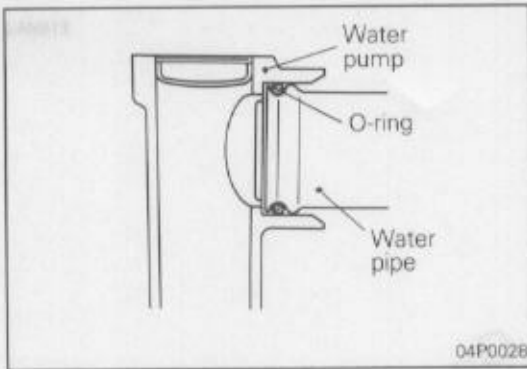


Removal steps

1. Water pump pulley
2. Power steering oil pump bracket
<Vehicles with power steering>
3. Alternator brace
4. Tensioner spacer
5. Tensioner spring
6. Timing belt tensioner
- ♦♦ 7. Water pump
8. Water pump gasket
- ♦♦ 9. 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

E14MDAN

9. INSTALLATION OF O-RING

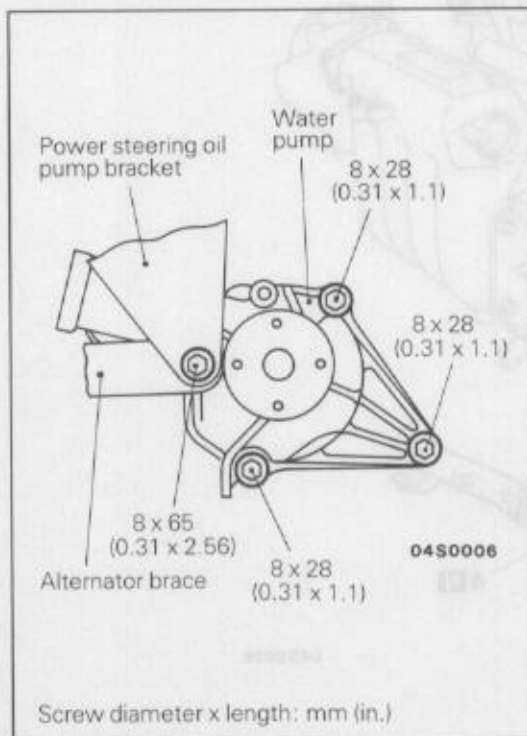
Insert the O-ring to the water inlet pipe, and coat the outlet circumference of the O-ring with water. By coating with water, the insertion to the water pump will become easier.

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.

7. INSTALLATION OF WATER PUMP

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



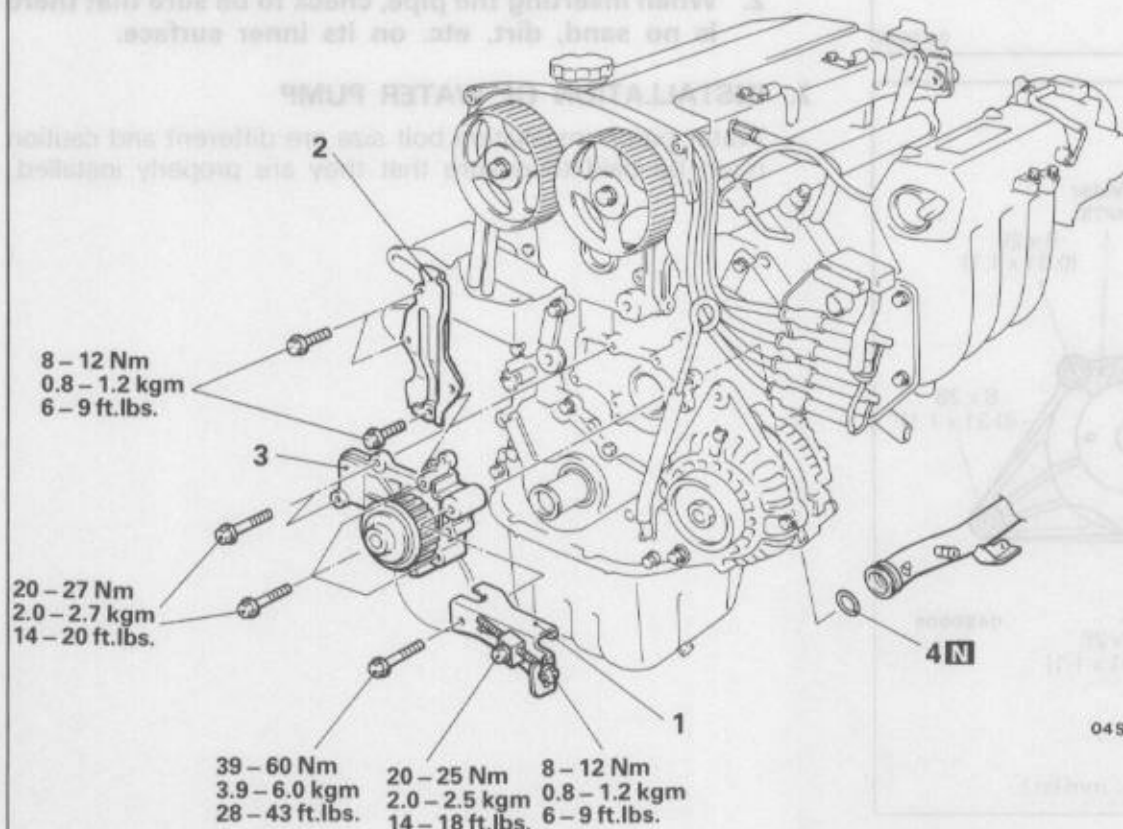
REMOVAL AND INSTALLATION

E14MA-2

Pre-removal and Post-installation Operation

- Draining and Supplying of Engine Coolant (Refer to P. 14-6.)
- Removal and Installation of Timing Belt (Refer to GROUP 11 – Timing Belt.)

<4G92, 4G93>



Removal steps

1. Alternator brace
2. Timing belt cover rear left
3. Water pump
4. O-ring (Refer to P. 14-13-2.)

NOTE

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

SERVICE POINTS OF REMOVAL

E14MBAS

3. REMOVAL OF WATER PUMP

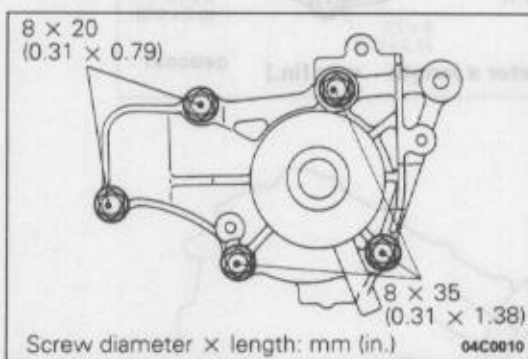
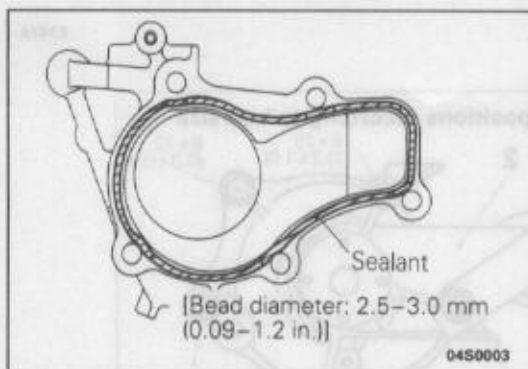
When removing the sealant remaining on the water pump and cylinder block, be sure to use a scraper made of brass so as not to damage the surface of the seal.

SERVICE POINTS OF INSTALLATION

3. INSTALLATION OF WATER PUMP

- (1) 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



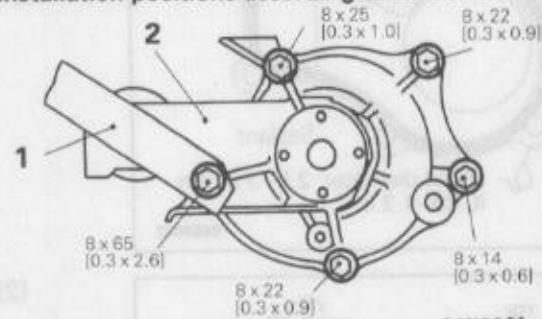
- (2) Water pump installation bolt size are different and caution must be paid to ensure that they are properly installed.

REMOVAL AND INSTALLATION

E14TA-

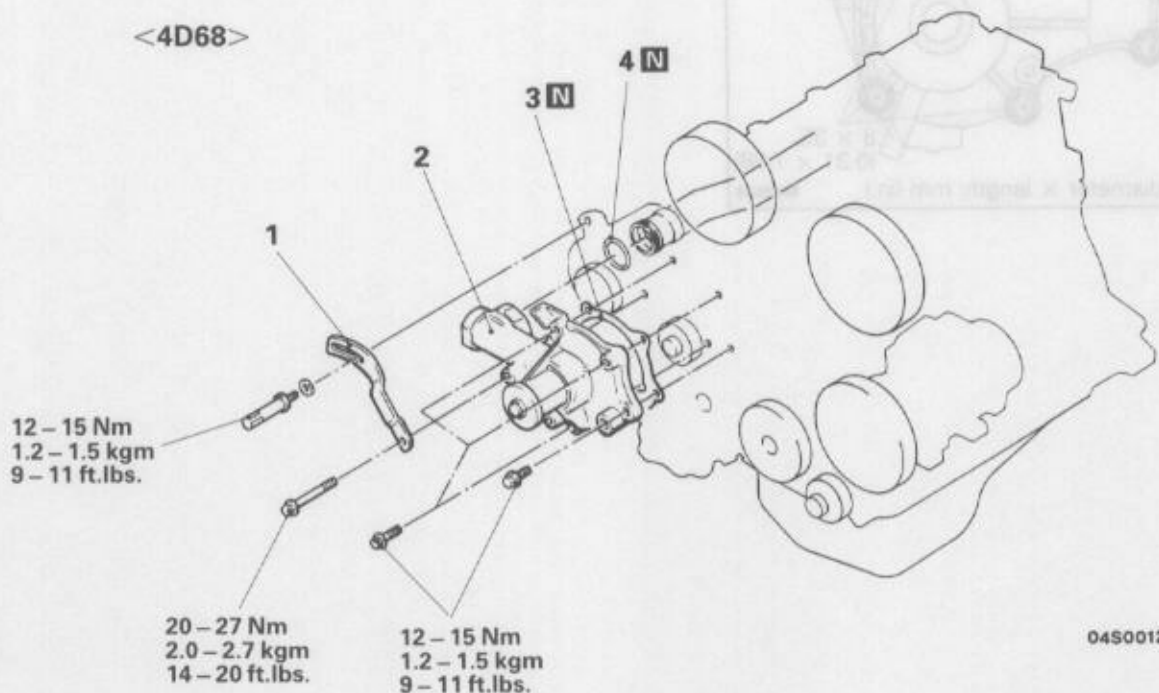
Pre-removal and Post-installation Operation

- Draining and Supplying of Engine Coolant (Refer to P. 14-6.)
- Removal and Installation of Timing Belt and Timing Belt B (Refer to GROUP 11 – Timing Belt and Timing Belt B.)

Installation positions according to bolt size

Screw diameter x length mm [in.] 04U0021

<4D68>



04S0012

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 Removal."
- (3) ◆◆: Refer to "Service Points of Installation."
- (4) [N]: Non-reusable parts

SERVICE POINTS OF INSTALLATION

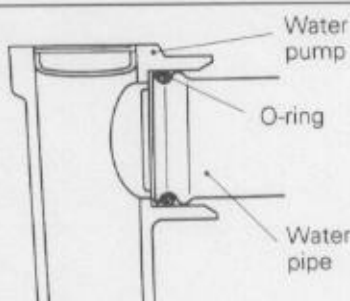
E14MBAN

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 insertion the pipe, check to be sure that there is no sand, dirt, etc. on its inner surface.



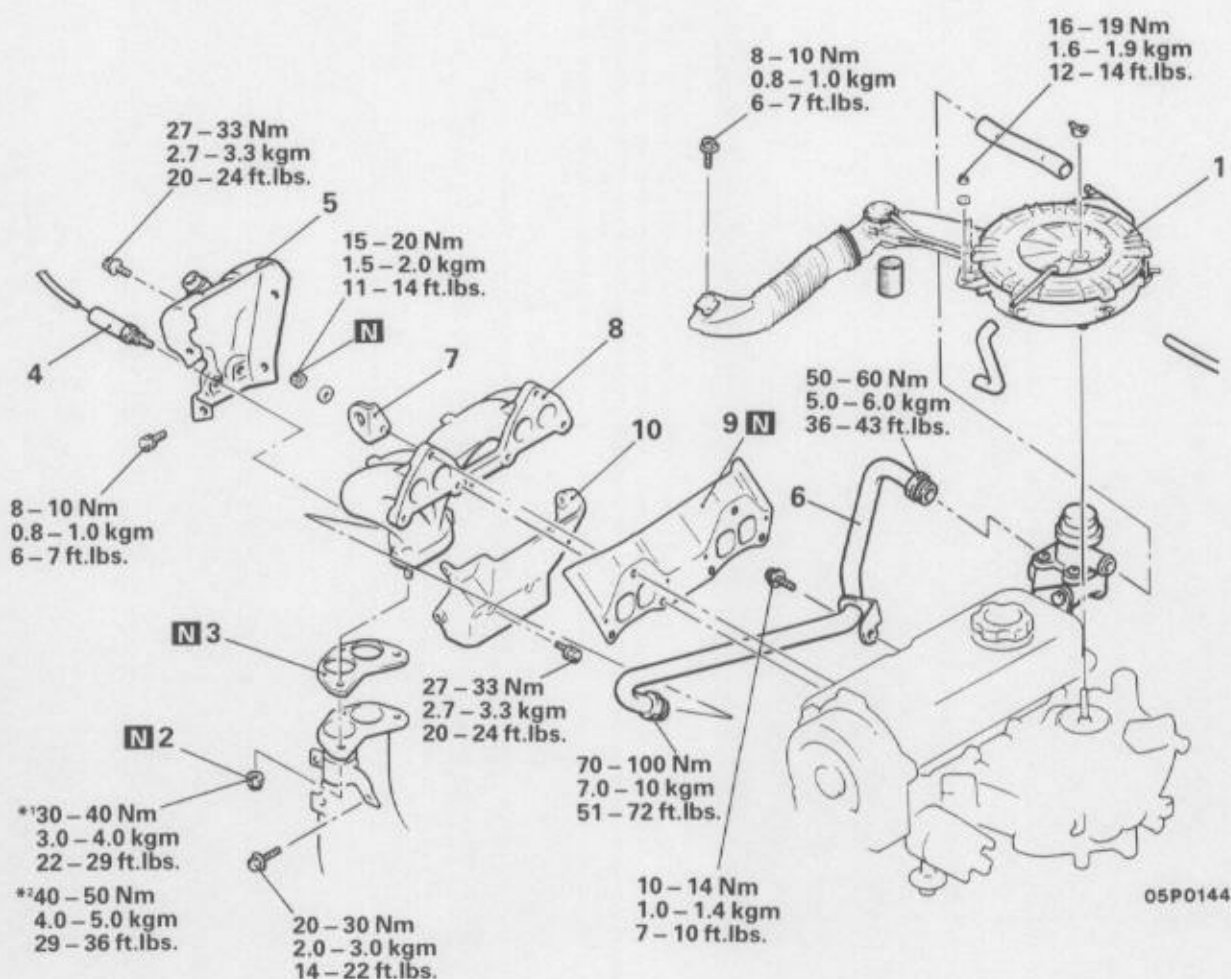
04P0028

WATER PIPE AND HOSE <PETROL-POWERED VEHICLES>

E14TA-A

REMOVAL AND INSTALLATION <SOHC-CARBURETTOR>

VEHICLES WITH CATALYTIC CONVERTER



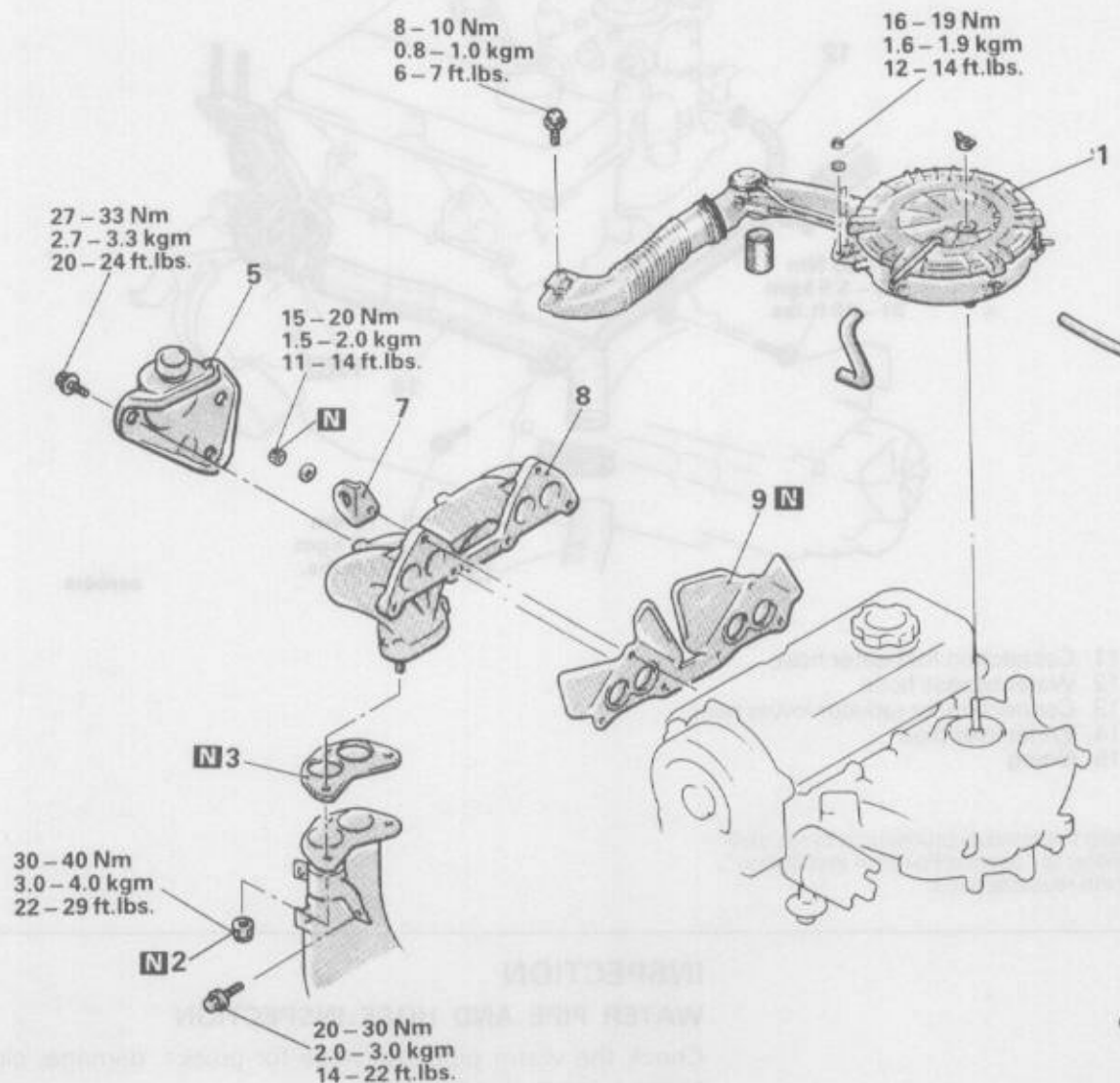
Removal steps

1. Air cleaner
2. Self-locking nuts
3. Gasket
- ◆◆ 4. Connection for oxygen sensor connector
<Vehicles for Europe>
5. Exhaust manifold cover (A)
6. Air pipe
7. Engine hanger
8. Exhaust manifold
9. Exhaust manifold gasket
10. Exhaust manifold cover (B)

NOTE

- (1) Reverse the removal procedures to reinstall.
- (2) ◆◆: Refer to "Service Points of Installation"
- (3) **N**: Non-reusable parts
- (4) *1: Vehicles built up to May 1990.
- (5) *2: Vehicles built from June 1990.

VEHICLES WITHOUT CATALYTIC CONVERTER



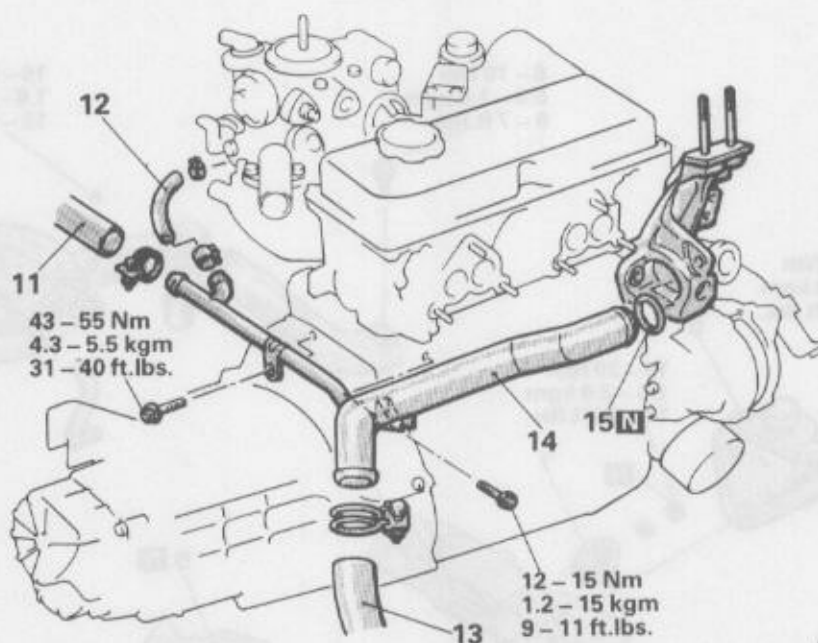
05P0085

Removal steps

1. Air cleaner
2. Self-locking nuts
3. Gasket
5. Heat cowl <Vehicles for Europe and some models for General Export>
7. Engine hanger
8. Exhaust manifold
9. Exhaust manifold gasket

NOTE

- (1) Reverse the removal procedures to reinstall.
- (2) **N**: Non-reusable parts



04P0019

- 11. Connection for heater hose
- 12. Water bypass hose
- 13. Connection for radiator lower hose
- ♦♦ 14. Water inlet pipe
- 15. O-ring

NOTE

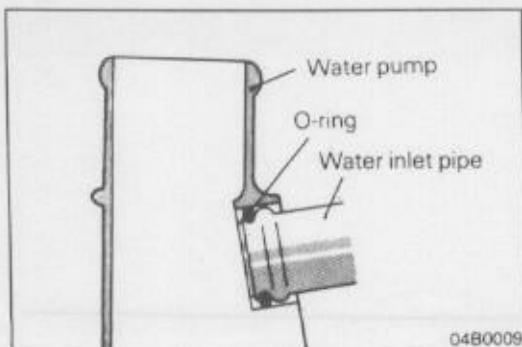
- (1) Reverse the removal procedures to reinstall.
- (2) ♦♦ Refer to "Service Points of Installation".
- (3) **N**: Non-reusable parts

INSPECTION

E14TCAC1

WATER PIPE AND HOSE INSPECTION

Check the water pipe and hose for cracks, damage, clog and replace them if necessary.



04B0009

SERVICE POINT OF INSTALLATION

E14TDAF1

14. INSTALLATION OF WATER INLET PIPE

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

Caution

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

WATER PIPE AND HOSE <PETROL-POWERED VEHICLES>

REMOVAL AND INSTALLATION <SOHC-MPI>

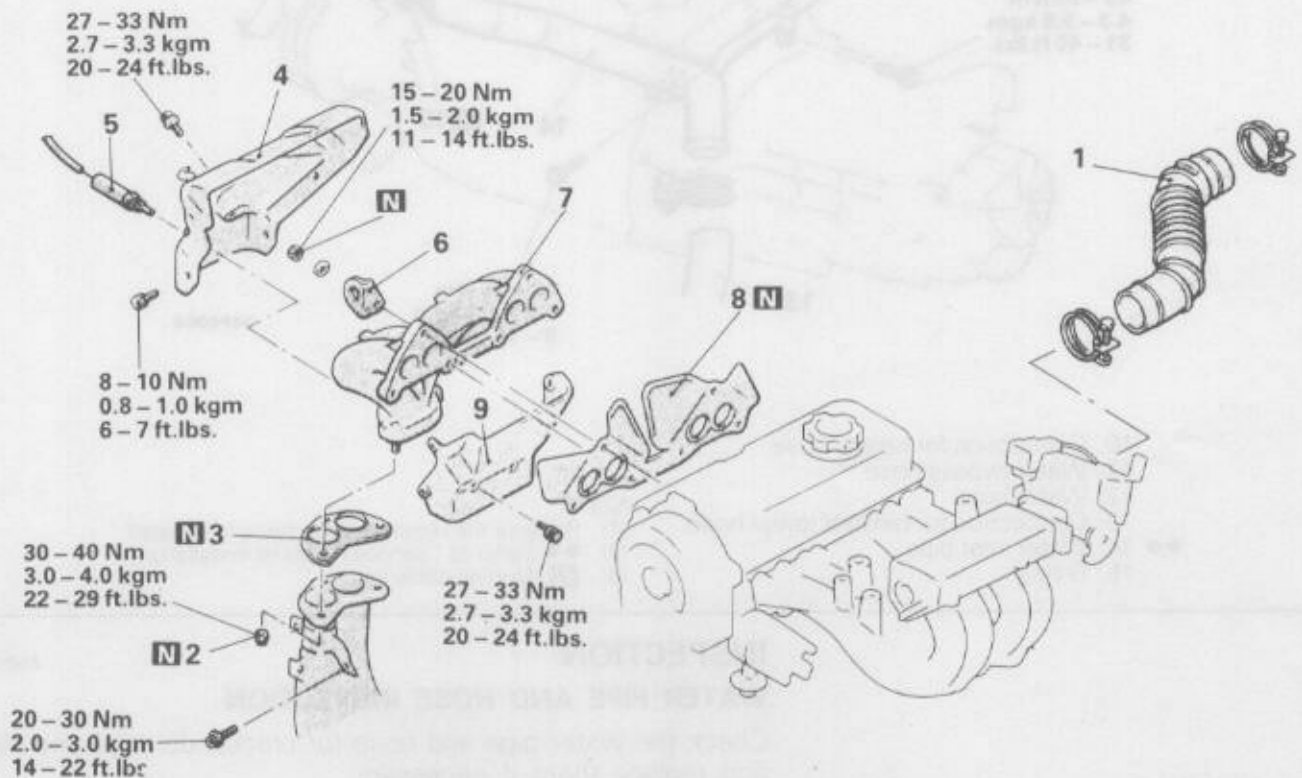
E14TA-B

Pre-removal Operation

- Draining Engine Coolant (Refer to P.14-6.)

Post-installation Operation

- Refilling Engine Coolant (Refer to P.14-6.)



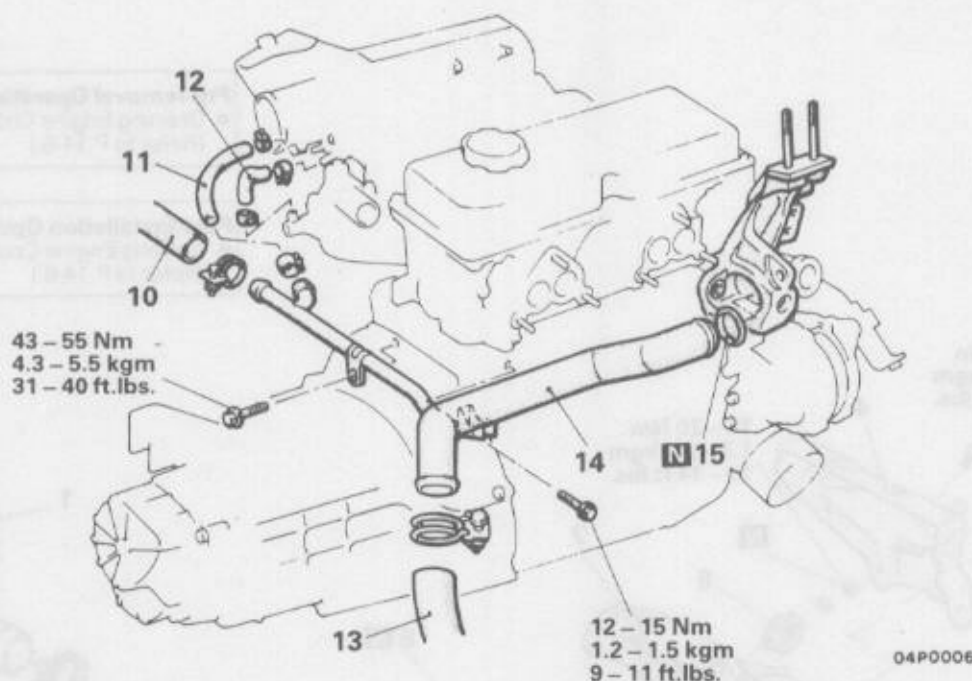
04P0011

Removal steps

1. Air intake hose
2. Self-locking nut
3. Gasket
4. Exhaust manifold cover (A)
5. Connection for oxygen sensor
6. Engine hanger
7. Exhaust manifold
8. Exhaust manifold gasket
9. Exhaust manifold cover (B)

NOTE

- (1) Reverse the removal procedures to reinstall.
- (2) **N** Non-reusable parts



- 10. Connection for heater hose
- 11. Water bypass hose
- 12. Water hose
- 13. Connection for radiator lower hose
- ◆◆ 14. Water inlet pipe
- 15. O-ring

NOTE

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

INSPECTION

E14TCAC2

WATER PIPE AND HOSE INSPECTION

Check the water pipe and hose for cracks, damage and clog, and replace them if necessary.

SERVICE POINT OF INSTALLATION

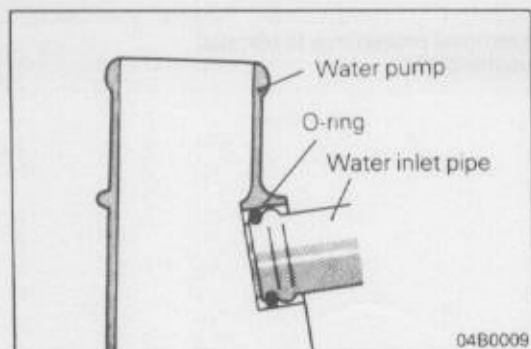
E14TDAF2

14. INSTALLATION OF WATER INLET PIPE

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

Caution

- 1. Do not apply oils or greases to the O-ring.
- 2. Keep the water pipe connections free of sand, dust, etc.
- 3. Insert water inlet pipe until its end bottoms.



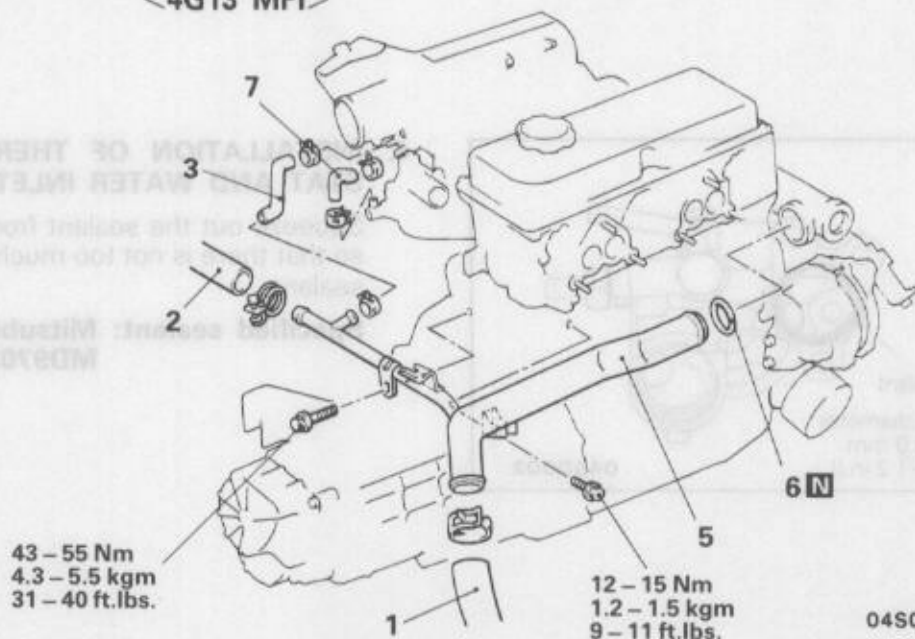
REMOVAL AND INSTALLATION

E14TA-

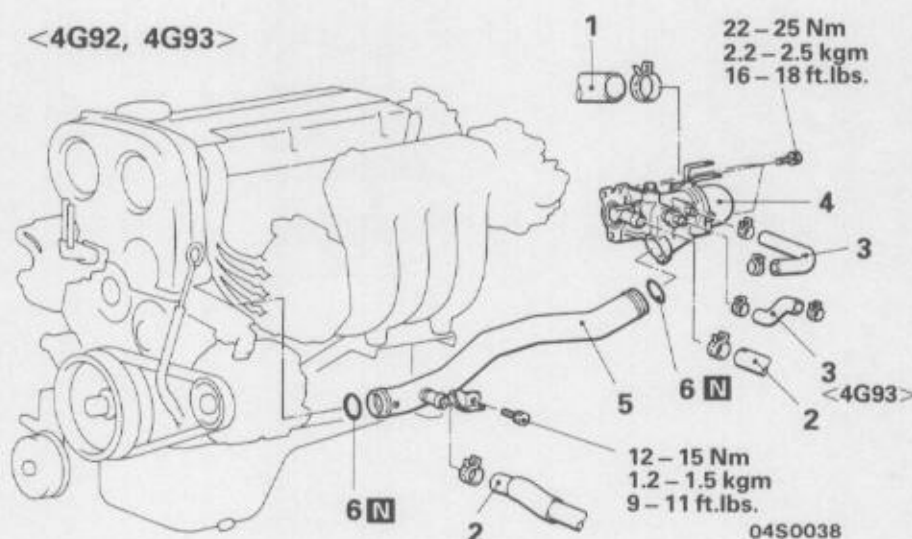
Pre-removal and Post-installation Operation

- Draining and Supplying of Coolant (Refer to P. 14-6.)

<4G13 MPI>



<4G92, 4G93>

**Removal steps**

- ◆◆ 1. Radiator lower hose connection
- ◆◆ 2. Heater hose connection
- ◆◆ 3. Water hose
- ◆◆ 4. Thermostat case, thermostat and water inlet fitting assembly <4G92, 4G93>
- 5. Water inlet pipe
- 6. O-ring (Refer to P. 14-13-2.)
- ◆◆ 7. Bypass hose <4G13MPI>

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 INSTALLATION

E14TDAI

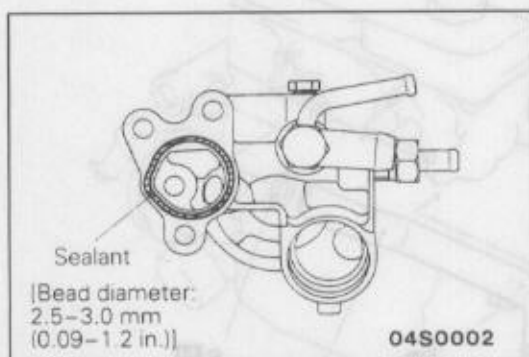
7./3./2./1. INSTALLATION OF HOSES

The hose clamp should always be installed at the previous hose clamp installation position.

4. INSTALLATION OF THERMOSTAT CASE, THERMOSTAT AND WATER INLET FITTING ASSEMBLY

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 PIPE AND HOSE <PETROL-POWERED VEHICLES>

E14TA-C

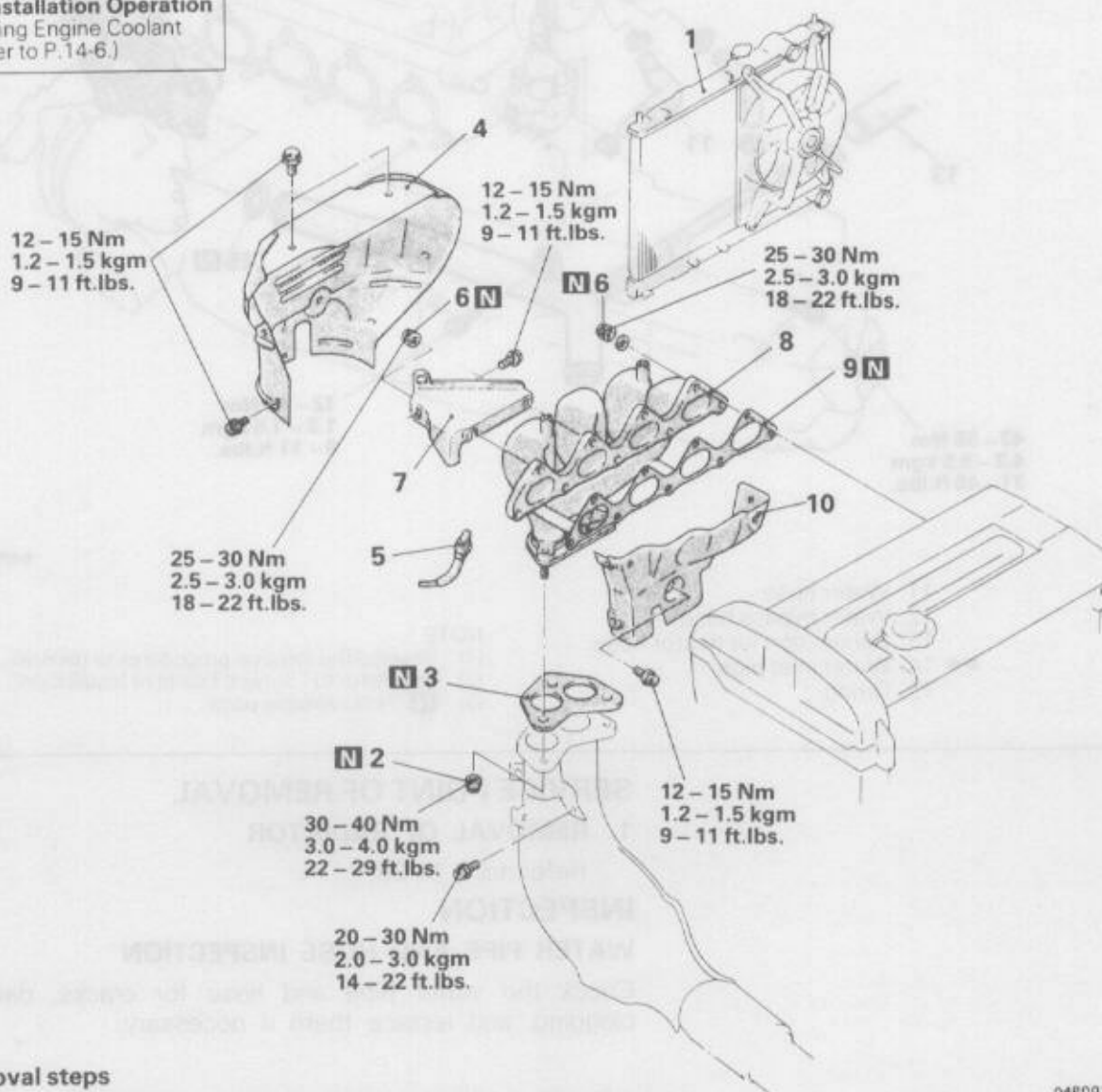
REMOVAL AND INSTALLATION <DOHC>

Pre-removal Operation

- Draining Engine Coolant
(Refer to P.14-6.)

Post-installation Operation

- Pouring Engine Coolant
(Refer to P.14-6.)

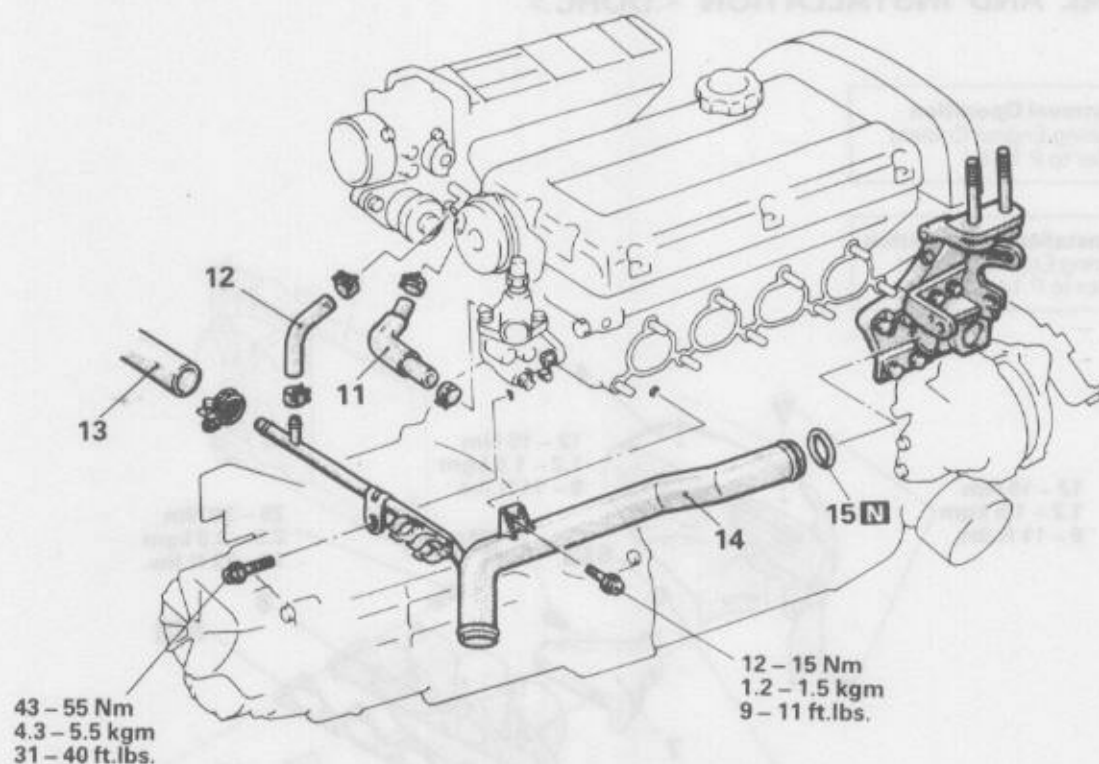
**Removal steps**

- ◆◆ ◆◆ 1. Radiator
2. Self-locking nuts
3. Gasket
4. Heat protector (A)
5. Connection for oxygen sensor connector
6. Self-locking nuts
7. Engine hanger
8. Exhaust manifold
9. Exhaust manifold gasket
10. Heat protector (B)

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

04PD017



04P0045

- 11. Water hose
- 12. Water bypass hose
- 13. Connection for heater hose
- ◆◆ 14. Water inlet pipe
- 15. O-ring

NOTE

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

SERVICE POINT OF REMOVAL

E14TBAD

1. REMOVAL OF RADIATOR

Refer to P.14-25.

INSPECTION

E14TCAC3

WATER PIPE AND HOSE INSPECTION

Check the water pipe and hose for cracks, damage and clogging, and replace them if necessary.

SERVICE POINTS OF INSTALLATION

E14TDAG

14. INSTALLATION OF WATER INLET PIPE

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

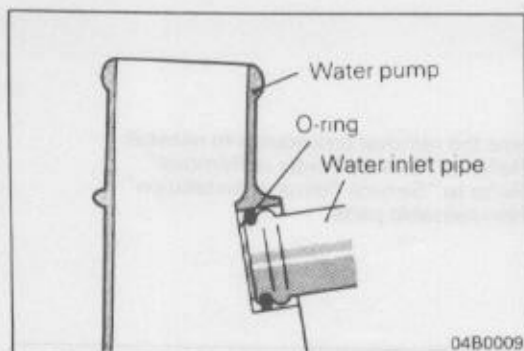
Caution

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

1. INSTALLATION OF RADIATOR

Refer to P.14-25.

PWME8802



04B0009

E14TA-D

WATER PIPE AND HOSE <DIESEL-POWERED VEHICLES>**REMOVAL AND INSTALLATION****Pre-removal Operation**

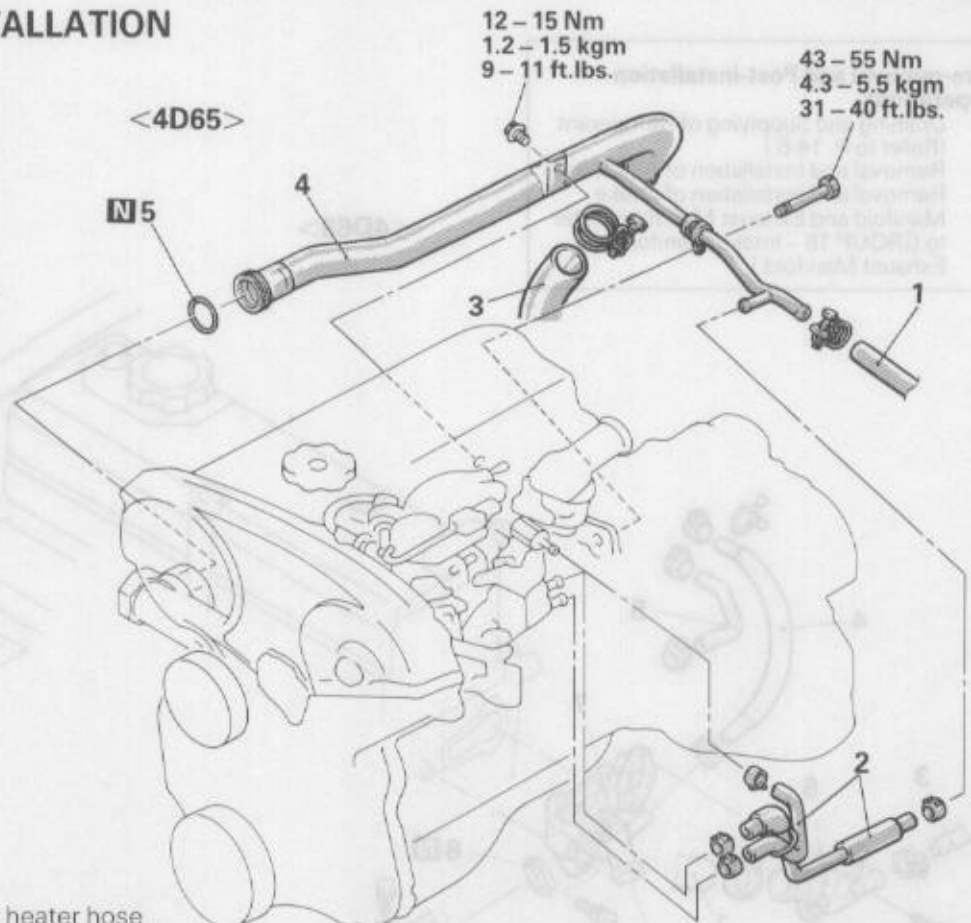
- Draining Engine Coolant (Refer to P.14-6.)
- Removal of Air Cleaner (Refer to GROUP 15 – Air Cleaner.)

Post-installation Operation

- Installation of Air Cleaner (Refer to GROUP 15 – Air Cleaner.)
- Supplying Engine Coolant (Refer to P.14-6.)

Removal steps

1. Connection for heater hose
2. Water hose
3. Connection for radiator lower hose
- ♦♦ 4. Water inlet pipe
5. O-ring

**NOTE**

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

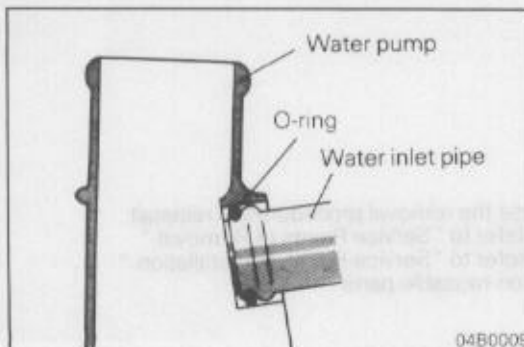
04P0029

INSPECTION

E14TCAC4

WATER PIPE AND HOSE INSPECTION

Check the water pipe and hose for cracks, damage, clog and replace them if necessary.



04B0009

SERVICE POINT OF INSTALLATION

E14TDAF3

14. INSTALLATION OF WATER INLET PIPE

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

Caution

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

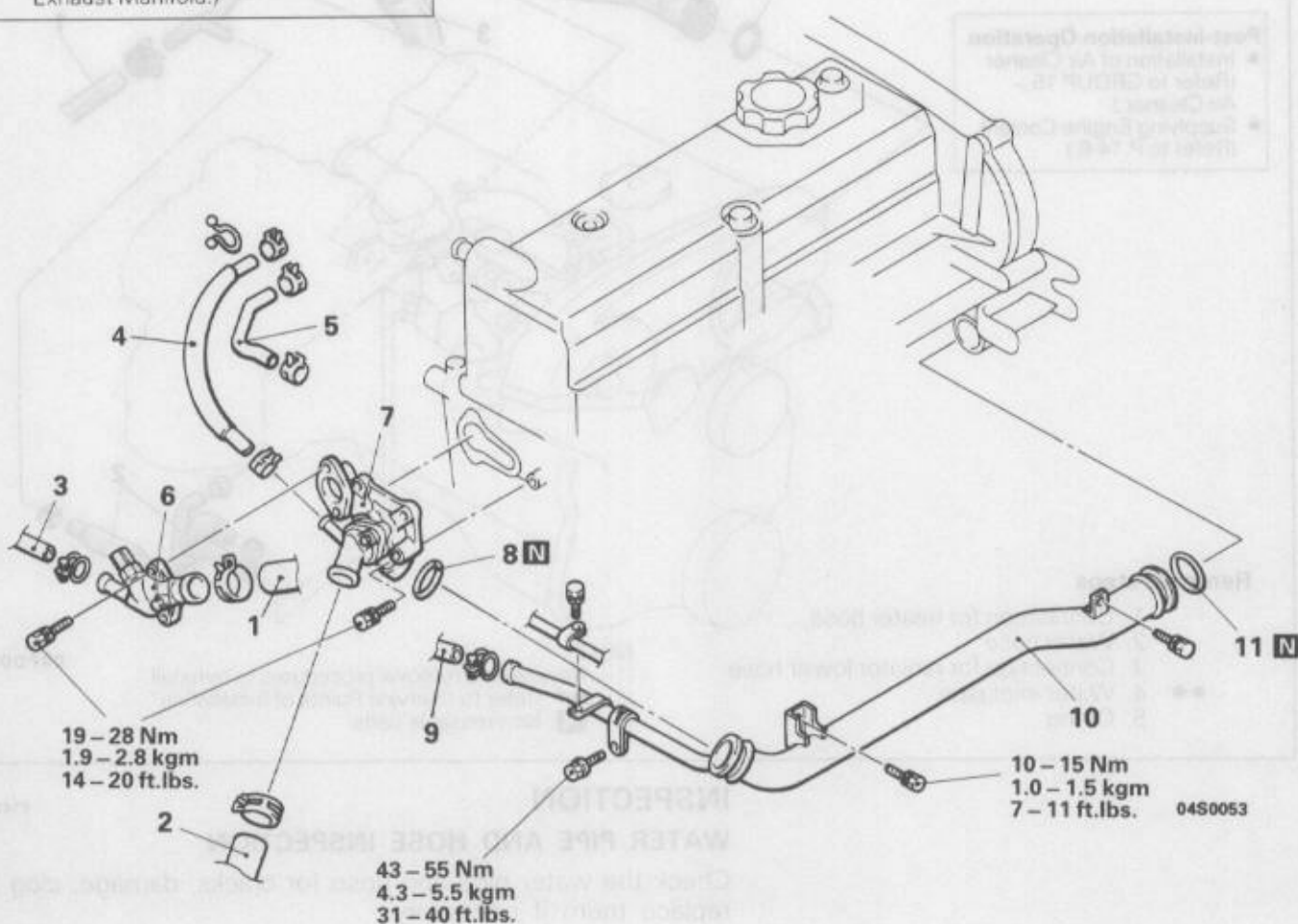
REMOVAL AND INSTALLATION

E14TA-

Pre-removal and Post-installation Operations

- Draining and Supplying of Refrigerant (Refer to P. 14-6.)
- Removal and Installation of Air Cleaner
- Removal and Installation of Intake Manifold and Exhaust Manifold (Refer to GROUP 15 – Intake Manifold and Exhaust Manifold.)

<4D68>



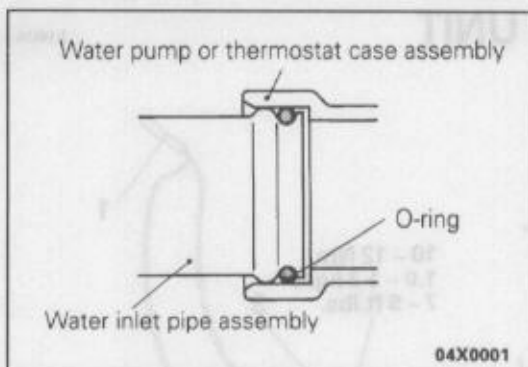
Removal steps

1. Radiator upper hose connection
2. Radiator lower hose connection
3. Heater hose connection
4. Water hose
5. Water hose
6. Water outlet fitting
7. Thermostat case assembly
8. O-ring
9. Heater hose connection
10. Water inlet pipe assembly
11. 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

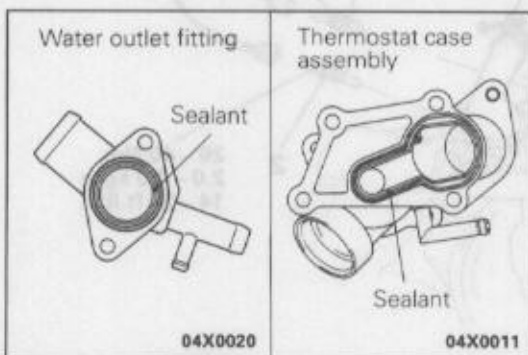
E14MD8G



SERVICE POINTS OF INSTALLATION

11./8. INSTALLATION OF O-RING

Insert the O-rings into the grooves at both ends of the water inlet pipe assembly, rinse the outside of the O-rings and the inside surface of the pipe installation locations with water, and insert the pipe.

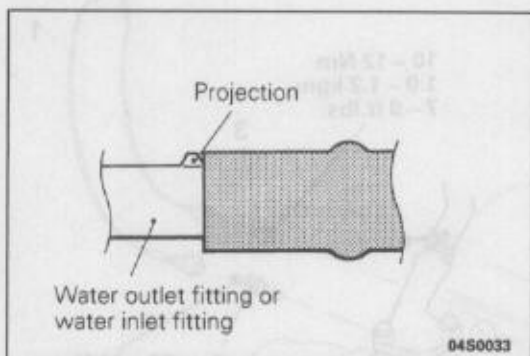


7./6. INSTALLATION OF THERMOSTAT CASE ASSEMBLY AND WATER OUTLET FITTING

- (1) Use a brass wire brush to thoroughly clean all foreign particles from the surface of the gasket.
- (2) Apply specified sealant, leaving no bare patches.

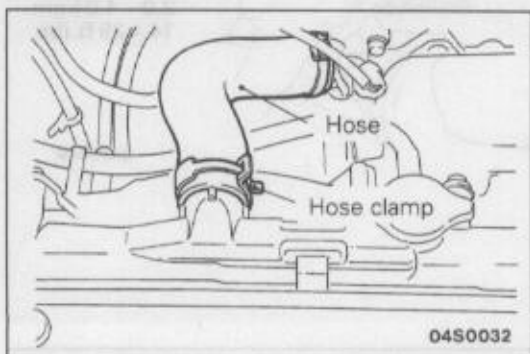
Specified sealant: Mitsubishi Genuine Parts No. MD970389 or equivalent

- (3) While the sealant is still wet (within 15 minutes), install the thermostat case assembly and the water outlet fitting.
Be sure not to apply sealant anywhere other than in the places necessary.



2./1. INSTALLATION OF RADIATOR LOWER HOSE OR RADIATOR UPPER HOSE

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



- (2) The hose clamp should always be installed at the previous hose clamp installation position.

ENGINE COOLANT TEMPERATURE GAUGE UNIT

E14UA--

REMOVAL AND INSTALLATION

Pre-removal Operation

- Draining Engine Coolant
(Refer to P.14-6.)

Post-installation Operation

- Refilling Engine Coolant
(Refer to P.14-6.)

<SOHC-Carburettor>

10 – 12 Nm
1.0 – 1.2 kgm
7 – 9 ft.lbs.

20 – 40 Nm
2.0 – 4.0 kgm
14 – 29 ft.lbs.

04P0049

<SOHC-MPI (4G13, 4G15)>

20 – 40 Nm
2.0 – 4.0 kgm
14 – 29 ft.lbs.

04P0048

<SOHC-MPI (4G37)>

10 – 12 Nm
1.0 – 1.2 kgm
7 – 9 ft.lbs.

20 – 40 Nm
2.0 – 4.0 kgm
14 – 29 ft.lbs.

04P0049

1. Wiring harness connection
- ♦♦ 2. Engine coolant temperature switch (vehicles with cold mixture heater relay) or Engine coolant temperature sensor (FBC, MPI)
- ♦♦ 3. Engine coolant temperature gauge unit

NOTE

♦♦: Refer to "Service Points of Installation".

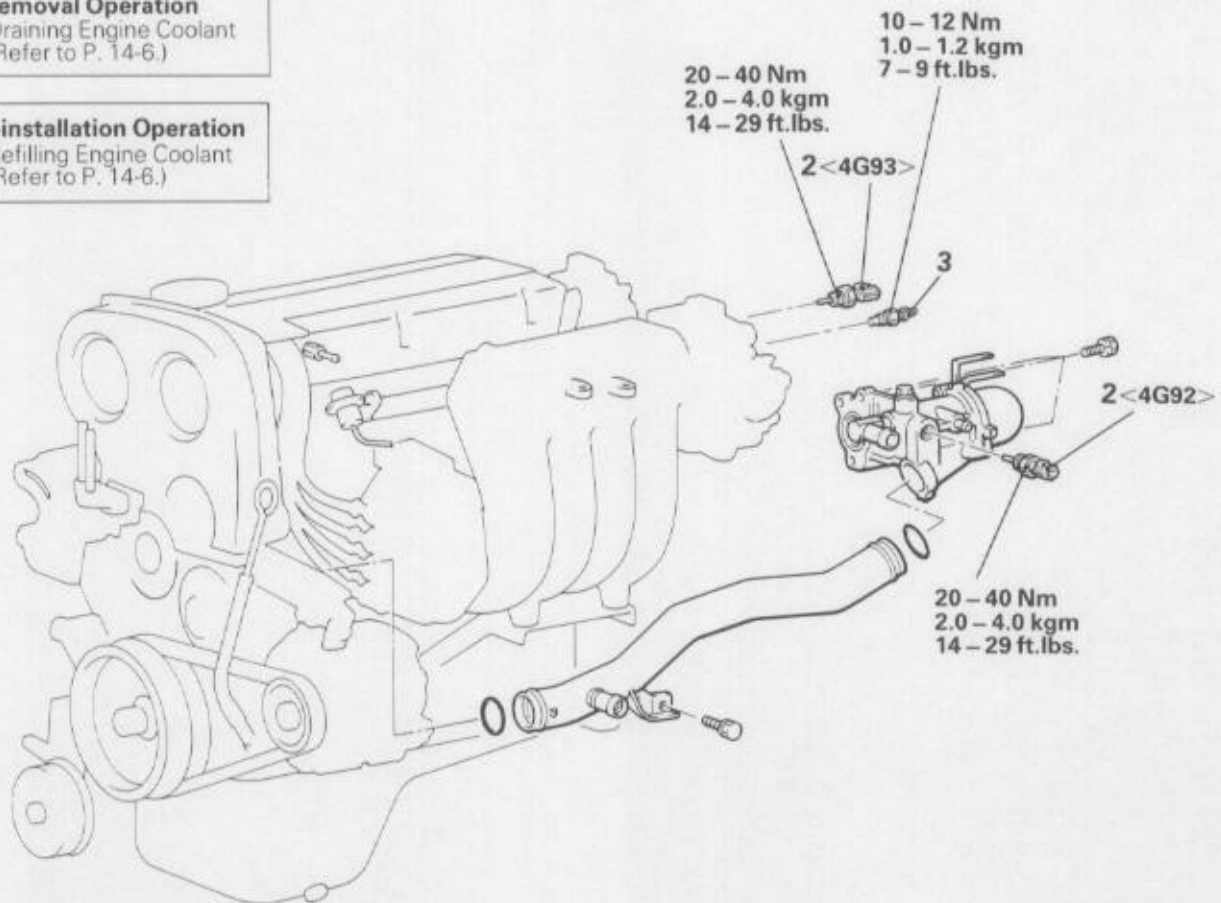
<4G92, 4G93>

Pre-removal Operation

- Draining Engine Coolant (Refer to P. 14-6.)

Post-installation Operation

- Refilling Engine Coolant (Refer to P. 14-6.)



01P0294

Removal steps

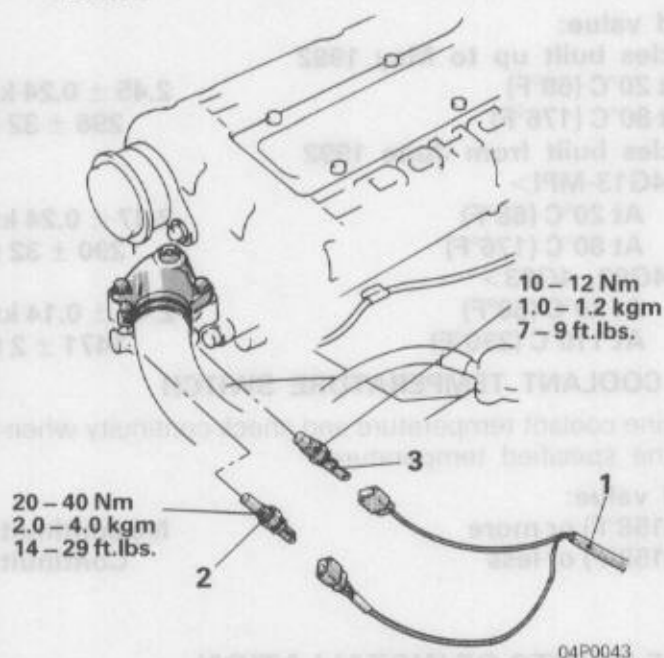
- ◆◆ 2. Engine coolant temperature sensor
- ◆◆ 3. Engine coolant temperature gauge unit

NOTE

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

NOTES

<DOHC>

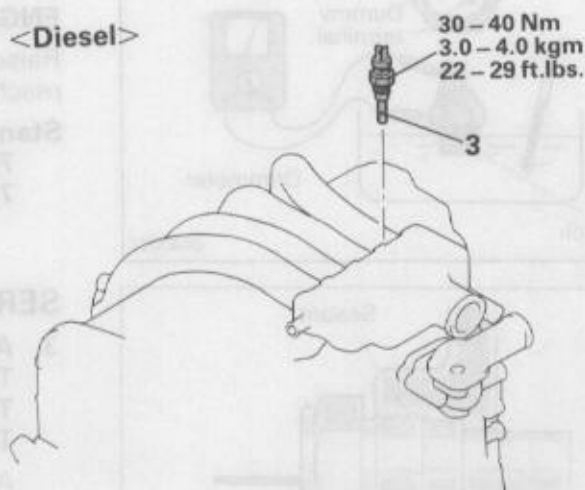


1. Wiring harness connection
 ♦♦ 2. Engine coolant temperature sensor
 ♦♦ 3. Engine coolant temperature gauge unit

NOTE

♦♦: Refer to "Service Points of Installation".

<Diesel>



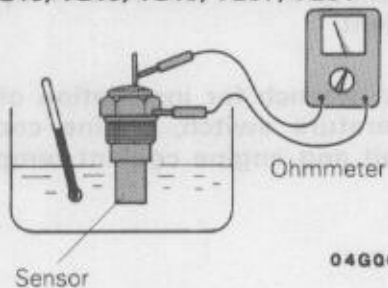
Pre-removal Operation

- Draining Engine Coolant (Refer to P.14-6.)

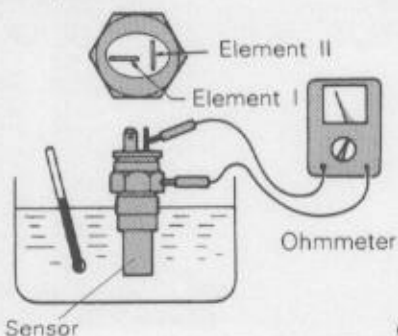
Post-installation Operation

- Refilling Engine Coolant (Refer to P.14-6.)

<4G13, 4G15, 4G16, 4G37, 4G61>



<4D65, 4D68>



INSPECTION

E14UCAI

ENGINE COOLANT TEMPERATURE GAUGE UNIT

Raise the engine coolant temperature and measure the resistance if within the standard value.

<4G13, 4G15, 4G16, 4G37, 4G61, 4G92, 4G93>

Standard value: $104 \pm 13.5 \Omega$ [at 70°C (158°F)]

<4D65, 4D68>

Standard value:

Element I (Engine coolant temperature gauge)

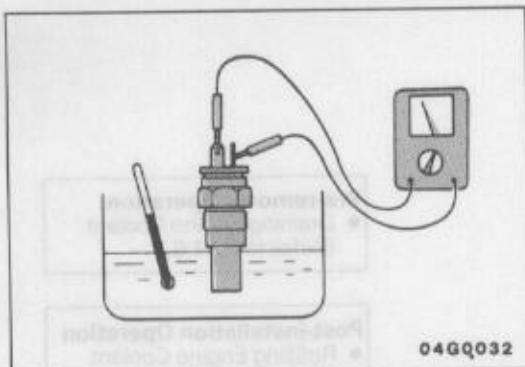
At 70°C (158°F)

$104 \pm 13.5 \Omega$

Element II (Glow control)

At 20°C (68°F)

$3.25 \pm 0.33 \text{ k}\Omega$

**ENGINE COOLANT TEMPERATURE SENSOR**

Raise the engine coolant temperature and measure the resistance if within the standard value.

Standard value:

Vehicles built up to May 1992

At 20°C (68°F)

$2.45 \pm 0.24 \text{ k}\Omega$

At 80°C (176°F)

$296 \pm 32 \Omega$

Vehicles built from June 1992

<4G13-MPI>

At 20°C (68°F)

$2.37 \pm 0.24 \text{ k}\Omega$

At 80°C (176°F)

$290 \pm 32 \Omega$

<4G92, 4G93>

At 20°C (68°F)

$2.45 \pm 0.14 \text{ k}\Omega$

At 110°C (230°F)

$1471 \pm 2 \Omega$

ENGINE COOLANT TEMPERATURE SWITCH

Raise engine coolant temperature and check continuity when it reaches the specified temperature.

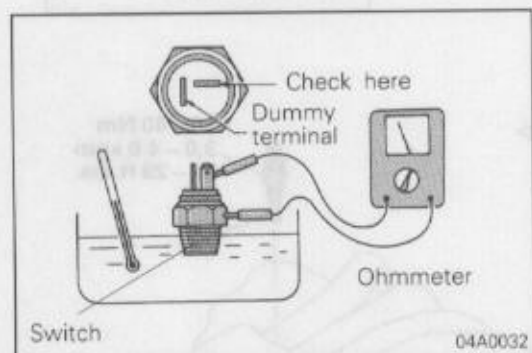
Standard value:

70°C (158°F) or more

No continuity

70°C (158°F) or less

Continuity

**SERVICE POINTS OF INSTALLATION**

E14UDAG

3. APPLICATION OF SEALANT TO ENGINE COOLANT TEMPERATURE GAUGE UNIT / 2. ENGINE COOLANT TEMPERATURE SWITCH OR ENGINE COOLANT TEMPERATURE SENSOR

Apply sealant to threaded portion and tighten.

Engine coolant temperature gauge unit and engine coolant temperature sensor

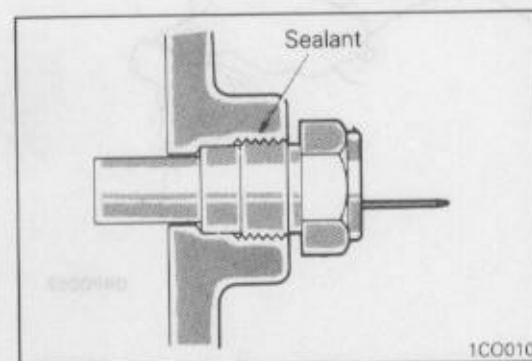
Specified sealant: 3M Adhesive Nut Locking No. 4171 or equivalent

Engine coolant temperature switch

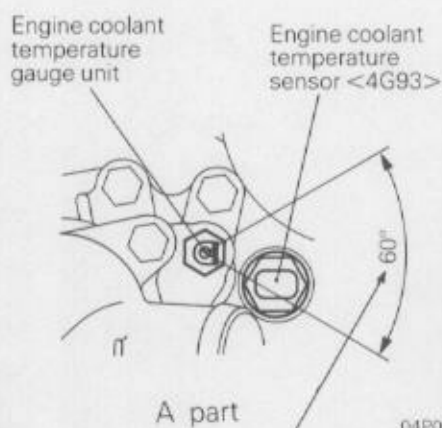
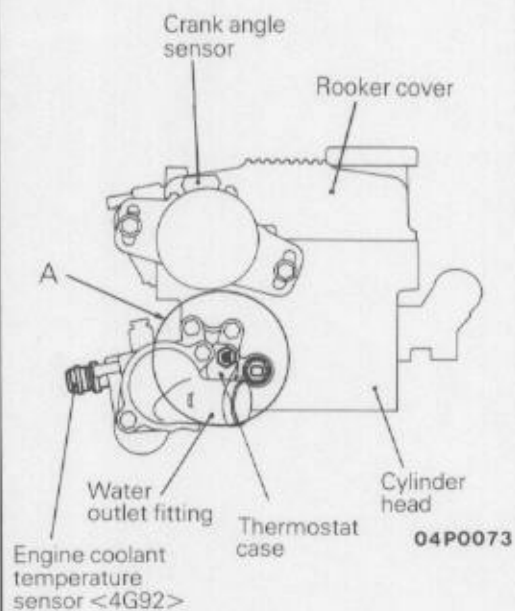
Specified sealant: 3M ATD Part No. 8660 or equivalent

Caution

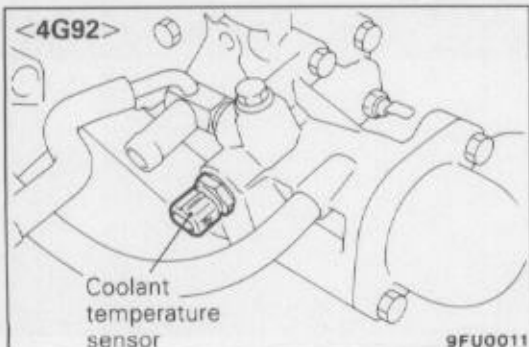
Avoid using an impact wrench for installation of the engine coolant temperature switch, engine coolant temperature gauge unit and engine coolant temperature sensor.



<4G92, 4G93>



<4G92>

**Caution:**

When installing the engine coolant temperature gauge unit on 4G92 or 4G93 engine, position the terminal of the gauge unit as shown in the illustration.

NOTES

RADIATOR

REMOVAL AND INSTALLATION

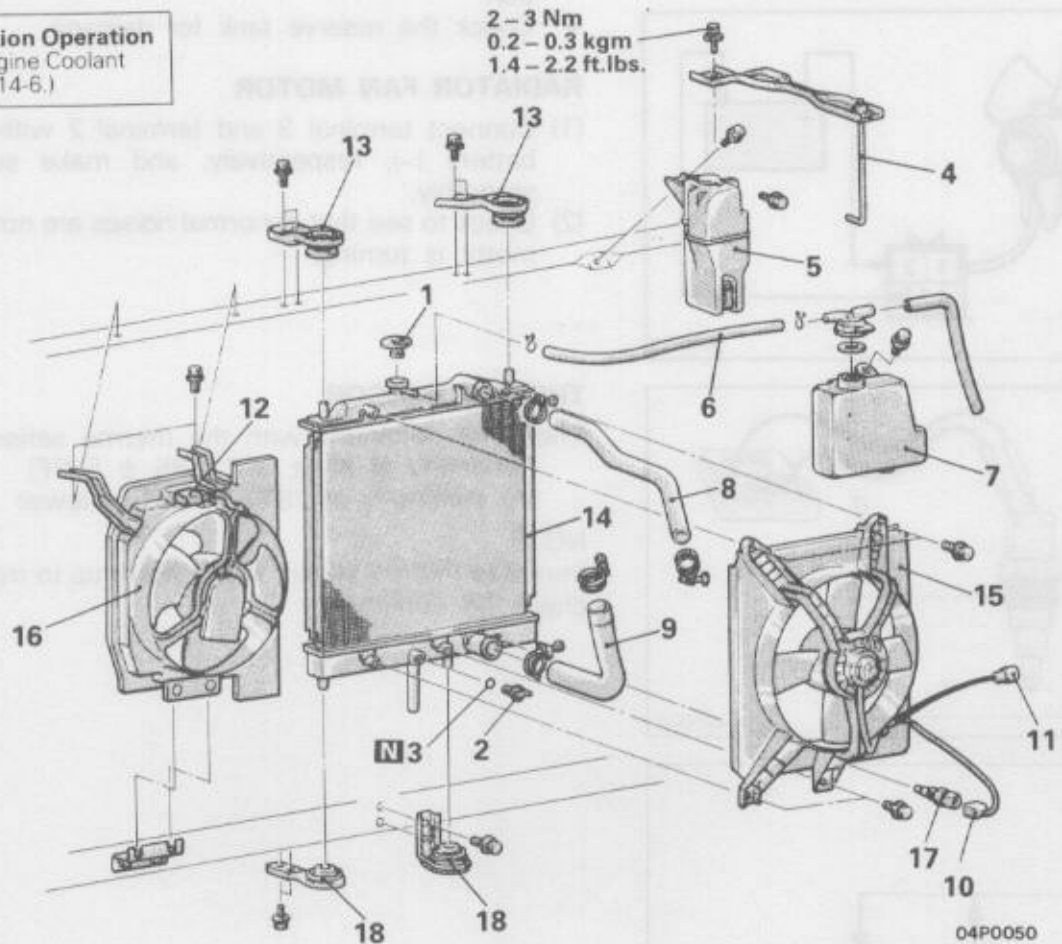
<4G13*, 4G15-M/T*, 4G16>

Pre-removal Operation

- Draining Engine Coolant (Refer to P.14-6.)

Post-installation Operation

- Refilling Engine Coolant (Refer to P.14-6.)



04P0050

Removal steps

1. Radiator cap
2. Drain plug
3. O-ring
4. Battery holder
5. Washer tank
6. Overflow tube
7. Condenser tank
8. Radiator upper hose
9. Radiator lower hose
10. Thermo sensor connector
11. Radiator fan motor connector
12. Condenser fan motor connector (Vehicles with air conditioner)

13. Upper insulator
14. Radiator assembly
15. Radiator fan motor assembly
16. Condenser fan motor assembly (Vehicles with air conditioner)
17. Thermo sensor
18. Lower insulator

NOTE

- (1) Reverse the removal procedures to reinstall.
- (2) Refer to "Service Points of Removal".
- (3) **N** Non-reusable parts
- (4) * Except vehicles for GCC.

SERVICE POINT OF REMOVAL

E14QBAG

5. REMOVAL OF WASHER TANK

Keep the washer hose connected and tie it with a cord in a position so that it does not hinder the removal of the washer tank.

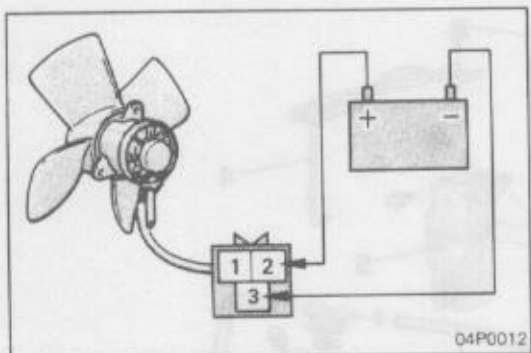
INSPECTION

E14QCAH

- Check the radiator fins for bends, breaks or plugs.
- Check the radiator for corrosion, damage, rust or scale.
- Check the radiator hoses for cracks, damage or deterioration.
- Check the reserve tank for damage.

RADIATOR FAN MOTOR

- (1) Connect terminal 3 and terminal 2 with battery (+) and battery (-), respectively, and make sure motor turns smoothly.
- (2) Check to see that abnormal noises are not produced, while motor is turning.

**THERMO SENSOR**

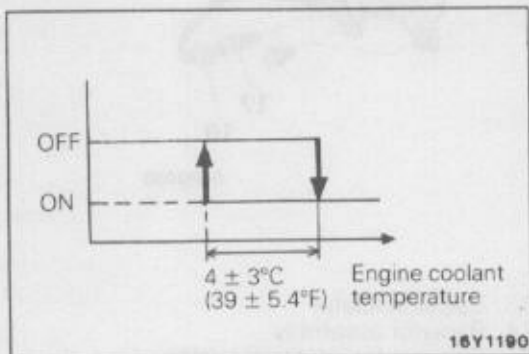
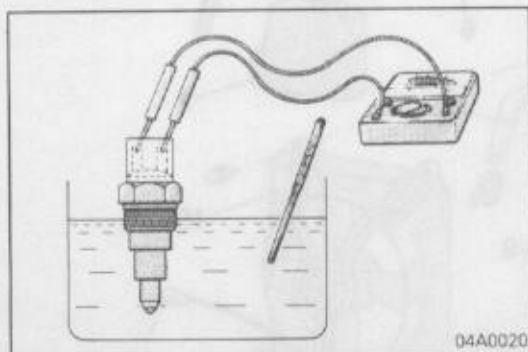
Check for continuity with the thermo sensor in hot water.

Continuity at $85 \pm 3^{\circ}\text{C}$ ($185 \pm 5.4^{\circ}\text{F}$)

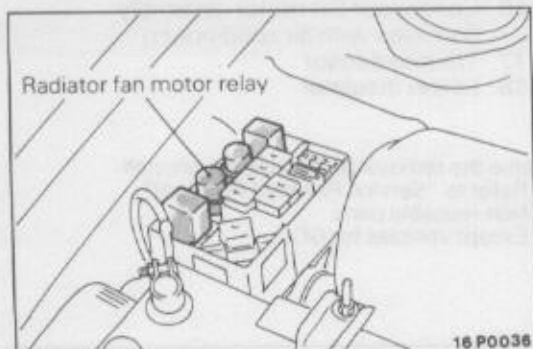
No continuity at 78°C (172°F) or lower

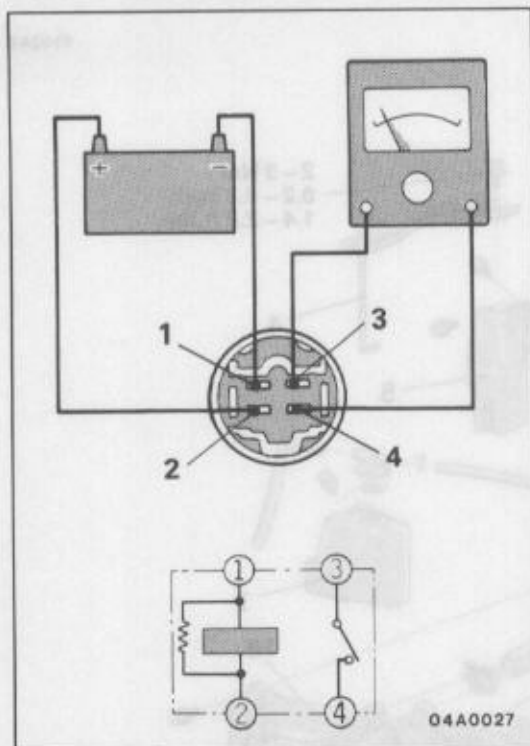
NOTE

Immerse thermo sensor in hot water up to mounting thread to check for continuity.

**RADIATOR FAN MOTOR RELAY**

- (1) Remove the radiator fan motor relay from the relay box in the engine compartment, and connect an ohmmeter to the relay side connector.





(2) Connect battery power supply to terminal 2. Check circuit between terminals with terminal 1 earthed.

Power is supplied	Between 3 – 4 terminals	Continuity
Power is not supplied	Between 3 – 4 terminals	No continuity
	Between 1 – 2 terminals	Continuity

DISASSEMBLY AND REASSEMBLY (RADIATOR FAN MOTOR ASSEMBLY)

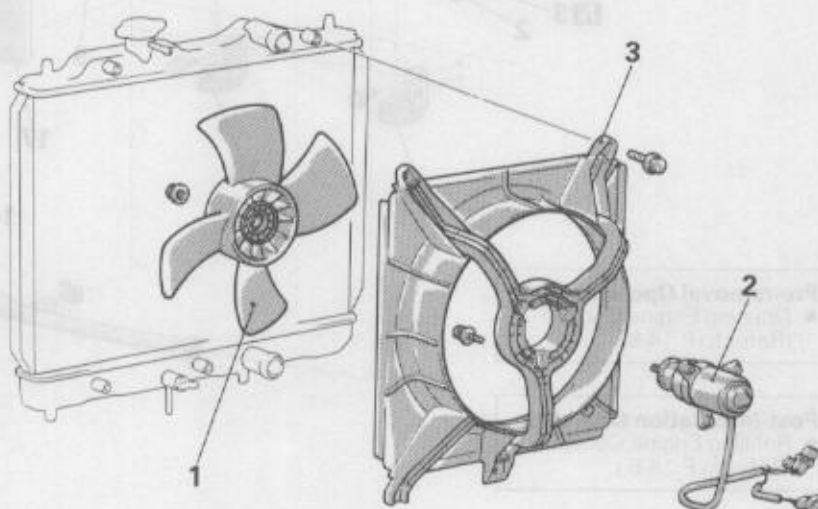
E14KE-A

Disassembly steps

1. Fan
2. Radiator fan motor
3. Shroud

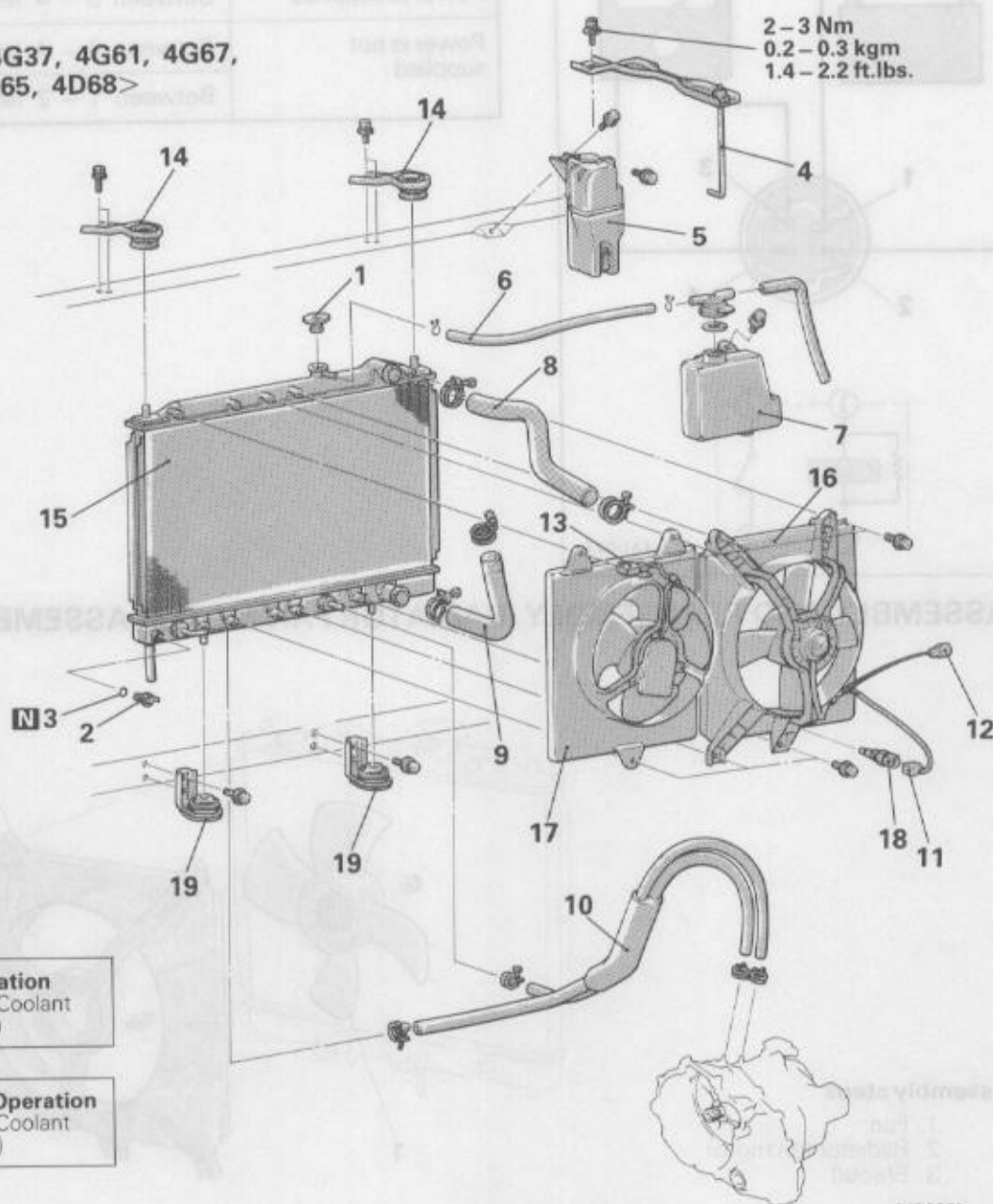
NOTE

Reverse the disassembly procedures to reassemble.



REMOVAL AND INSTALLATION

<4G13, 4G15, 4G37, 4G61, 4G67,
4G92, 4G93, 4D65, 4D68>

**Pre-removal Operation**

- Draining Engine Coolant (Refer to P.14-6.)

Post-installation Operation

- Refilling Engine Coolant (Refer to P.14-6.)

04P0051

Removal steps

1. Radiator cap
2. Drain plug
3. O-ring
4. Battery holder
5. Washer tank
6. Overflow tube
7. Condenser tank
8. Radiator hose, upper
9. Radiator hose, lower
10. Automatic transmission oil cooler hoses <A/T>
11. Thermo sensor connector
12. Radiator fan motor connector

13. Condenser fan motor connector (Vehicles with air conditioner)
14. Upper insulator
15. Radiator assembly
16. Radiator fan motor assembly
17. Condenser fan motor assembly (Vehicles with air conditioner)
18. Thermo sensor
19. Lower insulator

NOTE

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

SERVICE POINTS OF REMOVAL

E14QBAH

5. REMOVAL OF WASHER TANK

Keep the washer hose connected and tie it with a cord in a position so that it does not hinder the removal of the washer tank.

10. REMOVAL OF AUTOMATIC TRANSMISSION OIL COOLER HOSES <A/T>

After the hoses have been removed from the radiator, plug the hoses and the nipples of the radiator and transmission to prevent the entry of foreign matter.

INSPECTION

E14QCAJ

Refer to P.14-26.

DISASSEMBLY AND REASSEMBLY (RADIATOR FAN MOTOR ASSEMBLY)

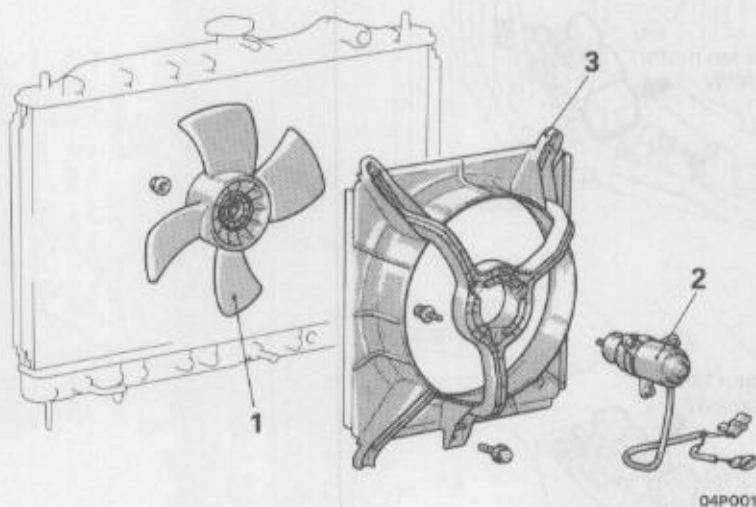
E14KE-B

Disassembly steps

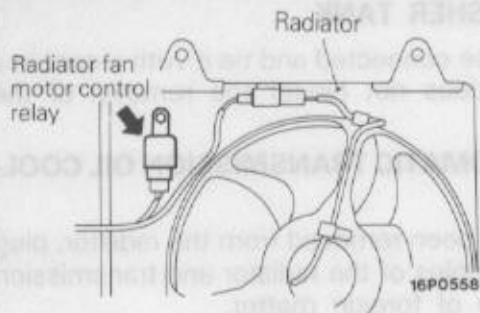
1. Fan
2. Radiator fan motor
3. Shroud

NOTE

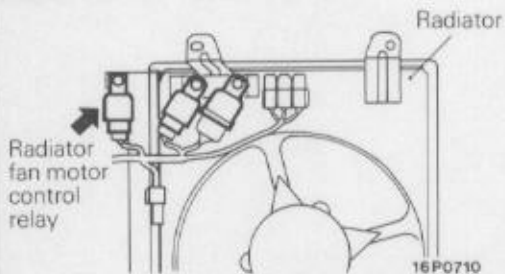
Reverse the disassembly procedures to reassemble.



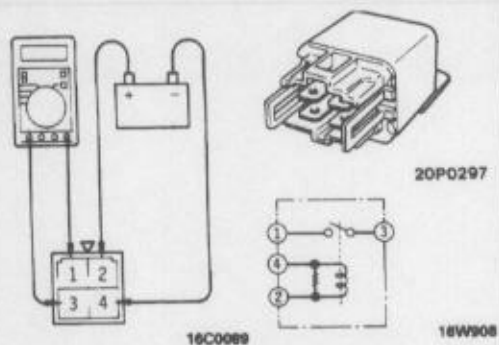
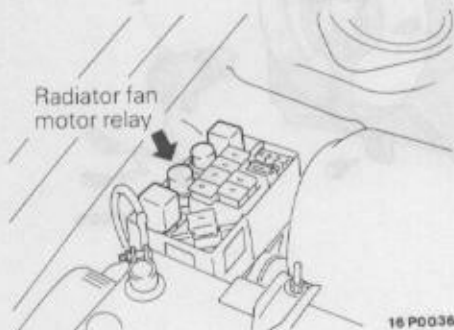
<4G9 for Europe without ABS>



<4G9 for Europe with ABS>



<Vehicle for General Export and Australia>



RADIATOR FAN MOTOR CONTROL RELAY, RADIATOR FAN MOTOR RELAY

Battery voltage	Terminal	1	2	3	4
Not supplied			○		○
Supplied		○	⊕	○	⊖

NOTE

○—○ indicates that there is continuity between the terminals.

⊕—⊖ indicates terminals to which battery voltage is applied.