
COOLING

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SPECIFICATIONS

N07CA--

GENERAL SPECIFICATIONS

Items	Specifications
Cooling method	Liquid-cooled, pressurized, forced circulation
Radiator Type	Pressurized corrugated fin type
Radiator cap High pressure valve opening pressure kPa (psi) Vacuum valve opening pressure kPa (in.Hg)	75 – 105 (11 – 15) –5 (–1.5) or less
Radiator fan motor Type Rated load torque Nm (in.lbs.) <1.5L Engine> <1.6L Engine-T/C> <1.6L Engine-N/A> rpm (with the fan attached) rpm <1.5L Engine> <1.6L Engine-T/C> <1.6L Engine-N/A> Current A <1.5L Engine> <1.6L Engine-T/C> <1.6L Engine-N/A>	Direct current ferrite type 0.123 (0.11) 0.356 (0.31) 0.250 (0.22) 1,950 ± 250 2,080 ± 300 2,150 ± 250 3.8 ± 1.0 9.5 ± 1.5 6.7 ± 1.0
Thermo sensor Operating temperature OFF → ON °C (°F) ON → OFF °C (°F)	 85 ± 3 (185 ± 5.4) 78 (172)
Radiator fan motor relay Exciting coil rated current A Maximum contact current capacity A Range of voltage used V Voltage drop between terminals V	0.175 ± 0.04 22 10 – 16 0.2 or less
Water pump	Impeller of centrifugal type
Thermostat Type Valve opening temperature °C (°F) Full-opening temperature °C (°F) Identification mark	Wax pellet type with jiggle valve 88 (190) 100 (212) or more at valve lift 8 mm (.31 in.) or more 88 (Stamped on flange)

Items	Specifications
Drive belt Type Engine coolant temperature gauge unit Type Resistance Ω	V-ribbed belt Thermistor type 104 at 70°C (158°F) 38 at 100°C (212°F)
Thermo switch for automatic transaxle Type Switching temperature °C (°F)	Heat-sensitive thermistor type Switches "ON" at 50 (122) or more

SERVICE SPECIFICATIONS

N07CB-

Items	Specifications
Standard value Opening pressure of radiator cap high pressure valve kPa (psi) Engine coolant concentration % Alternator/water pump drive belt deflection mm (in.) Inspection <1.5L Engine> <1.6L Engine> New belt <1.5L Engine> <1.6L Engine> Used belt <1.5L Engine> <1.6L Engine> Alternator/water pump drive belt tension N (lbs.) Inspection New belt Used belt Limit Opening pressure of radiator cap high pressure valve kPa (psi)	75 – 105 (11 – 15) 30 – 60 7.0 – 9.0 (.276 – .354) 9.0 – 11.0 (.354 – .453) 5.5 – 7.0 (.217 – .276) 7.5 – 9.0 (.280 – .337) 8.0 (.315) 10.0 (.374) 250 – 500 (55 – 110) 600 ± 100 (132 ± 22) 400 (88) 65 (9.2)

TORQUE SPECIFICATIONS

N07CC--

Items	Nm	ft.lbs.
Water pipe mounting bolt		
Bolt which secures the transaxle also	43 – 55	31 – 40
Bolt which secures the water pipe to cylinder block	12 – 15	9 – 11
Water pump to cylinder block bolt		
Head mark "4"	12 – 15	9 – 10
Head mark "7"	20 – 27	15 – 19
Engine coolant temperature gauge unit	10 – 12	7.3 – 8.6
Engine coolant temperature sensor	20 – 40	15 – 28
Thermo switch (3-A/T)	6 – 9	4 – 7
Water outlet fitting bolt	17 – 20	12 – 14
Oxygen sensor	40 – 50	29 – 36
Front exhaust pipe to exhaust manifold	30 – 40	22 – 29
Front exhaust pipe to engine	20 – 30	14 – 22
Exhaust manifold cover (A), (B) to exhaust manifold	27 – 33	20 – 24
Exhaust manifold cover (A) to exhaust manifold cover (B)	8 – 10	6 – 7
Exhaust manifold to engine <1.5L Engine>	15 – 20	11 – 14
Water pipe mounting bolt		
Bolt which secures the transaxle also	43 – 55	31 – 40
Bolt which secures the water pipe to cylinder block	12 – 15	9 – 11
Heat protector (A), (B) <1.6L Engine>	12 – 15	9 – 11
Exhaust manifold to engine <1.6L Engine>	25 – 30	18 – 22
Engine to hanger	12 – 15	9 – 11
Exhaust manifold to turbocharger	55 – 65	40 – 47
Water pipe (B) to water inlet pipe	40 – 50	29 – 36
Oil pipe to engine	14 – 19	10 – 14
Water pipe (B) to turbocharger	28 – 34	20 – 25
Water pipe (A) to turbocharger	28 – 34	20 – 25
Water pipe (A) mounting bolt	10 – 12	7 – 9
Oil return pipe	8 – 10	6 – 7

LUBRICANTS

N07CD--

Items	Specified lubricants	Quantity
Engine coolant lit. (qt.)	High quality ethylene glycol	5 (5.3)
Automatic transaxle fluid lit. (pints)	MOPAR ATF PLUS (AUTOMATIC TRANSAXLE FLUID TYPE 7176) or DEXRON II	6.1 (13.0)

SEALANTS AND ADHESIVES

N07CE--

Items	Specified sealants	Quantity
Engine coolant temperature gauge unit	MOPAR Part No. 4318034 or equivalent	As required
Engine coolant temperature sensor	MOPAR Part No. 4318034 or equivalent	As required
Thermo switch	MOPAR Part No. 4318034 or equivalent	As required

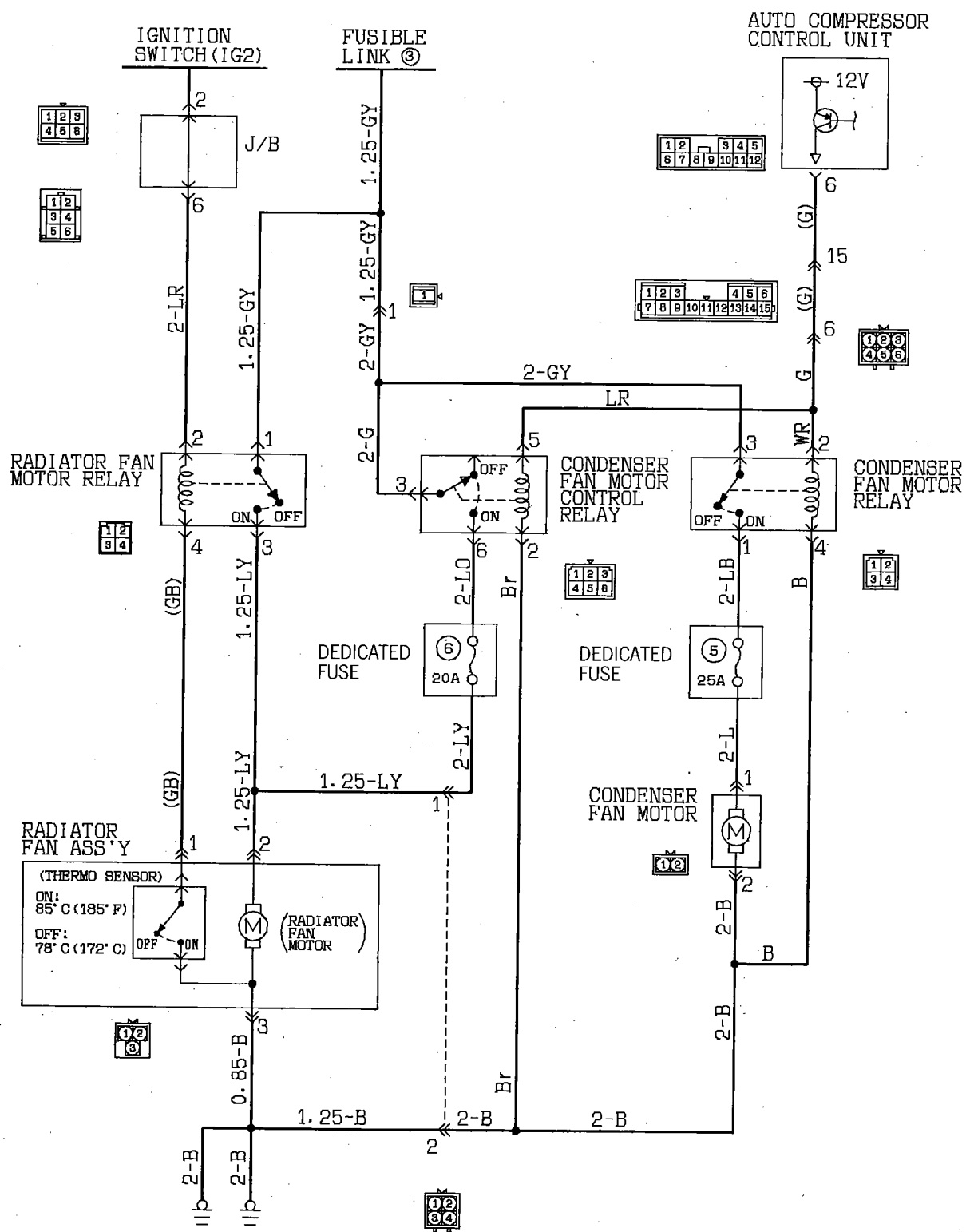
TROUBLESHOOTING

N07EAAJ

Symptom	Probable cause	Remedy
Overheat	Insufficient engine coolant	Refill
	Too high an anti-freeze concentration	Correct anti-freeze concentration
	Loose or broken drive belt	Replace
	Inoperative electric cooling fan	
	Faulty thermo sensor	Replace
	Faulty electrical motor	Replace
	Faulty radiator fan relay	Replace
	Damaged or blocked (improperly ventilated) radiator fins	Correct
	Water leaks	
	Damaged radiator core joint	Replace
	Corroded or cracked hoses (radiator hose, heater hose, etc.)	Replace
	Loose bolt or leaking gasket in water outlet fitting (thermostat)	Correct or replace
	Loose water pump mounting bolt or leaking gasket	Correct or replace
	Faulty radiator cap valve or setting of spring	Replace
	Loose cylinder head bolt	Correct
No rise in temperature	Damaged cylinder head gasket	Replace
	Cracked cylinder block	Replace
	Cracked cylinder head	Replace
	Loose intake manifold bolts or leaking from gasket	Retorque bolts or replace gasket
	Cracked intake manifold	Replace
	Faulty automatic transaxle oil cooler operation	
	Blocked or collapsed hose and pipe	Replace
	Loose hose and pipe connection	Correct
	Faulty thermostat operation	Replace
	Faulty water pump operation	Replace
	Water passage clogged with slime or rust deposit or foreign substance	Clean
No rise in temperature	Faulty thermostat	Replace

CIRCUIT DIAGRAM

<1.5L Engine>



OPERATION**<1.5L Engine>****1. When the output of the auto compressor control unit is "LO" (0V)**

- When the ignition switch is at "IG2" or "ON", and if engine coolant temperature rises to 85°C (185°F), the thermosensor contacts close, causing current to flow through the radiator fan motor relay (coil), thermosensor and ground, causing the radiator fan motor relay contacts to close.
- Current flows through the radiator fan motor relay contacts, radiator fan motor and ground, causing the radiator fan motor to rotate.

2. When the output of the auto compressor control unit is "HI" (Approx. 12V)

- The power supply from the auto compressor control unit causes the condenser fan motor relay and condenser fan motor control relay to be ON, thus the condenser fan and radiator fan rotate.

TROUBLESHOOTING HINTS**1. Neither the radiator fan nor condenser fan operate at all.**

- Check fusible link No. 3.

2. Just the condenser fan does not operate at all.

- Check dedicated fuse No. 6.

NOTE

For troubleshooting of the auto compressor control unit, refer to GROUP 24 – Troubleshooting.

Conditions under which the Auto Compressor Control Unit Outputs a "HI" Signal

Ignition switch (IG2)	ON	Remarks • If any of the switches and sensors is OFF, the auto compressor control unit will output a "LO" signal (0 V).
Blower switch	ON	
Air conditioner switch	ON	
Refrigerant temperature sensor	ON [175°C (347°F) or lower]	
Compressor magnet clutch	ON	

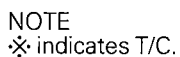
Fan Operating Mode

Switch conditions		Fan rotating condition	
Air conditioner switch	*Thermo sensor	Cooling (radiator) fan	Condenser fan
LO (0V)	OFF	OFF	OFF
LO (0V)	ON	ON	OFF
HI (12V)	OFF	ON	ON
HI (12V)	ON	ON	ON

NOTE

The thermo sensor marked * is ON when the temperature reaches 85°C (185°F) or more.

<1.6L Engine>



OPERATION

N07EAACa

<1.6L Engine>

**1. When the output of the auto compressor control unit is "LO" (0 V)
(when the compressor magnet clutch is deenergized)**

- When the ignition switch is at "ON", and if engine coolant temperature rises to 85°C (185°F), the thermosensor contacts close, causing current to flow through the radiator fan motor relay (coil), thermosensor and ground, causing the radiator fan motor relay contacts to close.
- Current flows through the radiator fan motor relay contacts, radiator fan motor and ground, causing the radiator fan motor to rotate.

**2. When the output of the auto compressor control unit is "HI" (approx. 12 V)
(when the compressor magnet clutch is energized)**

- The power supply from the auto compressor control unit causes the condenser fan motor relay to be "ON", causing the condenser fan and radiator fan to rotate with no mitigating conditions at a low speed via a resistor.
- If the pressure switch is "ON" due to a high refrigerant line pressure on the high pressure side caused by a high atmospheric temperature in summer, or if the thermo sensor is "ON" when the engine coolant temperature exceeds 85°C (185°F), the condenser fan motor control relay is also "ON", thus the condenser fan as well as the radiator fan start rotating at a high speed.

TROUBLESHOOTING HINTS

1. Neither the radiator fan nor condenser fan rotate at all.

- Check fusible link No. 3.

2. Only the condenser fan does not operate.

- Check dedicated fuse No. 6.

3. The radiator fan and condenser fan do not operate in the low speed mode, but operate otherwise.

- (1) The A/C compressor magnet clutch does not enter the "ON" state.

- Check whether the output of the auto compressor control unit is available.

NOTE

For troubleshooting of the auto compressor control unit, refer to GROUP 24.

- (2) The A/C compressor magnet clutch enters the "ON" state.

- Check the resistor.

NOTE

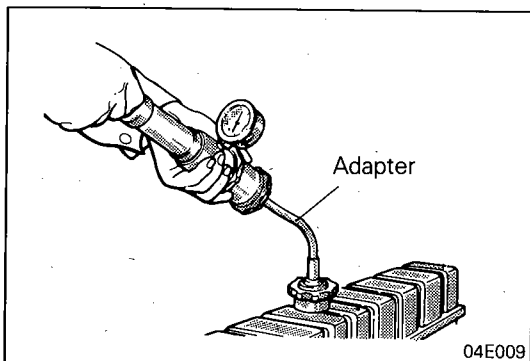
For the pre-conditions for the auto compressor control unit to output "HI" signal, refer to P.7-7.

Fan Operating Mode

Switch conditions			Fan rotating condition	
Air conditioner switch	*1Pressure switch	*2Thermo sensor	Cooling (radiator) fan	Condenser fan
LO (0V)	OFF	OFF	OFF	OFF
LO (0V)	OFF	ON	HIGH	OFF
HI (12V)	OFF	OFF	LOW	LOW
HI (12V)	OFF	ON	HIGH	HIGH
HI (12V)	ON	OFF	HIGH	HIGH
HI (12V)	ON	ON	HIGH	HIGH

NOTE

- (1) The pressure switch marked *1 is ON when the pressure reaches 1.8 MPa (256 psi) or more.
(2) The thermo switch marked *2 is ON when the temperature reaches 85°C (185°F) or more.



SERVICE ADJUSTMENT PROCEDURES

ENGINE COOLANT LEAK CHECK

N07FAAB

1. Loosen radiator cap.
2. Confirm that the engine coolant level is up to the filler neck.
3. Install a radiator cap tester to the radiator filler neck and apply 150 kPa (21 psi) pressure. Hold pressure for two minutes, while checking for leakage from the radiator, hose or connections.

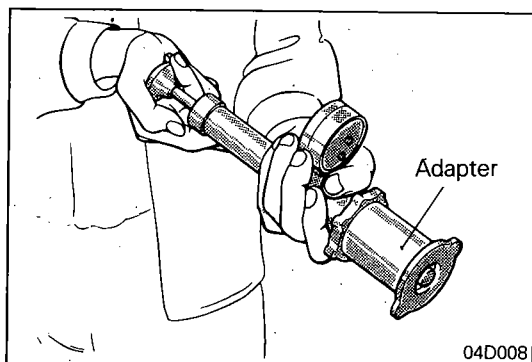
Caution

Be sure to completely clean away any moisture from the places checked.

When the tester is removed, be careful not to spill any engine coolant from it.

Be careful, when installing and removing the tester and when testing, not to deform the filler neck of the radiator.

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



RADIATOR CAP PRESSURE TEST

N07FBAB

1. Use an adapter to attach the cap to the tester.
2. Increase the pressure until the indicator of the gauge stops moving.

Limit: 65 kPa (9.2 psi)

Standard value: 75 – 105 kPa (11 – 15 psi)

3. Replace the radiator cap if the reading does not remain at or above the limit.

NOTE

Be sure that the cap is clean before testing, since rust or other foreign material on the cap seal will cause an improper indication.

ENGINE COOLANT REPLACEMENT

N07FCABa

Refer to GROUP 0 – Engine Coolant Replacement.

ENGINE COOLANT CONCENTRATION TEST

N07FDAEa

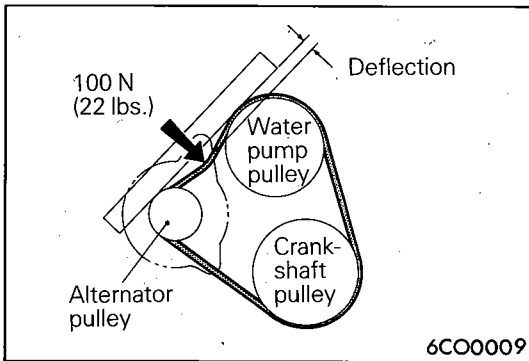
Refer to GROUP 0 – Engine Coolant Selection.

ALTERNATOR/WATER PUMP DRIVE BELT TENSION INSPECTION

N07FEAG

Caution

If the belt slips or squeaks, check the belt tension and also check the belt for wear, damage and breakage and check the pulleys for damage.

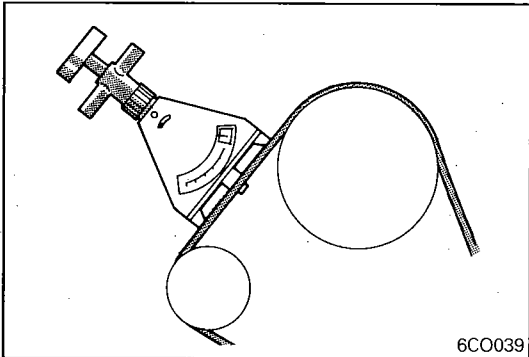


- (1) Place straight edge as shown in the illustration.
- (2) Measure the deflection with a force of 100. N (22 lbs.) applied to belt mid-point between water pump pulley and alternator pulley. If the standard value is not obtained, make adjustment.

Standard value:

<1.5L Engine> 7.0 – 9.0 mm (.276 – .354 in.)

<1.6L Engine> 9.0 – 11.5 mm (.354 – .453 in.)



- (3) Use a tension gauge to check the belt tension. If the standard value is not obtained, make adjustment. When tension gauge is used, the tension may be measured between any two pulleys.

Standard value: 250 – 500 N (55 – 110 lbs.)

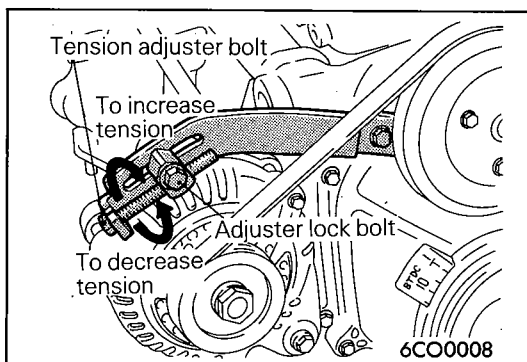
ALTERNATOR/WATER PUMP DRIVE BELT TENSION ADJUSTMENT

N07FFAG

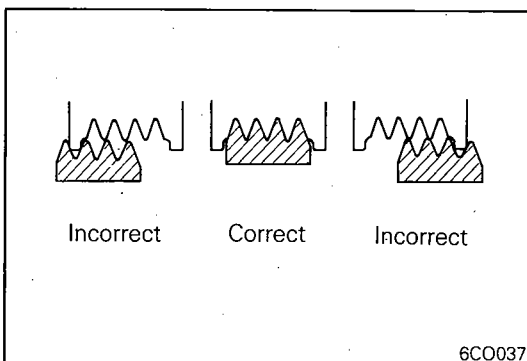
Caution

Excessive belt tension will cause damage to alternator and water pump pulley bearings, while on the other hand, loose belt tension will produces slip.

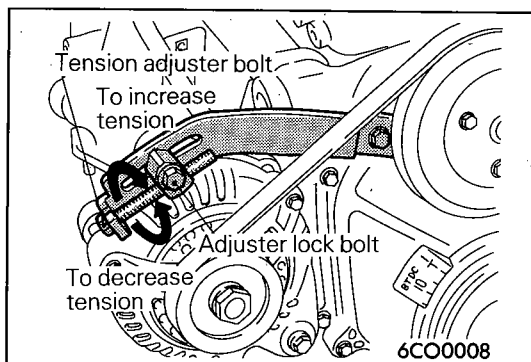
Therefore, be sure to adjust the belt tension to proper value.



- (1) Loosen the alternator pivot nut.
- (2) Loosen the belt tension adjuster lock bolt.
- (3) Release tension by rotating the adjuster bolt counterclockwise.
- (4) Remove and install the alternator and water pump drive belt.



- (5) Make sure the V-ribbed type drive belt is properly installed in pulley grooves.



- (6) Adjust belt deflection by tightening adjust bolt.
Turn adjuster bolt clockwise to increase the belt tension and turn adjuster bolt counterclockwise to decrease the belt tension

Standard value:

New belt

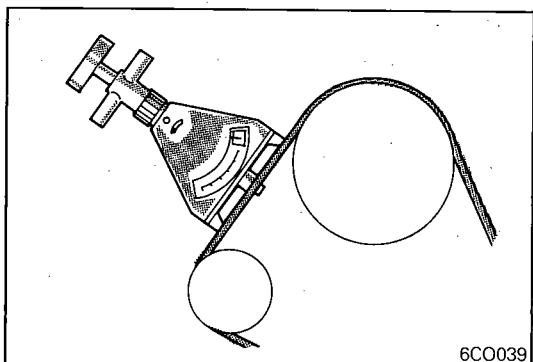
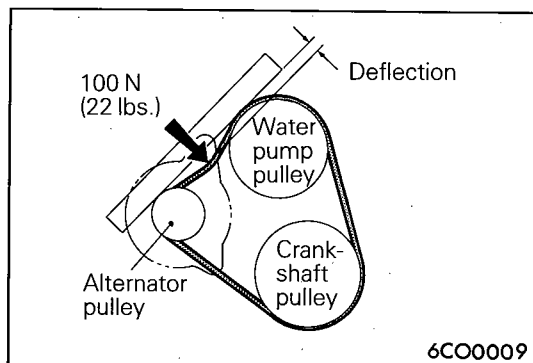
<1.5L Engine> 5.5 – 7.0 mm (.217 – .276 in.)

<1.6L Engine> 7.5 – 9.0 mm (.280 – .337 in.)

Used belt

<1.5L Engine> 8.0 mm (.315 in.)

<1.6L Engine> 10.0 mm (.374 in.)



- (7) Or using tension gauge move the alternator to adjust deflection to standard value.

Standard value:

New belt 600 ± 100 N (132 ± 22 lbs.)

Used belt 400 N (88 lbs.)

- (8) Tighten in order, first, adjuster lock bolt then alternator pivot nut to the specified torque.
(9) If new belt has been installed, run engine for more than 5 minutes. Then follow "DRIVE BELT TENSION INSPECTION" procedure to make sure that the belt has proper tension and readjust if necessary.

THERMOSTAT

REMOVAL AND INSTALLATION

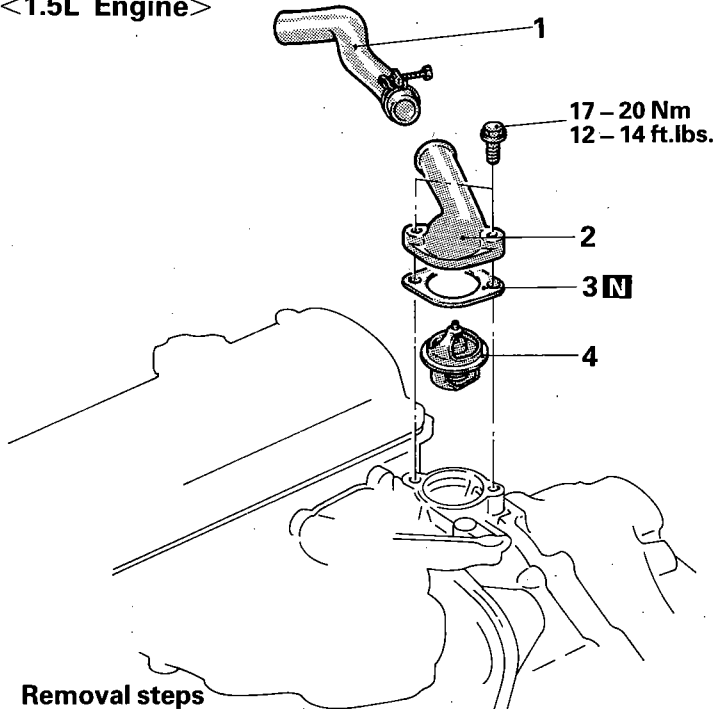
Pre-removal Operation

- Draining Engine Coolant (Refer to GROUP 0 – Maintenance Service.)

Post-installation Operation

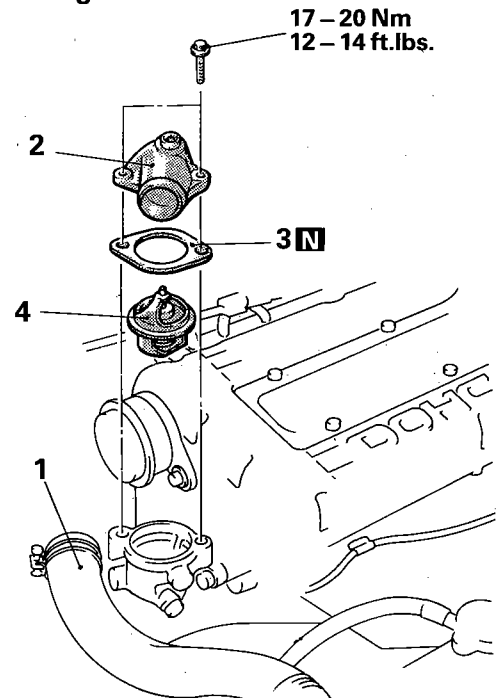
- Pouring Engine Coolant (Refer to GROUP 0 – Maintenance Service.)

<1.5L Engine>

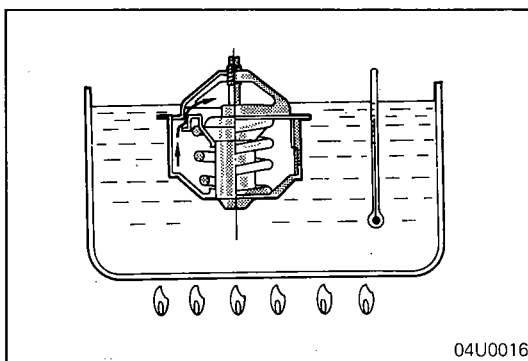
**Removal steps**

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

<1.6L Engine>

**NOTE**

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

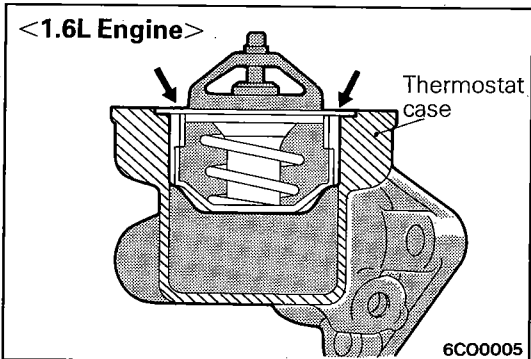
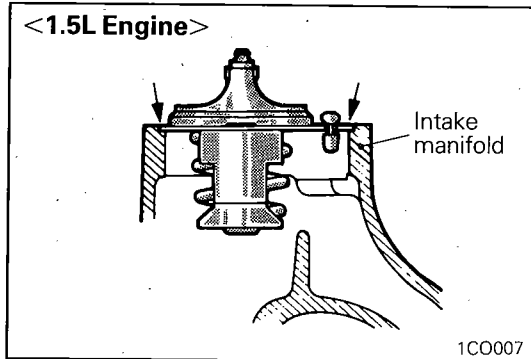
**INSPECTION**

N07GDAG

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

Standard value:

Opening temperature	88°C (190°F)
Full-open temperature	100°C (212°F)

**SERVICE POINT OF INSTALLATION**

N07GEAG

6. INSTALLATION OF THERMOSTAT

Install the thermostat so that its flange seats tightly in the spot faced bore of the intake manifold or thermostat case.

WATER PUMP

REMOVAL AND INSTALLATION

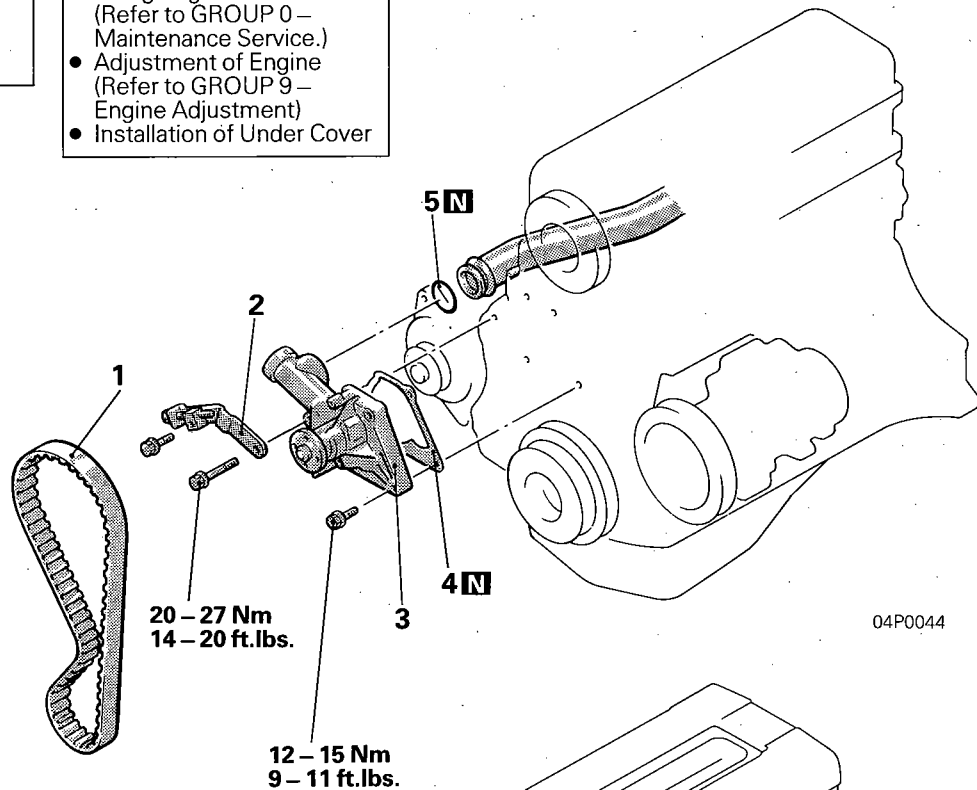
Pre-removal Operation

- Draining Engine Coolant (Refer to GROUP 0 – Maintenance Service.)
- Removal of Under Cover

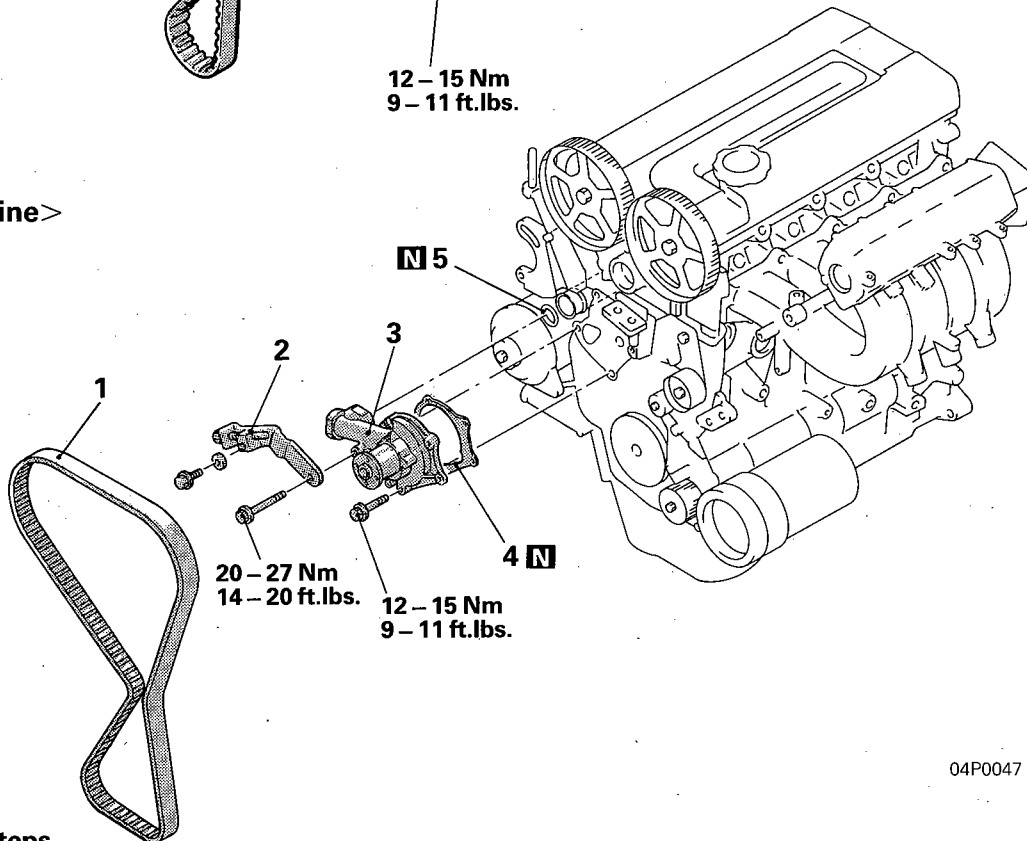
Post-installation Operation

- Filling Engine Coolant (Refer to GROUP 0 – Maintenance Service.)
- Adjustment of Engine (Refer to GROUP 9 – Engine Adjustment)
- Installation of Under Cover

<1.5L Engine>



<1.6L Engine>

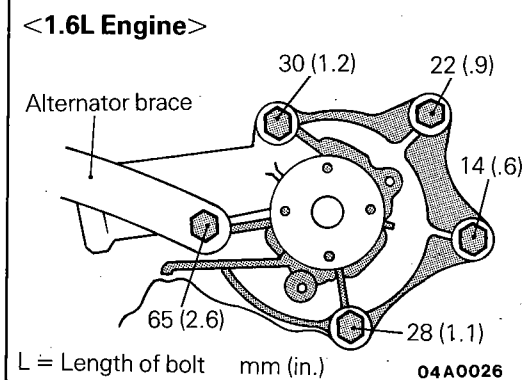
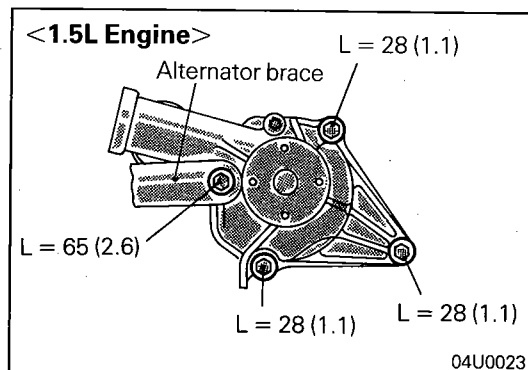
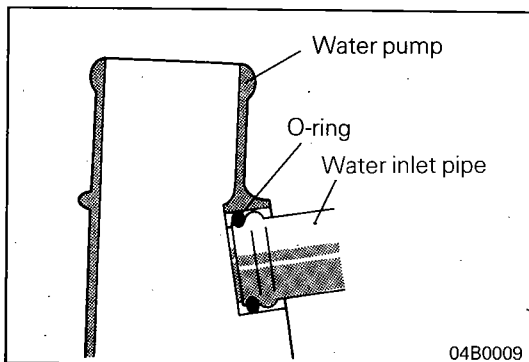
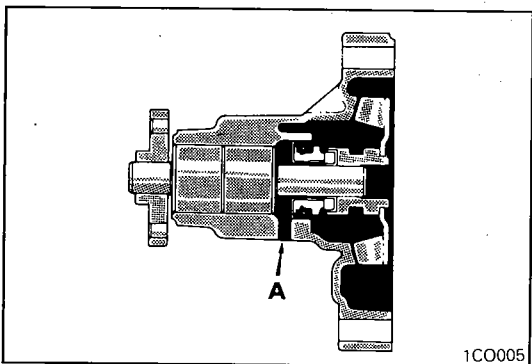
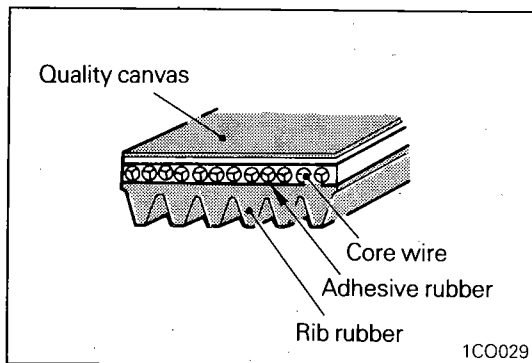


Removal steps

- ➡ ➡ 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

N07MCAI

1. TIMING BELT

Refer to GROUP 9 – Timing Belt.

INSPECTION

N07MDAK

DRIVE BELT

- Check belt surface for damage, peeling or cracks.
- Check belt surface for oil or grease.
- Check belt rubber for wear or brittleness.
- Check the pulleys for cracks or damage.

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 leaking. Replace as an assembly.

SERVICE POINT OF INSTALLATION

N07MEA0

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 (9 – 11 ft.lbs.)

Head mark "7" bolt

20 – 27 Nm (14 – 20 ft.lbs.)

1. INSTALLATION OF TIMING BELT

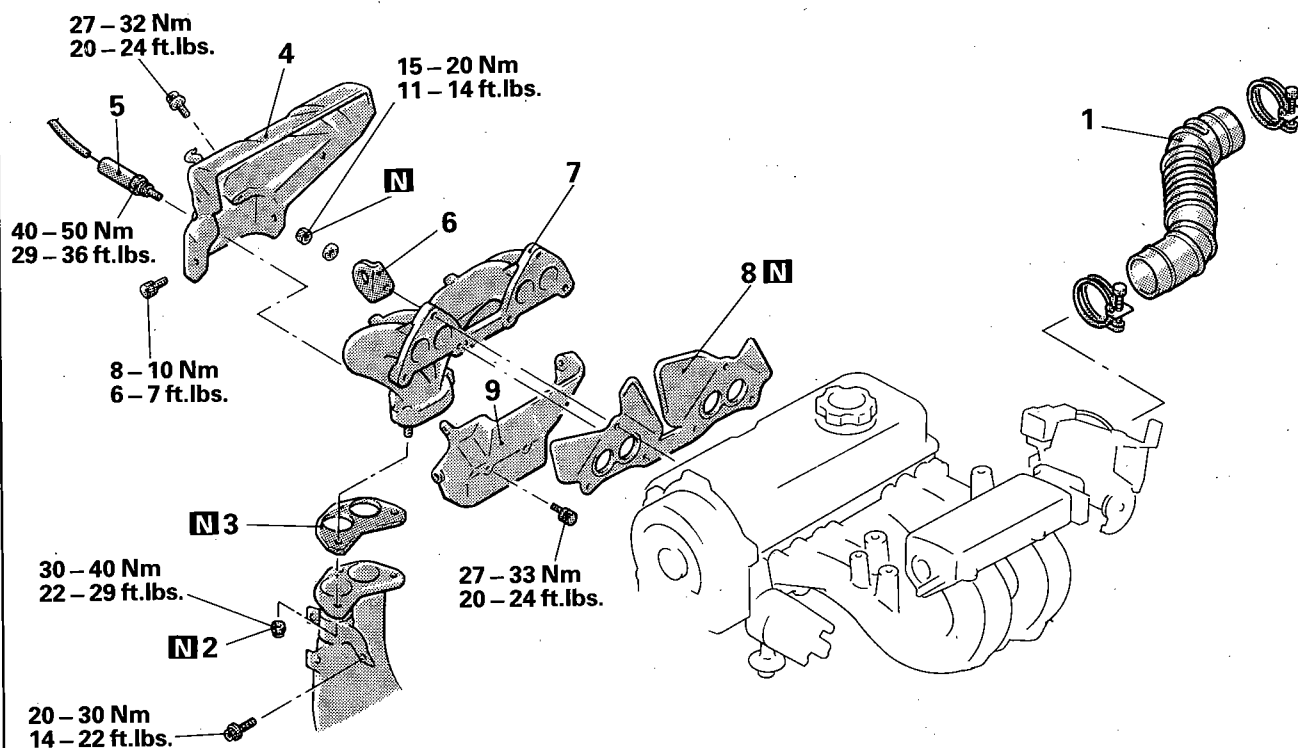
Refer to GROUP 9 – Timing Belt.

WATER PIPE AND HOSE <1.5L Engine>**REMOVAL AND INSTALLATION****Pre-removal Operation**

- Draining Engine Coolant
(Refer to GROUP 0 – Maintenance Service.)

Post-installation Operation

- Refilling Engine Coolant
(Refer to GROUP 0 – Maintenance Service.)



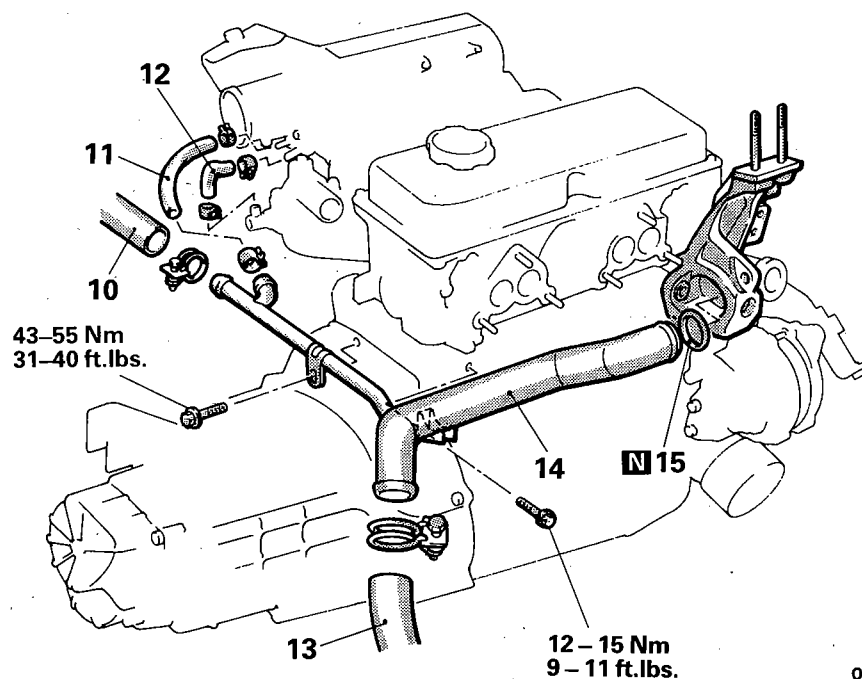
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Removal steps

1. Air intake hose
2. Self-locking nuts
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



04P0006

- 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

N07ICAD1

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

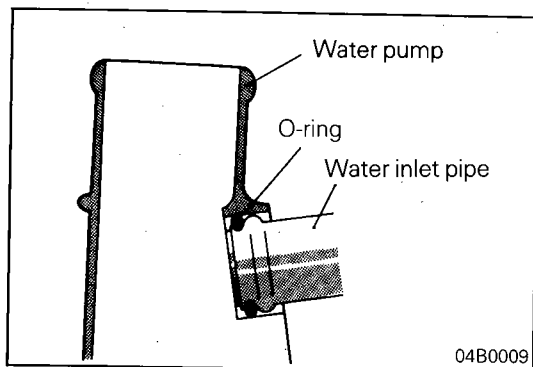
N07IDAK

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 water pipe O-ring.
- 2. keep the water pipe connections free of sand, dust, etc.
- 3. Insert water pipe until its end bottoms.



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WATER PIPE AND HOSE <1.6L Engine-N/A>

N071A-B

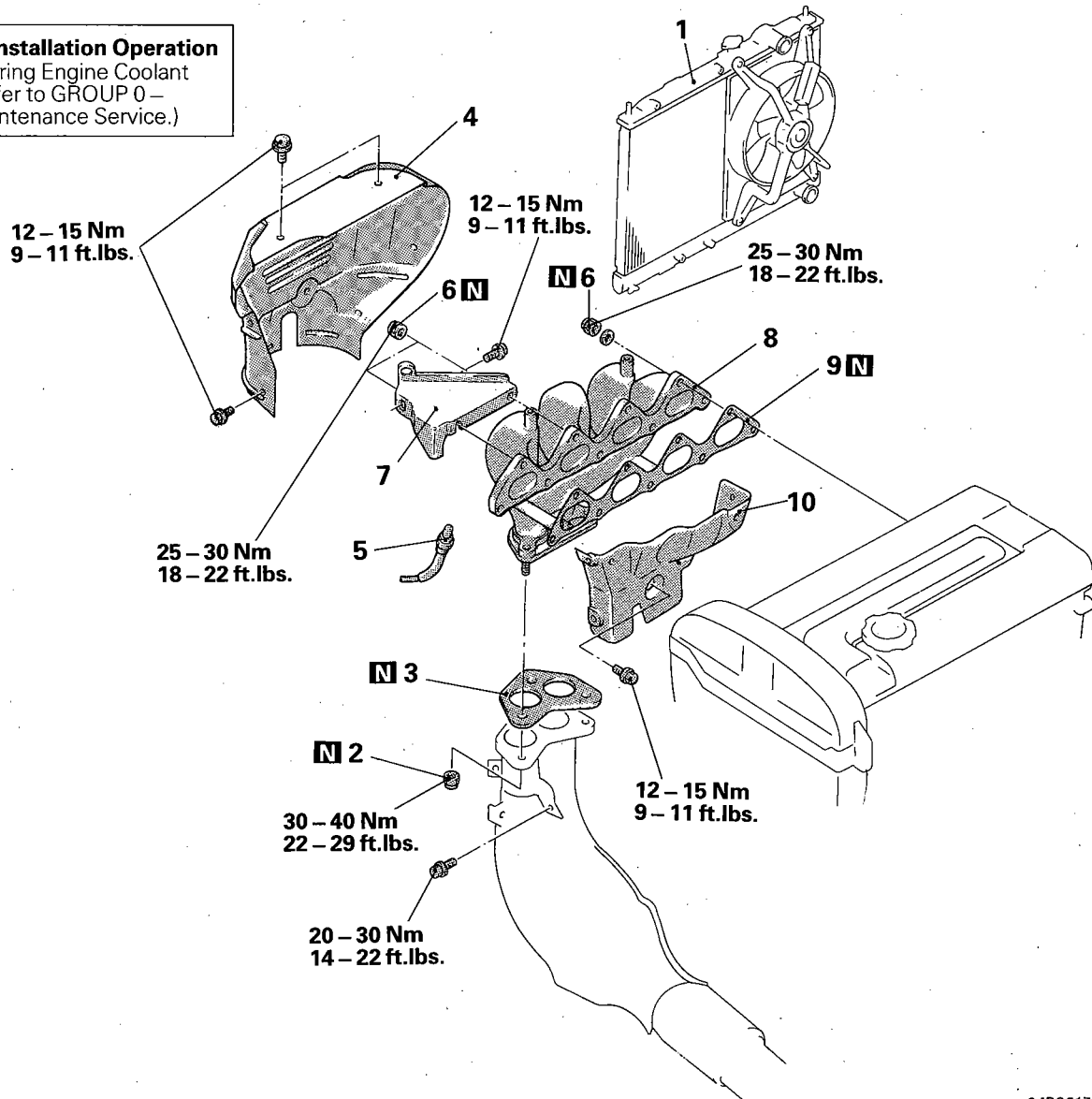
REMOVAL AND INSTALLATION

Pre-removal Operation

- Draining Engine Coolant
(Refer to GROUP 0 – Maintenance Service.)

Post-installation Operation

- Pouring Engine Coolant
(Refer to GROUP 0 – Maintenance Service.)



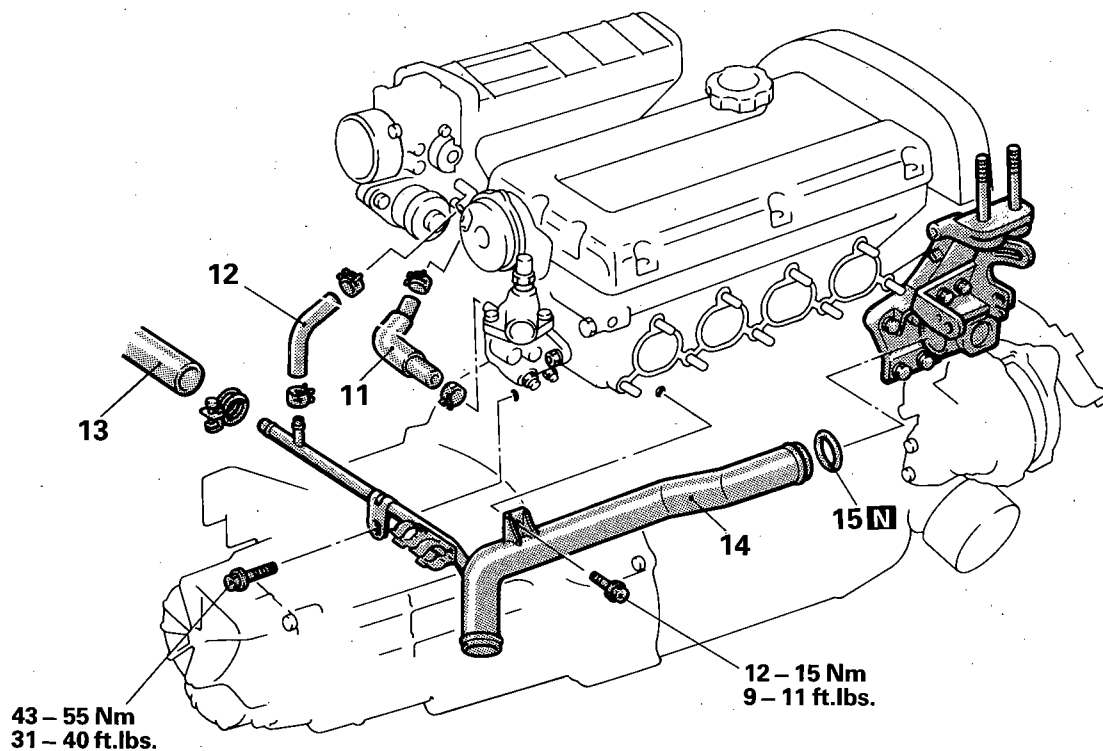
04P0017

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



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

04P0045

NOTE

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

SERVICE POINT OF REMOVAL

N07IBAD

1. REMOVAL OF RADIATOR

Refer to P.7-26.

INSPECTION

N07ICAD2

WATER PIPE AND HOSE INSPECTION

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

SERVICE POINTS OF INSTALLATION

N07IDAL

14. INSTALLATION OF WATER INLET PIPE

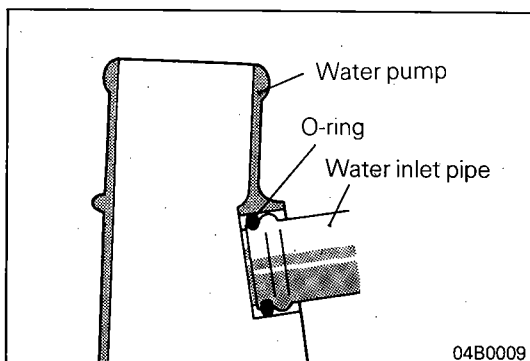
Fit O-ring in the groove provided at water inlet pipe end, wet the periphery of O-ring and insert water inlet pipe.

Caution

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

1. INSTALLATION OF RADIATOR

Refer to P.7-26.



04B0009

WATER PIPE AND HOSE <1.6L Engine-T/C>

N071A-C

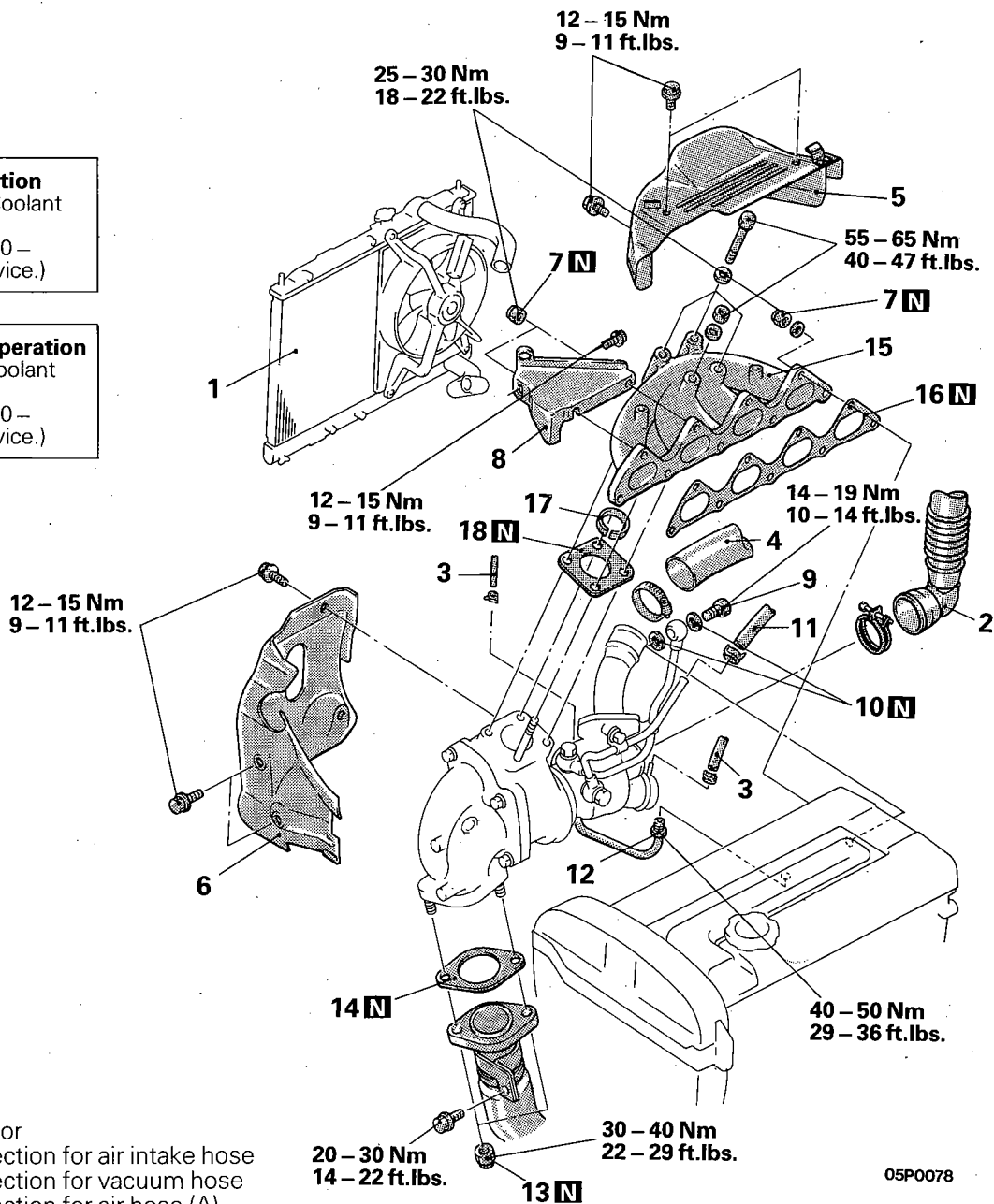
REMOVAL AND INSTALLATION

Pre-removal Operation

- Draining Engine Coolant and Engine Oil (Refer to GROUP 0 – Maintenance Service.)

Post-installation Operation

- Pouring Engine Coolant and Engine Oil (Refer to GROUP 0 – Maintenance Service.)

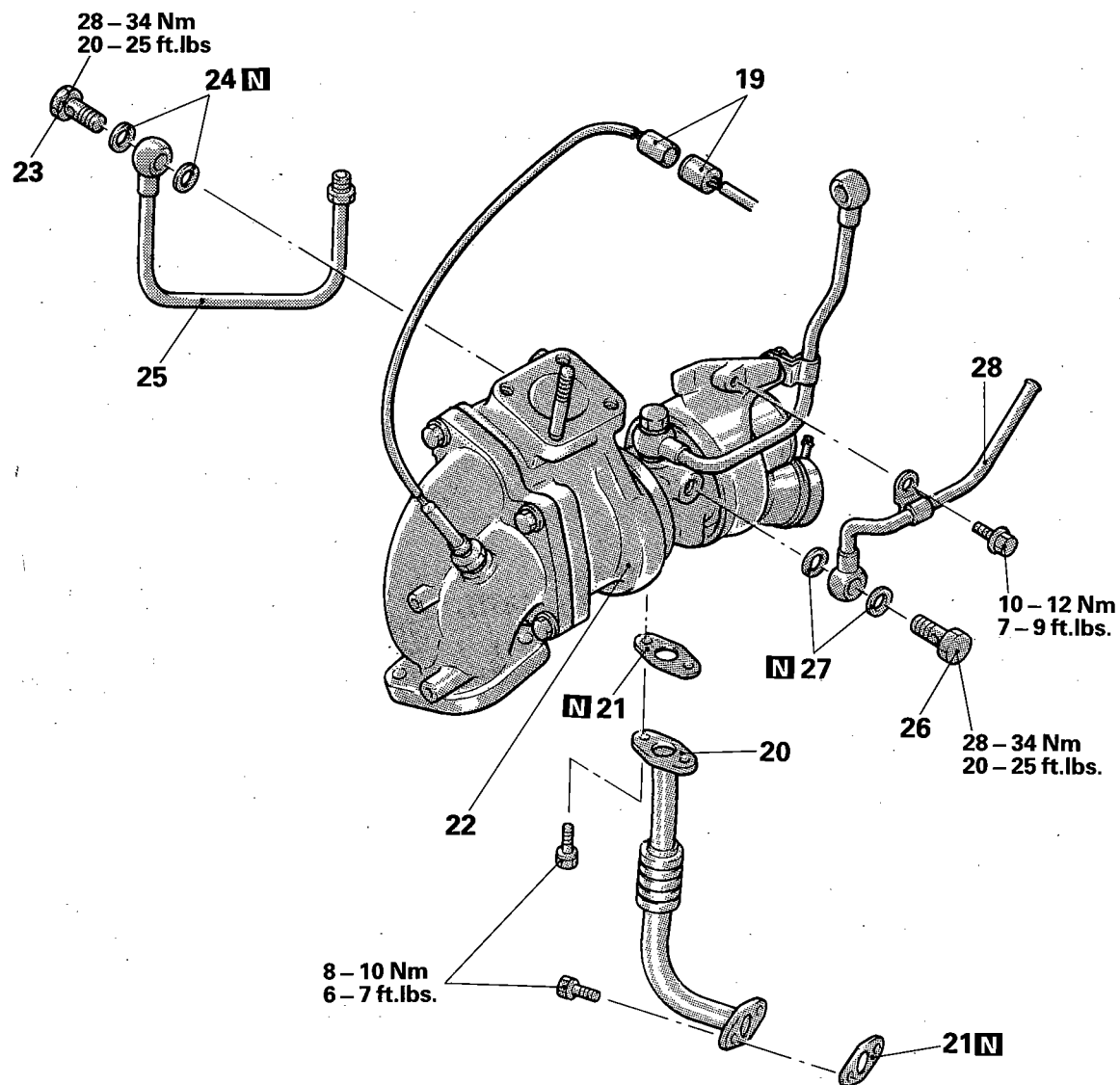
**Removal steps**

- ↔ ↔ 1. Radiator
 2. Connection for air intake hose
 3. Connection for vacuum hose
 4. Connection for air hose (A)
 5. Heat protector (A)
 6. Heat protector (B)
 7. Self-locking nuts
 8. Engine hanger
 9. Eye bolt
 10. Gaskets
 11. Connection for water hose
 ↔ 12. Connection for water pipe (B)
 13. Self-locking nuts
 14. Gasket
 15. Exhaust manifold
 16. Exhaust manifold gasket
 17. Ring
 18. 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

05P0078

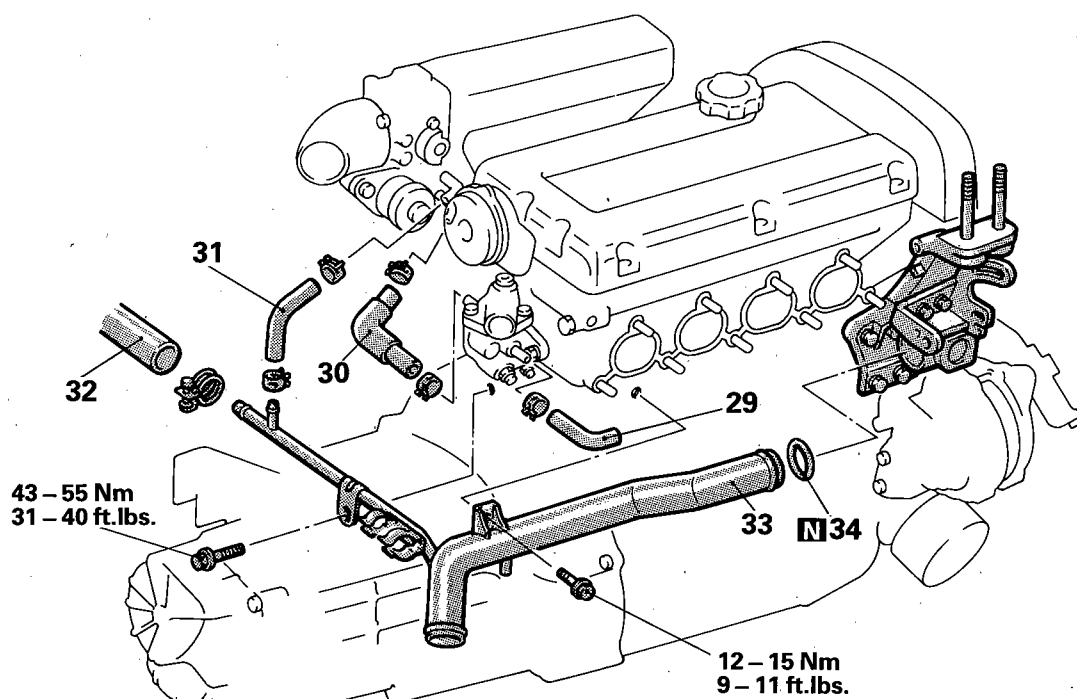


05A0039

19. Connection for oxygen sensor connector
 20. Oil return pipe
 21. Gaskets
 22. Turbocharger assembly
 23. Eye bolt
 24. Gaskets
 25. Water pipe (B)
 26. Eye bolt
 27. Gaskets
 28. Water pipe (A)

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



04P0046

- 29. Water hose
- 30. Water hose
- 31. Water bypass hose
- 32. Connection for heater hose
- ◆◆ 33. Water inlet pipe
- 34. 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 REMOVAL

N07IBAE

1. REMOVAL OF RADIATOR

Refer to P.7-26.

22. REMOVAL OF TURBOCHARGER ASSEMBLY

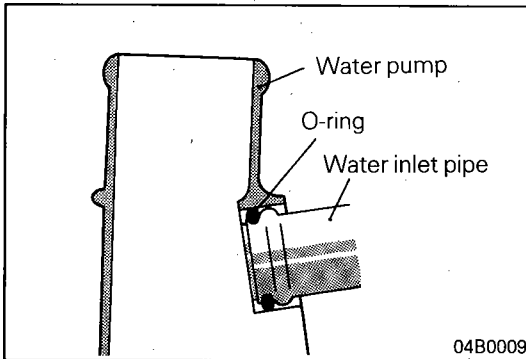
Remove the turbocharger assembly with the exhaust fitting, water pipe (A), water pipe (B) and oil pipe attached.

INSPECTION

N07ICAE3

WATER PIPE AND HOSE INSPECTION

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

**SERVICE POINTS OF INSTALLATION**

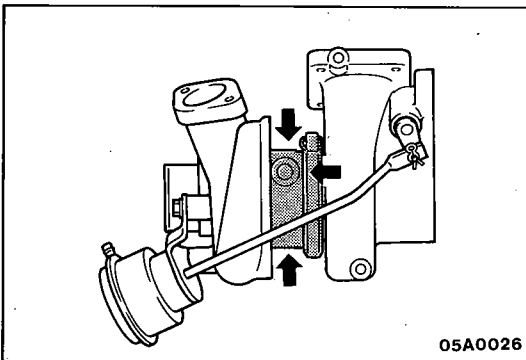
N07IDAM

33. 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

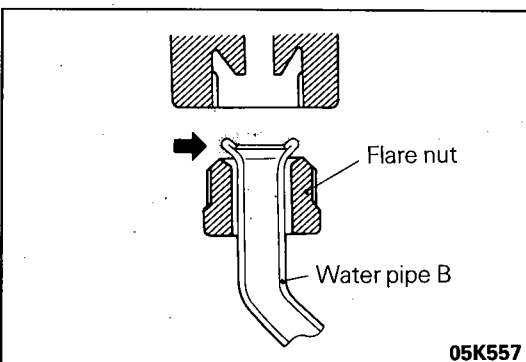
1. Do not apply oil and grease to water pipe O-ring.
2. Keep the water pipe connections free of sand, dust, etc.
3. Insert water pipe until its end bottoms.

**22. INSTALLATION OF TURBOCHARGER ASSEMBLY**

Clean all of the joining surfaces indicated in the illustration.

Caution

When the surfaces are cleaned, be careful that broken pieces of gasket do not enter the oil or coolant passage holes.

**12. INSTALLATION OF WATER PIPE (B)**

Before installing to the water inlet pipe, apply machine oil to the inner surface of the pipe flare.

1. INSTALLATION OF RADIATOR

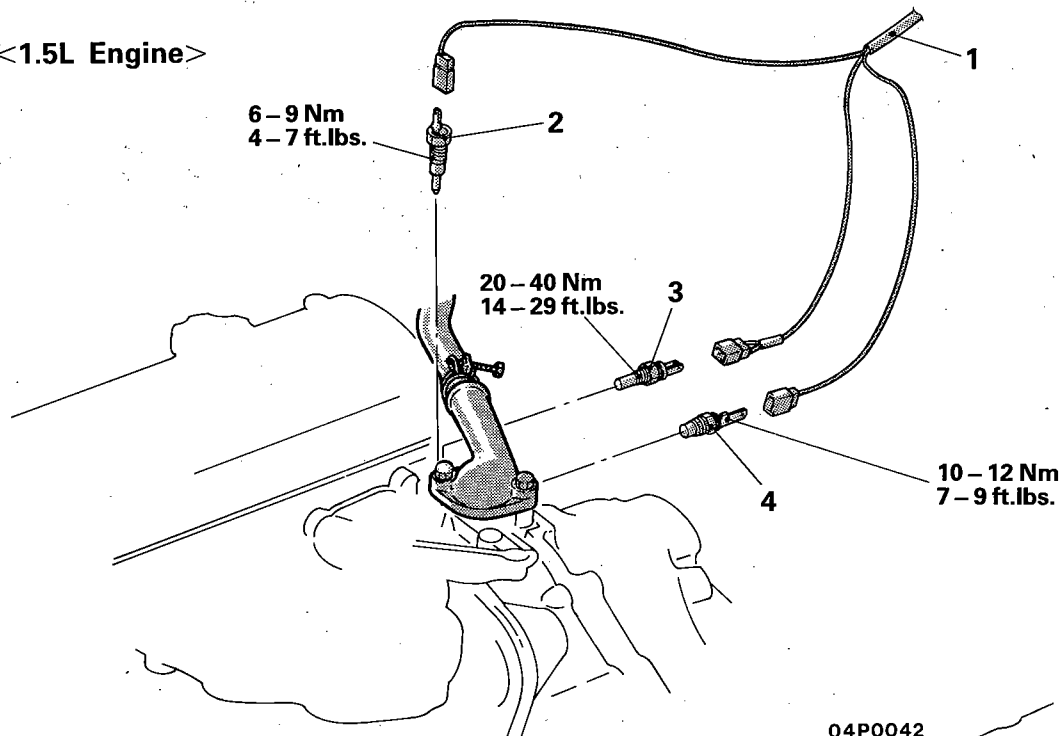
Refer to P.7-26.

ENGINE COOLANT TEMPERATURE GAUGE UNIT

REMOVAL AND INSTALLATION

N070B--

<1.5L Engine>

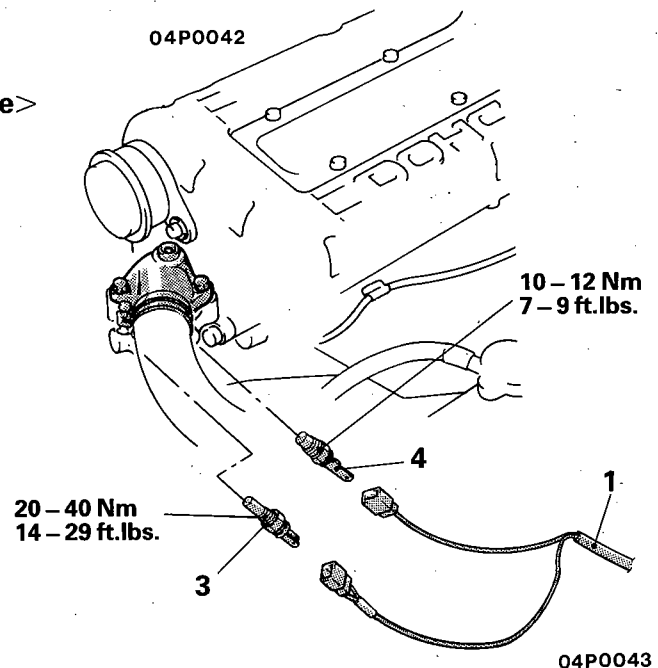
**Pre-removal Operation**

- Draining Engine Coolant (Refer to GROUP 0 – Maintenance Service.)

Post-installation Operation

- Refilling Engine Coolant (Refer to GROUP 0 – Maintenance Service.)

<1.6L Engine>



- ◆◆ 1. Control wiring harness connection
- ◆◆ 2. Thermo switch <3-A/T>
- ◆◆ 3. Engine coolant temperature sensor
- ◆◆ 4. Engine coolant temperature gauge unit

NOTE

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

INSPECTION**ENGINE COOLANT TEMPERATURE GAUGE UNIT**

Refer to GROUP 8 – Meters and Gauges.

ENGINE COOLANT TEMPERATURE SENSOR

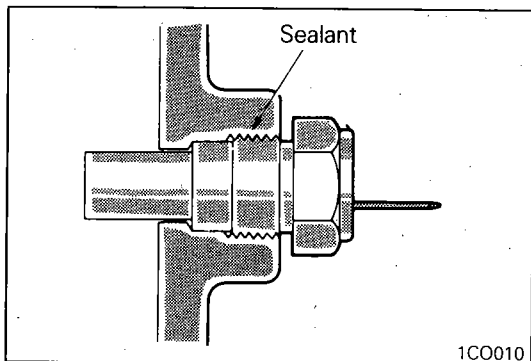
Refer to GROUP 14 – MPI System.

THERMO SWITCH

Refer to GROUP 21 – Troubleshooting.

04P0043

N070DAH



SERVICE POINTS OF INSTALLATION

N070EAV

4. APPLICATION OF SEALANT TO ENGINE COOLANT TEMPERATURE GAUGE UNIT / 3. ENGINE COOLANT TEMPERATURE SENSOR / 2. THERMO SWITCH (3-A/T)

Apply sealant to threaded portion and tighten.

Specified sealant: MOPAR Part No. 4318034 or equivalent**Caution**

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

N070A--

RADIATOR

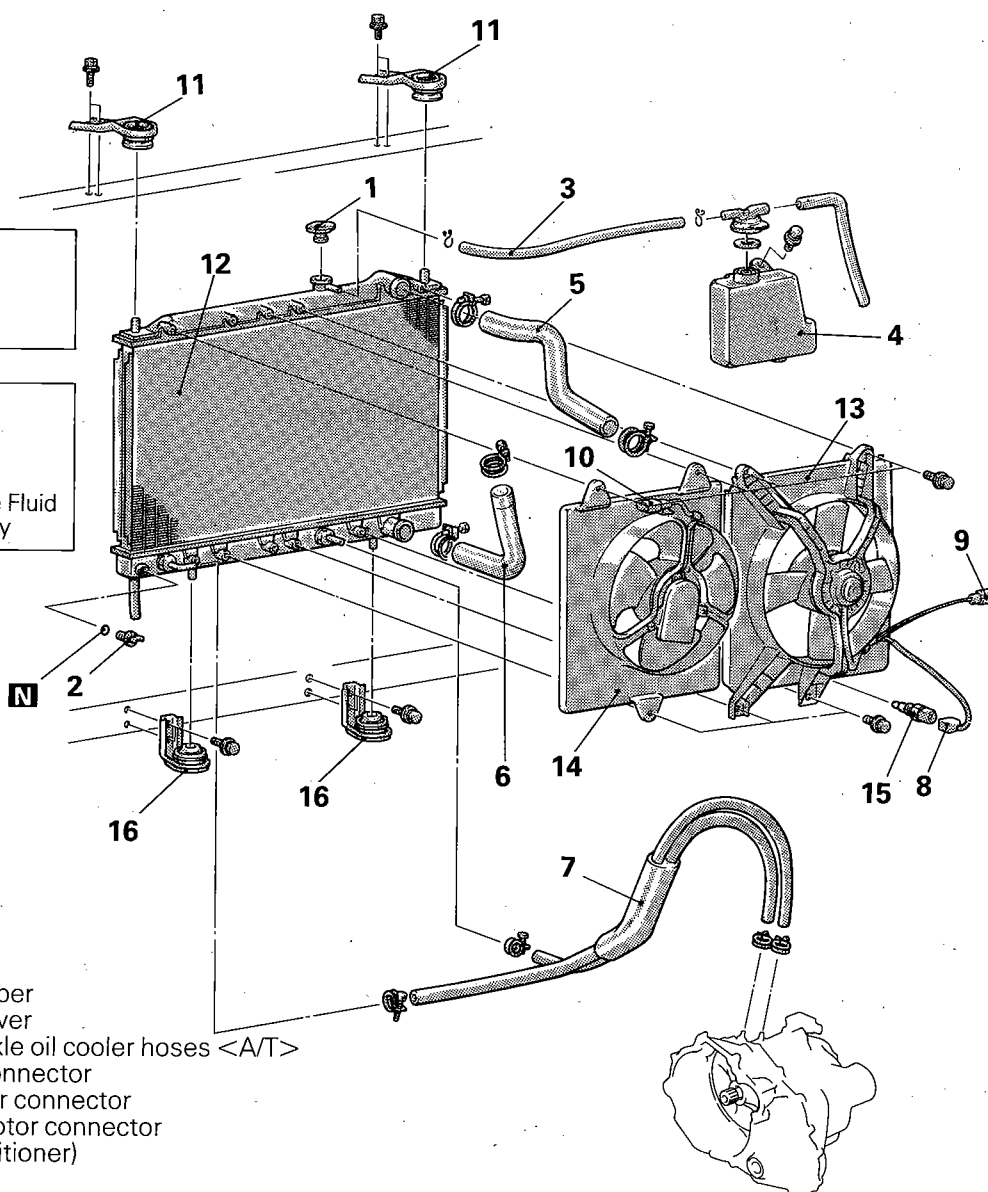
REMOVAL AND INSTALLATION

Pre-removal Operation

- Draining Engine Coolant (Refer to GROUP 0 – Maintenance Service.)

Post-installation Operation

- Refilling Engine Coolant (Refer to GROUP 0 – Maintenance Service.)
- Checking Automatic Transaxle Fluid Level and Refilling If Necessary

**Removal steps**

1. Radiator cap
2. Drain plug
3. Over flow tube
4. Condense tank
5. Radiator hose, upper
6. Radiator hose, lower
7. Automatic transaxle oil cooler hoses <A/T>
8. Thermo sensor connector
9. Radiator fan motor connector
10. Condenser fan motor connector (N/A with air conditioner)
11. Upper insulators
12. Radiator assembly
13. Radiator fan motor assembly
14. Condenser fan motor assembly (N/A with air conditioner)
15. Thermo sensor
16. Lower insulators

NOTE

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

04P0002

SERVICE POINT OF REMOVAL

N07QBAI

7. REMOVAL OF AUTOMATIC TRANSAXLE OIL COOLER HOSES <A/T>

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

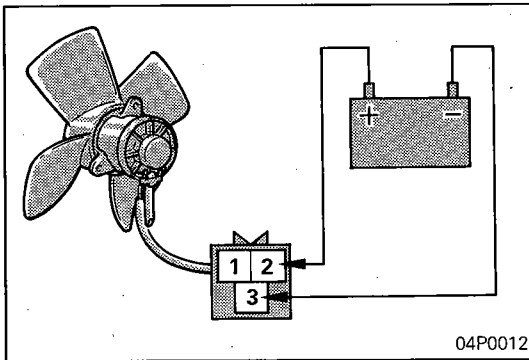
INSPECTION

N07QCAK

- 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

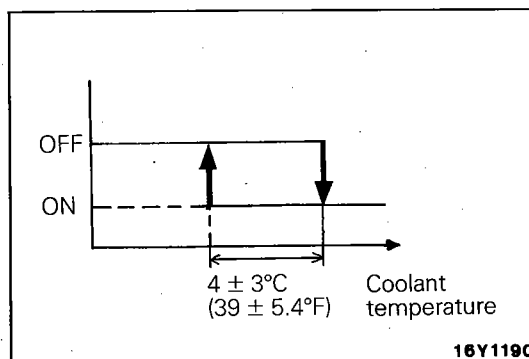
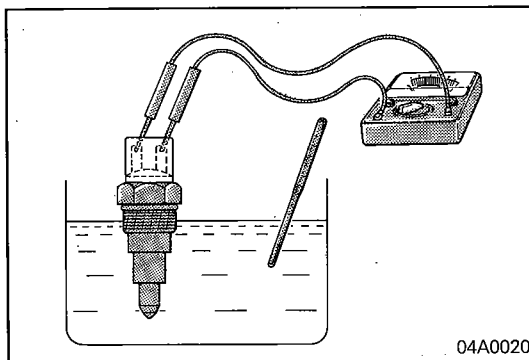
- (1) Connect terminal 3 and terminal 2 with battery (+) and battery (–), respectively, and make sure motor turns smoothly.
- (2) Check to see that abnormal noises are not produced, while motor is turning.

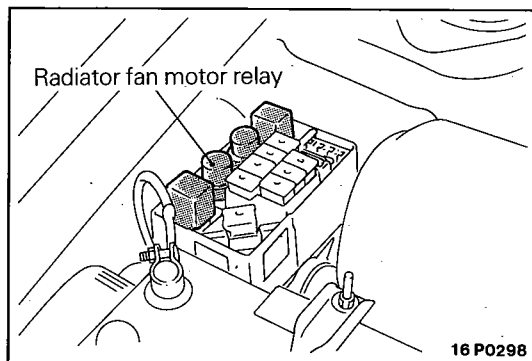
**THERMO SENSOR**

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.

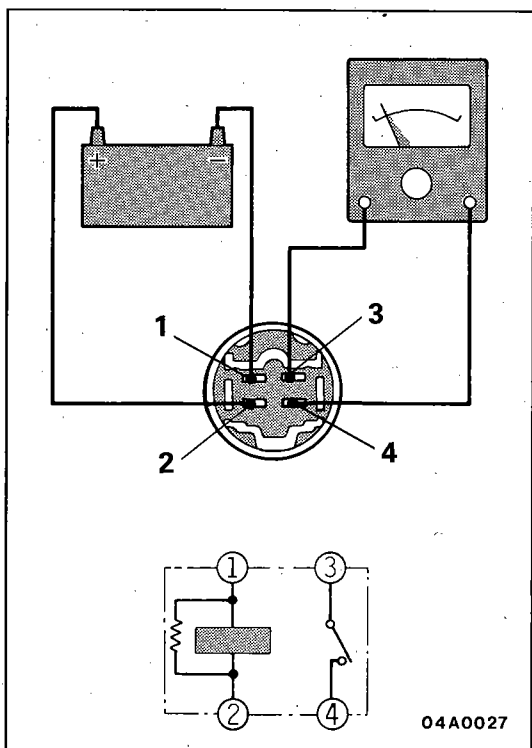


**RADIATOR FAN MOTOR RELAY**

- (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 source to terminal 2. Check circuit between terminals with terminal 1 grounded.

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>**

N07TA--

Disassembly steps

1. Fan
2. Radiator fan motor
3. Shroud

NOTE
Reverse the disassembly procedures to reassemble.

