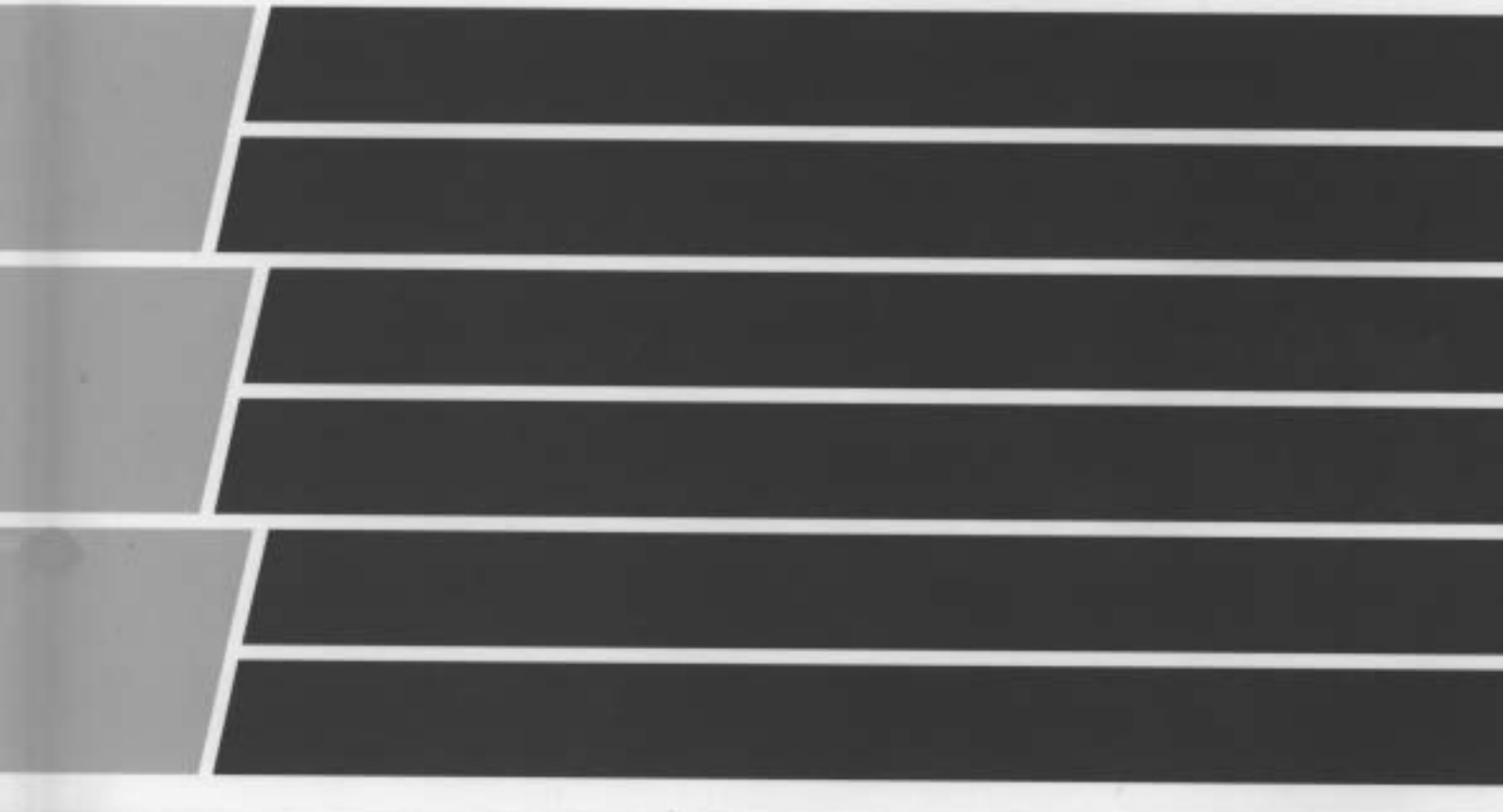
MITSUBISHI

LANCER EVOLUTION IX

SERVICE MANUAL

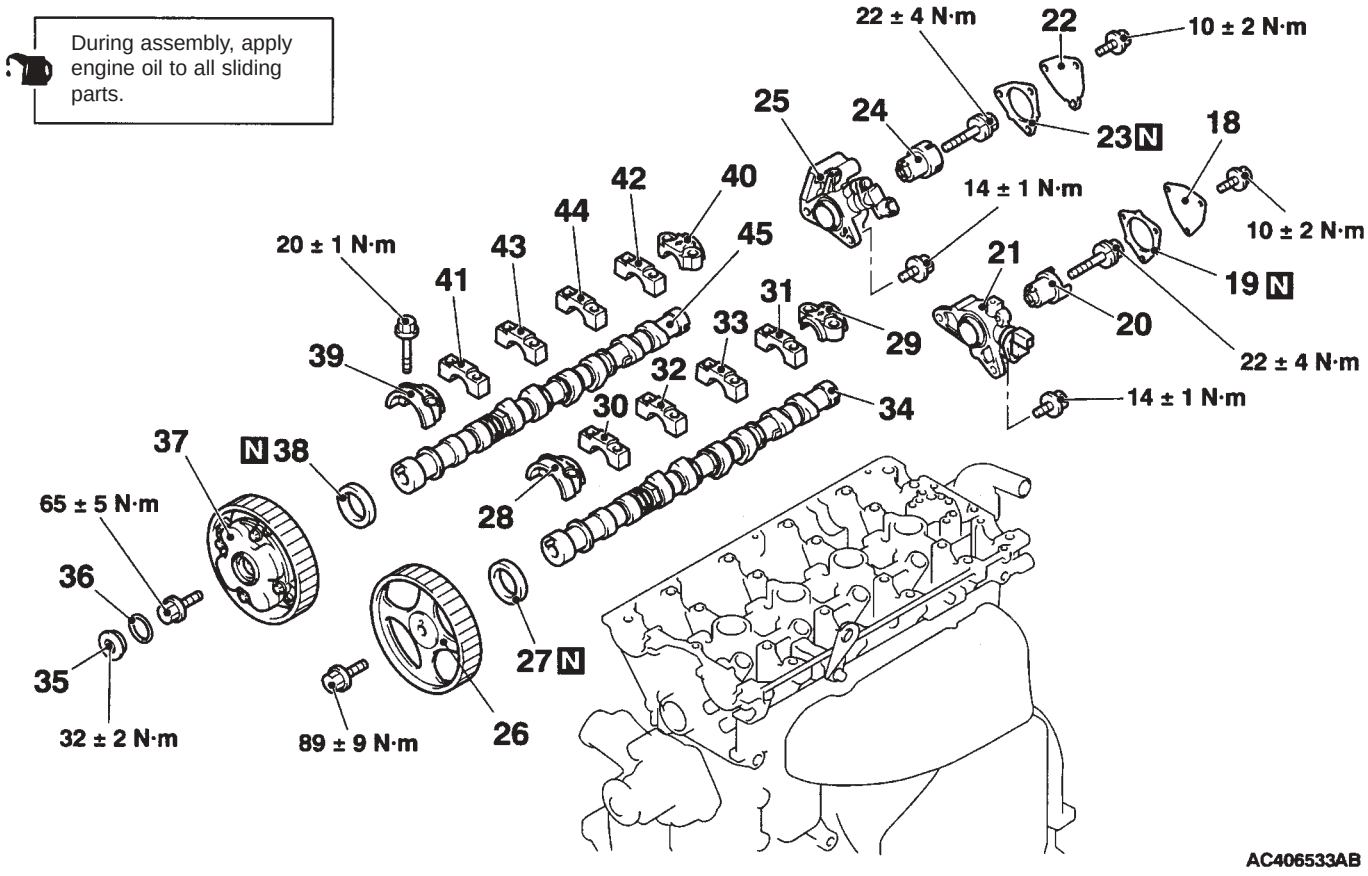


Supplement

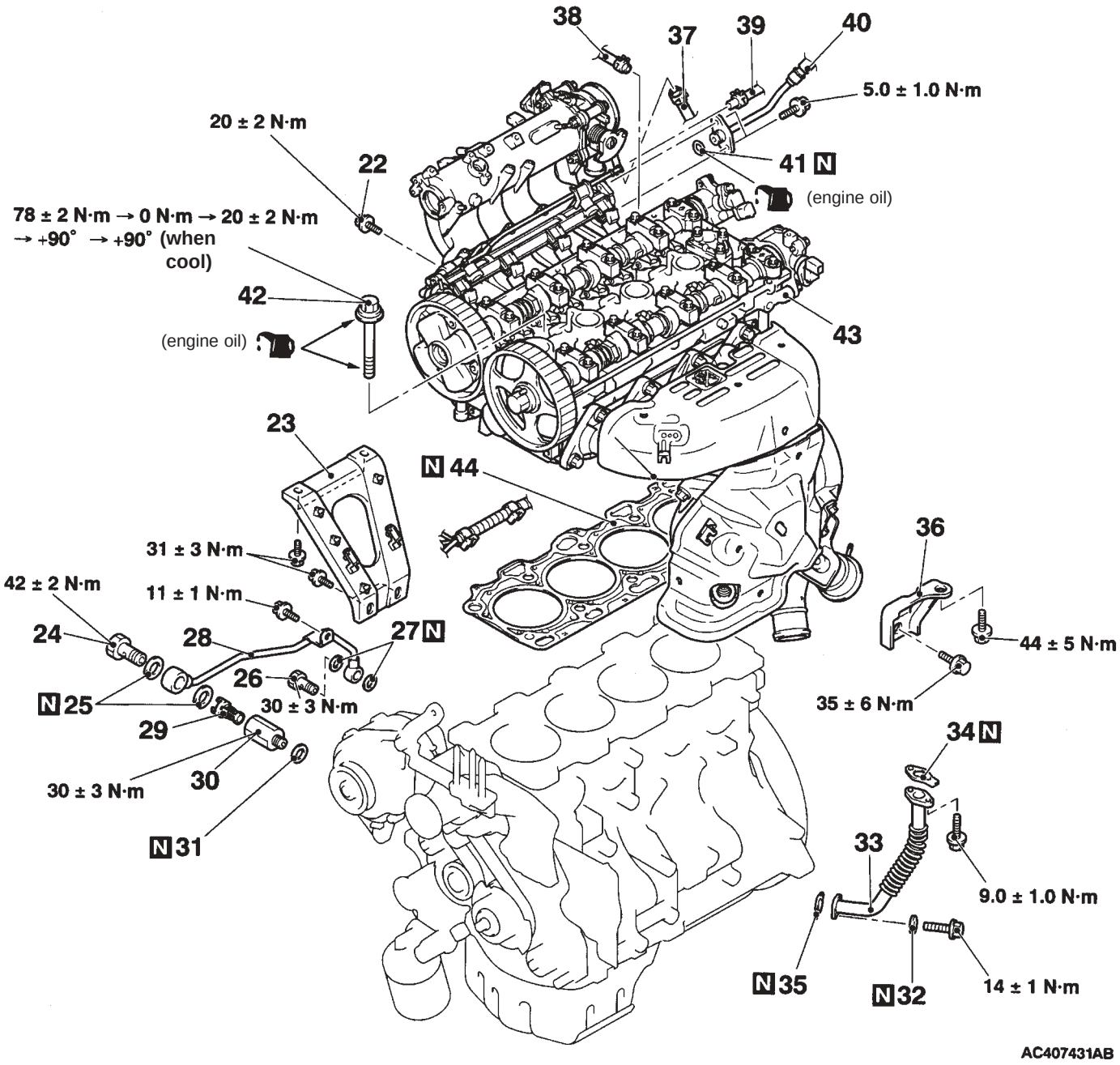
'05-3

GH-CT9A

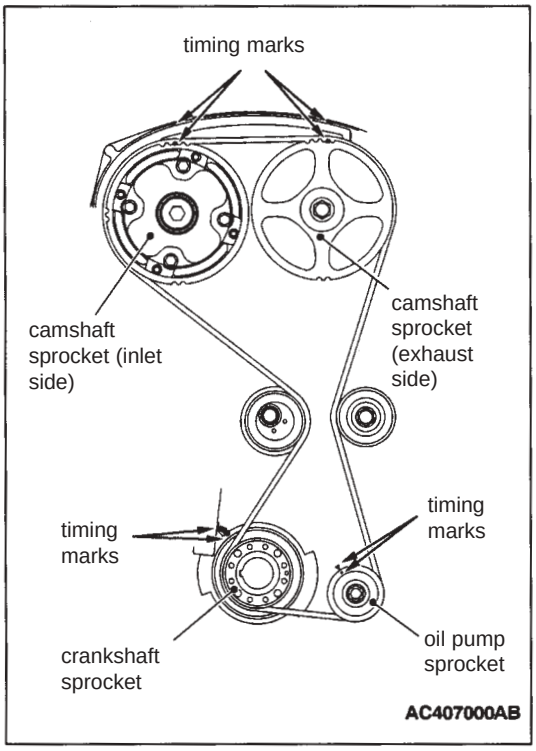
No.1036K12



18. Camshaft position sensor support cover
19. Camshaft position sensor support cover gasket
◗L◖ 20. Camshaft position sensing cylinder (exhaust side)
◗J◖ 21. Camshaft position sensor support
22. Camshaft position sensor support cover
23. Camshaft position sensor support cover gasket
◗K◖ 24. Camshaft position sensing cylinder (inlet side)
◗J◖ 25. Camshaft position sensor support
◖B◗ ◗I◖ 26. Camshaft sprocket (exhaust side)
◗G◖ 27. Camshaft oil seal
◗F◖ 28. Camshaft bearing cap front
◗F◖ 29. Camshaft bearing cap rear left
◗F◖ 30. Camshaft bearing cap No. 2
◗F◖ 31. Camshaft bearing cap No. 5
◗F◖ 32. Camshaft bearing cap No. 3
◗F◖ 33. Camshaft bearing cap No. 4
◗E◖ 34. Exhaust camshaft
35. Camshaft sprocket cap
36. Washer
◖B◗ ◗H◖ 37. Camshaft sprocket (inlet side)
◗G◖ 38. Camshaft oil seal
◗F◖ 39. Camshaft bearing cap front
◗F◖ 40. Camshaft bearing cap rear right
◗F◖ 41. Camshaft bearing cap No. 2
◗F◖ 42. Camshaft bearing cap No. 5
◗F◖ 43. Camshaft bearing cap No. 3
◗F◖ 44. Camshaft bearing cap No. 4
◗E◖ 45. Inlet camshaft

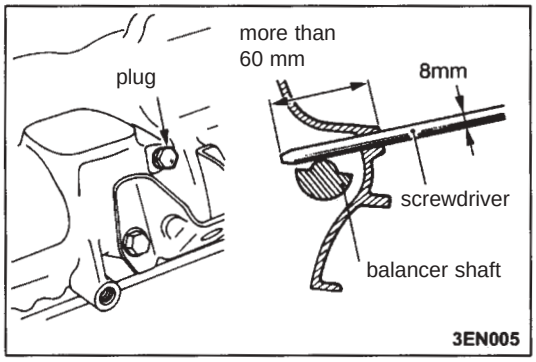


22. Alternator bracket connection
23. Inlet manifold stay
▸E◂ 24. Eye bolt
25. Gasket
26. Eye bolt
27. Gasket
28. Oil feeder control valve pipe
29. Filter
30. Oil pipe joint
31. Gasket
32. Oil return pipe gasket
33. Oil return pipe
34. Oil return pipe gasket
▸D◂ 35. Oil return pipe gasket
36. Exhaust fitting bracket
• Water outlet fitting and thermostat case assembly (Refer to Section 14: Water hose pipe)
37. Water hose connection
38. Heater hose connection
39. Fuel return hose connection
▸C◂ 40. Fuel high pressure hose connection
▸C◂ 41. O-ring
◂A▸ ▸B◂ 42. Cylinder head bolt
43. Cylinder head assembly
▸A◂ 44. Cylinder head gasket

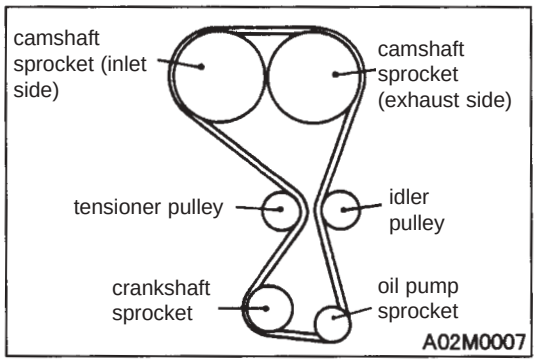


▸F◂ Fitting the timing belt

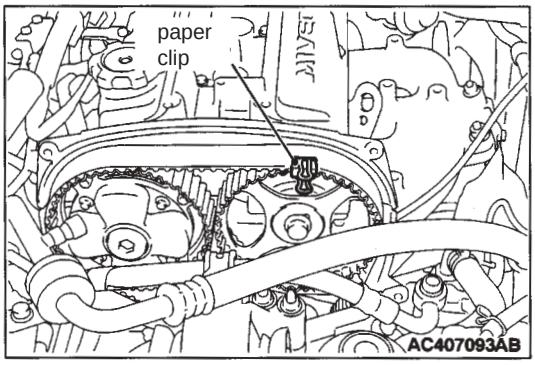
1. Check that all the timing marks for the camshaft sprocket, the crankshaft sprocket and the oil pump sprocket are aligned.



2. After the timing marks for the oil pump sprocket have been aligned, remove the plug from the cylinder block and insert a posidrive (+) with a diameter of 8 mm into the plug hole. Check that more than 60 mm of the shaft of the screwdriver can be inserted. If the screwdriver strikes the balancer shaft and can only be inserted to a depth of 20 ~ 25 mm, turn the sprocket one complete turn, realign the timing marks, and check that more than 60 mm of the screwdriver can be inserted. Do not remove the screwdriver until the timing belt has been fitted.



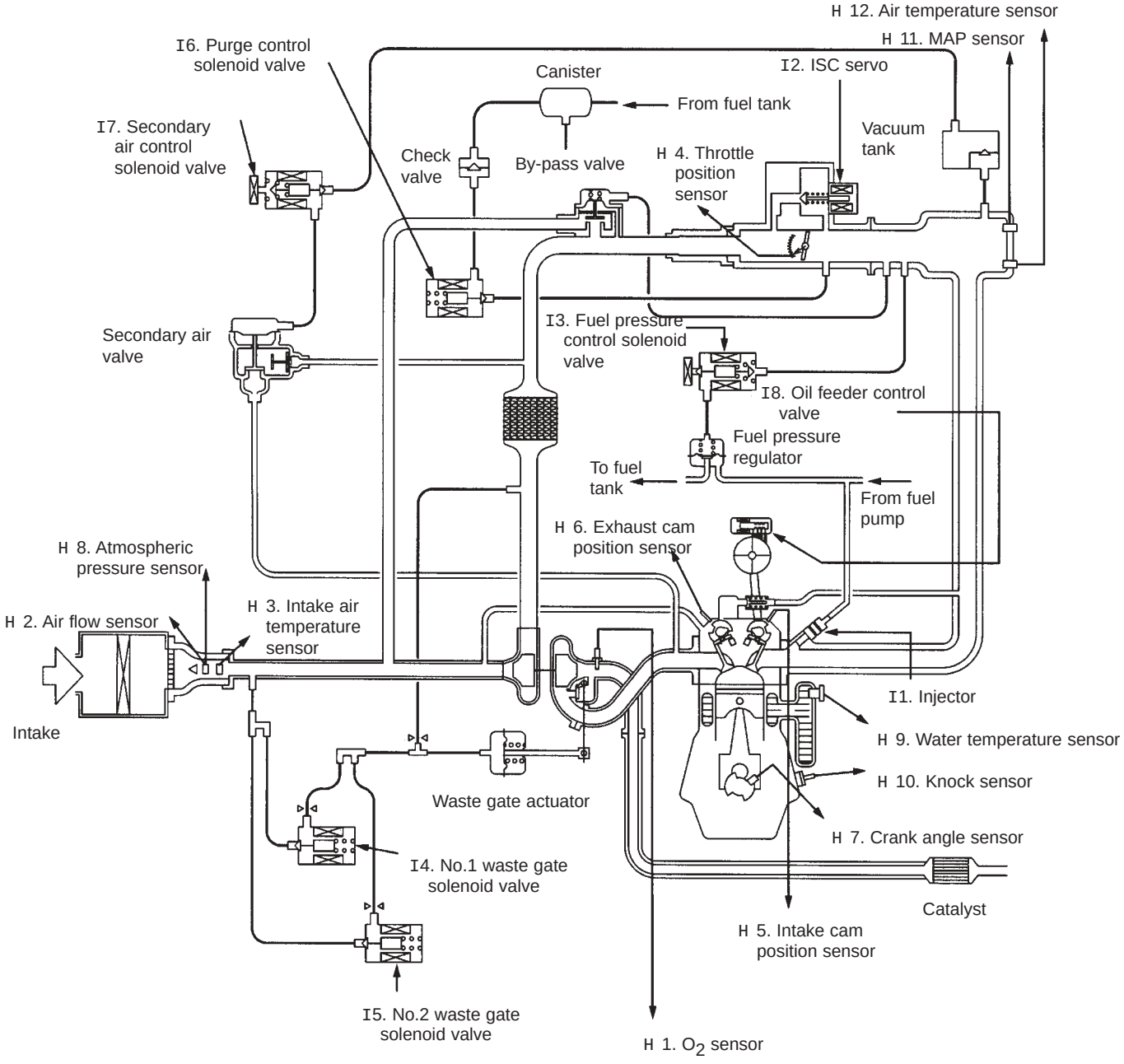
3. Install the timing belt in accordance with the following guidelines so that the side that is under tension does not get slack.
   (1) Fit the timing belt around the crankshaft sprocket first, then the oil pump sprocket and then fit it around the idler pulley.



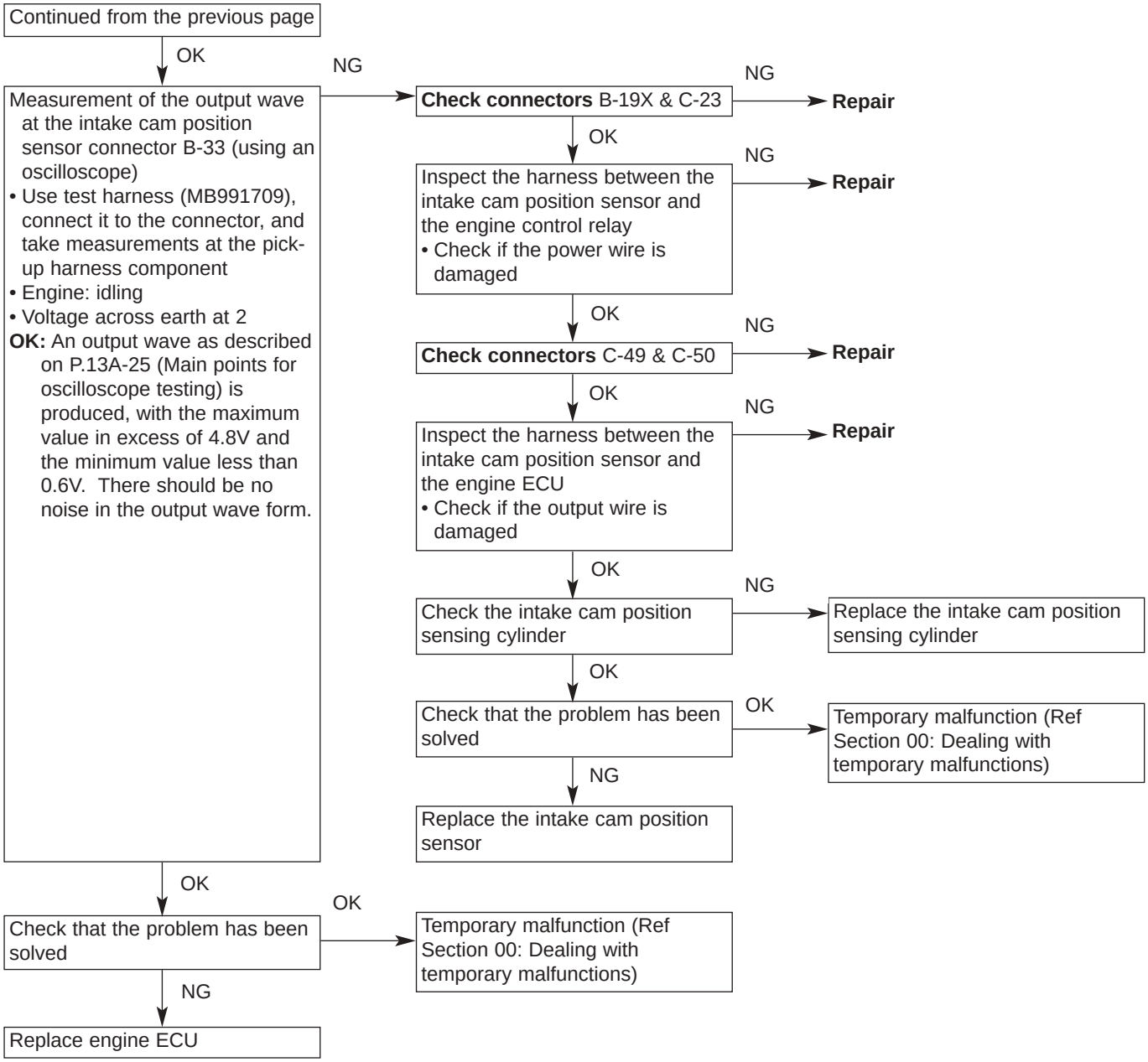
   (2) Fit the timing belt around the camshaft sprocket (exhaust side) and hold it in place with a paper clip at the position shown in the diagram.

MPI system diagram

H 1. O_2 sensor H 2. Air flow sensor H 3. Intake air temp. sensor H 4. Throttle position sensor H 5. Intake Cam position sensor H 6. Exhaust Cam position sensor H 7. Crank angle sensor H 8. Atmospheric pressure sensor H 9. Water temp. sensor H 10. Knock sensor H 11. Manifold absolute pressure (MAP) sensor H 12. Air temp. sensor	• Power supply • Ignition switch IG • Ignition switch ST • Vehicle speed sensor • A/C switch • A/C load signal • Power steering fluid pressure switch • Alternator FR signal • Inter-cooler water spray switch (auto) • Inter-cooler water spray switch (manual)	È	Engine ECU	È	I1. Injector I2. ISC servo (Stepper motor) I3. Fuel pressure control solenoid valve I4. No. 1 Waste gate solenoid valve I5. No. 2 Waste gate solenoid valve I6. Purge control solenoid valve I7. Secondary air control solenoid valve I8. Oil feeder control valve	• Engine control relay • Fuel pump relay 2,3 (ON/OFF) • Fuel pump relay (HI/LO switch) • A/C relay • Ignition coil • Fan controller • Condenser fan relay (HI) • Condenser fan relay (LO) • Engine warning light • Diagnosis output terminal • Alternator G terminal • Inter-cooler water spray relay • Inter-cooler water spray lamp • O_2 sensor heater



AK403814 AB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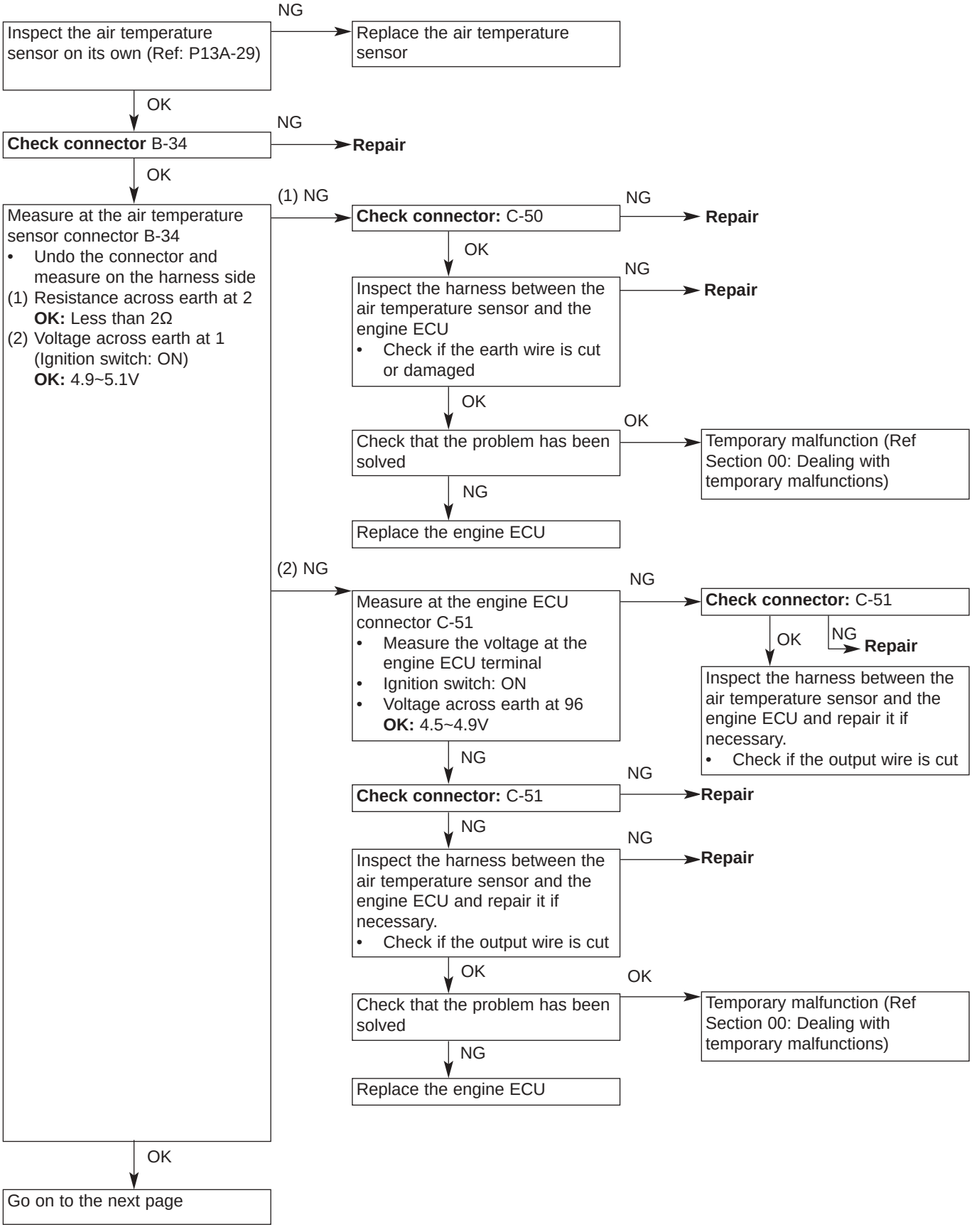
OK
Measurement of the output wave at the intake cam position sensor connector B-33 (using an oscilloscope)
• Use test harness (MB991709), connect it to the connector, and take measurements at the pick-up harness component
• Engine: idling
• Voltage across earth at 2
OK: An output wave as described on P.13A-25 (Main points for oscilloscope testing) is produced, with the maximum value in excess of 4.8V and the minimum value less than 0.6V. There should be no noise in the output wave form.
NG
Check connectors B-19X & C-23
NG
Repair
OK
Inspect the harness between the intake cam position sensor and the engine control relay
• Check if the power wire is damaged
NG
Repair
OK
Check connectors C-49 & C-50
NG
Repair
OK
Inspect the harness between the intake cam position sensor and the engine ECU
• Check if the output wire is damaged
NG
Repair
OK
Check the intake cam position sensing cylinder
NG
Replace the intake cam position sensing cylinder
OK
Check that the problem has been solved
OK
Temporary malfunction (Ref Section 00: Dealing with temporary malfunctions)
NG
Replace the intake cam position sensor
OK
Check that the problem has been solved
OK
Temporary malfunction (Ref Section 00: Dealing with temporary malfunctions)
NG
Replace engine ECU

Inspection procedure 38

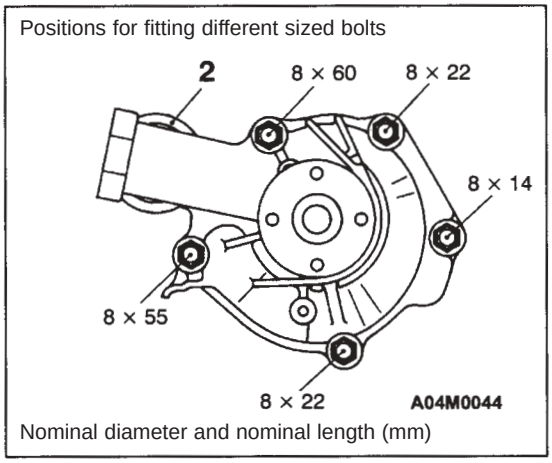
Air temperature sensor system	Probable causes of the malfunction
The air temperature sensor controls the temperature inside the inlet manifold, and compensates for any burning of fuel.	• Malfunction of the air temperature sensor. • Circuit break, short circuit or a faulty connection in the air temperature sensor circuit. • Malfunction of the engine ECU.

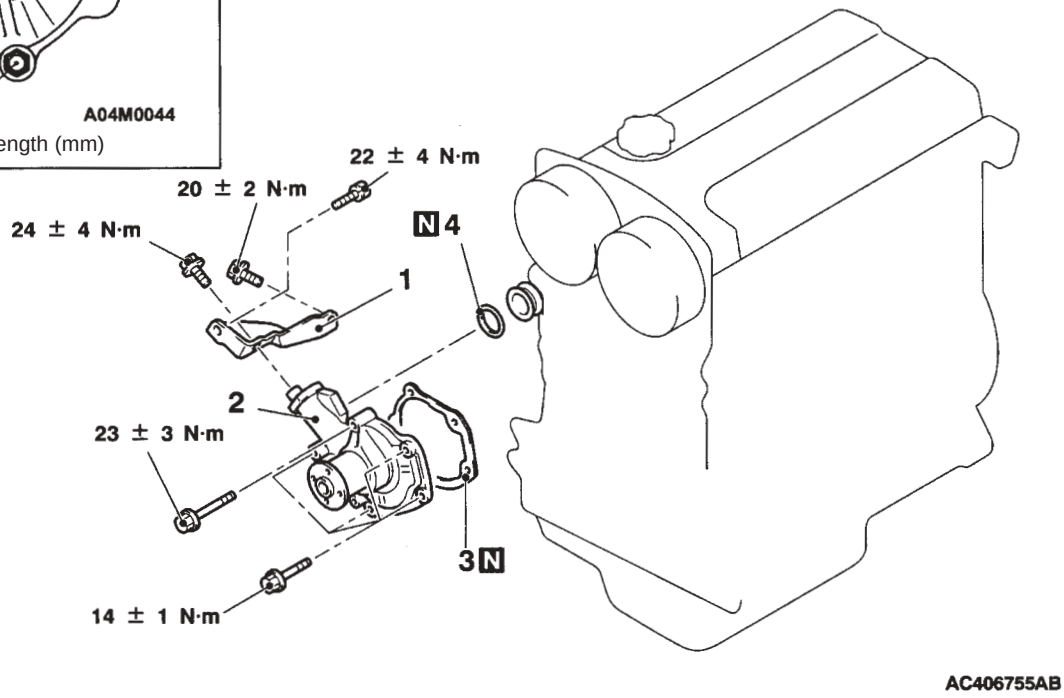


Water pump

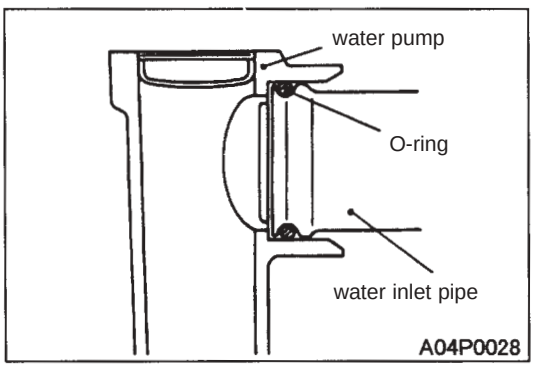
Removal and fitting

Jobs to be completed before removal and after fitting
- Draining and refilling of the coolant
- Removal and refitting of the timing belt (Ref Section 11)





Removal procedure
1. Alternator bracket
2. Water pump
3. Water pump gasket
▸A◂ 4. O-ring



Fitting guidelines

▸A◂ Fitting the O-ring

Fit the O-ring into the O-ring groove at the end of the water inlet pipe, and insert it into the water pump after moistening with water the places where the O-ring will make contact with the water pump.

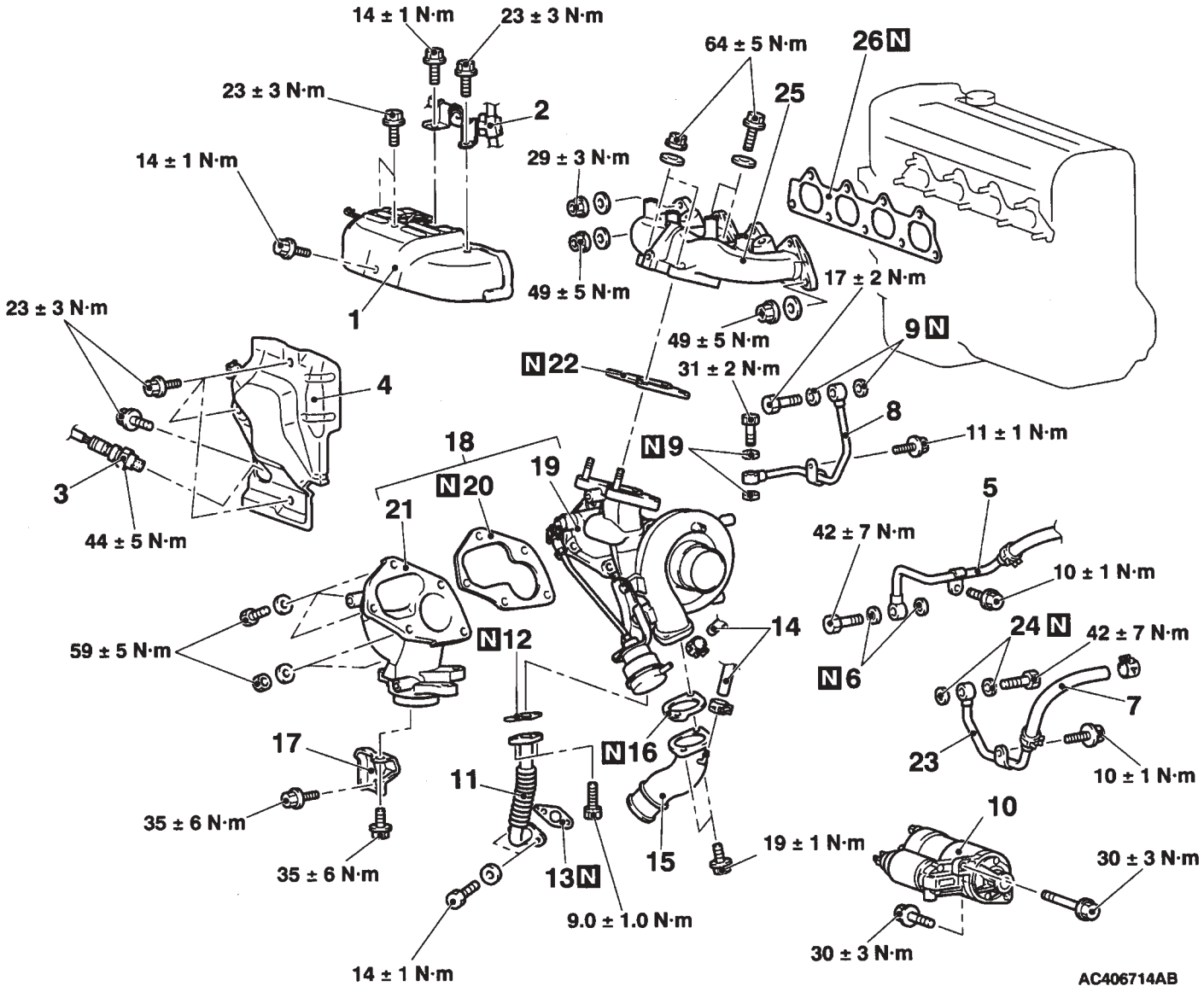
Caution
Ensure that absolutely no engine oil, or other type of grease, gets onto the O-ring.

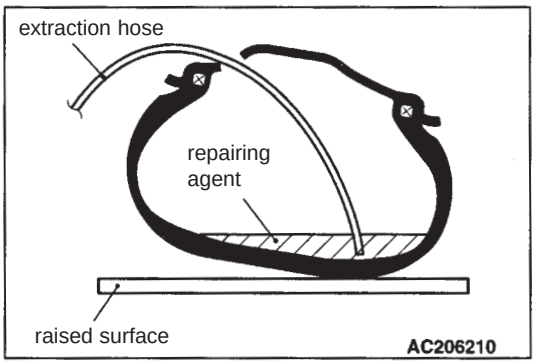
Exhaust manifold and turbocharger

Removal and fitting

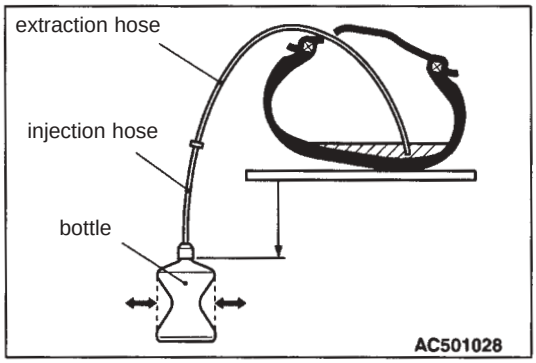
Jobs to be completed before removal and after fitting

- Removal and refitting of the valence
- Removal and refitting of the radiator
- Removal and refitting of the air intake hose and air hose A
- Removal and refitting of the cross member bar
- Removal and refitting of the front exhaust pipe
- Draining and refilling of the engine oil





4. Put the tyre on a raised surface and tilt it to an angle. Insert the extraction hose through the hole made by removing the valve, so that the tip of the hose is submerged in the repairing agent.



5. Hold the bottle so that it is, as far as possible, below the tyre, and suck the repairing agent out of the tyre by squeezing the bottle by hand. Repeat this operation 2 or 3 times, so that as much of the repairing agent as possible is removed.
6. After the repairing agent has been extracted, remove the tyre from the wheel. Remove any repairing agent stuck onto the tyre, and if the place from which air is escaping can be identified, carry out a normal repair procedure. If the place from which air is escaping cannot be identified, replace the tyre.

Disposal of emergency puncture repairing agent

Dispose of the repairing agent extracted from the tyre, and any unused agent which has exceeded its use-by date, in the same way that used oil is discarded.

Note

The use-by date is printed on the bottle of repairing agent (about 3 years from the date of purchase)

Caution

The repairing agent includes propylene glycol which must be handled as industrial waste.