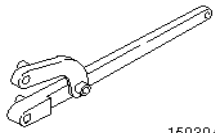


Engine - Dismantle and Assemble (engine removed) (21 134 8)

Special Tools



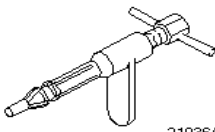
15030A

15-030 A Universal flange holding wrench



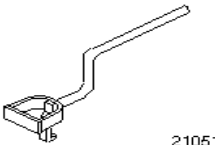
1705502

17-055-02 Depth gauge, combustion chamber



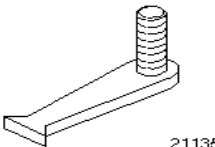
21036A

21-036 A Remover, pilot bearing



21051

21-051 Remover, oil seal



21135

21-135 Locking tool, flywheel



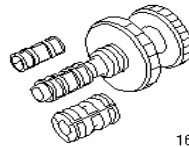
PZ21146C

21-146 C Mounting plate damper



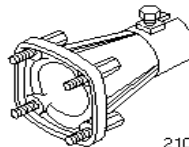
21153B

21-153B Remover, vibration damper



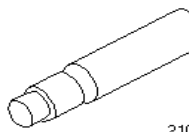
16067

16-067 Locator, clutch disc



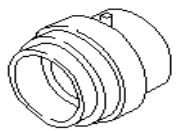
21031B

21-031 B Mounting bracket



21044A

21-044 A Installer/aligner, pilot bearing/clutch disc



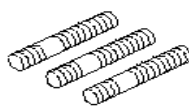
21094

21-094 Installer, oil seal



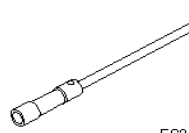
21141

21-141 Installer, oil seal



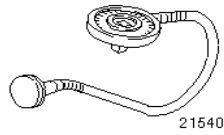
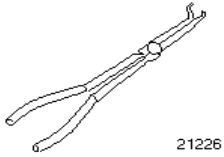
2115301

21-153-01 Guide bolts and remover bolts, vibration damper



ES21202

21-202 Socket wrench, spark plugs



21-226 Pliers, spark plug connectors

21-540 Angle gauge

Proprietary tools

Description
Dial gauge
Micrometer gauge
Magnetic fixture
Piston ring compressor
Steel rule (500 mm)
Feeler gauges
Oil filter strap wrench

Workshop Equipment

Description	
Assembly stand	

Materials

Description	Specification
Plastigage	
obtainable from: Replacement Service Limited, 30 Euston Street, Freemans Industrial Estate,	
Leicester,	LE2 7ST.
Welding rod Ø 2,5 mm, length approx. 220 mm	
Spark plug lubricant 'Never-Seeze'	ESE-M1244-A
Sealer (Loctite 518)	WSK-M2G348-A5
Sealer (Hylosil 502)	WSK-M4G320-A
Adhesive	SPM-2G9123-A
Engine oil	Refer to General Specifications
Silicone grease	A960-M1C171-AA

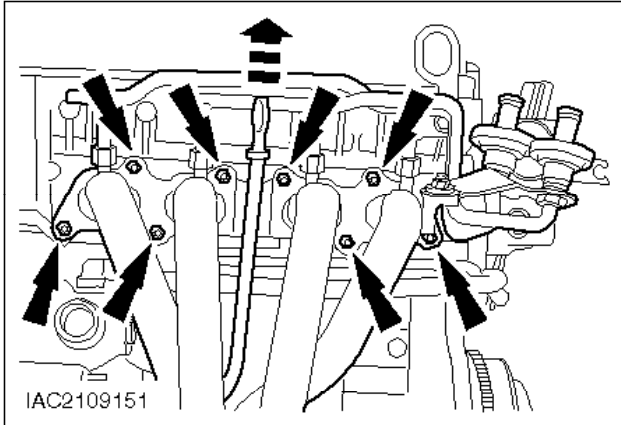
Dismantle 09-70">

Note:

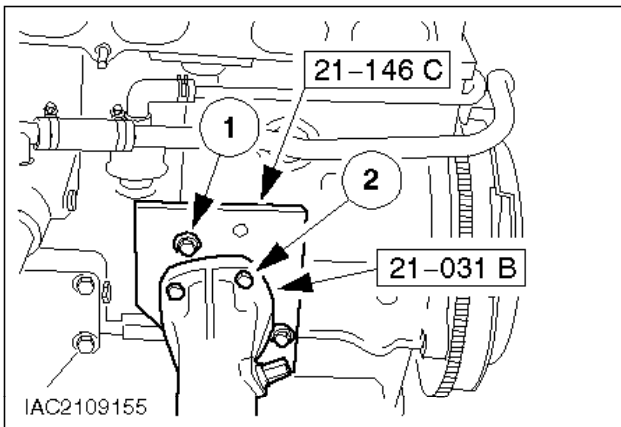
The position of the engine mounting is described looking from the transmission towards the engine.

1. Standard preparatory measures.

Drain the engine oil.

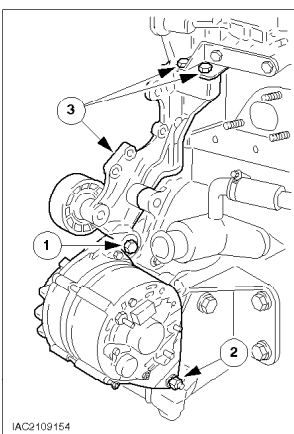


2. Detach the exhaust manifold and remove the oil dipstick tube.



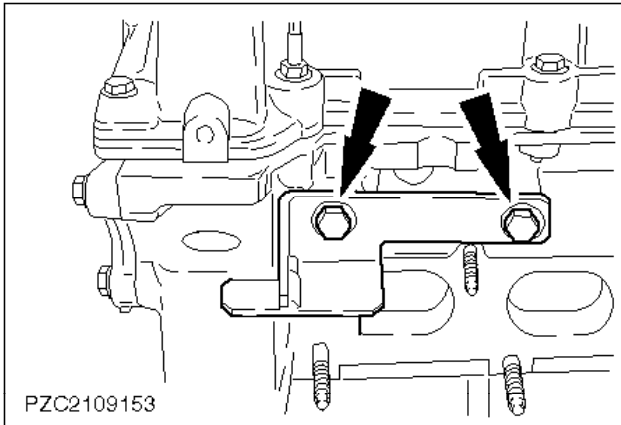
3. Mount the engine on an assembly stand.

- 1 Mounting plate
- 2 Mounting bracket



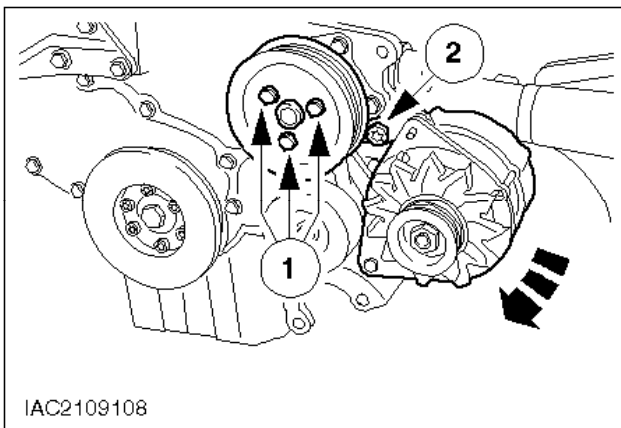
Only vehicles with air conditioning. 09-71">

- ④ 4. Detach the bracket and the alternator.
 - 1 Detach the alternator from the bracket at the top.
 - 2 Release the lower alternator bolt.
 - 3 Detach the lower bracket of the power steering pump/alternator from the cylinder block.

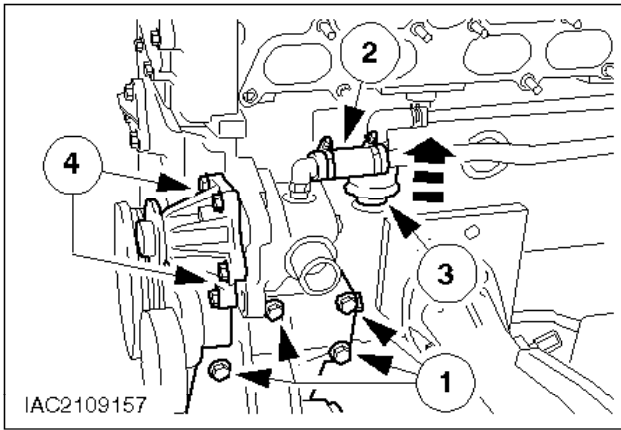


Only vehicles with air conditioning.

- ④ 5. Detach the upper bracket for the power steering pump from the cylinder head.

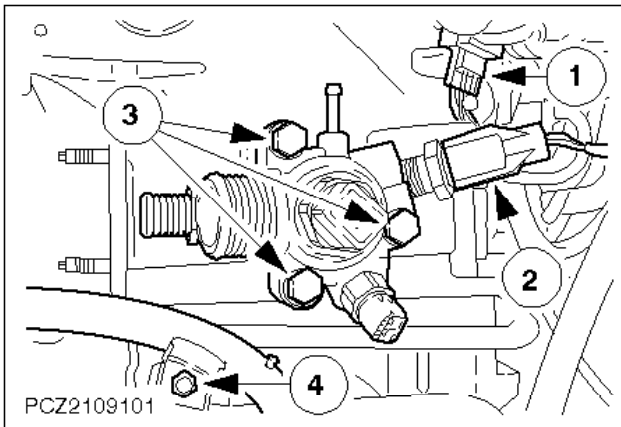


- ④ 6. Detach the belt pulley and the alternator.
 - 1 Remove the coolant pump belt pulley.
 - 2 Unscrew the upper alternator bolt. Swing the alternator down.



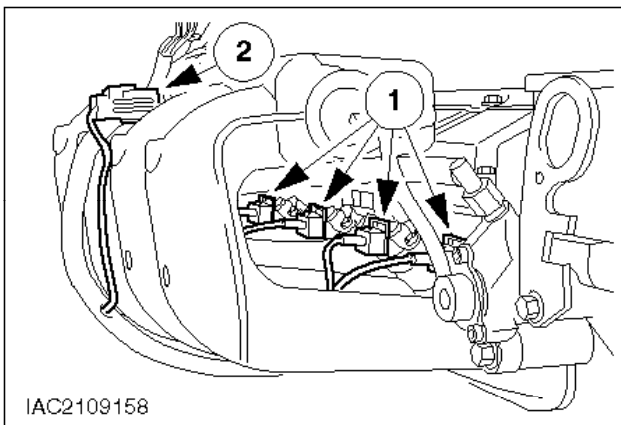
7. Detach the bracket and the hoses.

- 1 Detach the bracket for the alternator/power steering pump together with the alternator.
- 2 Disconnect the coolant hose to the heater.
- 3 Remove the positive crankcase ventilation (PCV) hose.
- 4 Detach the coolant pump.



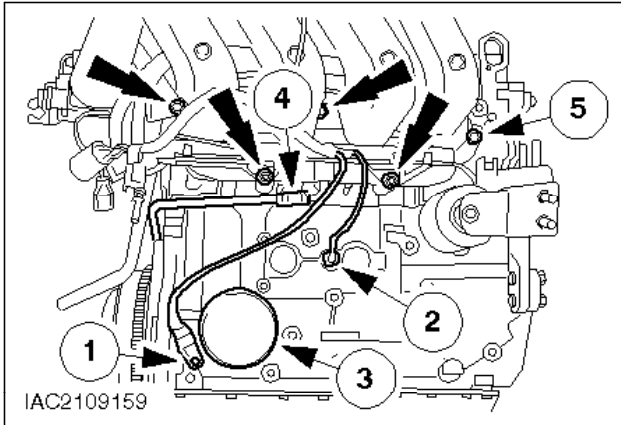
8. Remove the thermostat housing.

- 1 Disconnect the plug of the throttle position sensor (TP sensor).
- 2 Disconnect the plug of the engine coolant temperature sensor (ECT sensor).
- 3 Remove the thermostat housing.
- 4 Detach the bracket for the coolant pipe.



9. Disconnect the plugs.

- 1 Disconnect the injector plugs (x 4).
- 2 Disconnect the plug of the intake air temperature sensor.



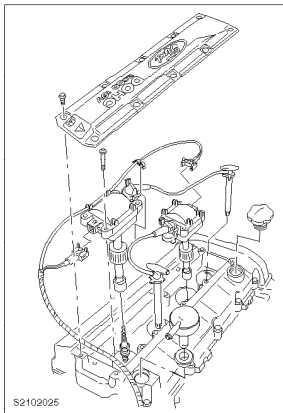
⌚ 10. Detach the air intake pipe.

- 1 Disconnect the plug from the crankshaft position sensor (CKP sensor) and detach the CKP sensor.
- 2 Disconnect the plug of the oil pressure switch and remove the oil pressure switch.
- 3 Remove the oil filter.
- 4 Detach the PCV pipe from the air intake pipe.

Note:

One bolt also holds a fuel pipe bracket.

- 5 Detach the air intake pipe.



⚠ CAUTION:

Do not pull on the cable when unplugging the spark plug connectors. If necessary disconnect the ignition cables from the ignition coil to prevent kinking of the cables. Slightly twist the spark plug connectors before pulling them off in order to release the seals.

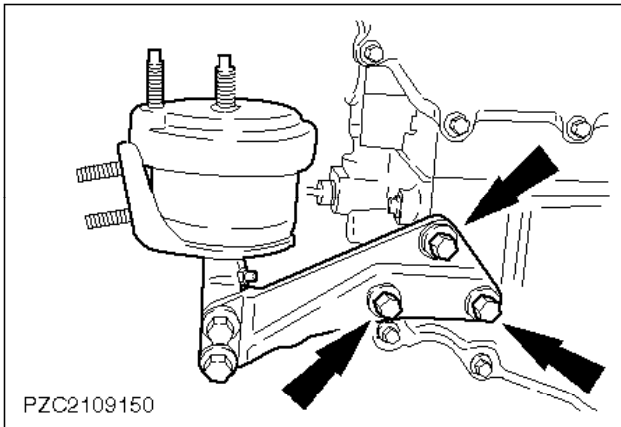
⚠ CAUTION:

Pull off the spark plug connectors in a straight line with the axis of the spark plug (use Special Tool 21-226 for angled spark plug connectors).

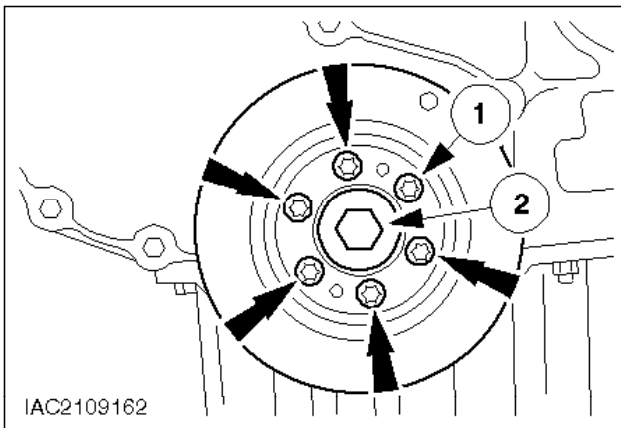
⌚ 11. Remove the cylinder head cover.

- Detach the cover from the cylinder head cover.

- Disconnect the plugs of the ignition coils and remove the engine wiring loom.
- Remove the ignition coils and spark plug connectors.
- Remove the spark plugs using special tool 21-202.
- Disconnect the positive crankcase ventilation.
- Detach the cylinder head cover (11 bolts and 4 nuts).



- ⌚ 12. Detach the front right-hand engine mounting from the cylinder block.

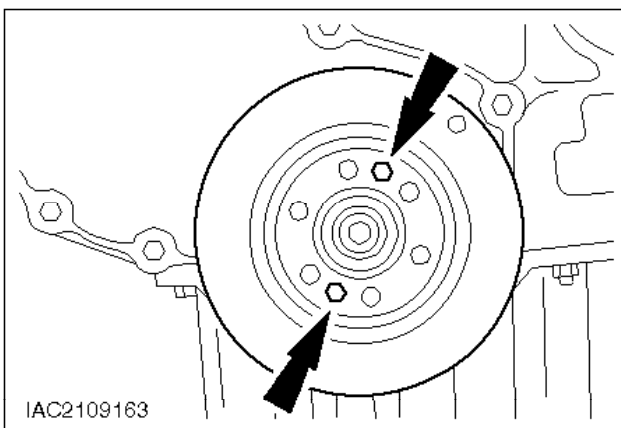


Detach the crankshaft pulley/vibration damper.

- ⌚ 13. Detach the crankshaft pulley/vibration damper.

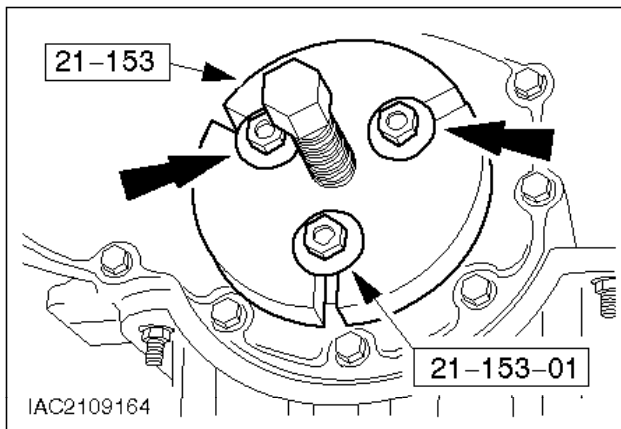
Immobilise the flywheel with locking tool 21-135.

- 1 Unscrew the bolts.
- 2 Unscrew the hub bolt.



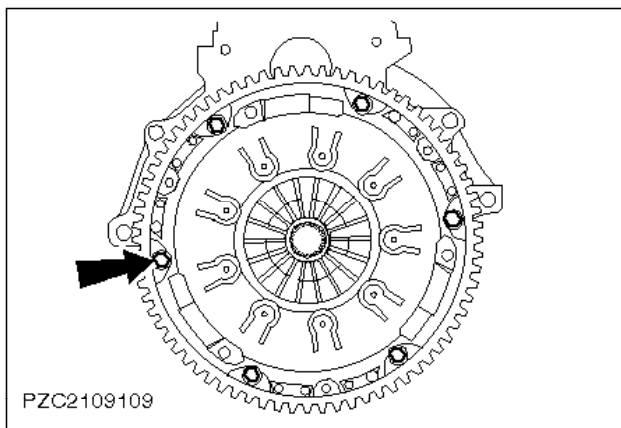
- 14. Detach the crankshaft pulley/vibration damper (cont.).

Pull the crankshaft pulley/vibration damper off the hub using two M6 bolts.

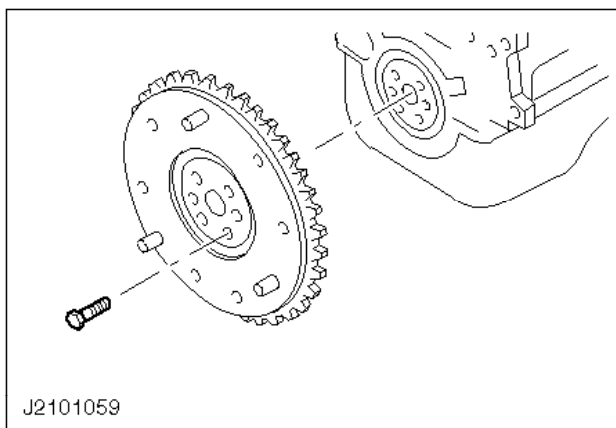


- 15. Detach the crankshaft pulley/vibration damper hub.

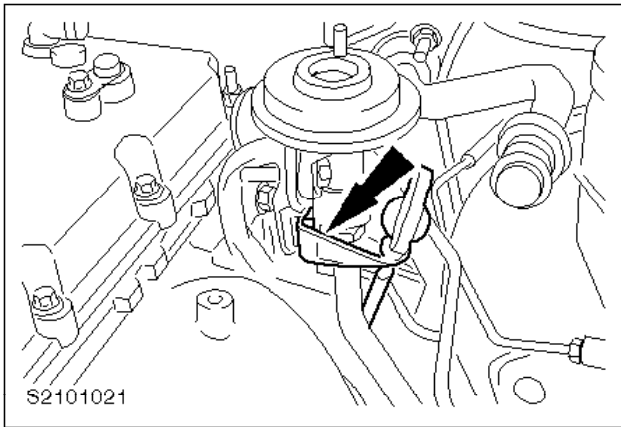
Detach the locking tool from the flywheel.



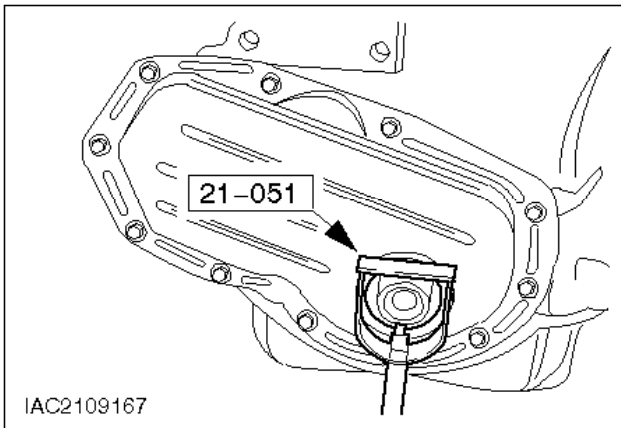
- 16. Remove the clutch.



- 17. Remove the flywheel (six bolts).

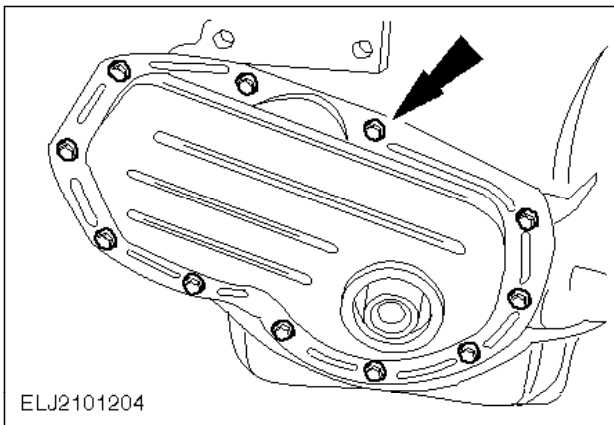


- ⚡ 18. Detach the upper timing chain cover (seven bolts).



Only vehicles with an aluminium cover. 09-77">

- ⚡ 19. Detach the lower timing chain cover.
- Remove the front oil seal.
 - Detach the lower timing chain cover.

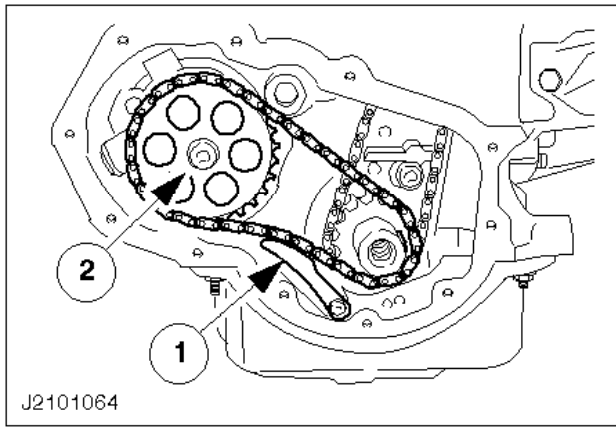


Only vehicles with a sheet steel cover.

Note:

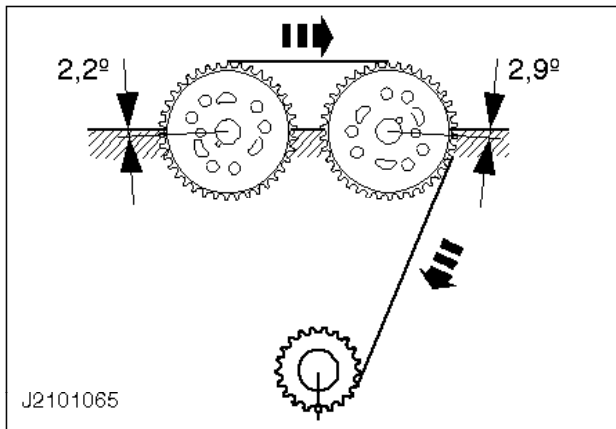
The sheet steel cover must be renewed for installation.

- ⚡ 20. Detach the lower timing chain cover.

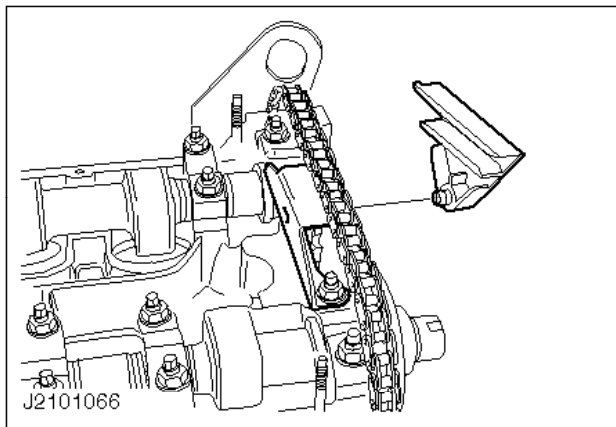


☛ 21. Detach the oil pump sprocket and chain.

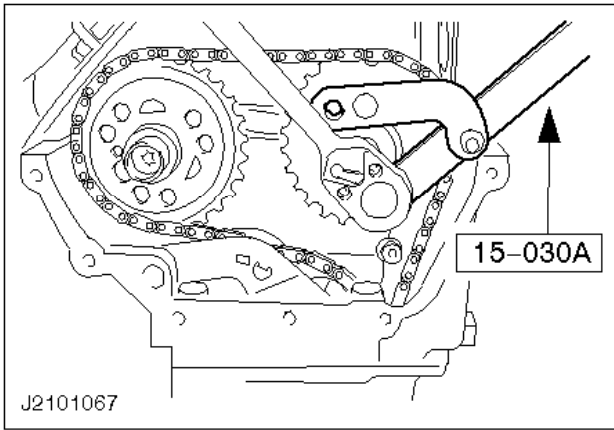
- 1 Remove the chain tensioner.
- 2 Remove the sprocket and chain.



☛ 22. Set the camshaft sprockets to the mark.



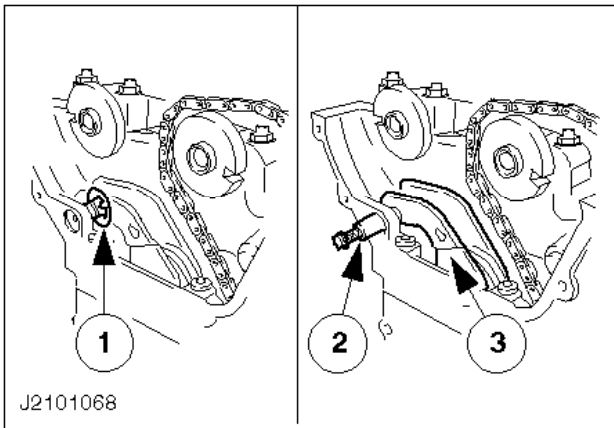
☛ 23. Detach the upper chain guide rail.



Note:

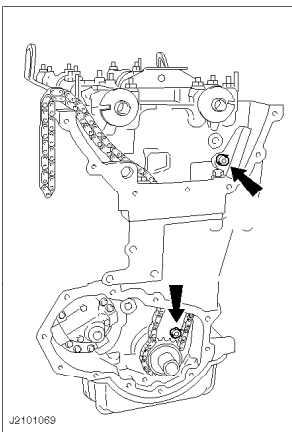
Counterhold with the special tool.

- 24. Detach the camshaft sprockets.

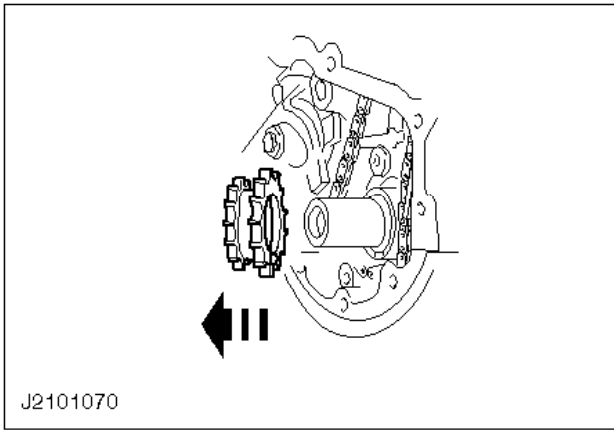


- 25. Remove the chain tensioning arm.

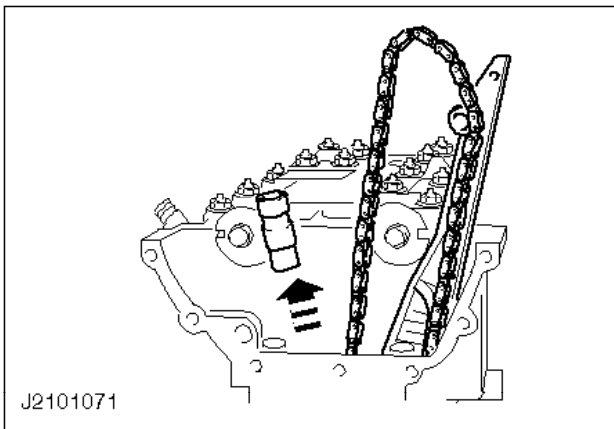
- 1 Pull off the circlip with pliers.
- 2 Draw out the chain tensioner pivot pin with a bolt (M6).
- 3 Remove the chain tensioning arm from the housing.



- 26. Unscrew the chain guide bolts.

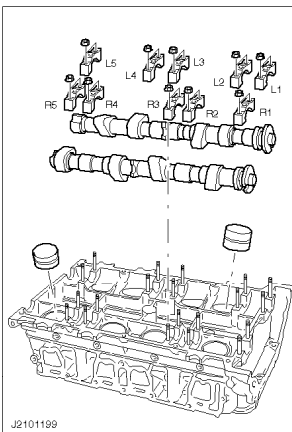


- 27. Remove the timing chain.
- Remove the crankshaft Woodruff key.
 - Remove the crankshaft sprocket.



Note:
Renew the chain tensioner hydraulic plunger.

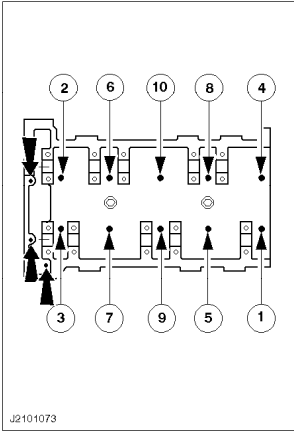
- 28. Remove the chain tensioner hydraulic plunger and the timing chain together with the chain guide.



Note:
Slackening sequence: uniformly from camshaft cap five to one.

- 29. Remove the camshafts.

- Detach the bracket of the chain guide rail with the front bearing caps.
- Remove the hydraulic tappets and put them down in order.



CAUTION:

The cylinder head must be cooled to room temperature before the bolts are removed.

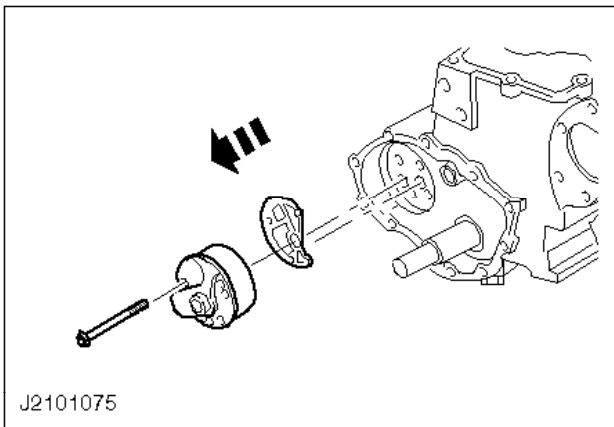
Note:

First remove the auxiliary bolts (x 3).

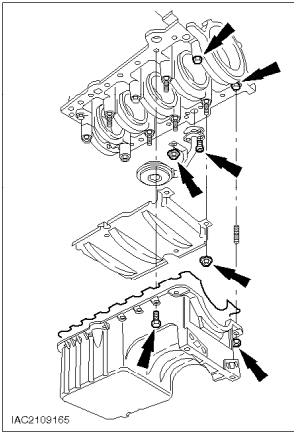
Note:

Do not put the cylinder head down on its mating face.

- ☛ 30. Detach the cylinder head.



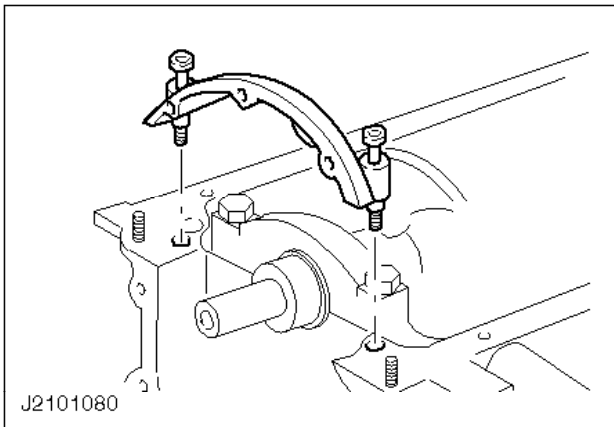
- ☛ 31. Detach the oil pump (four bolts).



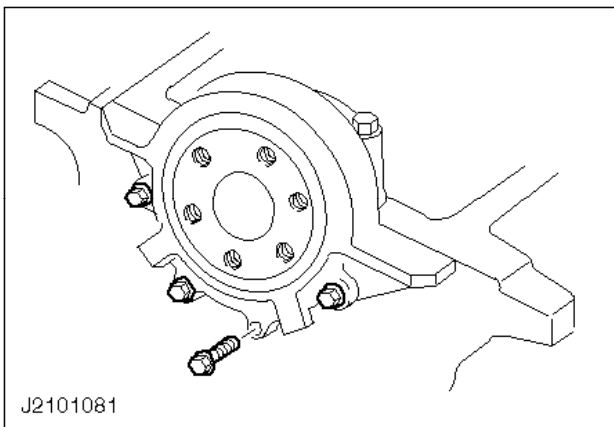
Note:

Remove the oil sump downwards to prevent oil sludge and abraded particles from getting into the engine.

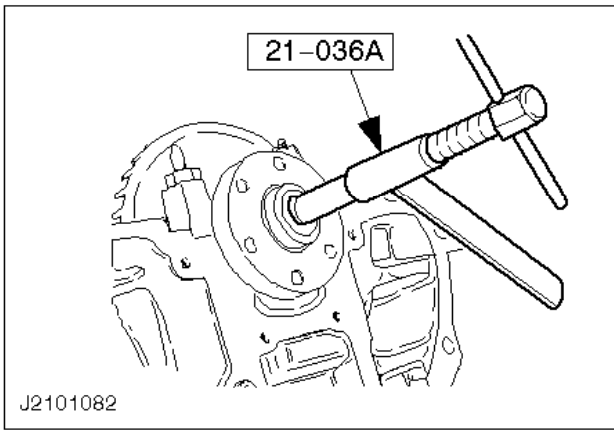
- 32. Detach the sump, oil baffle and oil intake pipe.



- 33. Detach the front support bracket from the cylinder block.

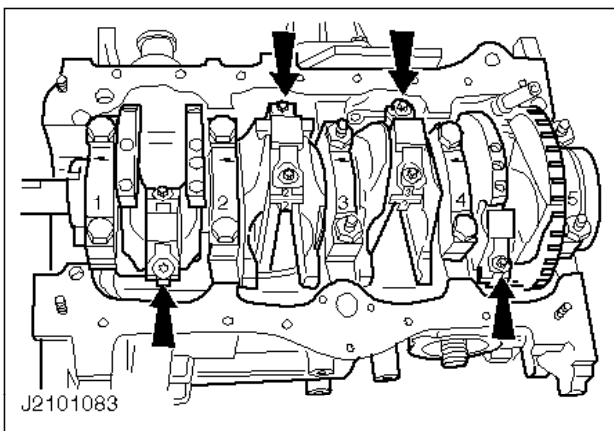


- 34. Detach the crankshaft rear oil seal carrier.

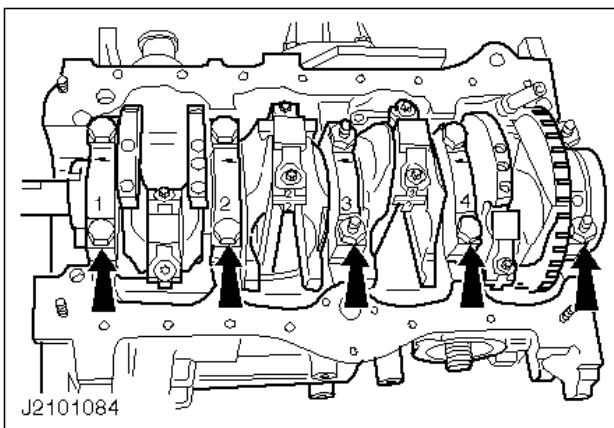


Remove the crankshaft pilot bearing

- 35. Remove the crankshaft pilot bearing.



- 36. Remove the pistons, together with the connecting rods.
 - Detach the big-end bearing caps.
 - Detach the bearing shells from the big-end bearing caps and connecting rods and mark them.
 - Push out the pistons with the connecting rods.



- 37. Remove the crankshaft.
 - Detach the main bearing caps.
 - Remove the crankshaft.
 - Take out the bearing shells and thrust half rings and put them down in order or mark them for

reuse.

Assemble

38. Preparations.

Note:

No material must be worn away from the ancillary parts during cleaning.

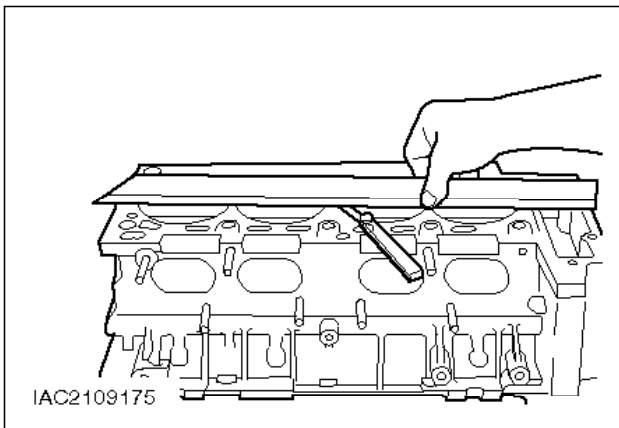
All mating faces and reusable parts must be cleaned thoroughly with a spatula, checked for damage and renewed if necessary.



CAUTION:

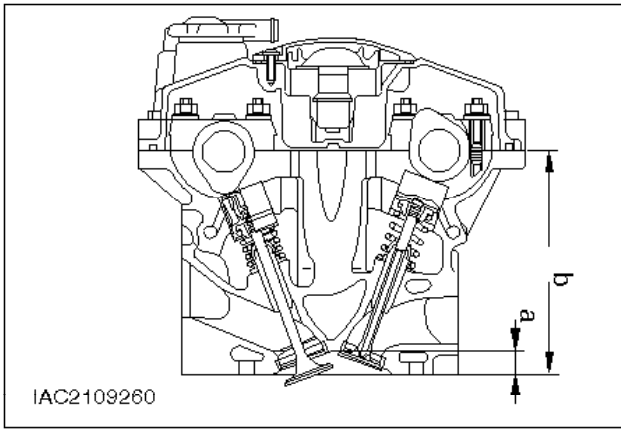
Do not damage the cylinder liner.

39. Remove the carbon around the upper edge of the cylinder.



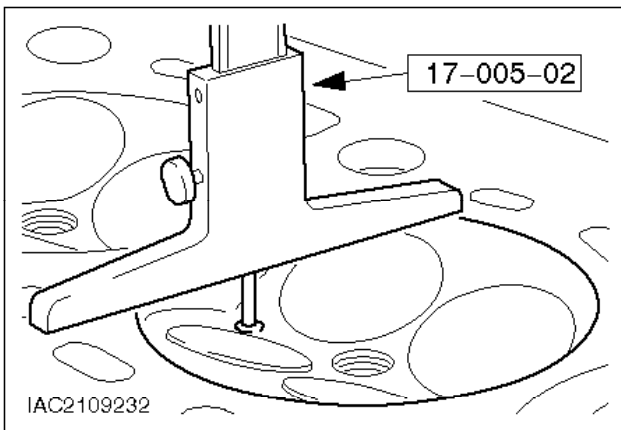
Check the cylinder head evenness. 09-84">

- ⦿ 40. Check the cylinder head mating face for distortion.
- Lay the steel rule (at least 500 mm long and 5 mm wide) laterally across all the combustion chamber steps and in each case take measurements at three points.
 - Permissible distortion at the combustion chamber steps: lateral 0,05 mm, longitudinal and diagonal 0,10 mm.
 - Lay the steel rule lengthways across the cylinder head in the area of the combustion chambers at three points and check the measurements at all the combustion chamber steps.
 - Lay the steel rule diagonally across the cylinder head and check the measurements at all the combustion chamber steps.
 - If necessary rework the cylinder head as described in the next step.



41. Note on reworking the cylinder head.

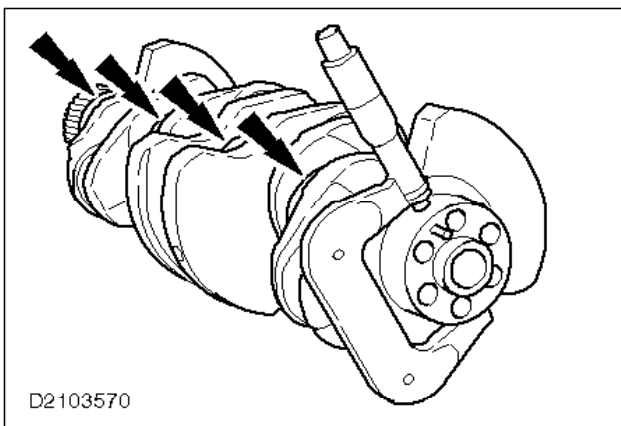
Maintain a peak-to-valley height (Rz) of 0,0135 micrometers when reworking. The cylinder head must not be reworked by more than 0,20 mm (milling or surface grinding). Measurements "a" and "b" must not be less than 13,80 mm (see next step) and 147,25 mm respectively.



Note:

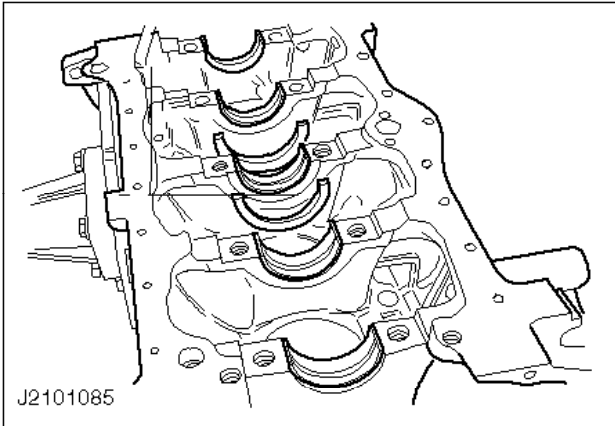
Remove any carbon deposits from the measuring area.

42. Position of the measuring point for dimension "a" in the combustion chamber.



43. Measure the diameter of the main and big-end bearing journals using the micrometer gauge.
- Repeat the measuring operation at intervals of 90°.
 - If the measured values do not correspond with those given in the General Specifications,

rework or renew the crankshaft.



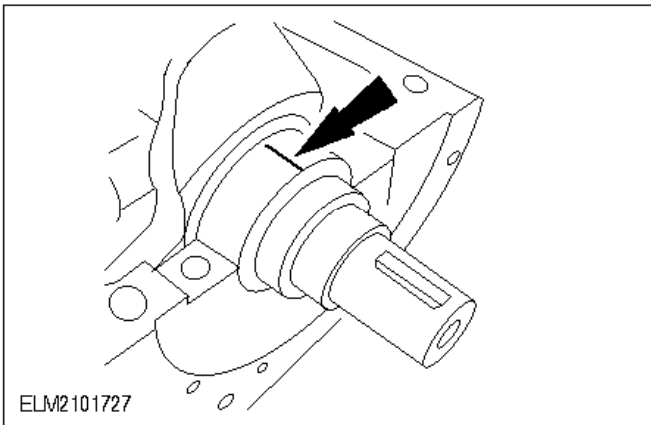
Measure the main bearing clearance



CAUTION:

Do not damage the bearings when laying the crankshaft in place.

- ④ 44. Lay the crankshaft in place.
 - Lay the grooved bearing shells in the cylinder block.
 - Place the crankshaft in the cylinder block uncoiled.



Note:

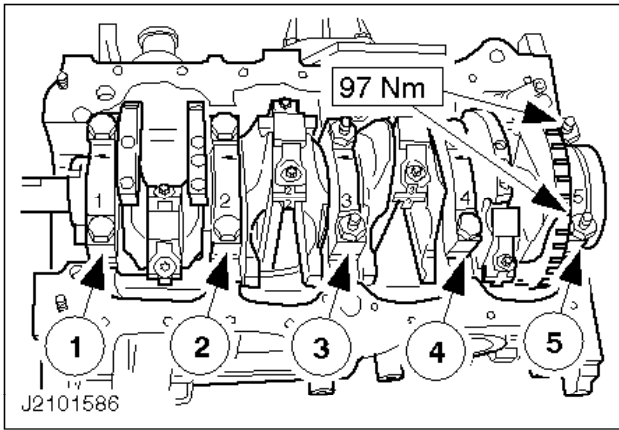
The measuring point must be free of oil.



CAUTION:

Do not turn the crankshaft during the measuring procedure.

- ④ 45. Measure the crankshaft main bearing clearance.
 - Lay a length of Plastigage thread across the bearing on the bearing journal.
 - Attach the bearing caps (see next step).



Note:

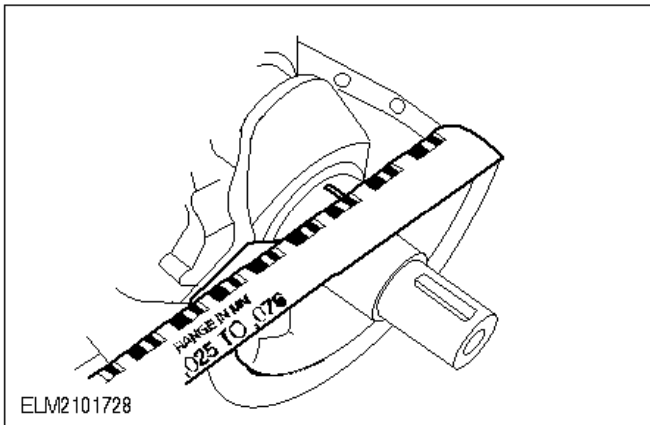
Measure the bearing clearances in turn in numerical order (one to five).

- ④ 46. Measure the crankshaft main bearing clearance (continued).

Note:

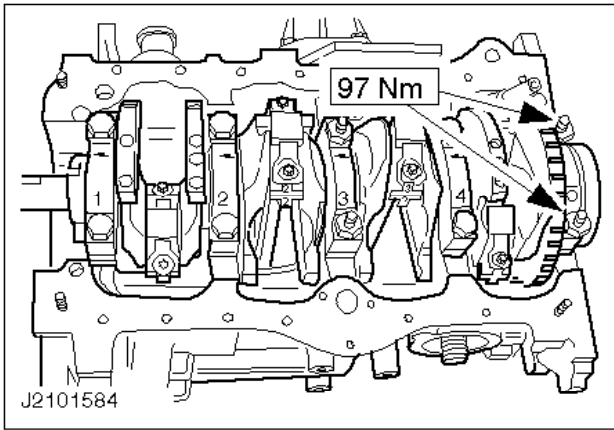
The bearing cap numbering starts at the timing chain end.

- Fit the bearing cap with its associated bearing shell with the arrow pointing towards the timing chain end, and tighten it.
- Detach the bearing cap.



- ④ 47. Measure the crankshaft main bearing clearance (continued).

- Compare the Plastigage thread with the Plastigage scale.
- The reading corresponds to the bearing clearance.
- If the specified bearing clearance of 0,011 - 0,048 mm is not achieved, install new bearing shells and repeat the measurement (see previous steps).
- If the specified bearing clearance is still not obtained, in the case of standard cylinder blocks and crankshafts up to 0,02 mm undersize, bearing shells in the next size up can be fitted. In this case, however, the bearing clearance must not have been greater than 0,098 mm.



⌚ 48. Install the crankshaft.

- Lubricate the main bearing journals and bearing shells, the threads and contact faces of all the bolts with engine oil.
- Install the crankshaft.
- Install the thrust washers with the copper-coloured side facing the crankshaft.
- Coat the contact faces and the sides of the rear bearing cap with sealer.

Note:

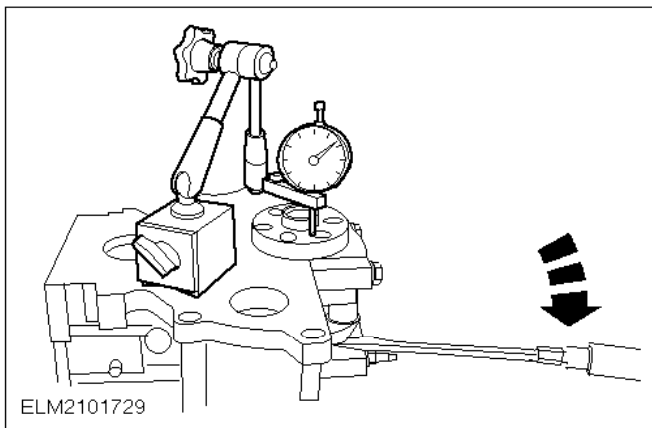
The bearing cap numbering starts at the timing chain end, to which the arrows also point.

- Fit the crankshaft main bearing caps with the associated bearing shells.

Note:

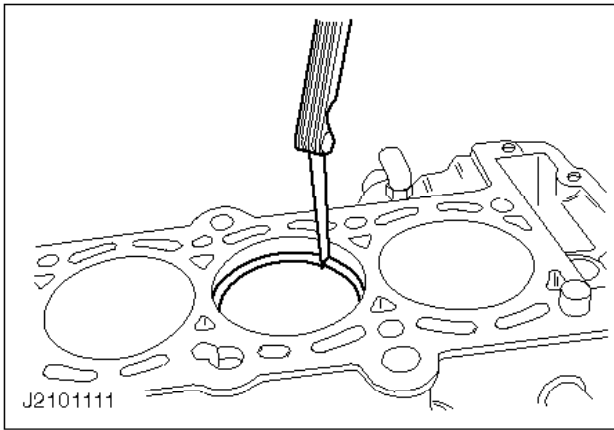
Fit the bolts with the stud extension at bearings 3 and 5.

- Tighten the bolts.



⌚ 49. Check the crankshaft end float.

- Set up the dial gauge.
- Measure the end float by lifting the crankshaft with a screwdriver.
- If necessary, correct the end float with thrust half rings at main bearing no. 3.

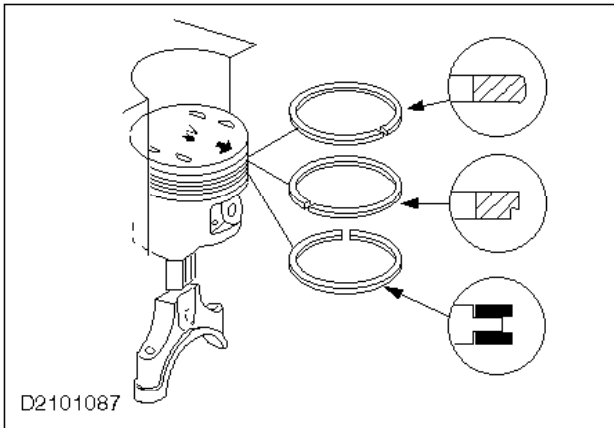


Note:

The piston ring must be positioned in the upper part of the cylinder.

- ⦿ 50. Check the piston ring gaps.

The values given in the General Specifications are based on a gauge ring used in production. Measured in the cylinder, these values may be exceeded by 0,15 mm.

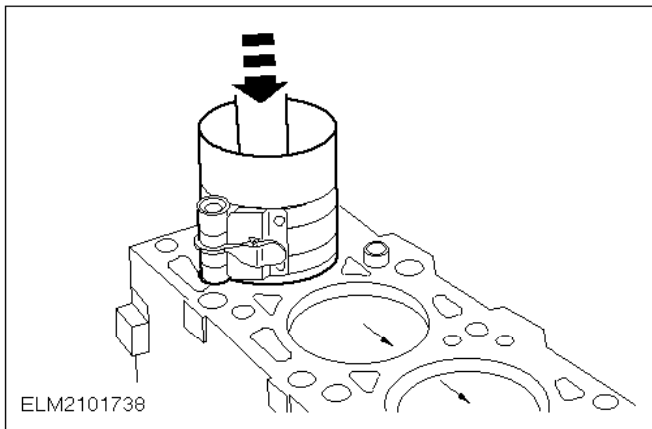


CAUTION:

The upper piston rings are coated with molybdenum. This coating must not be damaged.

- ⦿ 51. Arrangement of the piston rings.

The maximum width to which the piston rings may be expanded is equal to the cylinder diameter + 1,7 mm.



52. Install the pistons, together with the connecting rods.

- Lubricate the pistons and cylinder bores with engine oil.
- Distribute the piston ring gaps evenly around the circumference. This also applies to the elements of the oil control ring.

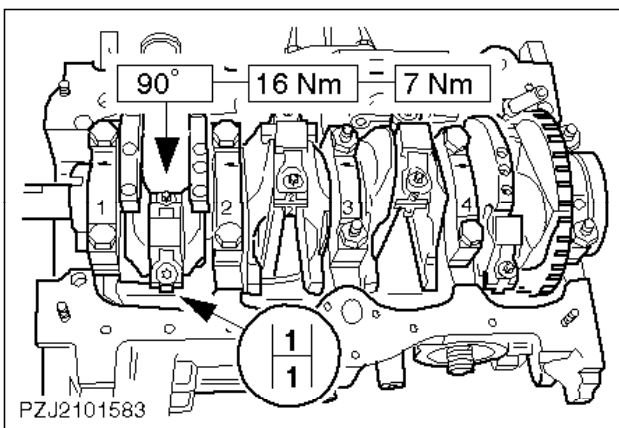
Note:

The numbering on the connecting rods starts at the timing chain end. The arrow on the piston crown points towards the timing chain.

- Compress the piston rings using a piston ring compressor.
- Press piston nos. 1 and 4 into the cylinders using the handle of a hammer. The crank pin must be at BDC.
- Lubricate the bearing shells with engine oil.
- Lay the associated bearing shells in their connecting rods and bearing caps.
- Fit the bearing caps.
- Turn the crankshaft through 180° and install piston nos. 2 and 3.

53. Measure the big end bearing clearances.

Measure the big end bearing clearance (see previous steps).



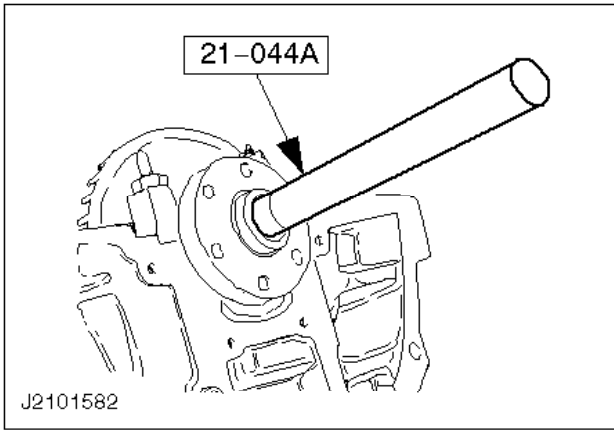
54. Attach the bearing caps.

- Lubricate the bearing shells and bearing journals with engine oil.

Note:

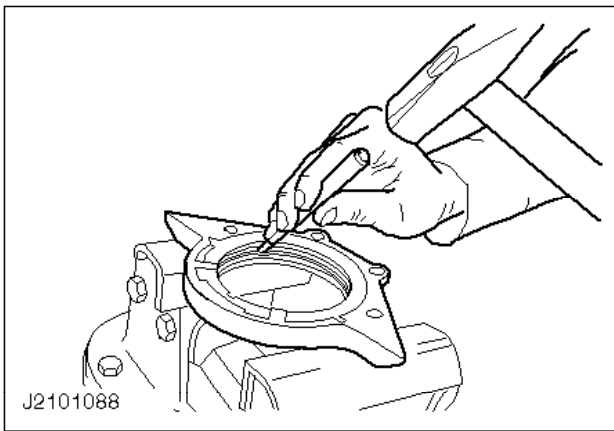
The numbers on the connecting rods and big-end bearing caps must correspond.

- Fit the appropriate big-end bearing caps and bearing shells and tighten the bolts.

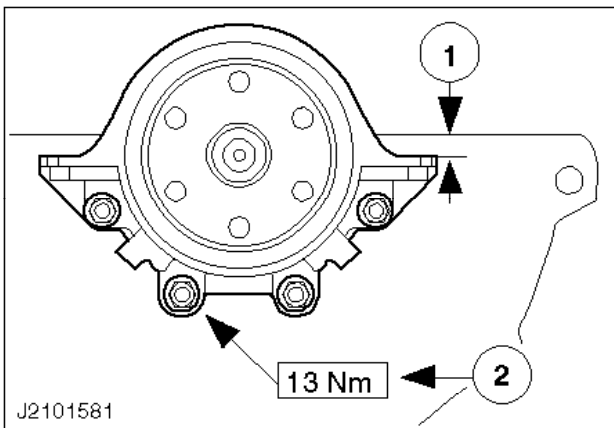


Install the crankshaft pilot bearing

- 55. Install the crankshaft pilot bearing.



- 56. Remove the crankshaft rear oil seal from the oil seal carrier.

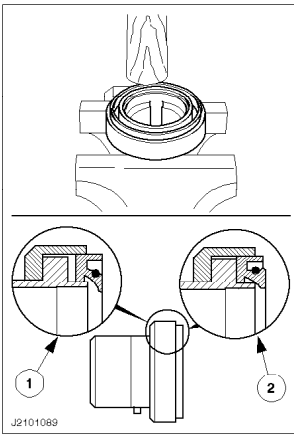


Align the rear oil seal carrier

- 57. Align the rear oil seal carrier

Fit the oil seal carrier with a new gasket and screw in the bolts.

- 1 The mating face of the oil seal carrier must be below the mating face of the cylinder block. The height difference must not be more than 0,46 mm.
- 2 Tighten the bolts.



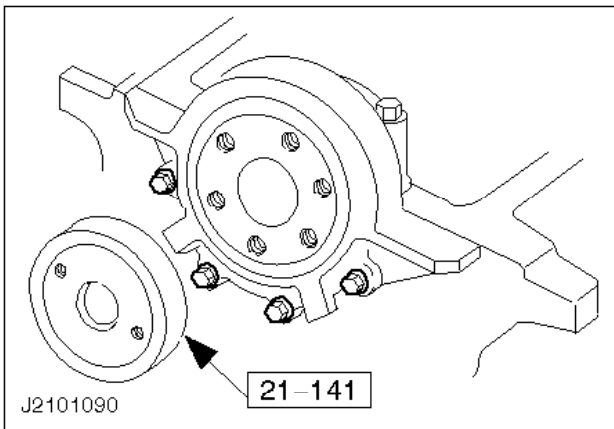
⚠ CAUTION:

The oil seal must be inserted in the tool as far as it will go.

- 58. Insert the oil seal in the special tool with the guide sleeve.

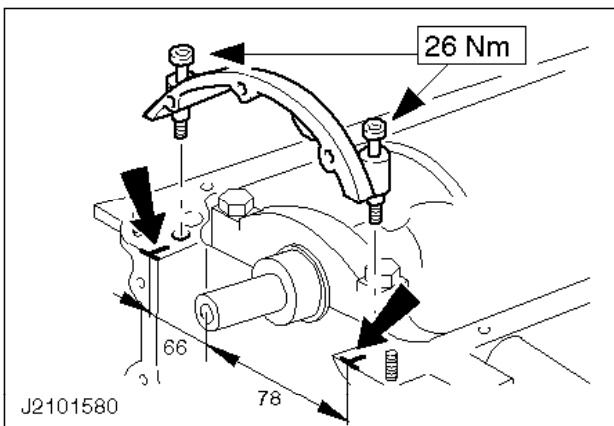
Place the special tool in a vice and press the oil seal in with the handle of a hammer.

- 1 Wrong way.
- 2 Right way.



- 59. Attach the oil seal carrier.
- 60. Install the crankshaft rear oil seal.

Draw in the oil seal with two flywheel bolts.



Note:

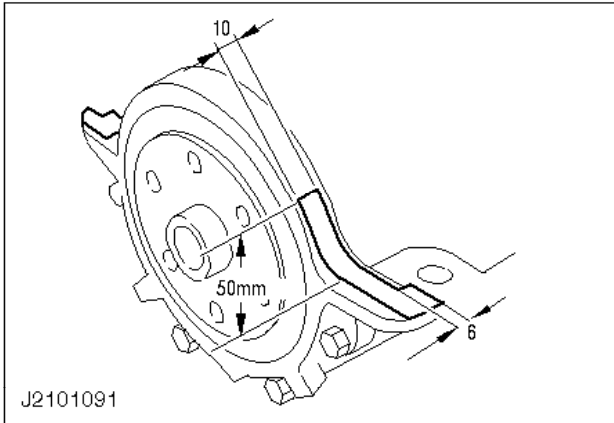
Sealer (WSK-M2G348-A5) must protrude sufficiently at the front and side after the front support bracket has been fitted.

- 61. Fit the front support bracket to the cylinder block.

Note:

Do not remove the excess sealer before fitting the sump.

- Apply four beads of sealer 3-5 mm in diameter and 10 mm in length.

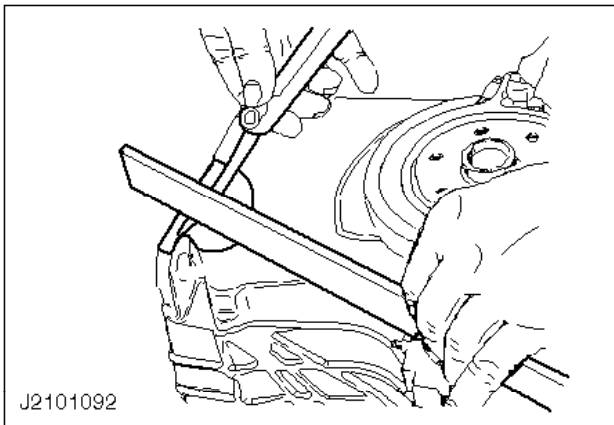


- 62. Apply sealer (WSK-M4G320-A) to the flywheel side of the cylinder block.

Note:

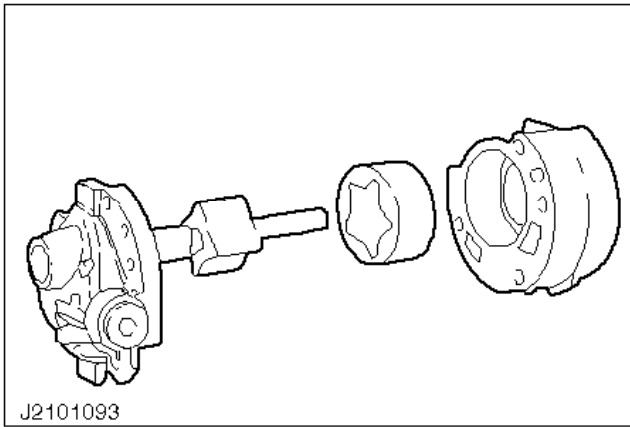
The bead of sealer must cover the mating face intersections.

- Apply a bead of sealer 3-5 mm thick and 10 mm wide on both sides.



Align the sump.

- 63. Align the sump.
 - Align the sump so that it is offset by no more than 0,25 mm inwards or 0,1 mm outwards.
 - Measure the height difference with a steel straight edge and feeler gauges. Make a note of the measurement.
 - When installing the engine, eliminate the difference using spacer plates (refer to General Specifications).



CAUTION:

Before fitting the new oil pump, fill it with oil and turn it manually.

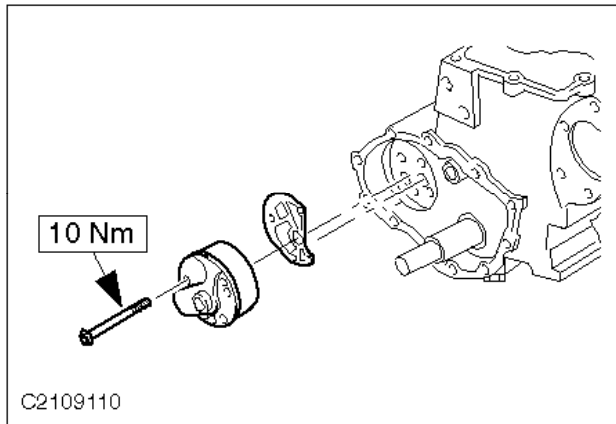
Note:

In the event of wear install a complete new oil pump.

Note:

The dots must face outwards.

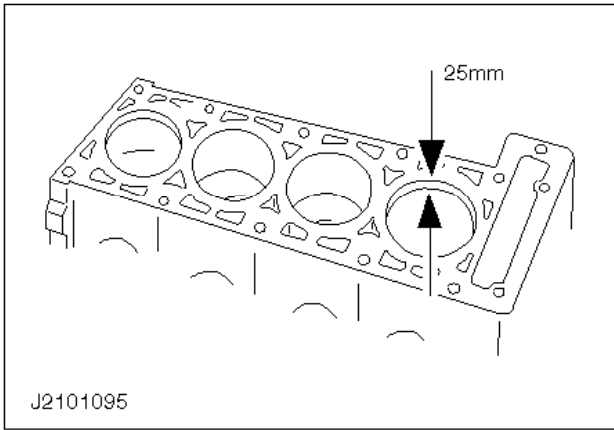
- 64. Dismantle and clean the oil pump.
- 65. Assemble the oil pump.



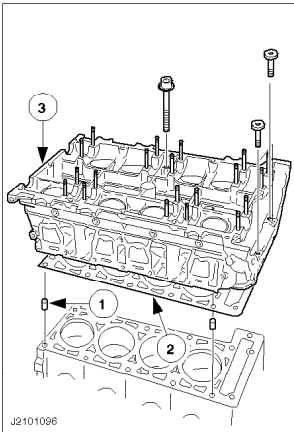
Note:

The oil pump passages must not be covered by the gasket.

- 66. Fit the oil pump using a new gasket.

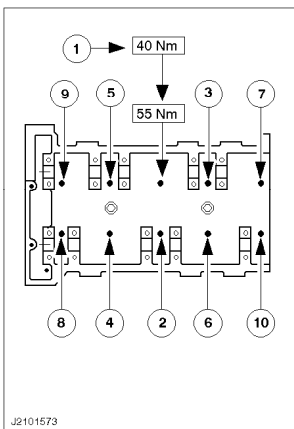


67. Set the piston of no. 1 cylinder to 25 mm before TDC.



68. Fit the cylinder head.

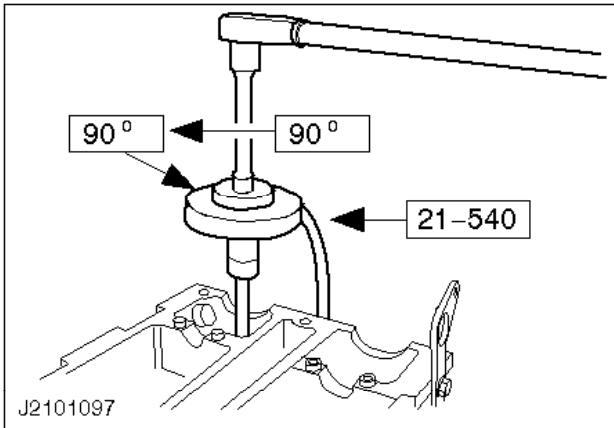
- 1 Insert the guide bushes.
- 2 Fit the cylinder head gasket.
- 3 Fit the cylinder head.



CAUTION:
Renew the bolts.

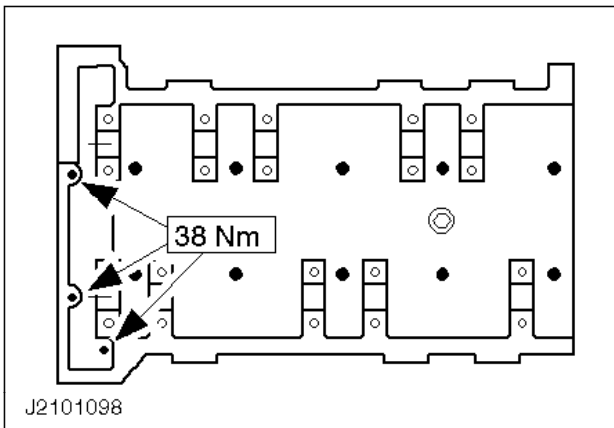
Note:
Tightening order.

69. Tighten the cylinder head bolts.

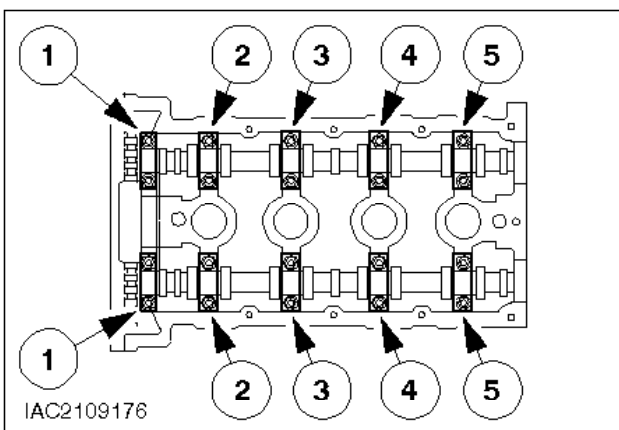


The cylinder head bolts must not be retorqued.

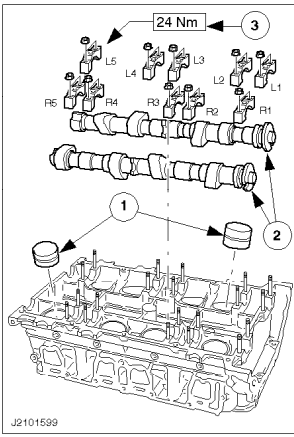
70. Tighten the cylinder head bolts (continued).



71. Tighten the cylinder head auxiliary bolts.



72. Tightening sequence for camshaft bearing caps.



CAUTION:

When installing the camshafts the piston of no. 1 cylinder must be approx. 25 mm before TDC.

- 73. Install the camshafts.



CAUTION:

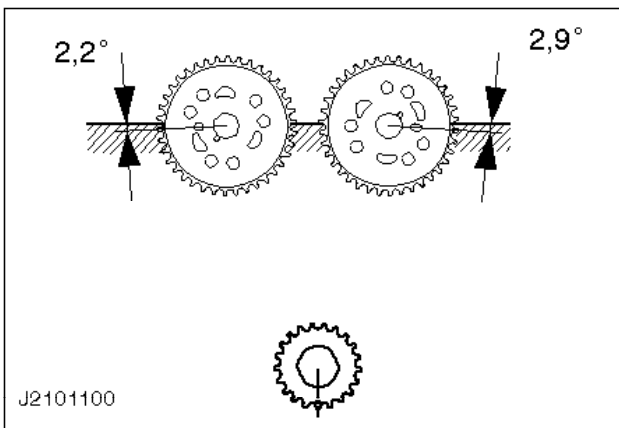
After the camshafts are installed, wait 15 minutes before cranking the engine.

- Oil the bearings.
- 1 Fit the hydraulic tappets.
- 2 Fit the camshafts so that none of the cams is at full lift.

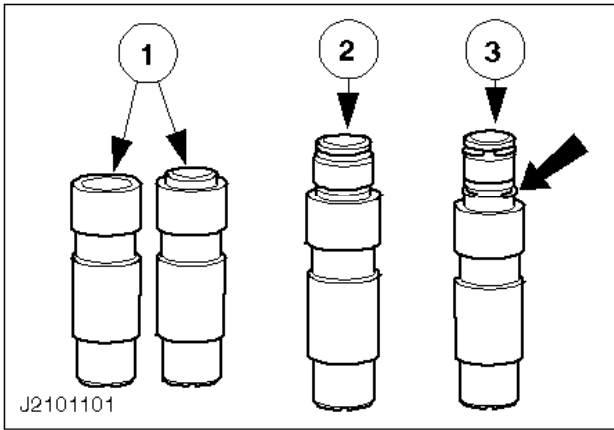
Note:

R is the inlet side and L is the exhaust side.

- 3 Fit the camshaft bearing caps so that the position marks can be seen from behind.
- Fit the chain guide bracket with the front bearing caps.



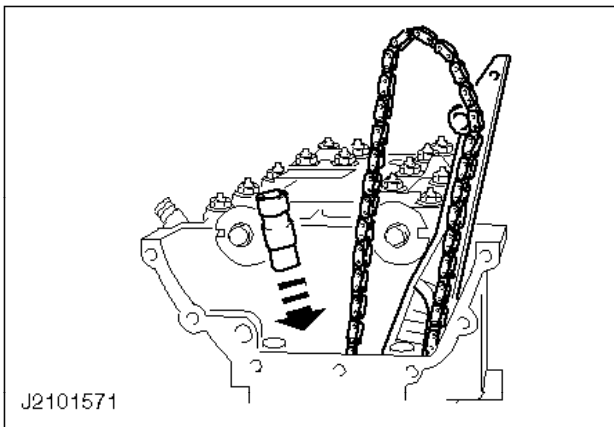
- 74. Set the camshafts and crankshaft to TDC.



CAUTION:

Fully and partially released chain tensioner hydraulic plungers (new or used) must not be installed.

- 75. Check the new chain tensioner hydraulic plunger.
 - 1 Chain tensioner hydraulic plunger latched.
 - 2 Chain tensioner hydraulic plunger partially released.
 - 3 Chain tensioner hydraulic plunger fully released (the detent ring is visible).

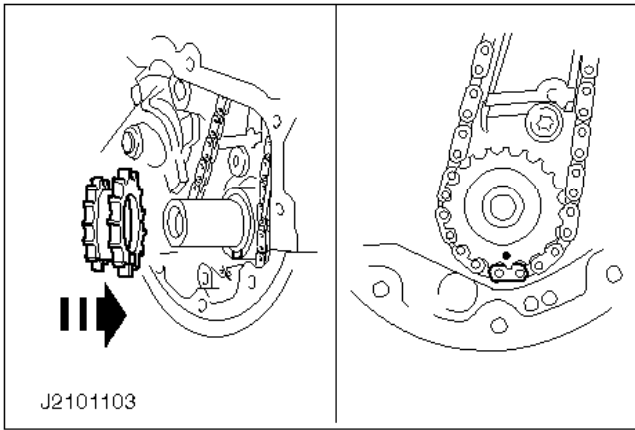


CAUTION:

Only use a new, latched chain tensioner hydraulic plunger.

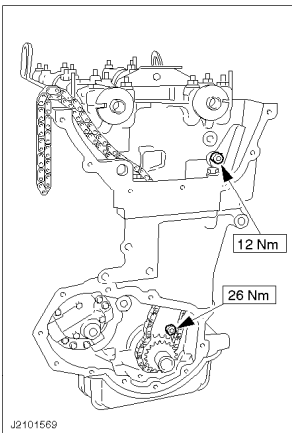
- 76. Install the chain tensioner hydraulic plunger.
- 77. Insert the timing chain with the chain guide.

Do not tighten the chain guide yet.

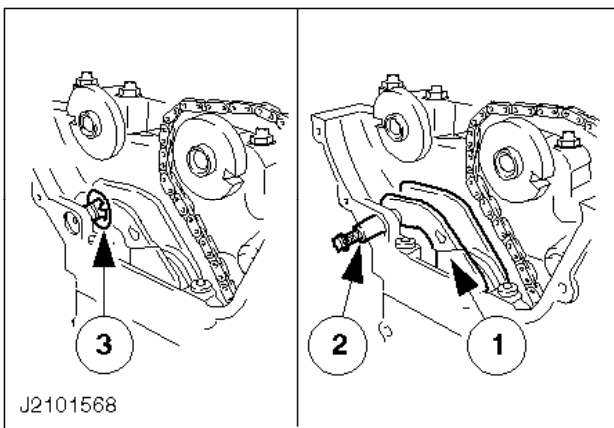


Fit the timing chain

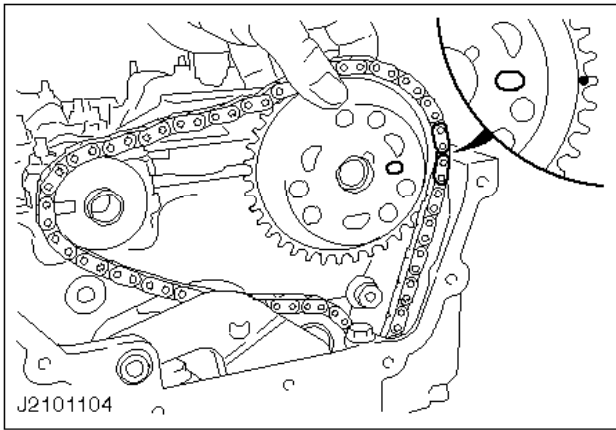
- ☛ 78. Fit the timing chain at the bottom.
- Slide the sprocket on approx. 10 mm.
 - Lay the timing chain over the inner chain wheel.
 - Insert the crankshaft Woodruff key.



- ☛ 79. Tighten the chain guide bolts.



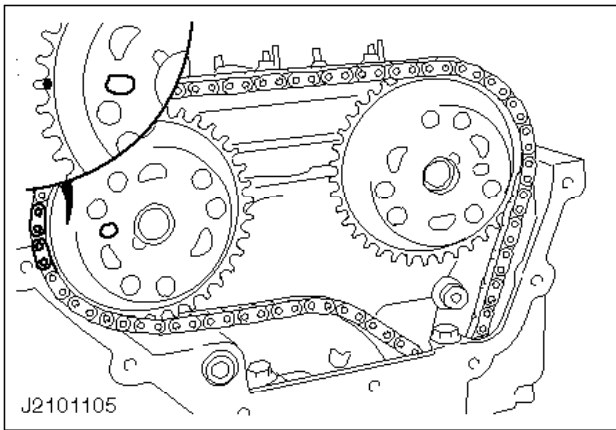
- ☛ 80. Install the chain tensioner.
- 1 Locate the chain tensioner in the installation position.
 - 2 Insert the pivot pin.
 - 3 Fit the circlip.



Note:

The timing chain must be taut on the long side. If necessary, turn the camshaft slightly.

- 81. Fit the timing chain at the top.

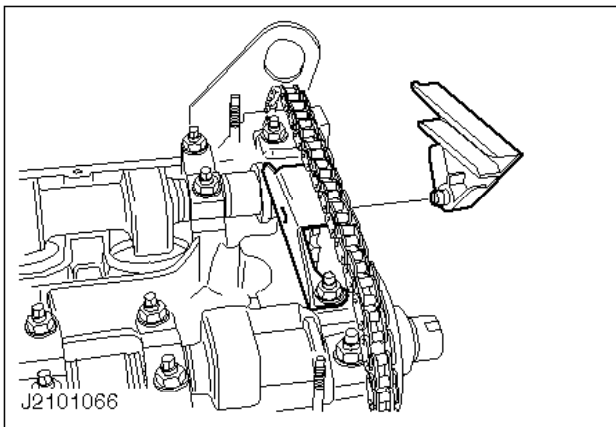


Note:

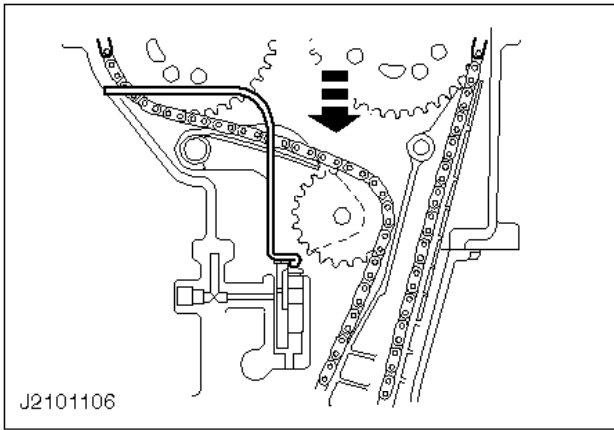
The timing chain may hang down slightly between the camshaft sprockets.

- 82. Fit the timing chain at the top (continued)

Screw in the bolts of the camshaft sprockets (do not tighten the bolts).

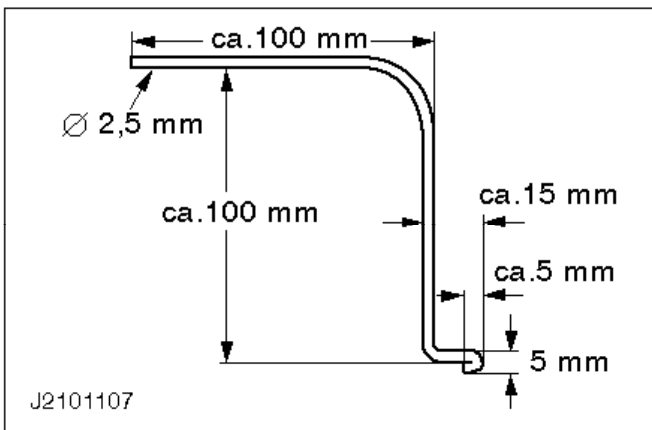


- 83. Attach the new upper chain guide rail to the bracket.



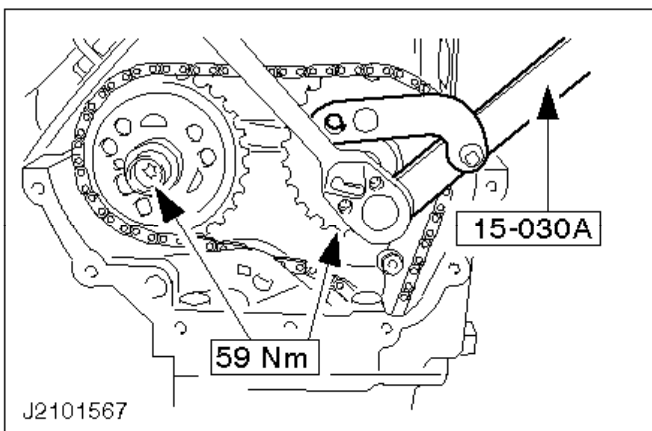
84. Release the chain tensioner tappet.

- Press down the chain tensioning arm manually and release the tappet.
- If the chain tensioner mounting does not reach the tappet, the tappet must be relaxed using an auxiliary tool.



85. Make the auxiliary tool.

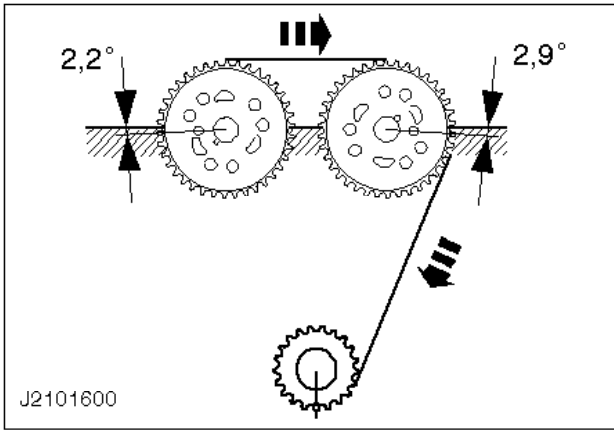
Use a piece of 2,5 mm welding rod approx. 220 mm in length.



Note:

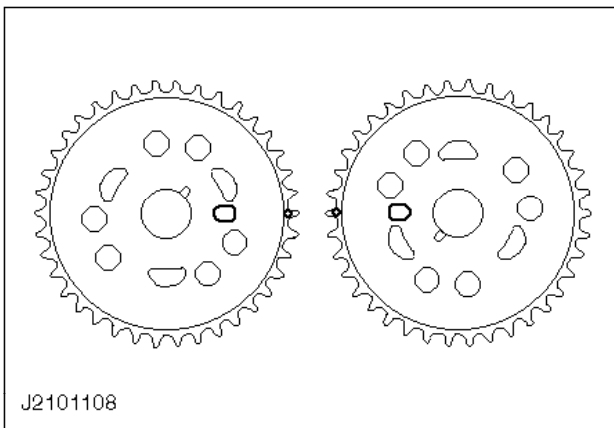
Counterhold with the special tool.

86. Tighten the bolts on the camshaft sprockets.



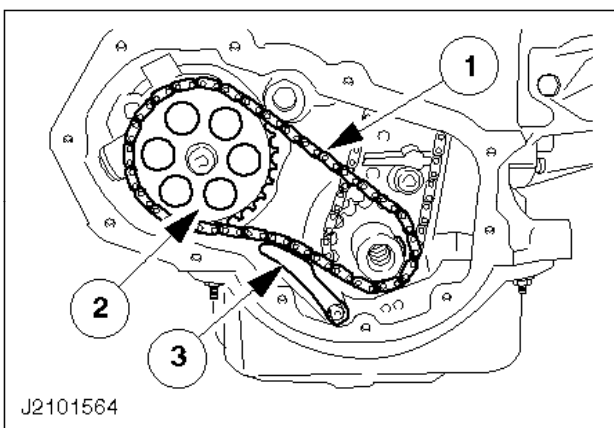
87. Check the valve timings.

- Crank the engine in the normal direction of rotation and set it to the mark.
- If it is necessary to correct the valve timings, i.e. the chain tensioner has to be released, a new chain tensioner hydraulic plunger must be fitted.



88. Check the valve timings (continued).

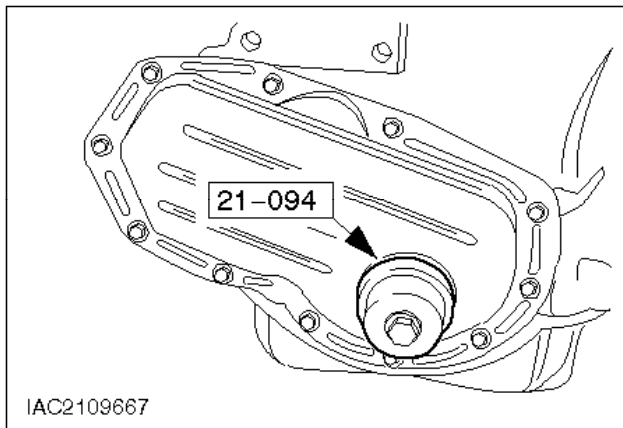
- Crank the engine in the normal direction of rotation to the next TDC.
- The marks on the camshaft sprockets must line up level with the top edge of the cylinder head.



89. Install the oil pump drive.

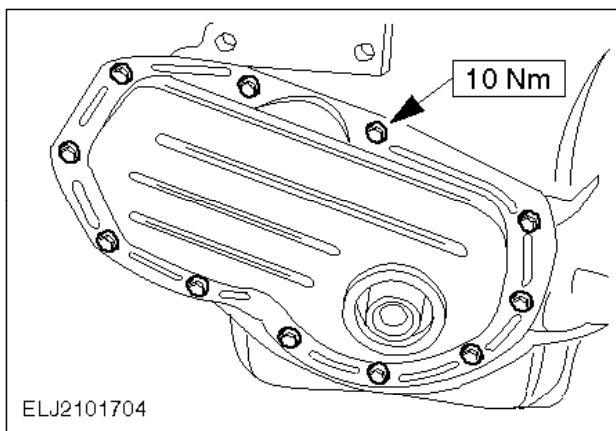
- 1 Lay the timing chain over the crankshaft drive pinion.
- 2 Fit the oil pump sprocket with the timing chain to the oil pump.

3 Install the chain tensioner.



Only vehicles with an aluminium cover.

- ⌚ 90. Install the front oil seal.
 - Fit the lower timing chain cover with the centring cap.
 - Install the front oil seal.



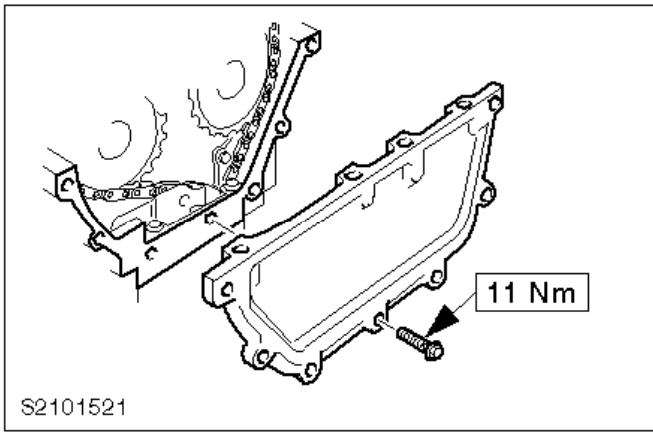
Only vehicles with a sheet steel cover.

- ⌚ 91. Attach the lower timing chain cover at the bottom.

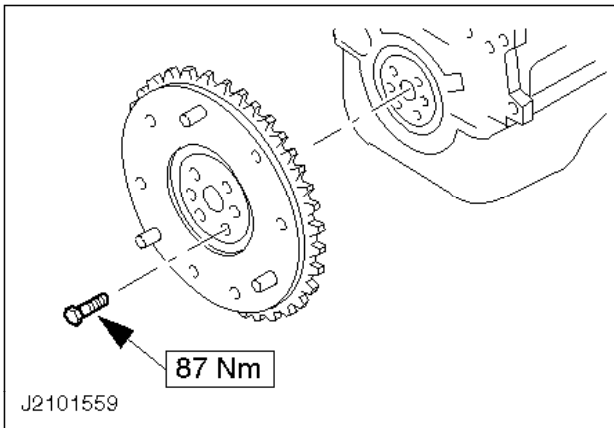
Note:

Fit the cover with a new gasket and new oil seal.

- Fit the new lower timing chain cover with the centring cap.
- Tighten the bolts.
- Remove the centring cap.



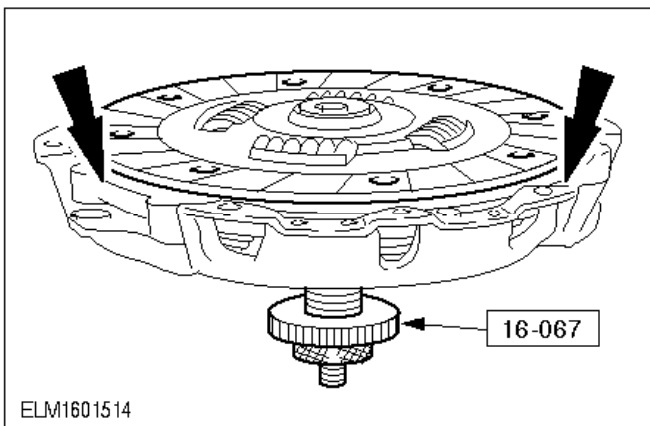
92. Attach the upper timing belt cover.



⚠ CAUTION:
Renew the bolts.

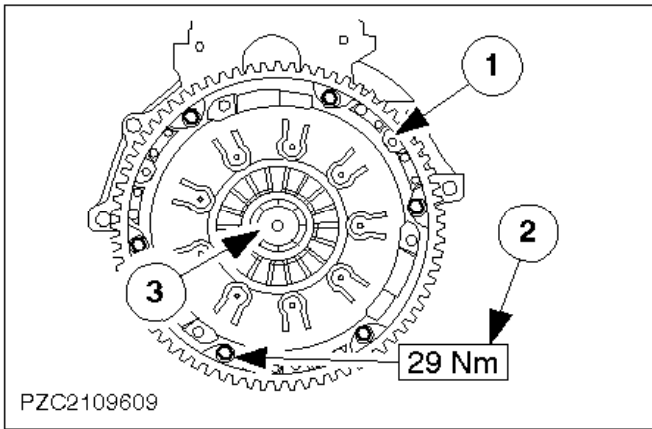
Note:
There is only one installation position.

93. Fit the flywheel (6 bolts).



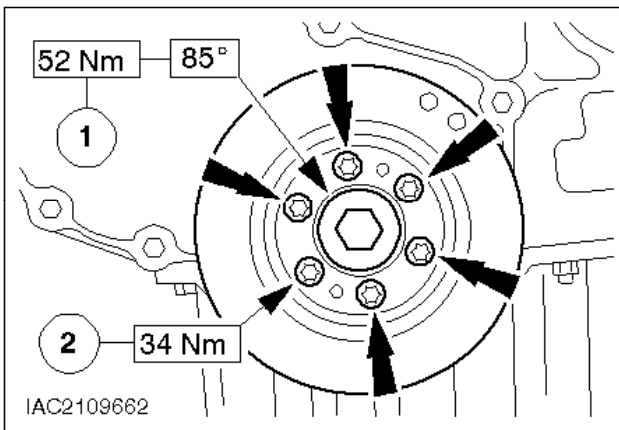
Centralise the clutch disc.

94. Centre the clutch disc on the pressure plate.



95. Fit the clutch.

- 1 Locate the clutch pressure plate, with the centred clutch disc in position for installation.
- 2 Tighten the bolts (x 6) uniformly, working diagonally.
- 3 Remove the special tool.

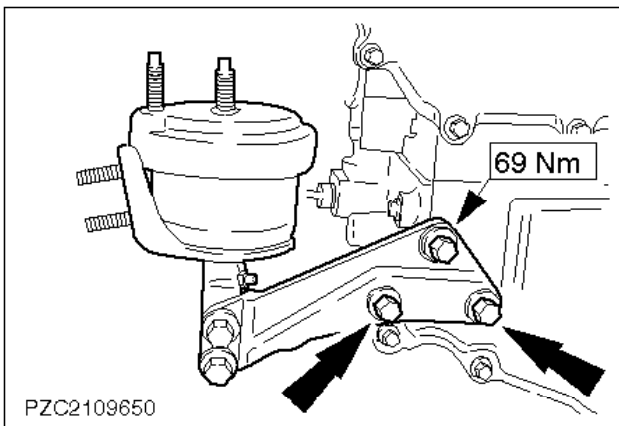


96. Attach the crankshaft pulley/vibration damper hub.

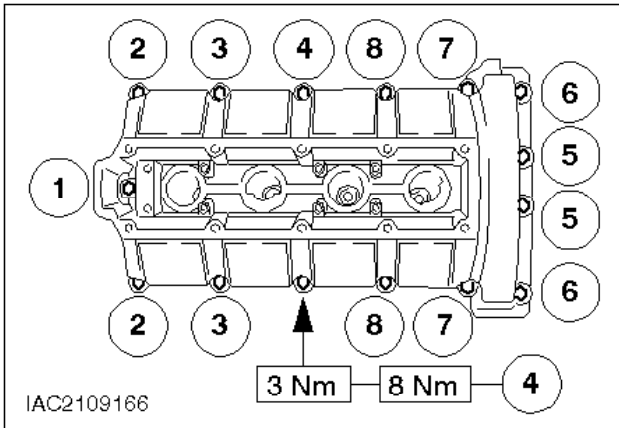
Immobilise the flywheel using locking tool 21-135.

97. Attach the crankshaft pulley/vibration damper.

- 1 Screw the bolt into the crankshaft pulley/vibration damper hub.
- 2 Screw the bolts into the crankshaft pulley/vibration damper.
Detach locking tool 21-135.

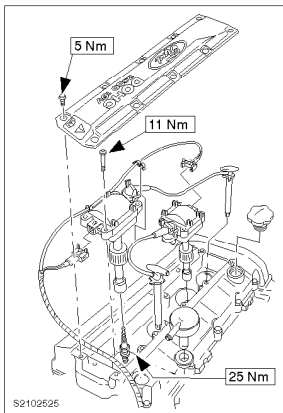


- 🔩 98. Attach the front right-hand engine mounting to the cylinder block.



Note:
Tightening order.

- 🔩 99. Install the cylinder head cover.



CAUTION:

Use a blunt object to apply the silicone grease (e.g. a plastic cable tie) to avoid damaging the spark plug connector seal.



CAUTION:

Push on the spark plug connectors in a straight line with the axis of the spark plug.

Note:

Coat the inside of the spark plug connectors to a depth of 5-10 mm with silicone grease (A960-M1C171-AA).

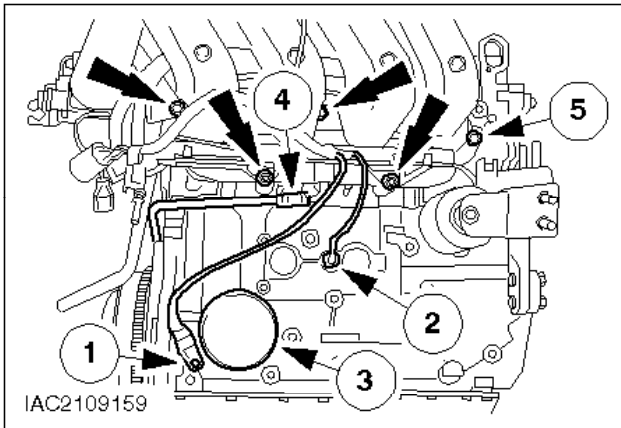
Note:

Apply lubricant 'Never Seeze' (ESE-M1244-A) to the spark plug thread.

- 🔩 100. Fit the cover to the cylinder head cover.

- Connect the PCV.
- Install the spark plugs using special tool 21-202.
- Install the ignition coils and spark plug connectors.
- Lay the engine wiring loom in the cylinder head cover and connect the ignition coil plugs.

- Attach the cover to the cylinder head cover.

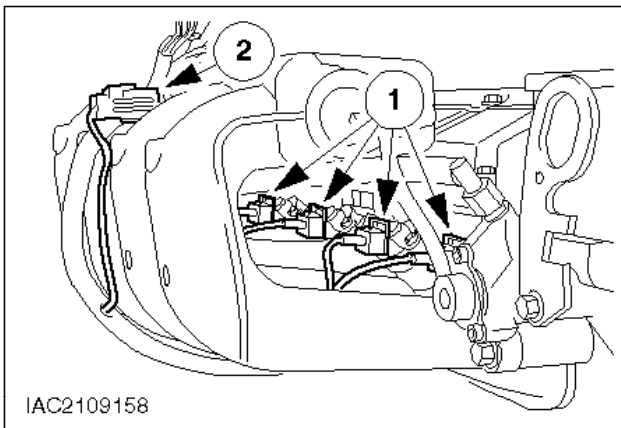


- 101. Fit the air intake pipe.

Note:

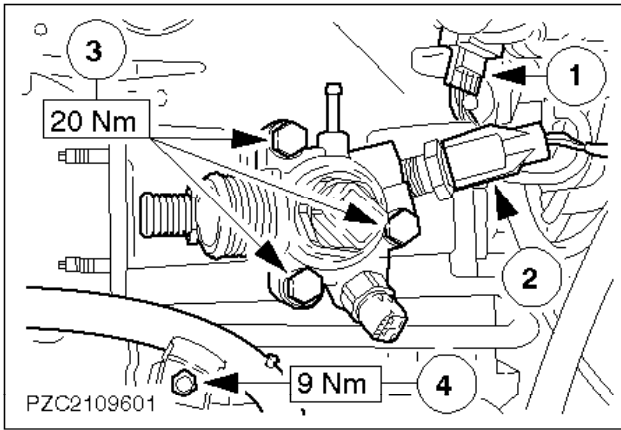
One bolt also holds a fuel pipe bracket.

- 1 Fit the CKP sensor and connect the plug.
- 2 Connect the PCV pipe to the intake pipe.
- 3 Fit the oil filter.
- 4 Install the oil pressure switch and connect the oil pressure switch plug.
- 5 Fit the air intake pipe.



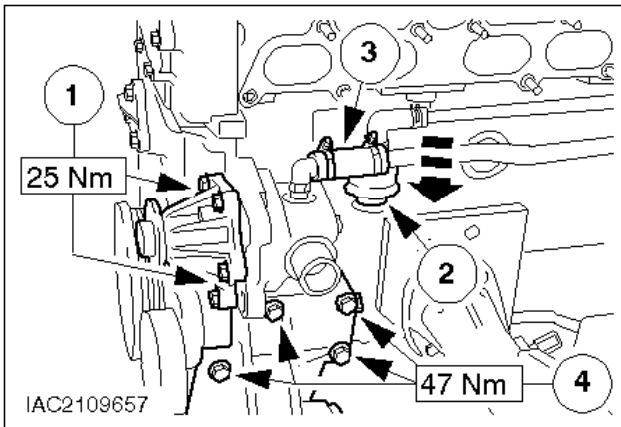
- 102. Connect the injector plugs and the IAT sensor plug.

- 1 Injector plugs
- 2 IAT sensor plug



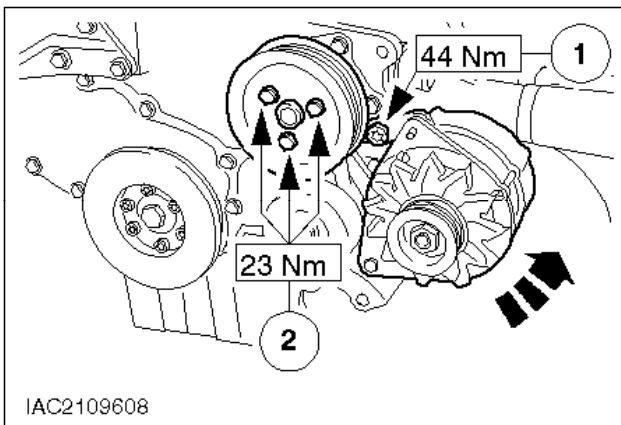
103. Fit the thermostat housing.

- 1 Connect the TP sensor plug.
- 2 Connect the ECT sensor plug.
- 3 Fit the thermostat housing.
- 4 Attach the coolant pipe bracket.



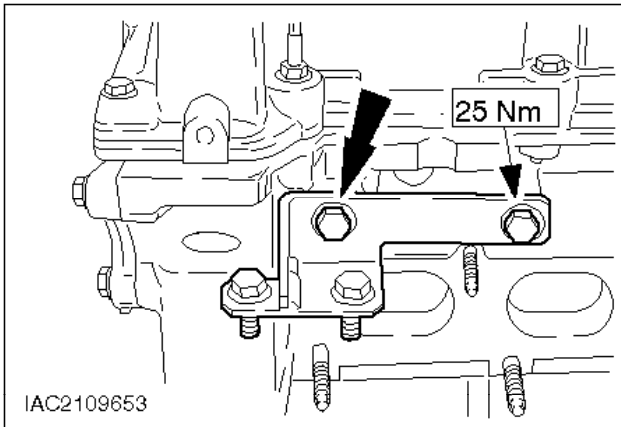
104. Attach the bracket and hoses.

- 1 Fit the coolant pump.
- 2 Install the PCV valve.
- 3 Attach the coolant hose for the heater.
- 4 Attach the alternator/power steering pump bracket.



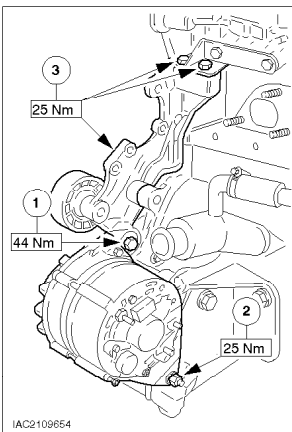
105. Attach the alternator to the bracket and fit the belt pulley.

- 1 Screw in the upper alternator bolt.
- 2 Install the coolant pump belt pulley.



Only vehicles with air conditioning. 09-108">

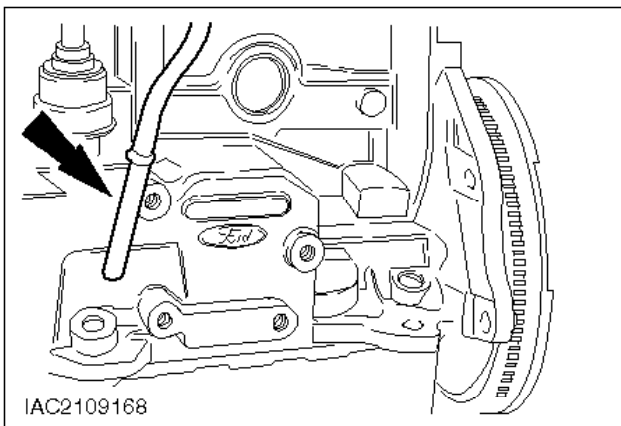
- ☛ 106. Attach the power steering pump bracket to the cylinder block.



Only vehicles with air conditioning.

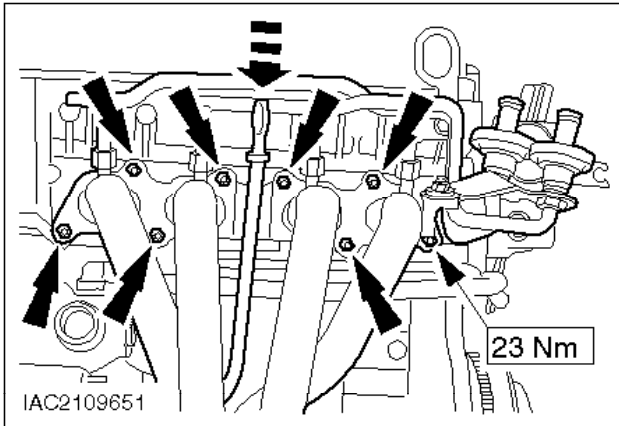
- ☛ 107. Attach the alternator and bracket.

- 1 Attach the alternator to the bracket at the top.
- 2 Attach the alternator to the bracket at the bottom.
- 3 Attach the power steering pump bracket.



Fit the dipstick tube.

- ④ 108. Prepare the oil dipstick tube for installation.
 - Remove residues of oil and grease from the contact face of the oil dipstick tube.
 - Apply adhesive SP-M2G-9123-A to the contact face.



- ④ 109. Install the oil dipstick tube and attach the exhaust manifold.
-