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SUBSCRIPTION

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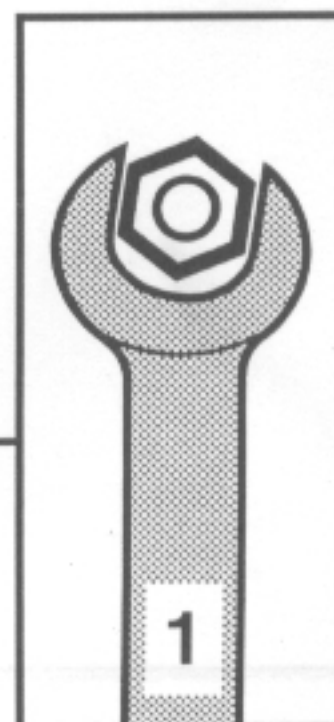
PETROL ENGINE

ES9J4 (2946 cm³. V6)

● VALVE TIMING



MAN 108931



GB

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"The technical information appearing in this brochure is subject to updating as the characteristics of each model in the range evolve. Motor vehicle repairers are invited to contact the CITROËN network periodically for further information and to obtain any possible updates".



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CHECKS : SETTING THE VALVE TIMING

1 – RECOMMENDED TOOLS

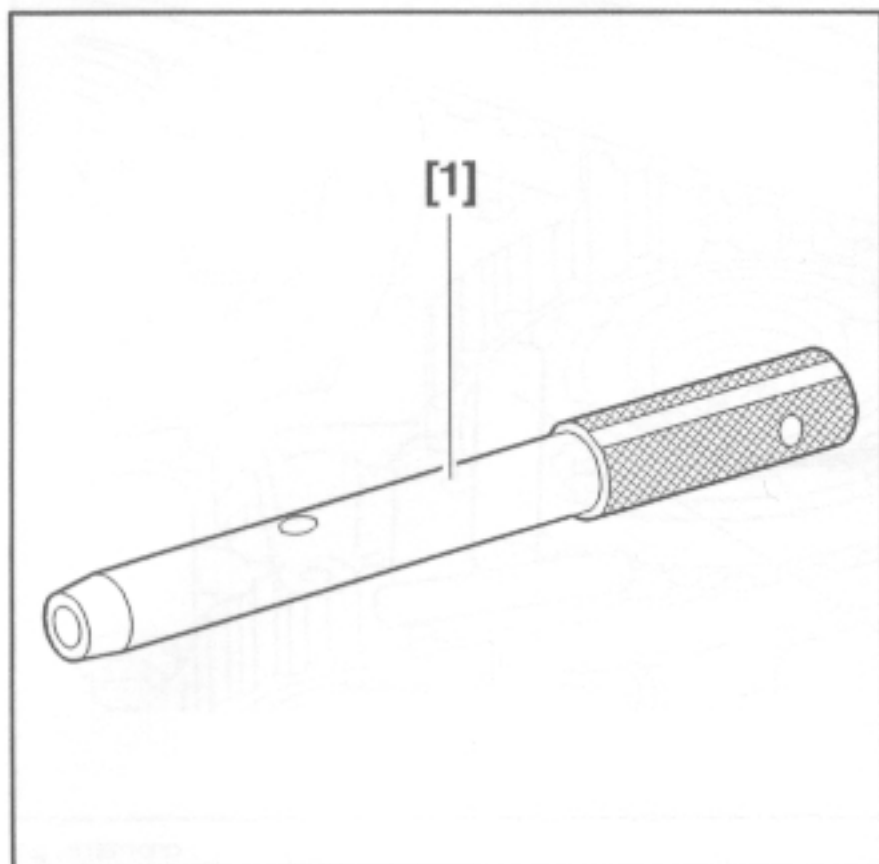


Fig : E5AP039C

[1] crankshaft setting rod (-).0187 A.

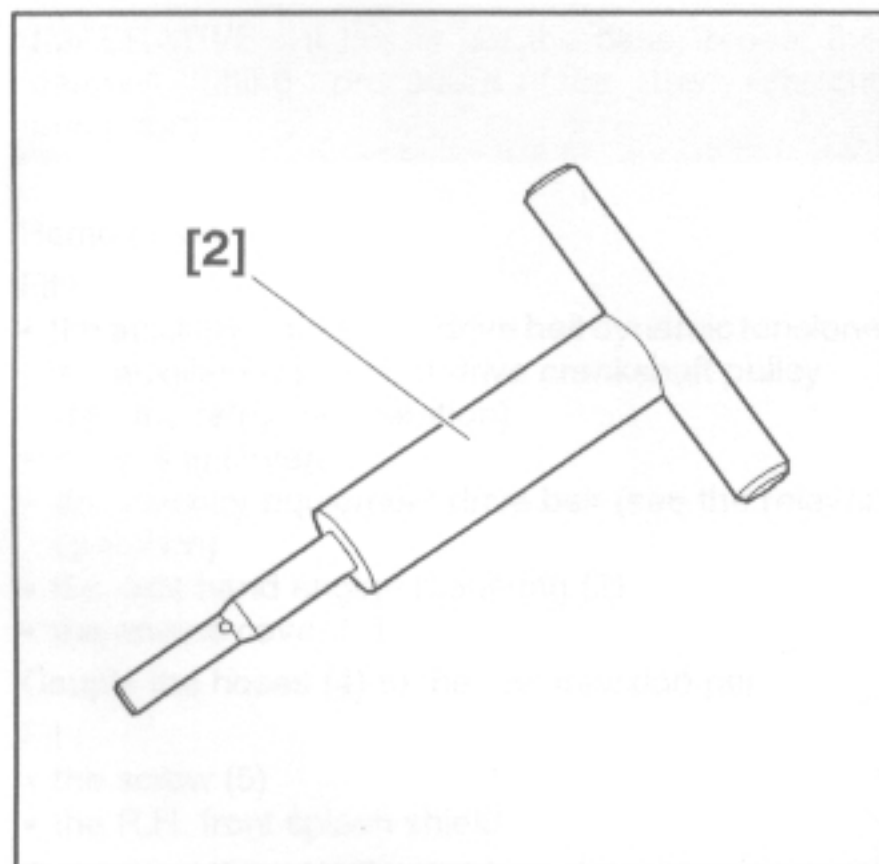


Fig : E5AP122C

[2] locating pin for checking the valve timing (-).0187 CZ.

2 – REMOVING

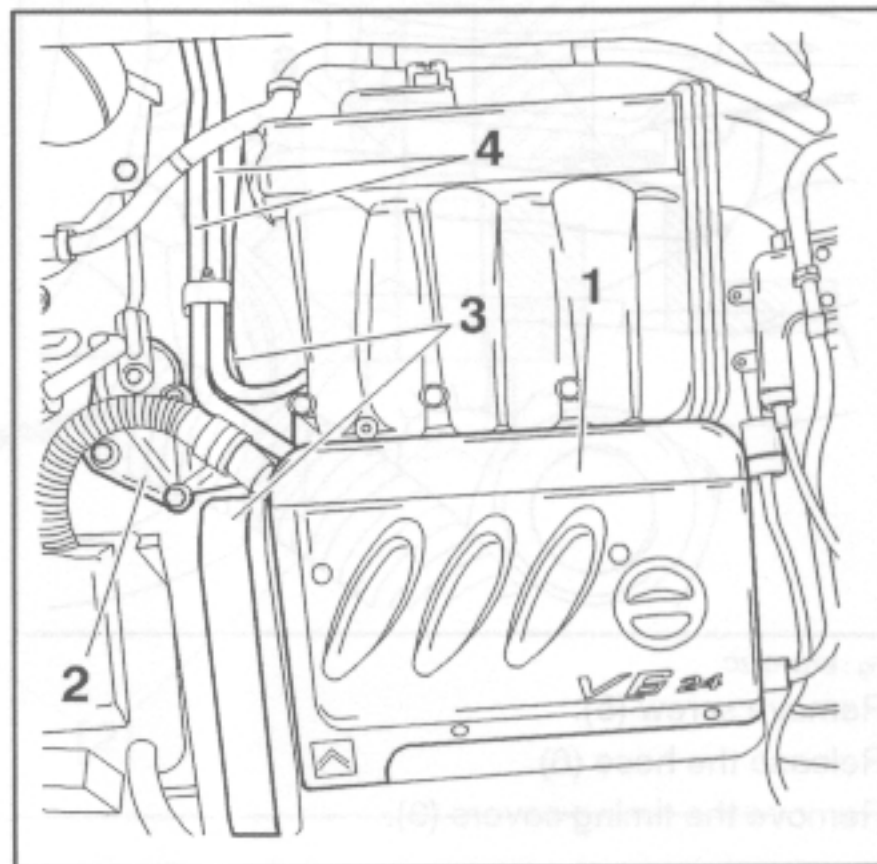


Fig : B1BP1MQC

Disconnect the battery negative cable.

Remove the engine cover (1).

Uncouple the hoses (4) from the fuel injection rail.

Remove the auxiliary equipment drive belt (see the relevant operation).

Hold the engine in place with the help of a workshop crane (R.H. side).

Remove :

- the R.H. front splash shield
- the auxiliary equipment drive belt dynamic tensioner
- the auxiliary equipment drive crankshaft pulley
- the right hand engine mounting (2)

Unclip the hoses (4) from the timing covers (3).

VALVE TIMING

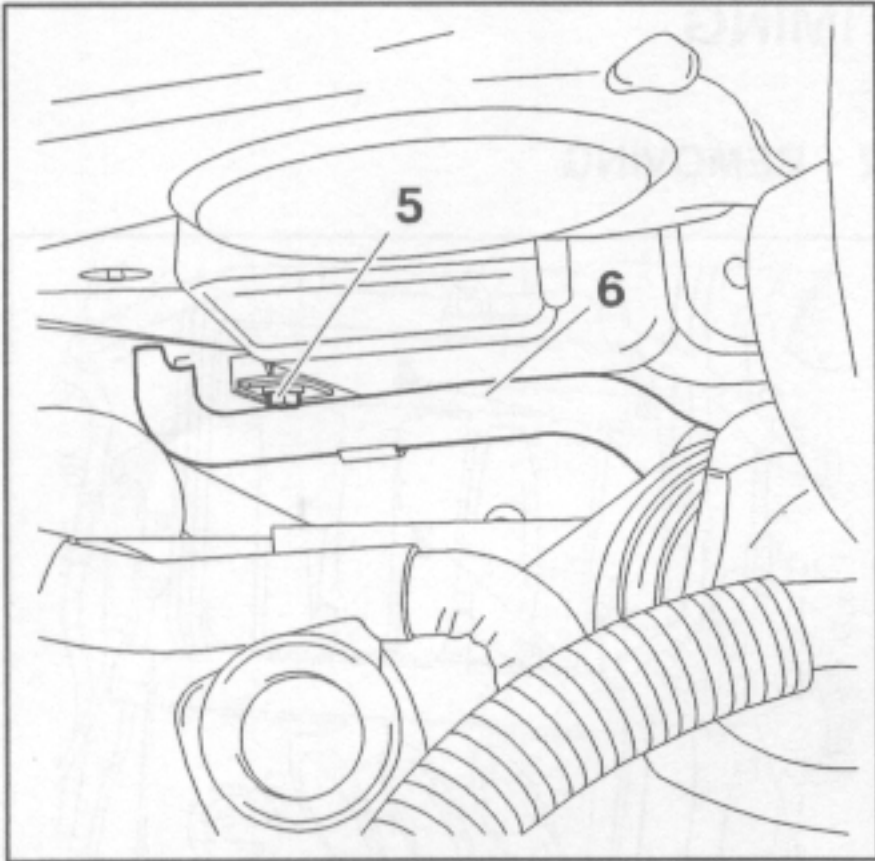


Fig : B1GP05ZC

Remove screw (5).

Release the hose (6).

Remove the timing covers (3).

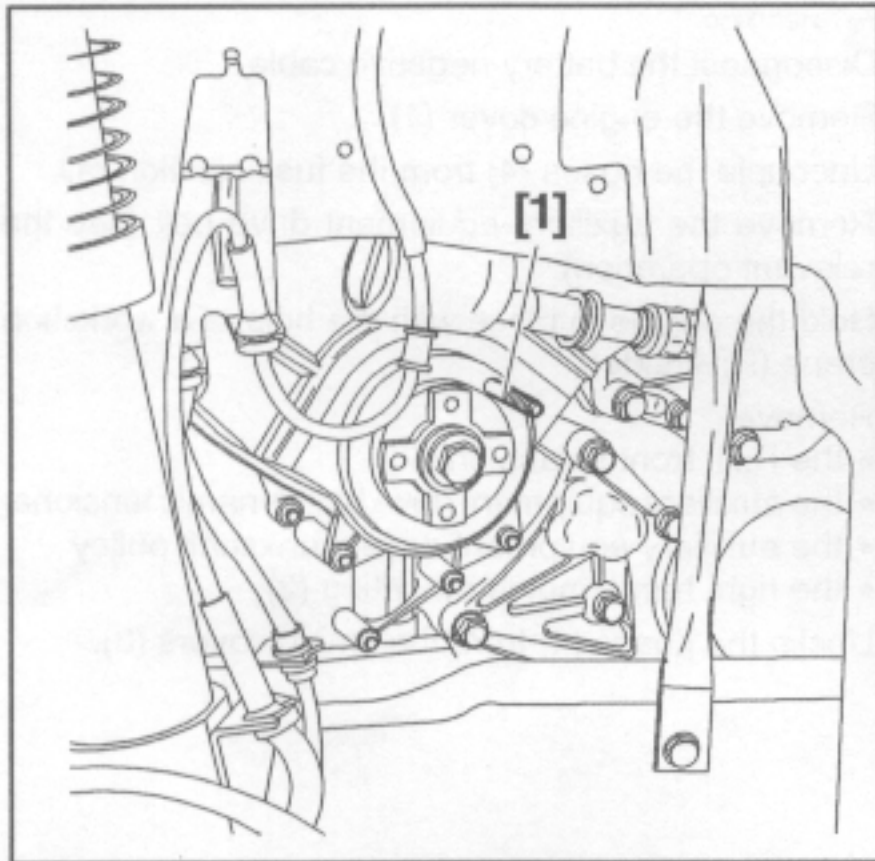


Fig : B1CP02UC

Peg the crankshaft by means of setting rod [1].

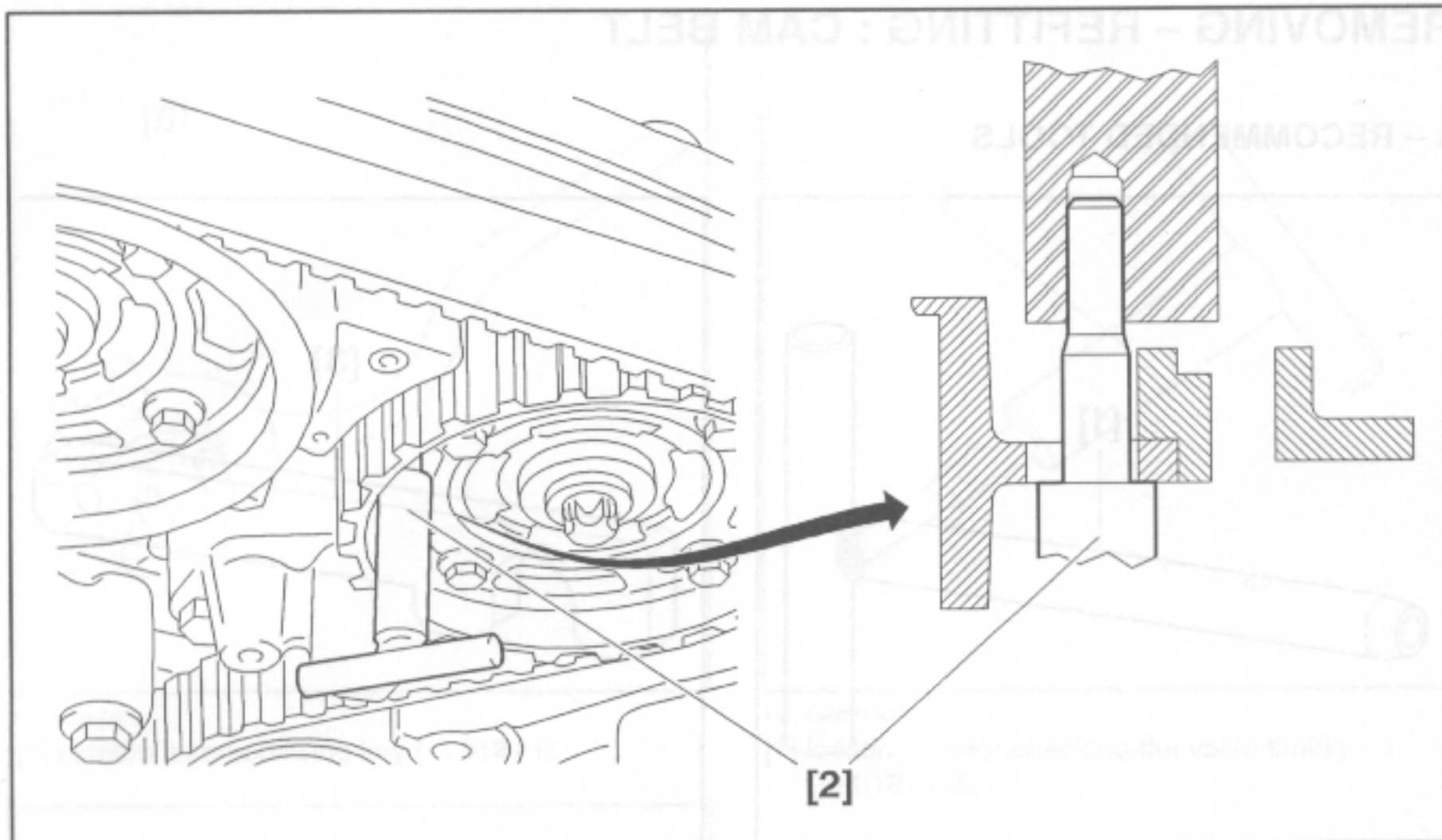


Fig : B1EP10PD

Check that the tool [2] can be inserted freely through the pulleys and into the cylinder heads.

IMPERATIVE : If this is not the case, repeat the cambelt fitting procedure (see the relevant operation).

Remove tool [1].

Fit :

- the auxiliary equipment drive belt dynamic tensioner
- the auxiliary equipment drive crankshaft pulley (see the relevant operation)
- the timing covers (3)
- the auxiliary equipment drive belt (see the relevant operation)
- the right hand engine mounting (2)
- the engine cover (1)

Couple the hoses (4) to the fuel injection rail.

Fit :

- the screw (5)
- the R.H. front splash shield

Reconnect the negative cable to the battery.

REMOVING – REFITTING : CAM BELT

1 – RECOMMENDED TOOLS

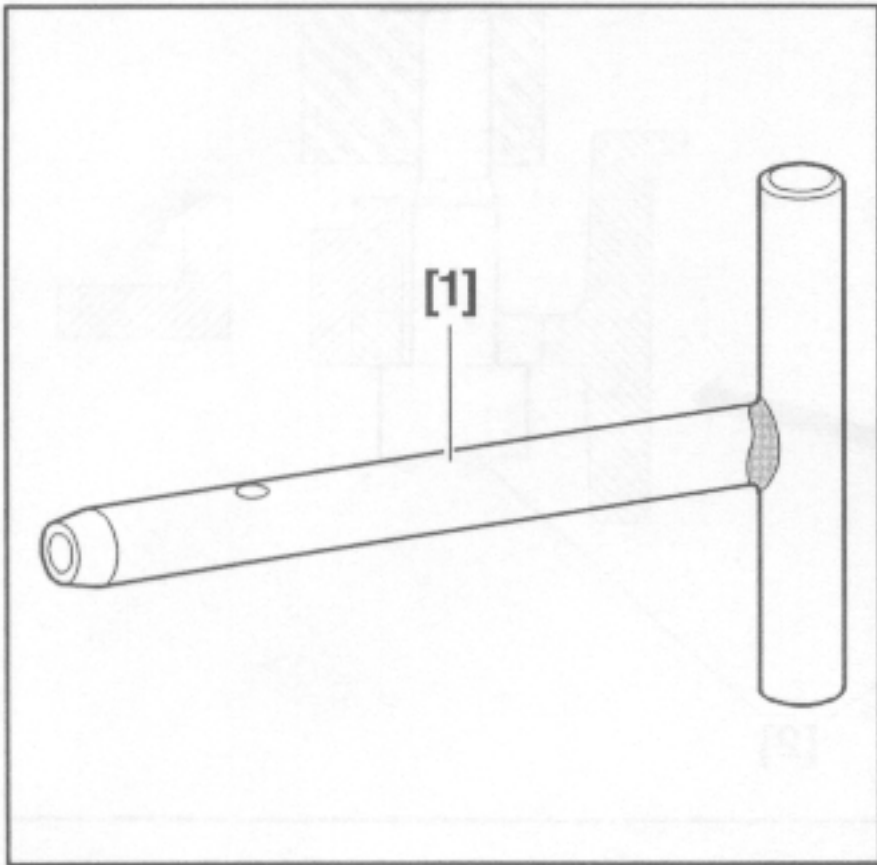


Fig : E5AP033C

[1] camshaft setting pegs (–).0187 B).

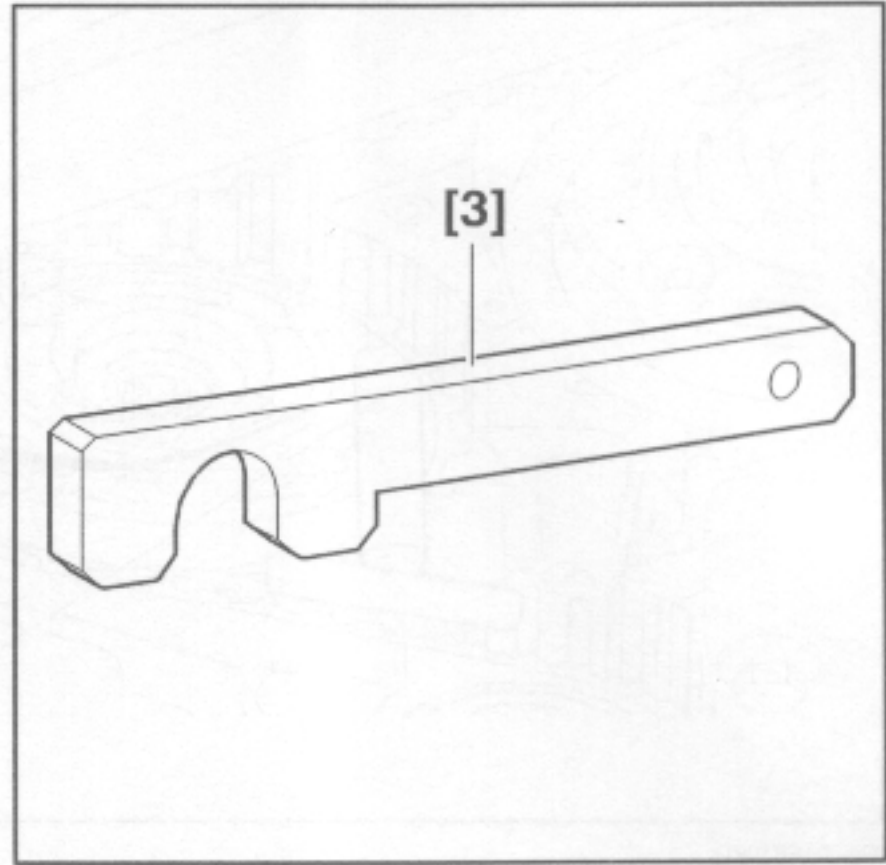


Fig : E5AP035C

[3] adjusting shim for the dynamic tensioner (–).0187 E.

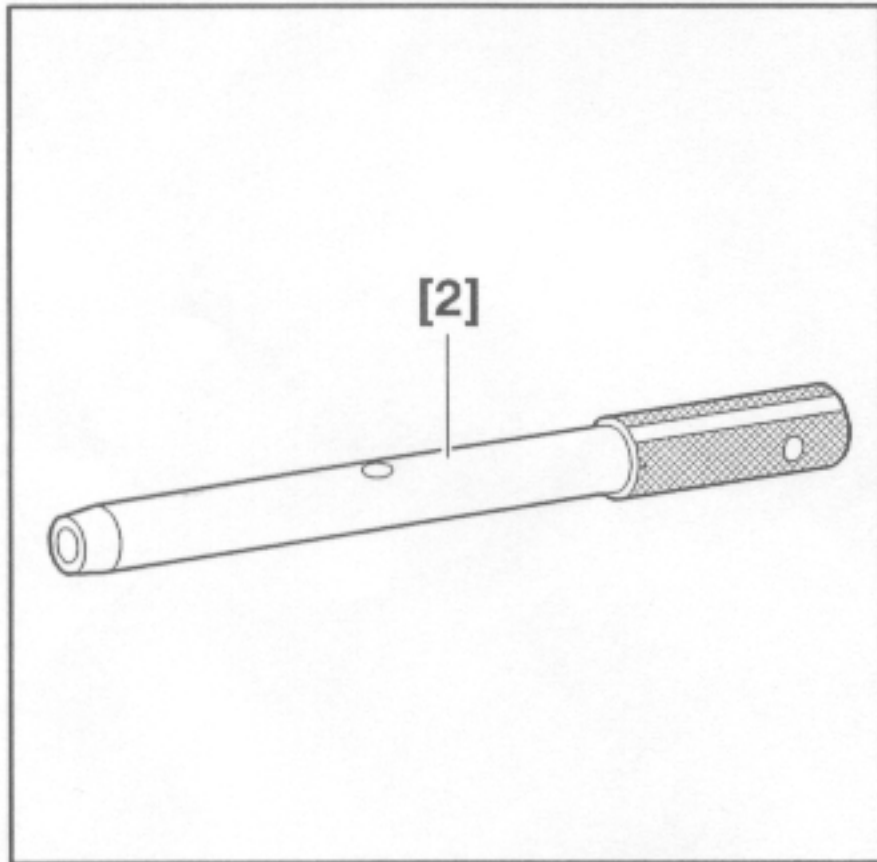


Fig : E5AP034C

[2] crankshaft setting rod (–).0187 A.

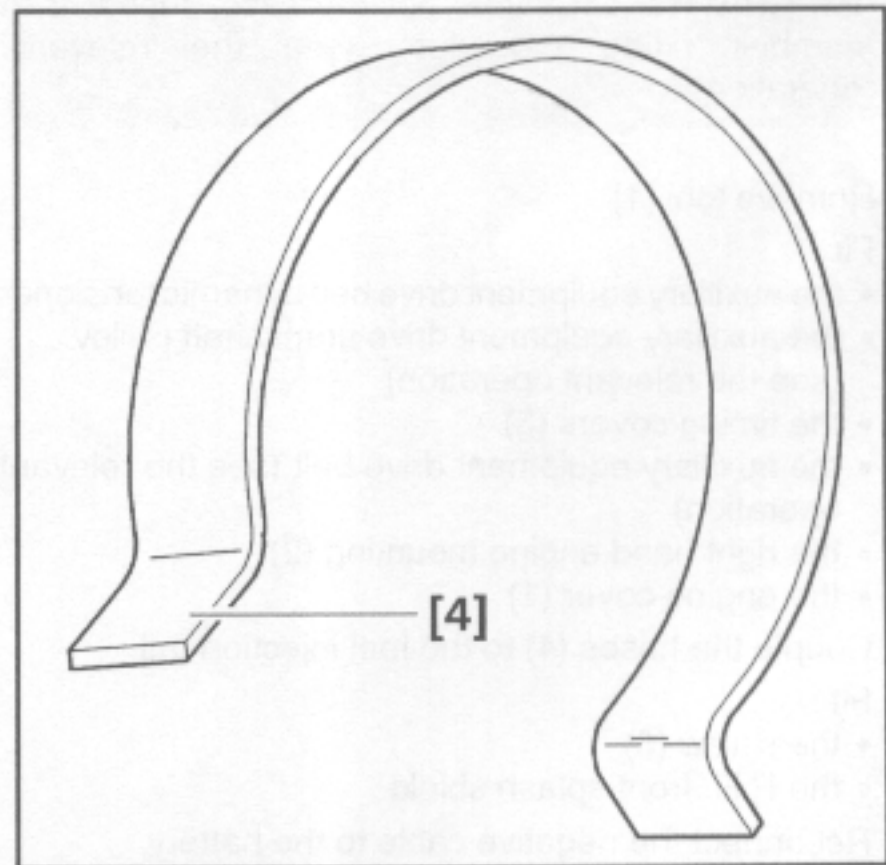


Fig : E5AP036C

[4] belt retaining pin (–).0187 J.

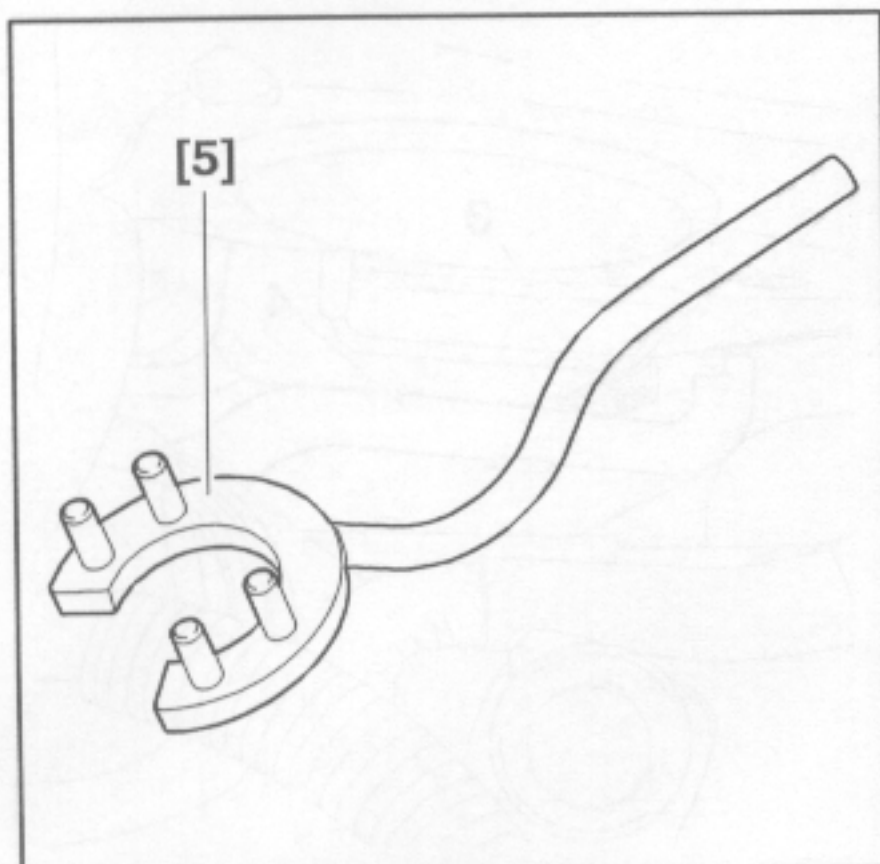


Fig : E5AP037C

[5] camshaft immobilising key (-).0187 F.

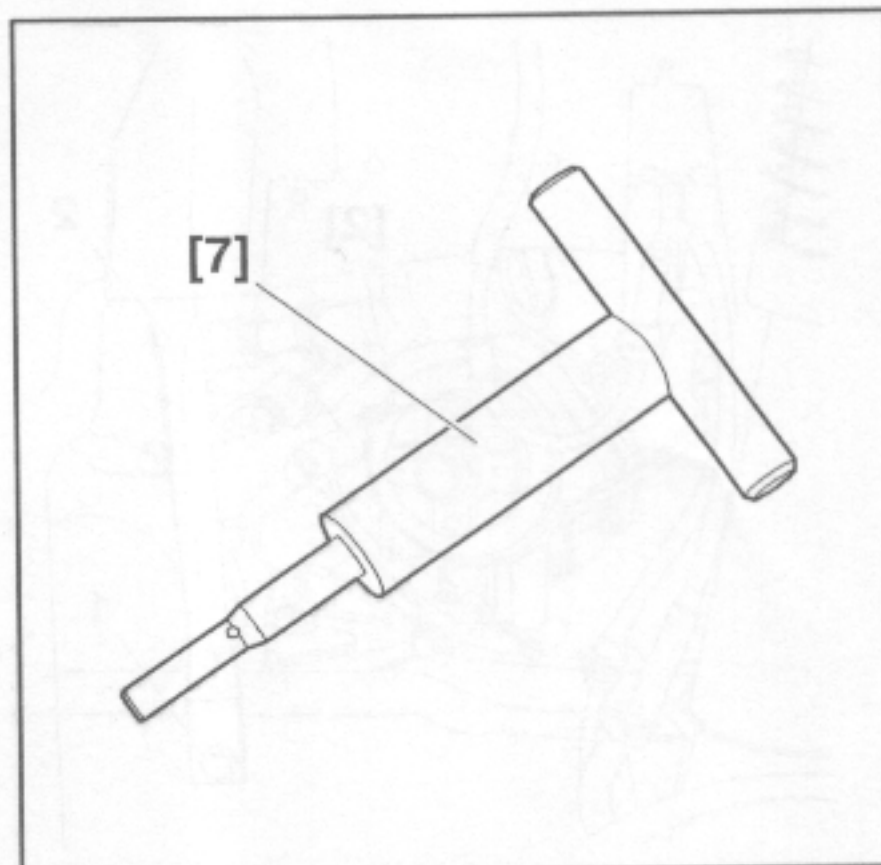


Fig : E5AP123C

[7] locating pin for checking the valve timing (-).0187 CZ.

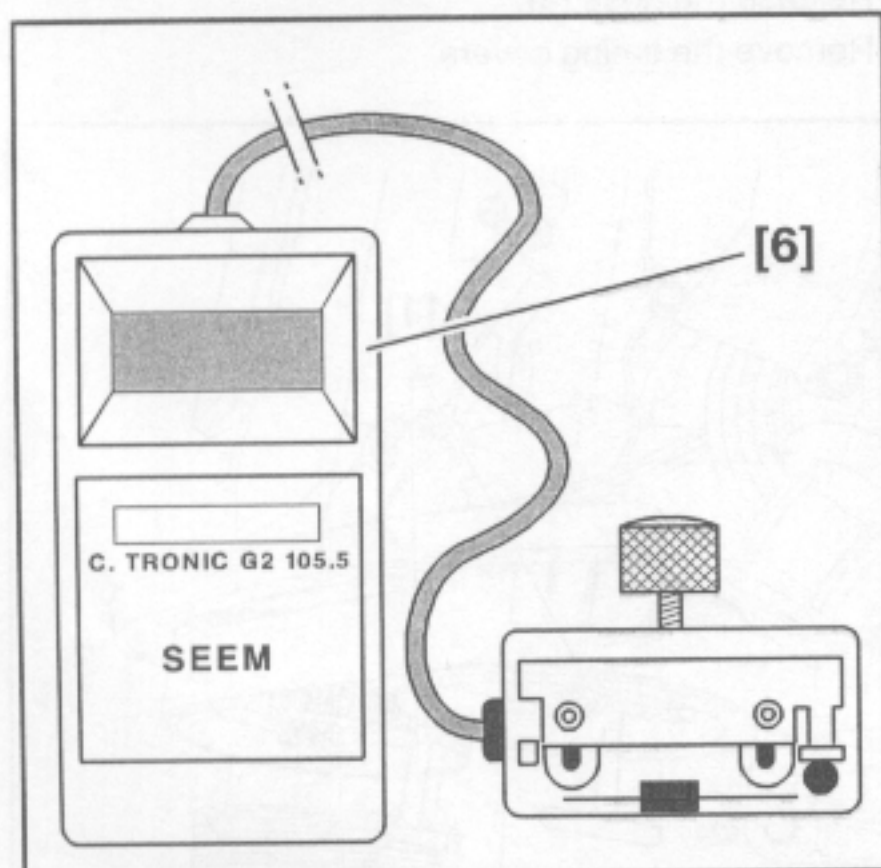


Fig : E5-P03SC

[6] SEEM belt tension measuring instrument, with digital display : 4122-T.

2 - REMOVING

Disconnect the battery negative cable.

Remove the auxiliary equipment drive belt (see the relevant operation).

Hold the engine in place with the help of a workshop crane (R.H. side).

Remove :

- the right-hand engine mounting
- the engine cover
- the auxiliary equipment drive crankshaft pulley
- the auxiliary equipment drive belt dynamic tensioner

VALVE TIMING

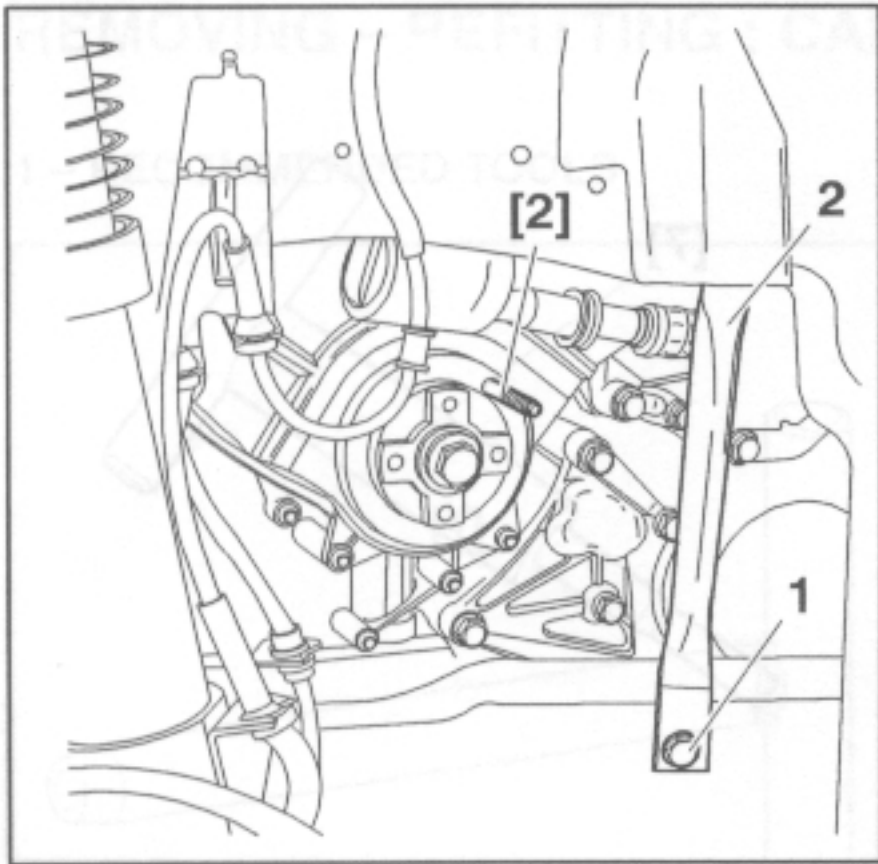


Fig : B1CP02VC

Peg the crankshaft by means of setting rod [2].
Remove the screw (1).
Tilt the bar (2).

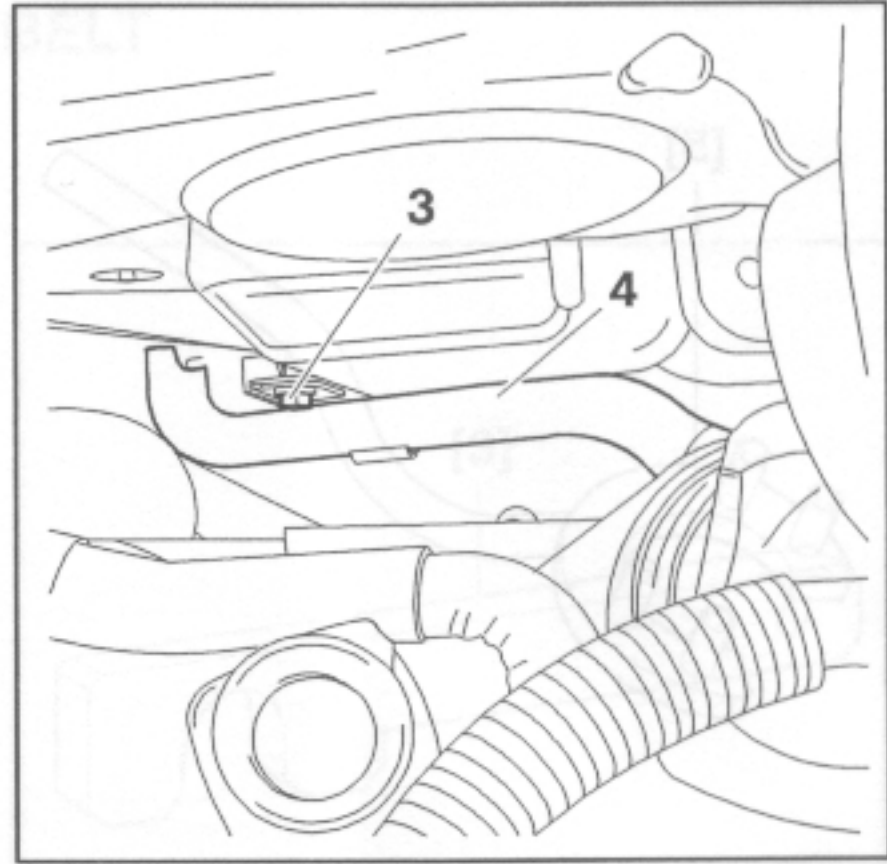


Fig : B1GP060C

Remove the screw (3).
Release the hose (4).
Remove the timing covers.

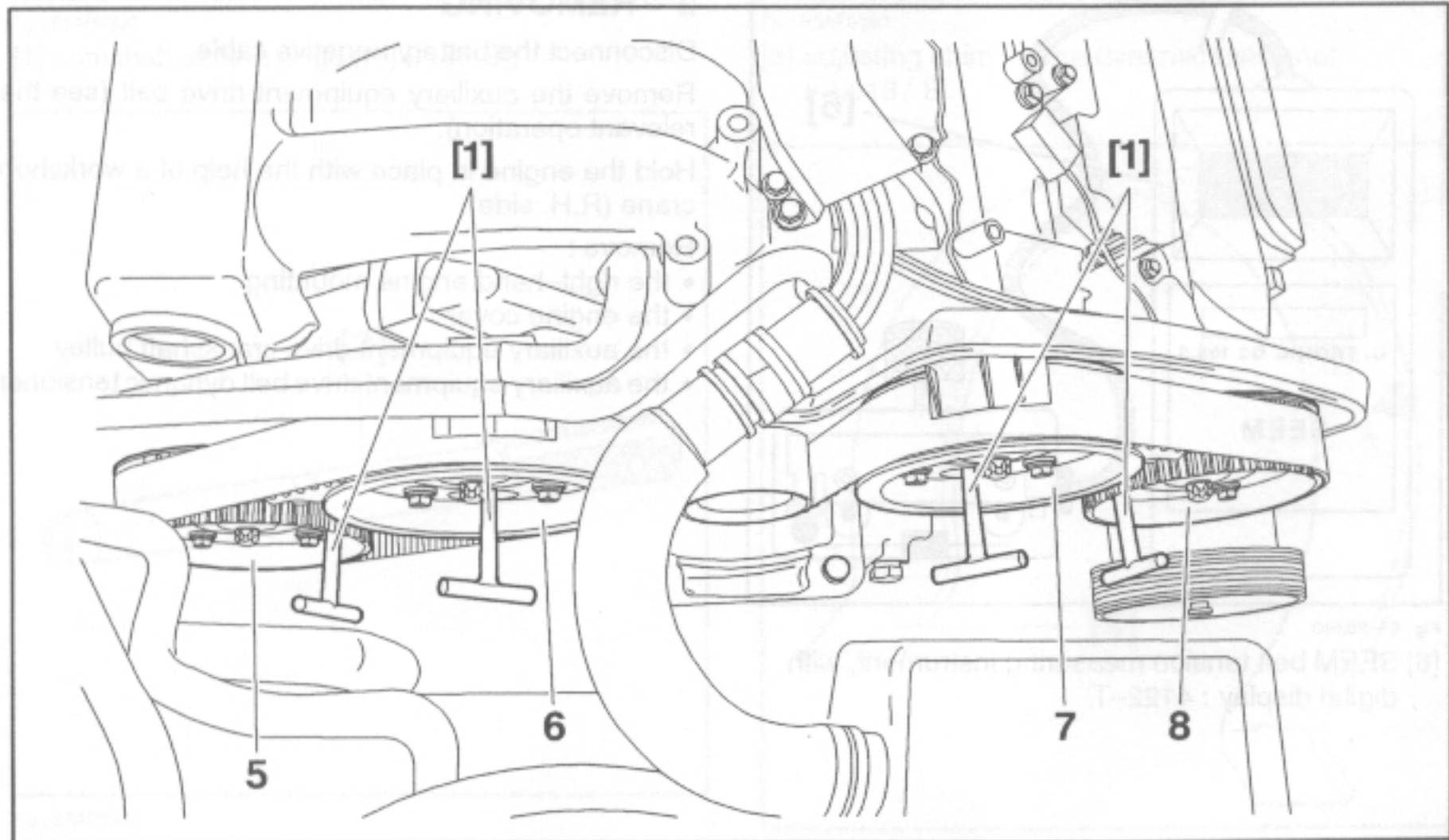


Fig : B1EP10QD

Loosen the screws of the camshaft pulleys (5), (6), (7) and (8).
Control the rotation of the camshafts ; by means of tool [5].
Lubricate the tools [1] using G6 (TOTAL MULTIS) grease.
Peg the camshafts ; using the tools [1] and [5].

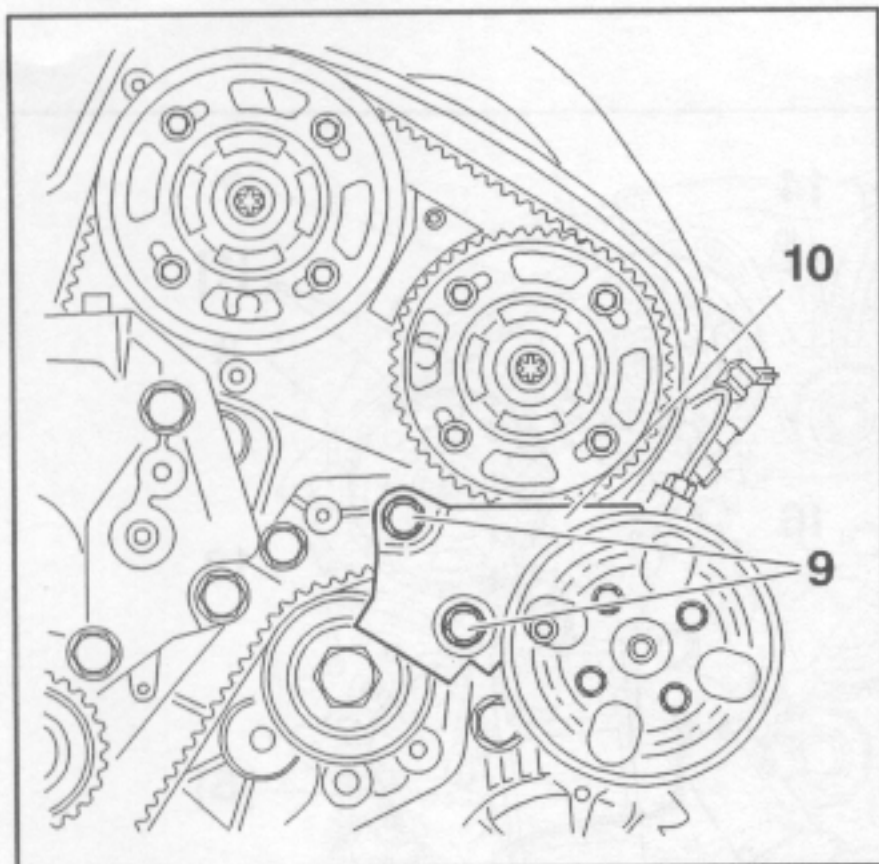


Fig : B1EP10RC

Remove :

- the screws (9)
- the plate (10)

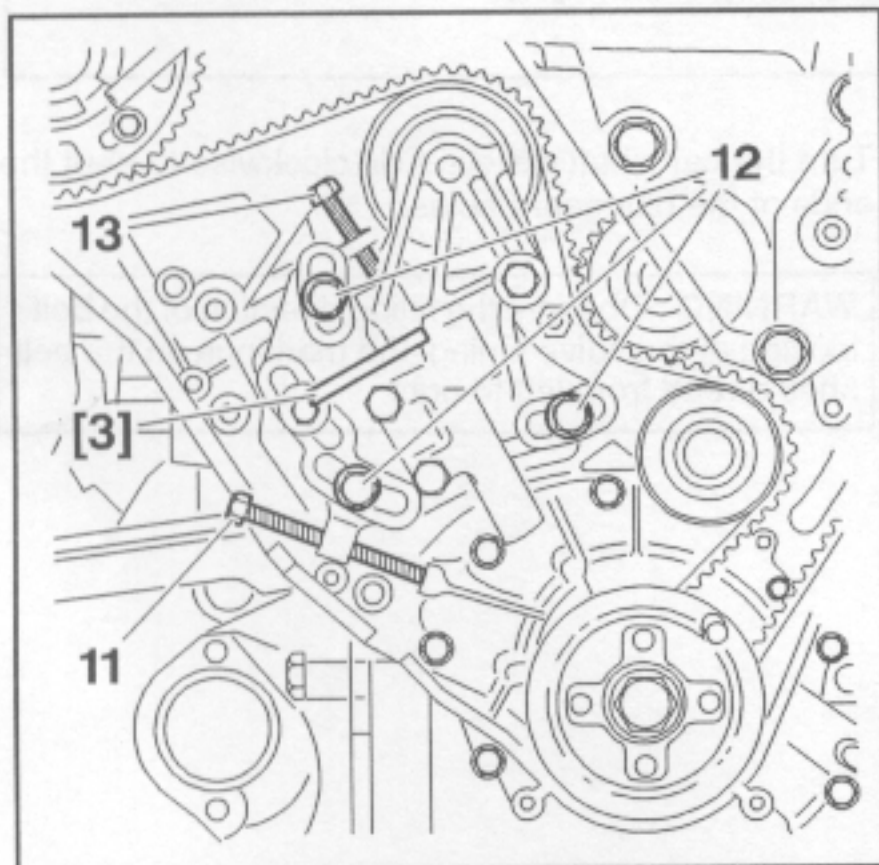


Fig : B1EP10SC

Screw in fully, a bolt M8 of length 75 mm (11).

Fit a bolt M8 of length 40 mm (13).

Put tool [3] into place.

Tighten the bolt (13) until the tool [3] is locked.

Loosen screws (12).

Slacken the bolt (11) to relax the tension of the cambelt.

Mark the direction of fitting of the timing belt in case of reuse.

Remove the timing gear drive belt.

3 – REFITTING

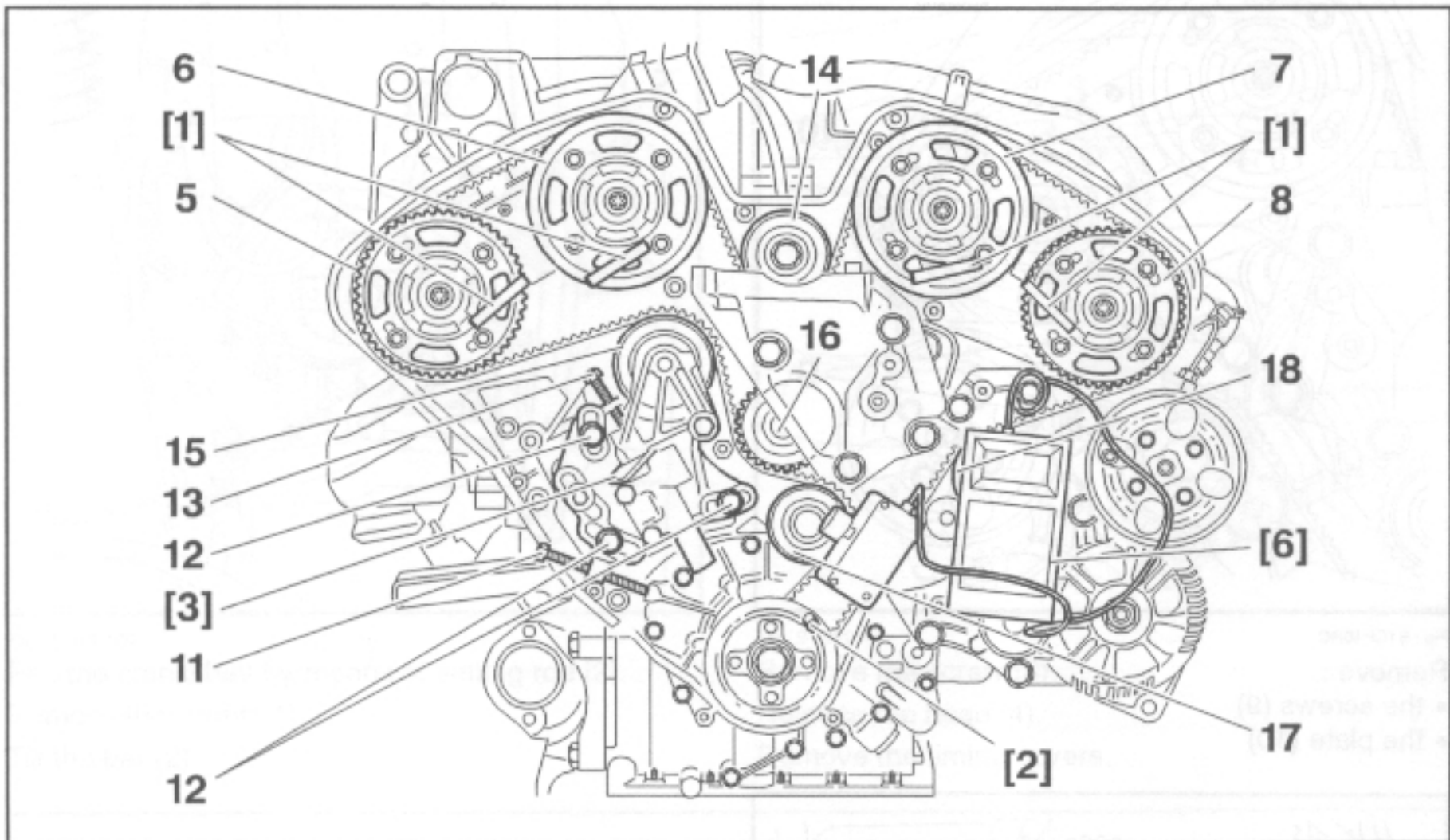


Fig : B1EP10TD

Check that the rollers (14), (15), (17) and (18) rotate freely (no play and no stiffness).

Turn the camshaft pulleys fully clockwise to abut the ends of the elongated holes.

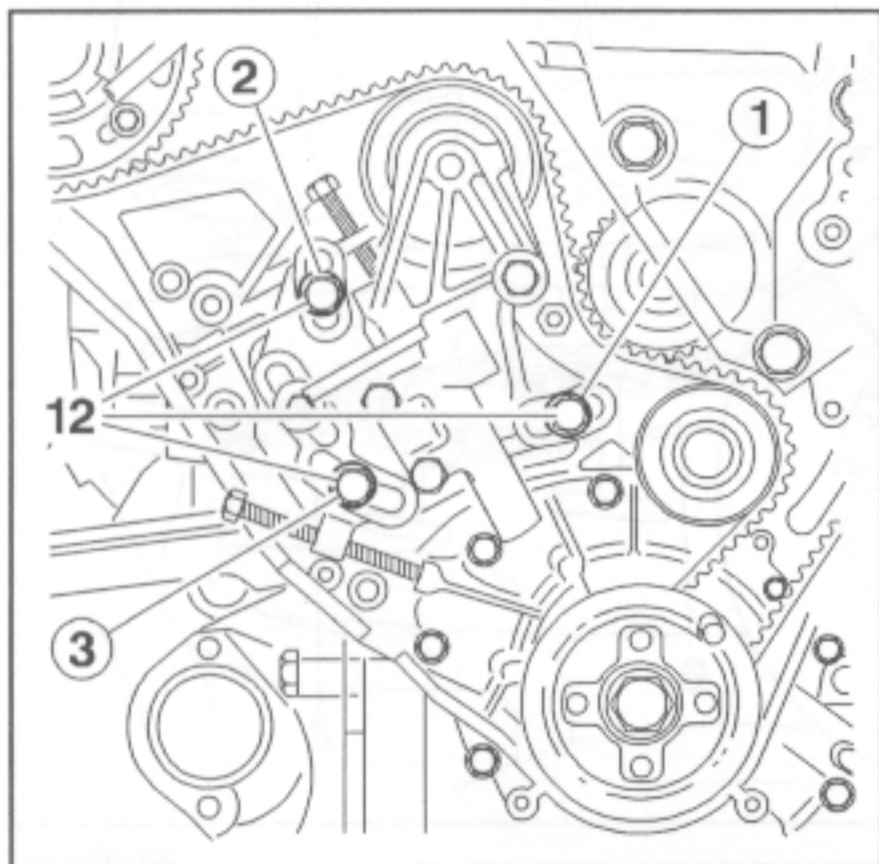


Fig : B1EP10UC

Tighten the screws (12) to 1 m.daN (in the order shown).

Loosen the screws (12) by 45°.

Tighten the camshaft pulley bolts to 0,5 m.daN.

Slacken the camshaft pulley bolts by 45°.

WARNING : Observe the fitting direction of the belt : looking at the valve timing, the markings on the belt should read from left to right.

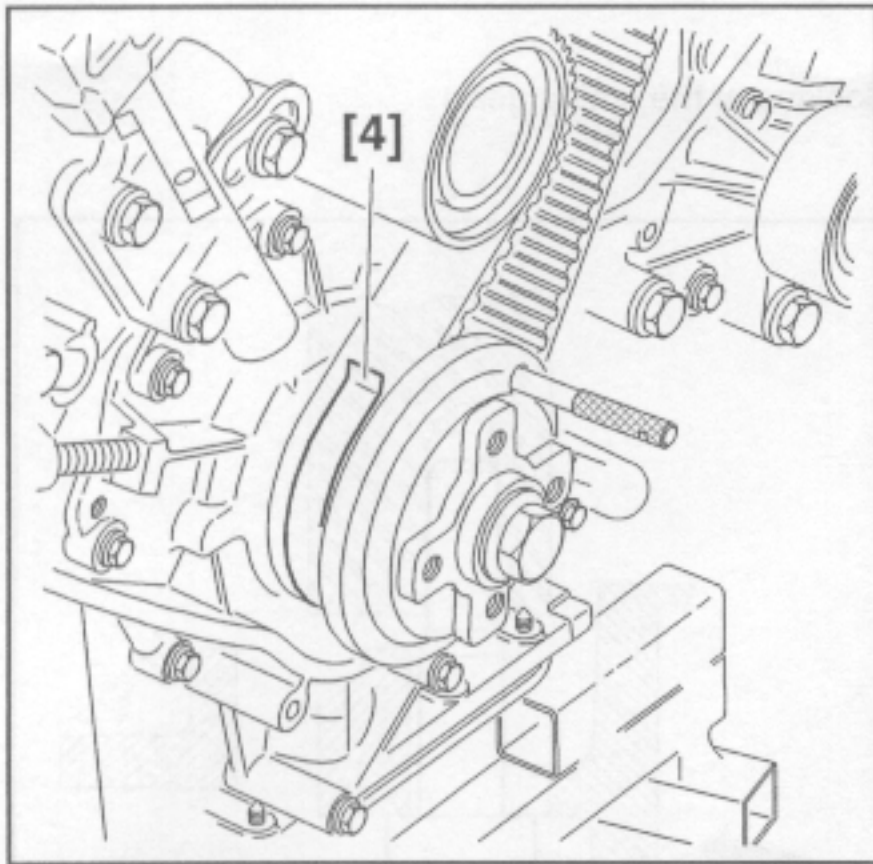


Fig : B1EP08GC

Fit the timing belt to the crankshaft pinion.

Put tool [4] into place.

Fit the timing belt following the sequence shown :

- the guide roller (18)
- the camshaft pulley (8)
- the camshaft pulley (7)
- the guide roller (14)
- the camshaft pulley (6)
- the camshaft pulley (5)
- the roller tensioner (15)
- the water pump pulley (16)
- the guide roller (17)

Slightly tighten the screw (11) in order to lightly tension the belt.

NOTE : When fitting the belt to the camshaft pulleys, turn them anti-clockwise to align with the nearest tooth. The angular movement of the pulleys must be less than the width of one tooth.

Remove tool [4].

Put tool [6] into place.

Tighten the screw (11) to tension the belt to 83 ± 2 SEEM units.

WARNING : Check that the camshaft pulleys are not at the end of the slots. If this is not the case, repeat the cambelt fitting procedure.

Tighten the screws (12) to 2,5 m.daN (in the order shown).

Tighten the camshaft pulley bolts to 1 m.daN (at least 2 screws per pulley).

Observe the following order :

- the camshaft pulley (8)
- the camshaft pulley (7)
- the camshaft pulley (6)
- the camshaft pulley (5)

Remove tools [1],[2] and [6].

Rotate the crankshaft by 2 turns in a clockwise direction (looking at the timing gear).

IMPERATIVE : Never turn backwards.

Peg the crankshaft by means of setting rod [2].

Loosen the screws (12) by 45° .

Remove the screw (13).

Undo screw (11) to allow the tool [3] to slide but without play.

Wait one minute (damper action) in the case of retightening the screw (11).

Ensure that the tool [3] slides without play.

Remove tool [3].

Tighten the screws (12) to 2,5 m.daN (in the order shown).

Remove :

- screw (11)
- tool [2]

Rotate the crankshaft by 2 turns in a clockwise direction (looking at the timing gear).

Peg the crankshaft by means of setting rod [2].

Peg the camshaft pulleys using the tools [1].

Observe the following order :

- the camshaft pulley (8)
- the camshaft pulley (7)
- the camshaft pulley (6)
- the camshaft pulley (5)

If the peg [1] can be inserted : slacken the camshaft pulley bolts by 45° .

If the peg can not be inserted [1] : slacken the camshaft pulley bolts by 45° ; turn the hub using the lever [5] so that it can be pegged.

WARNING : Check that the camshaft pulleys are not at the end of the slots. If this is not the case, repeat the cambelt fitting procedure.

Tighten the camshaft pulley bolts to 1 m.daN.

Observe the following order :

- the camshaft pulley (8)
- the camshaft pulley (7)
- the camshaft pulley (6)
- the camshaft pulley (5)

Remove tools [1] and [2].

4 – CHECKING THE VALVE TIMING

Rotate the crankshaft by 2 turns in a clockwise direction (looking at the timing gear).

Peg the crankshaft by means of setting rod [2].

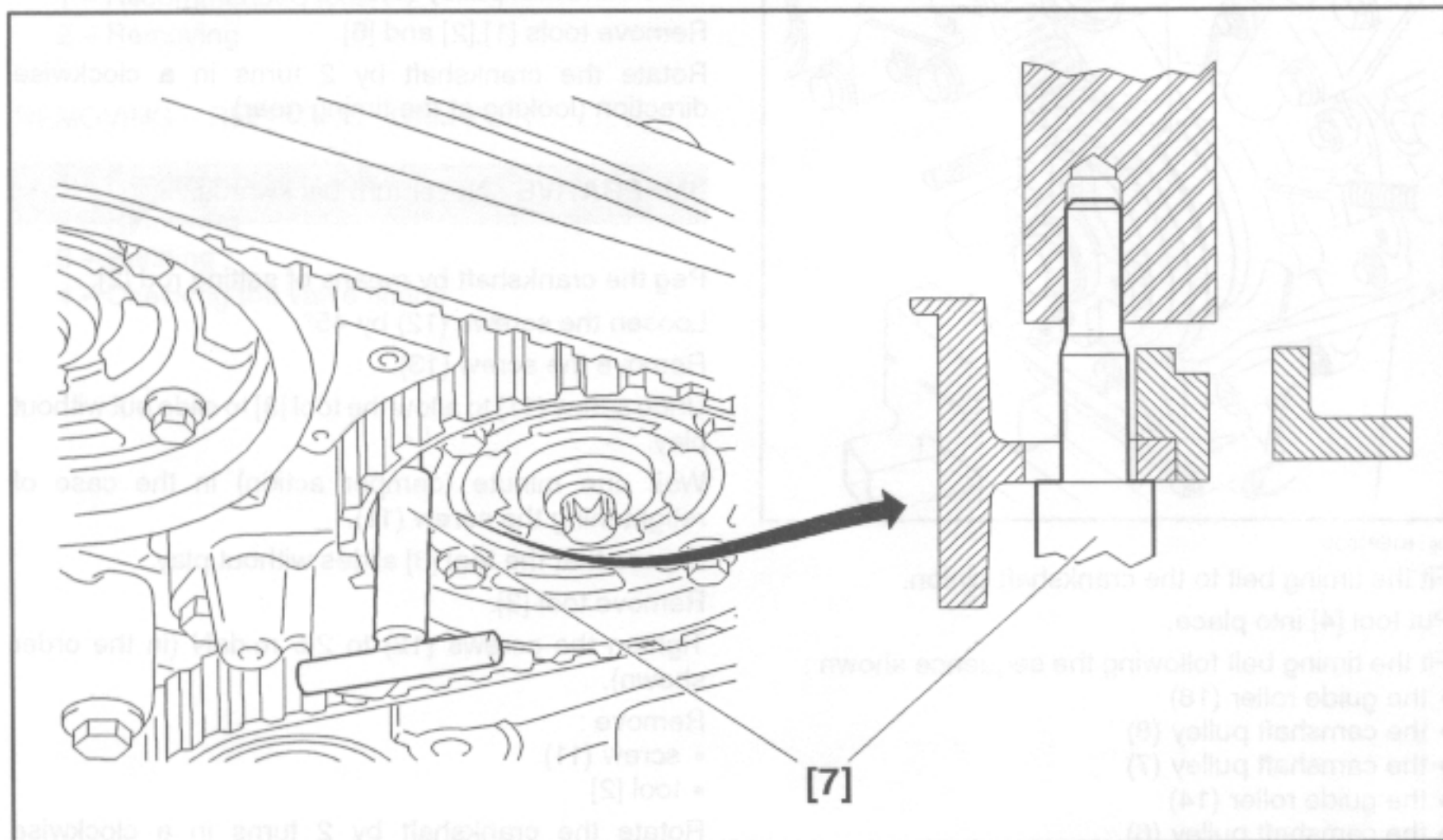


Fig : B1EP10VD

Check that the tool [7] can be inserted freely through the pulleys and into the cylinder heads.

Remove tool [2].

Fit :

- the plate (10)
- the screws (9) ; tighten to 4 m.daN
- the timing covers
- the auxiliary equipment drive belt dynamic tensioner
- the auxiliary equipment drive crankshaft pulley
- the auxiliary equipment drive belt (see the relevant operation)
- the right-hand engine mounting (see the relevant operation)
- the engine cover

Fit :

- flexible hose (4)
- screw (3)
- screw (1) : tighten to 4,5 m.daN

Reconnect the negative cable to the battery.