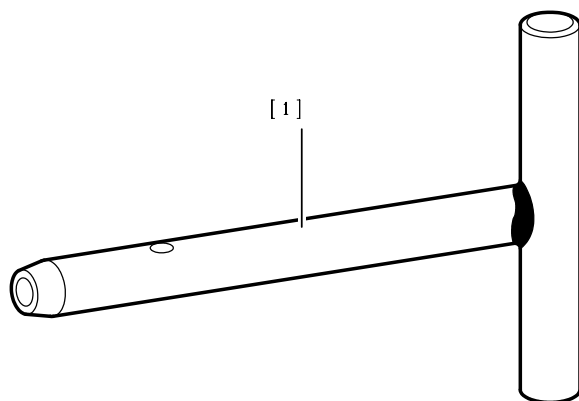


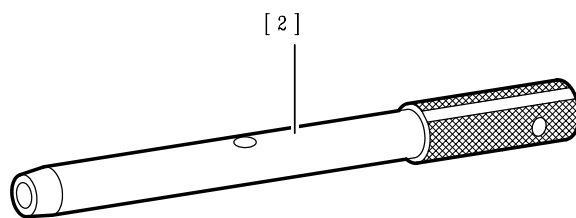
## removing - refitting : timing belt INJECTION ES9J4

### 1 Recommended tools



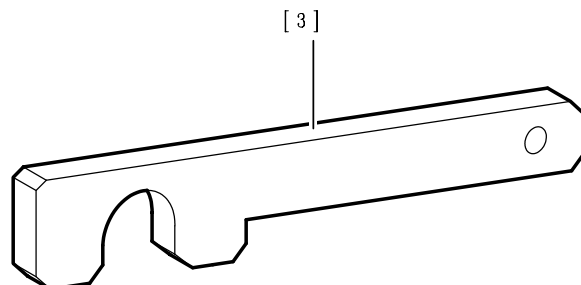
- Fig. : 1 -

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



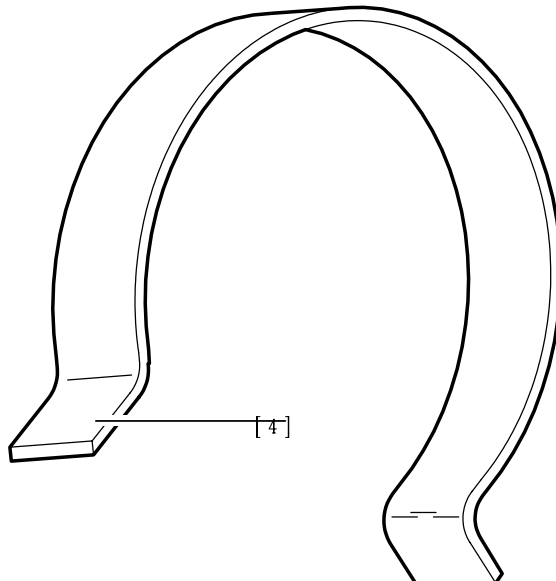
- Fig. : 2 -

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



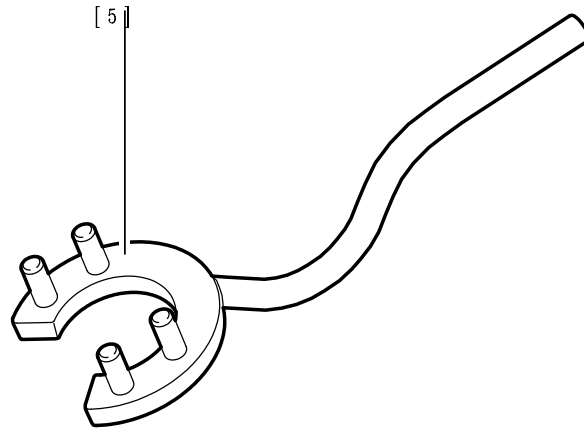
- Fig. : 3 -

[ 3 ] tool for adjusting the dynamic tensioner (-).0187 EZ.



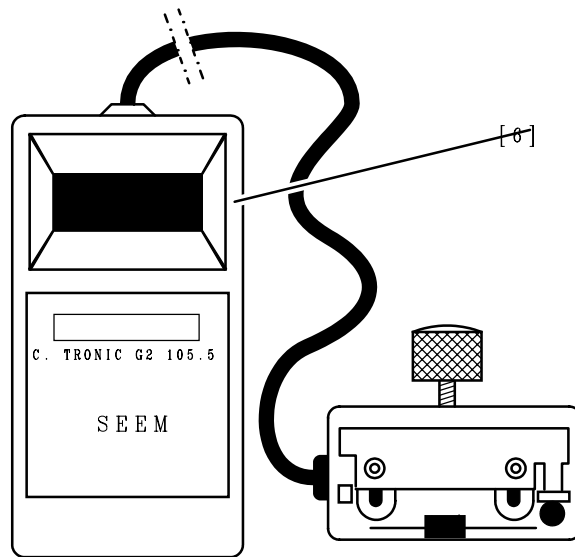
- Fig. : 4 -

[ 4 ] belt retaining clip (-).0187 J.



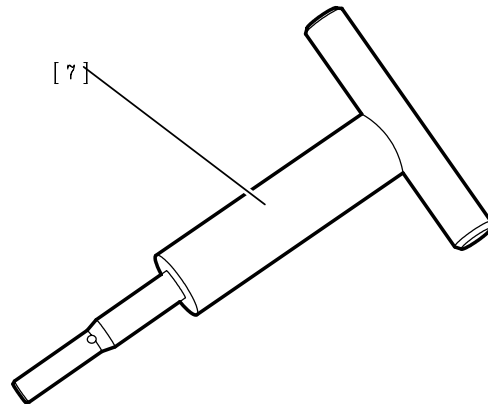
- Fig. : 5 -

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



- Fig. : 6 -

[ 6 ] 4122-T SEEM timing belt tightening equipment.



- Fig. : 7 -

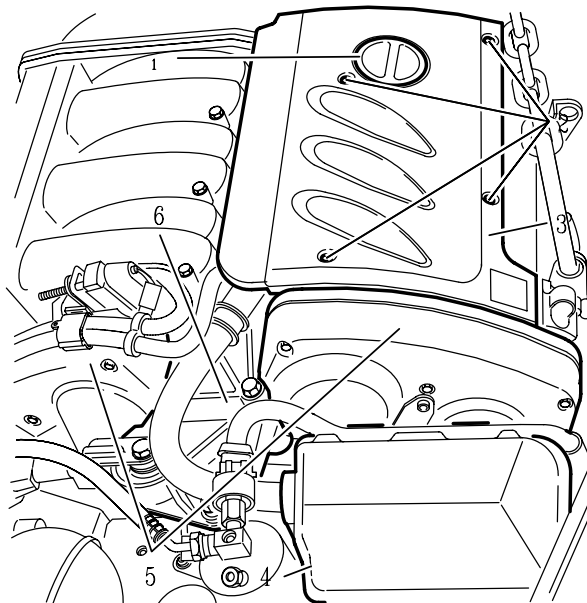
[ 7 ] locating pin for checking the valve timing (-).0187 CZ.

## 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 (RH side).



- Fig. : 8 -

Remove

:

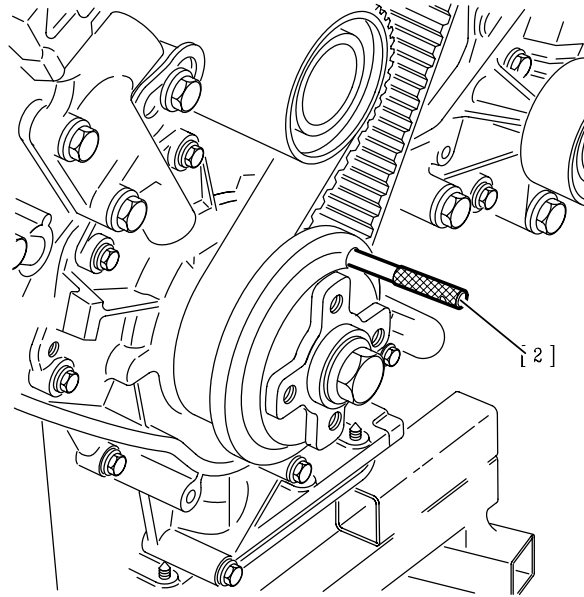
- the oil filler plug ( 1 )
- the screws ( 2 )
- the engine cover ( 3 )

Unclip the relays from the ECU housing.

Remove

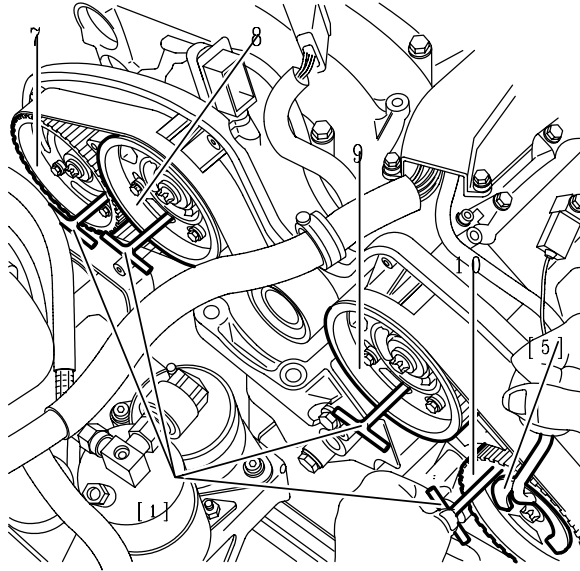
:

- the ECUs
- the ECU housing ( 4 )
- the right hand engine mounting ( 6 )
- the auxiliary equipment drive belt dynamic tensioner
- the auxiliary equipment crankshaft drive pulley
- the timing covers ( 5 )
- the lower timing cover



- Fig. : 9 -

Peg the crankshaft using the setting rod [ 2 ].



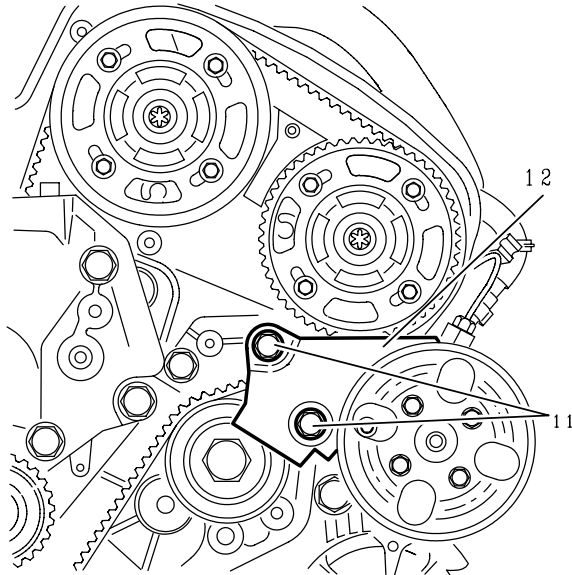
- Fig. : 10 -

Loosen the bolts of camshaft pulleys ( 7 ), ( 8 ), ( 9 ) and ( 10 ).

Control the rotation of the camshafts using tool [ 5 ].

Lubricate the tools [ 1 ] using G6 (TOTAL MULTIS) grease.

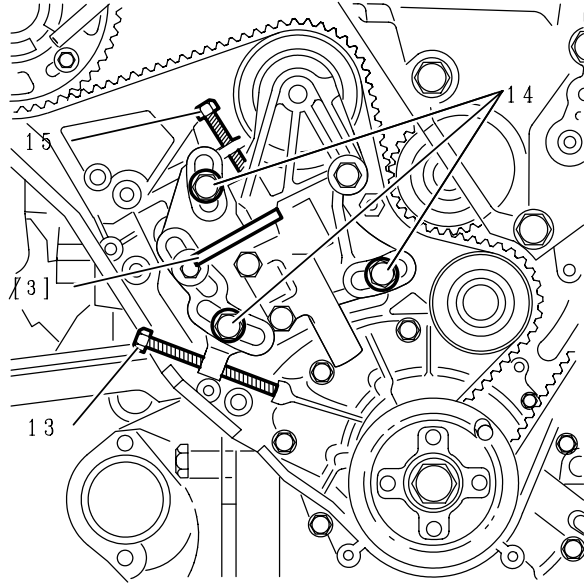
Peg the camshafts using the tools [ 1 ] and [ 5 ].



- Fig. : 11 -

Remove

- the screws ( 11 )
- the plate ( 12 )



- Fig. : 12 -

Screw in fully, a 8 mm ( 75 ).

Fit a 8 mm Long M 40 bolt ( 15 ).

Put tool [ 3 ] into place.

Tighten the bolt ( 15 ) until the tool [ 3 ] is locked.

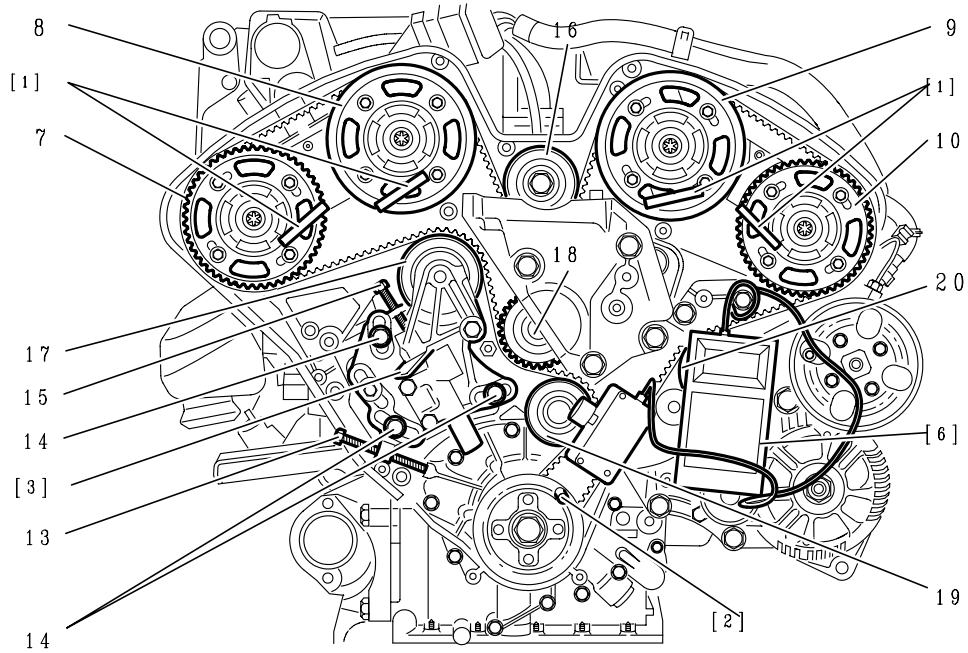
Loosen screws ( 14 ).

Slacken the bolt ( 13 ) to relax the tension of the cambelt.

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

Remove the timing belt.

### 3 Refitting



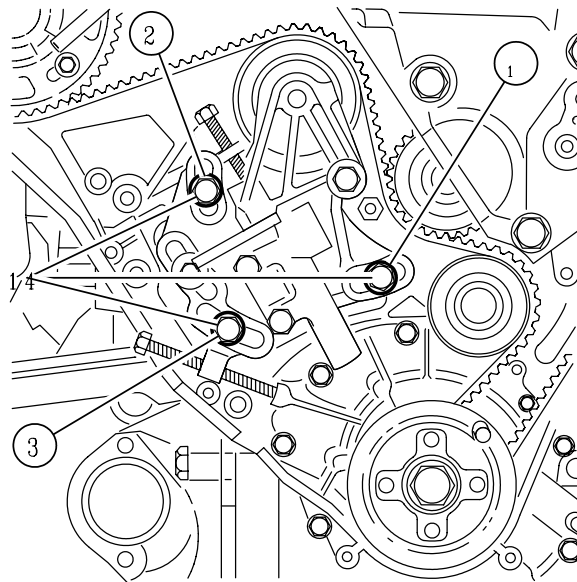
- Fig. : 13 -

Check that the rollers ( 16); ( 17 ) and ( 19 ) rotate freely (no play and no stiffness).

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

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

Slacken the camshaft pulley bolts by 45 °.



- Fig. : 14 -



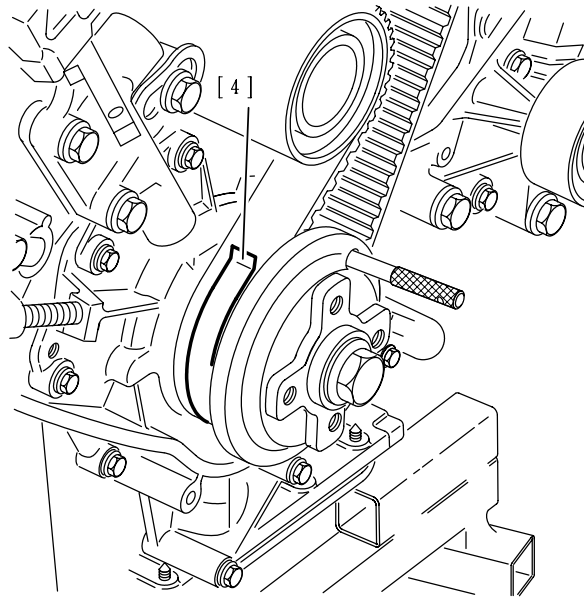
Tighten the screws ( 14 ) to 1 m.daN (in the order shown).

Loosen the bolts ( 14 ) by 45 °.

---

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

---



- Fig. : 15 -

Fit the cambelt onto the crankshaft pinion.

Put tool [ 4 ] into place.

Fit the cambelt following the sequence shown

:

- the guide roller ( 20 )
- the camshaft pulley ( 10 )
- the camshaft pulley ( 9 )
- the guide roller ( 16 )
- the camshaft pulley ( 8 )
- the camshaft pulley ( 7 )
- roller tensioner ( 17 )
- the water pump pulley ( 18 )
- the guide roller ( 19 )

Nip the screw ( 13 ) in order to slightly tension the belt.

**N.B.** : When fitting the cambelt 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 bolt ( 13 ) to tension the belt to  $83 \pm 2$  SEEM units.

---

**CAUTION** : 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 ( 14 ) to 2,5 m.daN (follow the recommended sequence).

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

Observe the following order

:

- the camshaft pulley ( 7 )
- the camshaft pulley ( 8 )
- the camshaft pulley ( 9 )
- the camshaft pulley ( 10 )

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

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

---

**URGENT : Never turn backwards.**

---

Peg the crankshaft using the setting rod [ 2 ].

Loosen the bolts ( 14 ) by  $45^\circ$ .

Remove the screw ( 15 ).

Undo bolt ( 13 ) to allow the tool [ 3 ] to slide but without play.

Wait one minute (damper action) if retightening the screw ( 13 ).

Ensure that the tool [ 3 ] slides without play.

Remove tool [ 3 ].

Tighten the screws ( 14 ) to 2,5 m.daN (follow the recommended sequence).

Remove the screw ( 13 ).

Remove tool [ 2 ].

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

Peg the camshaft pulleys using the tools [ 1 ].

Observe the following order

:

- the camshaft pulley ( 10 )
- the camshaft pulley ( 9 )
- the camshaft pulley ( 8 )
- the camshaft pulley ( 7 )

If the peg [ 1 ] goes in :

slacken the camshaft pulley bolts by 45 °.

If the peg [ 1 ] does not go in :

slacken the camshaft pulley bolts by 45 ° turn the hub using the lever [ 5 ] until it can be pegged.

---

**CAUTION :** 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

:

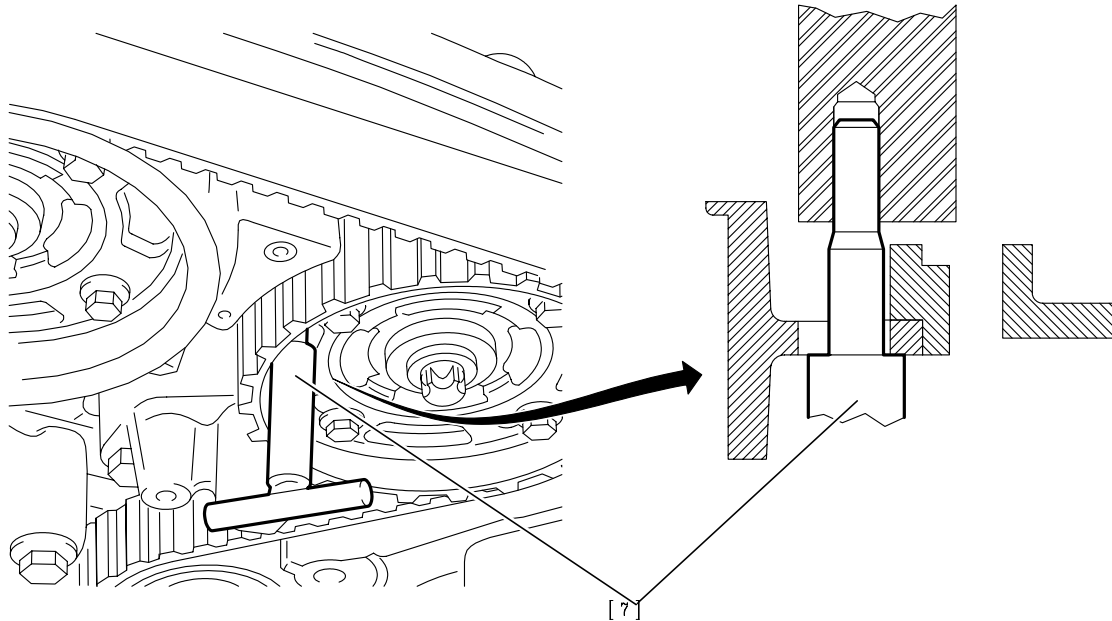
- the camshaft pulley ( 10 )
- the camshaft pulley ( 9 )
- the camshaft pulley ( 8 )
- the camshaft pulley ( 7 )

Remove tools [ 1 ] and [ 2 ].

## 4 Checking the valve timing

Turn the crankshaft 2 times in the direction of rotation.

Peg the crankshaft using the setting rod [ 2 ].



- Fig. : 16 -

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

Remove tool [ 2 ].

Fit

:

- the plate ( 12 )
- the screws ( 11 ) .  
Tighten to 4 m.daN
- the timing covers ( 5 )
- the lower timing cover
- the auxiliary equipment drive belt dynamic tensioner
- the auxiliary equipment crankshaft drive pulley
- the auxiliary equipment drive belt (see the relevant operation)
- the right hand engine mounting ( 6 )
- the ECU housing ( 4 )
- the ECUs
- the engine cover ( 3 )
- the screws ( 2 )
- the oil filler plug ( 1 )

Reconnect the negative cable to the battery.

Carry out the initialisation procedure for the ignition injection ECU (see the relevant operation).