

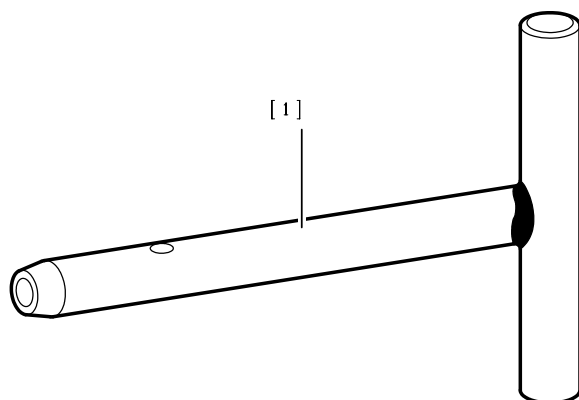
## removing - refitting : timing belt INJECTION ES9J4S

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**URGENT** : Ensure that the precautions relating to safety and cleanliness are adhered to (refer to the brochure: **RECOMMENDATIONS - PRECAUTIONS**).

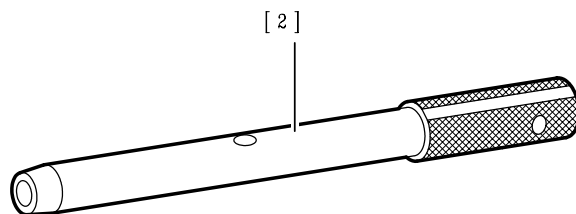
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### 1 Recommended tools



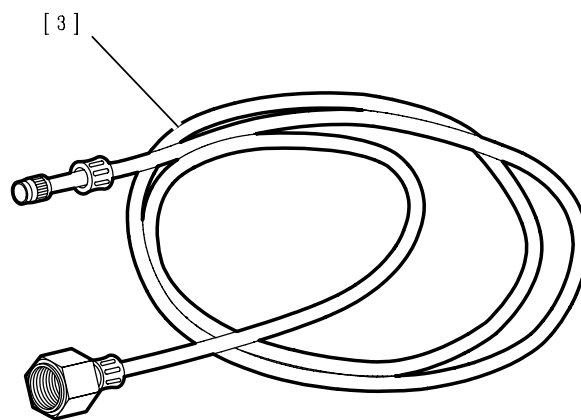
- Fig. : 1 -

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



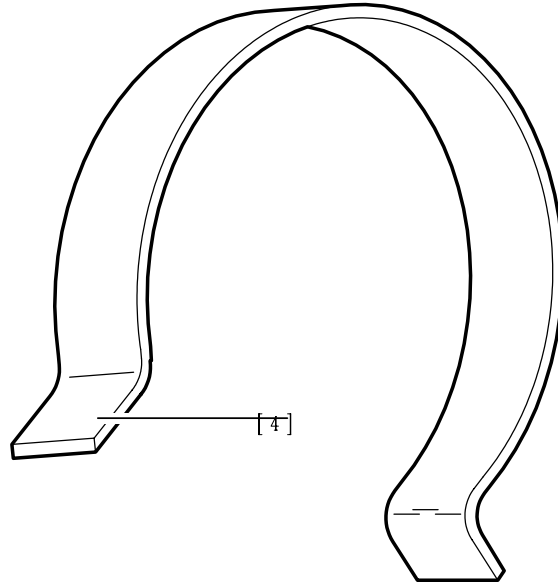
- Fig. : 2 -

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



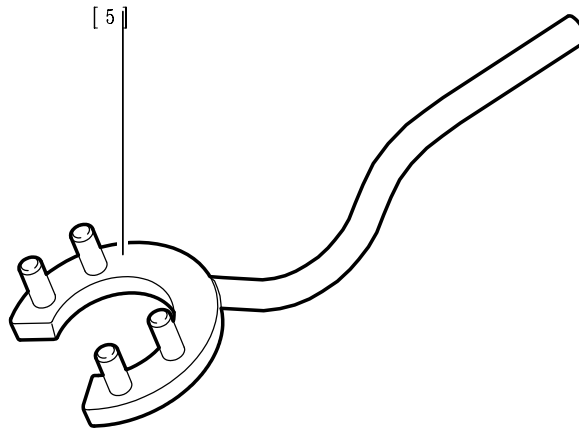
- Fig. : 3 -

[ 3 ] union for venting fuel pressure 4192-T.



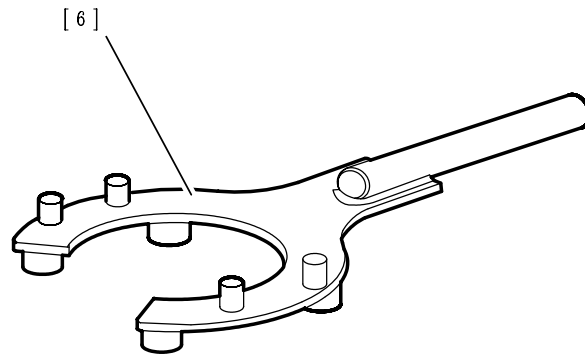
- Fig. : 4 -

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



- Fig. : 5 -

[ 5 ] tool for immobilising the exhaust camshaft hubs (-).0187 F.



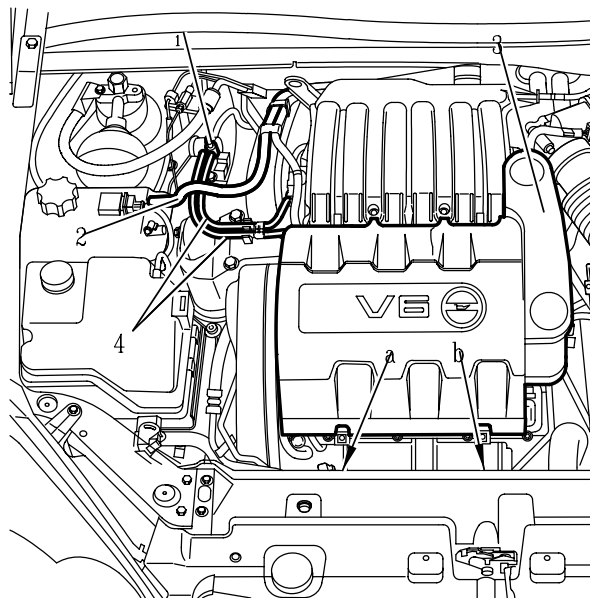
- Fig. : 6 -

[ 6 ] tool for immobilising the inlet camshaft hubs (-).0187 N.

## 2 Removing

Disconnect the positive and negative battery terminals.

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



- Fig. : 7 -

Remove the engine cover.

Lower the pressure in the fuel piping

:

- couple the tool [ 3 ] on the SCHRAEDER valve (1)
- collect the fuel in a container

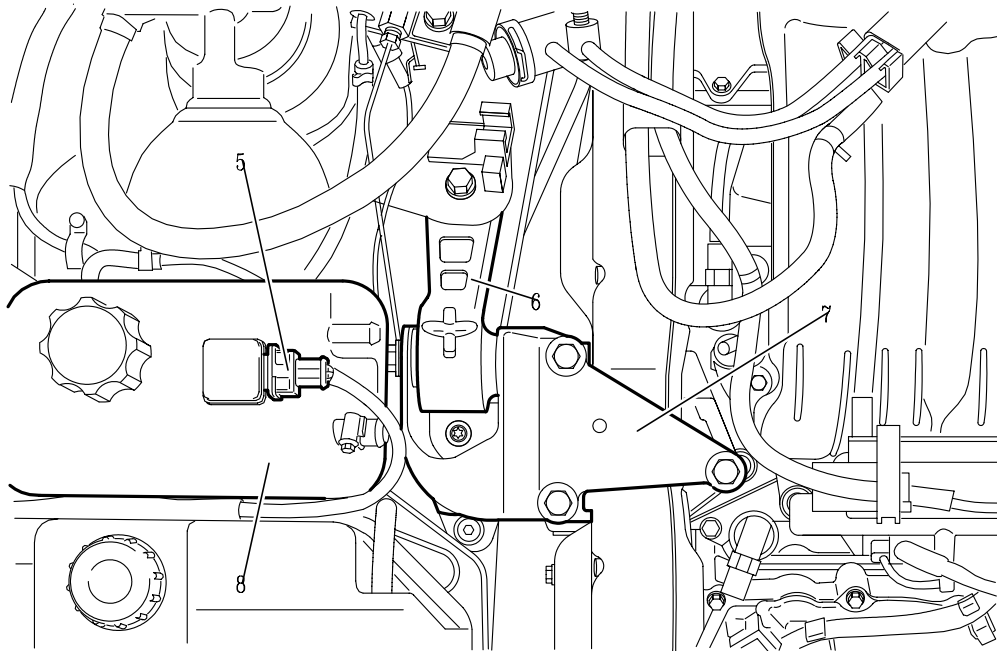
Unclip

:

- flexible hose ( 2 )
- the fuel piping ( 4 )

Uncouple and move aside the fuel piping ( 4 ).

Remove the 2 fixing points of the steering tube (at " a " and " b ").



- Fig. : 8 -

Disconnect the connector ( 5 ).

Remove the expansion chamber fixing nut ( 8 ).

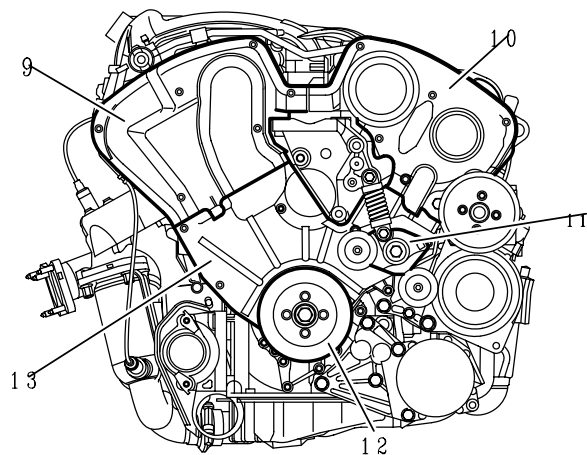
Release the expansion chamber ( 8 ).

Remove

:

- the upper torque reaction rod ( 6 )
- the right hand engine mounting ( 7 )

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

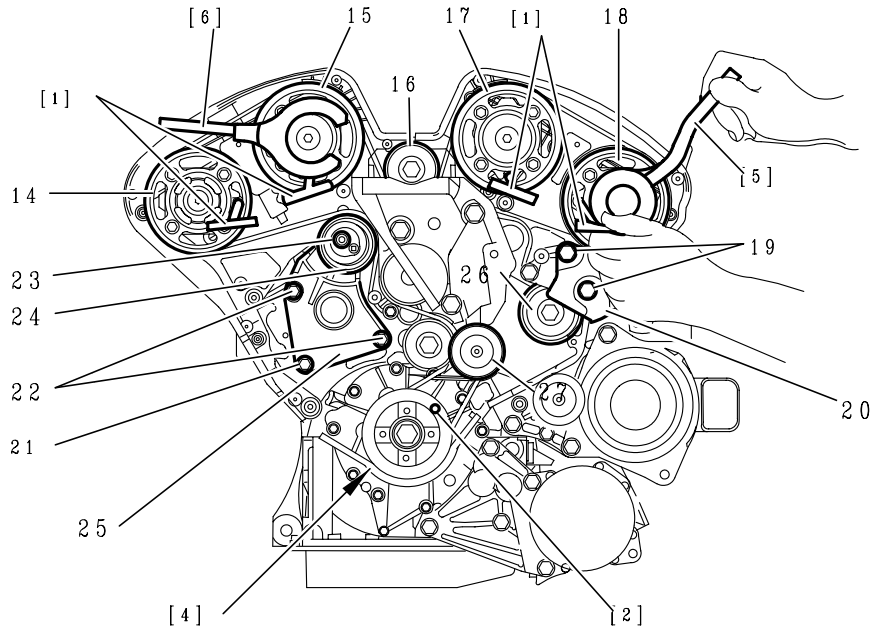


- Fig. : 9 -

Remove

:

- the power steering pump pulley
- the dynamic tensioner ( 11 )
- crankshaft pulley ( 12 )
- upper timing cover ( 9 )
- upper timing cover ( 10 )
- the lower timing cover ( 13 )



- Fig. : 10 -

Remove

:

- the screws ( 19 )
- the plate ( 20 )

Lock the crankshaft using the rod [ 2 ].

**N.B. :** Damp the rotation of the camshafts ( 15 ) and ( 17 ) using tool [ 6 ].

Loosen the bolts of camshaft pulleys ( 15 ) and ( 17 ).

**N.B. :** Damp the rotation of the camshafts ( 14 ) and ( 18 ) using tool [ 5 ].

Loosen the bolts of camshaft pulleys ( 14 ) and ( 18 ).

**N.B. :** Lubricate the tools [ 1 ] using G6 (TOTAL MULTIS) grease.

Peg the camshafts by means of tools [ 1 ], [ 5 ] and [ 6 ].

Remove the screw ( 21 ) from the panel ( 25 ).

Loosen the nut ( 23 ) of the tensioner roller ( 24 ).

Loosen the screws ( 22 ) of the panel ( 25 ).

Remove the bearing roller ( 16 ).

**N.B. :** Mark the direction of fitting of the timing belt in case of reuse.

Remove the timing belt.

### 3 Refitting

Check that the camshafts and crankshaft are correctly pegged.

Check that the water pump rollers and pulley are turning freely (without excess play and without tightness).

Loosen the pulley screws of the camshafts by a 1/4 turn.

Check that the camshaft hub pulleys are turning freely.

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

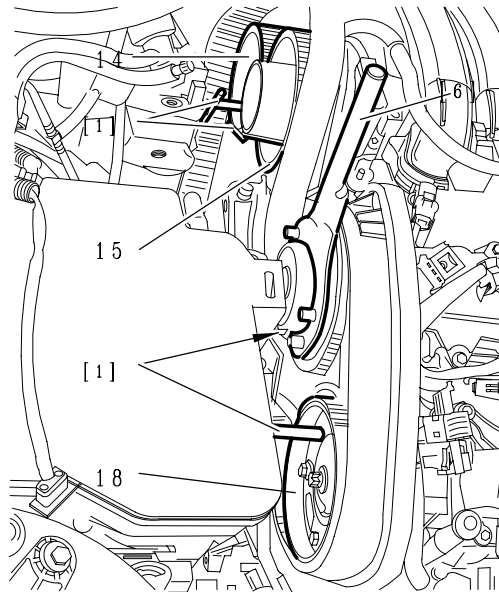
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**CAUTION :** Observe the fitting direction of the belt :  
looking at the valve timing, the markings on the belt should read from left to right.

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Fit the cambelt onto the crankshaft pinion.

Fit tool [ 6 ].



- Fig. : 11 -

Fit the cambelt following the sequence shown (belt correctly tensioned)

:

- the guide roller ( 26 )



- the camshaft pulley ( 18 )
- the camshaft pulley ( 17 )

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**CAUTION :** Keep the timing belt correctly tensioned.

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Refit the guide roller ( 16 ) tighten to  $8 \pm 0,8$  m.daN.

Fit the cambelt following the sequence shown

:

- the camshaft pulley ( 15 )
- the camshaft pulley ( 14 )
- roller tensioner ( 24 )
- water pump pulley
- the guide roller ( 27 )

**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.

## 4 Adjusting the tension

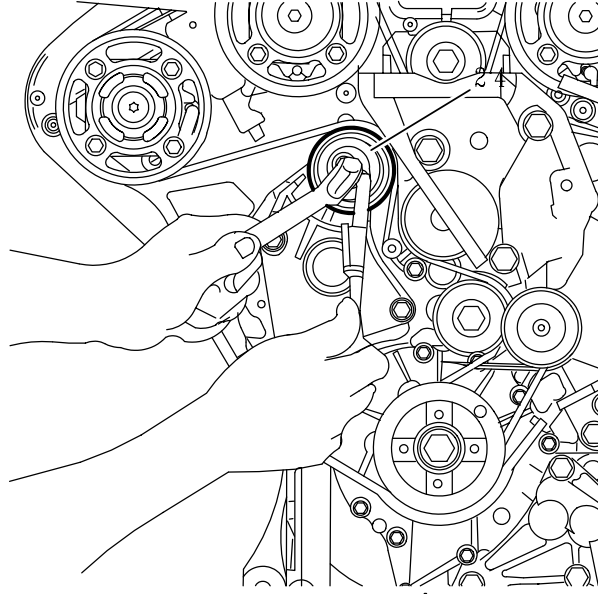
### 4.1 Preliminary operations

Swivel the panel ( 25 ) of the tensioner roller ( 24 ) using a FACOM S 161 tool.

Engage the screw ( 21 ) on the panel ( 25 ).

Tighten the screws ( 21 ) and ( 22 ) to  $2,5 \pm 0,1$  m.daN.

Move the tensioner roller ( 24 ) so as to put the belt under maximum tension using a FACOM R 161 tool.



- Fig. : 12 -

Tighten roller tensioner ( 24 ) nut ( 23 ) to  $1 \pm 0,1$  m.daN.

Check that the camshaft pulley screws are not at the ends of their slots (remove one screw).

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**CAUTION** : If this is not the case, repeat the cambelt fitting procedure.

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Tighten at least 2 screw per camshaft pulley to  $1 \pm 0,1$  m.daN.

Remove tools [ 1 ],[ 2 ] and [ 4 ].

Turn the crankshaft by 2 rotations clockwise.

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**URGENT** : Never turn backwards.

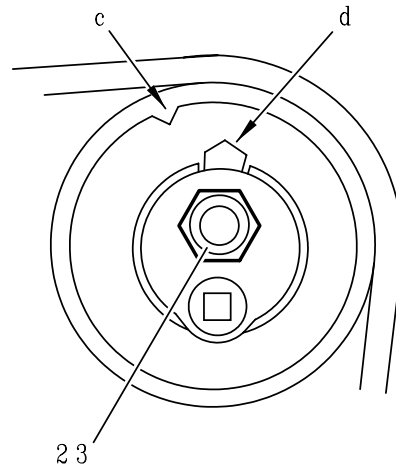
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Lock the crankshaft using the rod [ 2 ].

Peg the camshaft pulleys by means of tools [ 1 ].

Loosen the nut ( 23 ) of the tensioner roller ( 24 ).

## 4.2 Tensioning the timing belt



- Fig. : 13 -

Move the tensioner roller ( 24 ) so as to align the marks " c " and " d ", without letting the timing belt go slack using a FACOM R 161 tool.

If it does, repeat the timing belt tensioning operation.

Hold the tensioner roller ( 24 ).

Tighten nut ( 23 ) to  $1 \pm 0,1$  m.daN.

Check the position of the tensioner roller (the alignment of the marks " c " and " d " should be correct).

Remove tools [ 1 ], [ 2 ] and [ 4 ].

Turn the crankshaft by 2 rotations clockwise.

---

**URGENT : Never turn backwards.**

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Lock the crankshaft using the rod [ 2 ].

Check the position of the tensioner roller (the alignment of the marks " c " and " d " should be correct).

Peg the camshaft pulleys by means of tools [ 1 ].

If the peg [ 1 ] goes in :  
slacken the camshaft pulley bolts by  $45^\circ$ .

If the peg [ 1 ] does not go in  
:

- slacken the camshaft pulley bolts by  $45^\circ$

- bring the camshaft hub into the pegging position using tool [ 5 ]

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**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.

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Tighten the camshaft pulley bolts to  $1 \pm 0,1$  m.daN.

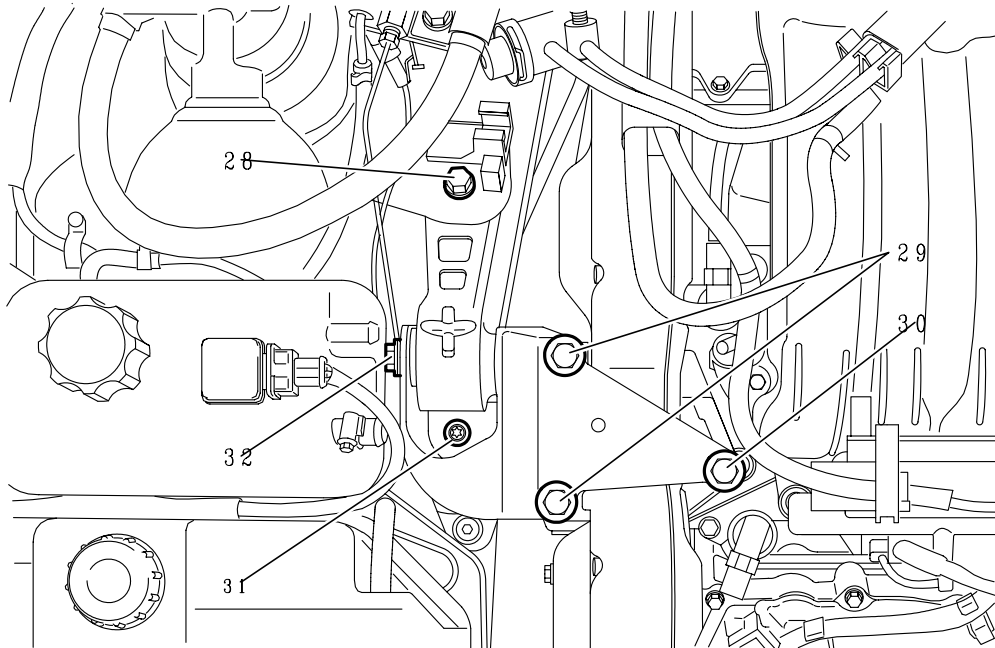
Remove tools [ 1 ] and [ 2 ].

Fit

:

- the plate ( 20 )
- the screws ( 19 ) tighten to  $4 \pm 0,1$  m.daN
- the lower timing cover ( 13 )
- upper timing cover ( 10 )
- upper timing cover ( 9 )
- the dynamic tensioner ( 11 )
- crankshaft pulley ( 12 )

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



- Fig. : 14 -

Refit the right-hand engine mounting.

Tightening torque

:

- tighten the screws ( 29 ) and ( 30 ) to  $6 \pm 0,6$  m.daN
- tighten nut ( 31 ) to  $4,5 \pm 0,5$  m.daN

Refit the torque reaction link.

Tightening torque

:

- tighten the screw ( 32 ) to  $5 \pm 0,5$  m.daN
- tighten the screw ( 28 ) to  $5 \pm 0,5$  m.daN

Proceed in the reverse order to removal.

Reconnect the battery positive and negative terminals.

(see the relevant operation).