

## **0** General

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- 07** VALUES AND SETTINGS

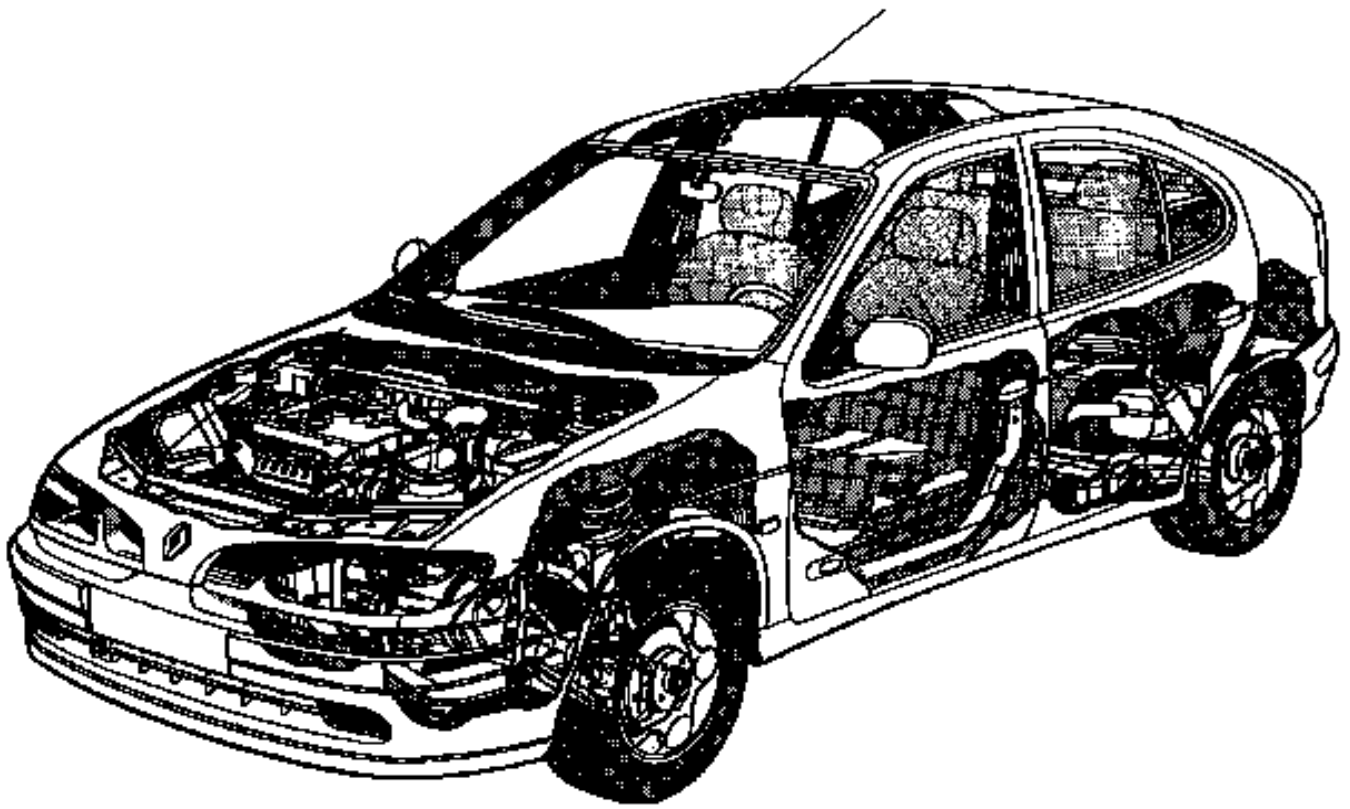
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***BA0A - BA0E - BA0F - BA0G - BA0L - BA0U***

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## SECTION VIEW

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SPECIFICATIONS

Engine- Clutch - Gearbox

| Vehicle type | Engine |          | Clutch type                  | Type of manual gearbox and automatic transmission |
|--------------|--------|----------|------------------------------|---|
|              | Type   | Capacity |                              |   |
| BA0E         | E7J    | 1390     | 180 DST 3050<br>180 CP 3300  | JB1   |
| BA0F<br>BA0L | K7M    | 1598     | 200 HR 4000                  | JB1   |
| BA0G         | F3R    | 1998     | 215 HRN 4000                 | JB3   |
| BA0A<br>BA0U | F8Q    | 1870     | 200 HRV 4600<br>200 HRV 3100 | JB1   |
| BA0F         | K7M    | 1598     | -                            | AD4   |

VEHICLE IDENTIFICATION

Example : BA0E

- B :     Body type (example 5 door hatchback)
- A :     Project code (example 64)
- 0E :    Engine suffix (example E7J 764)

# SPECIFICATIONS

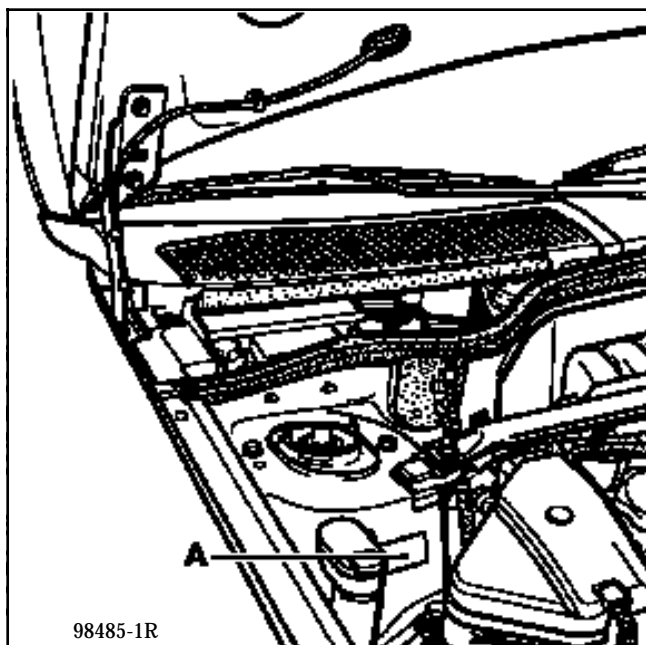
## Vehicle identification

01

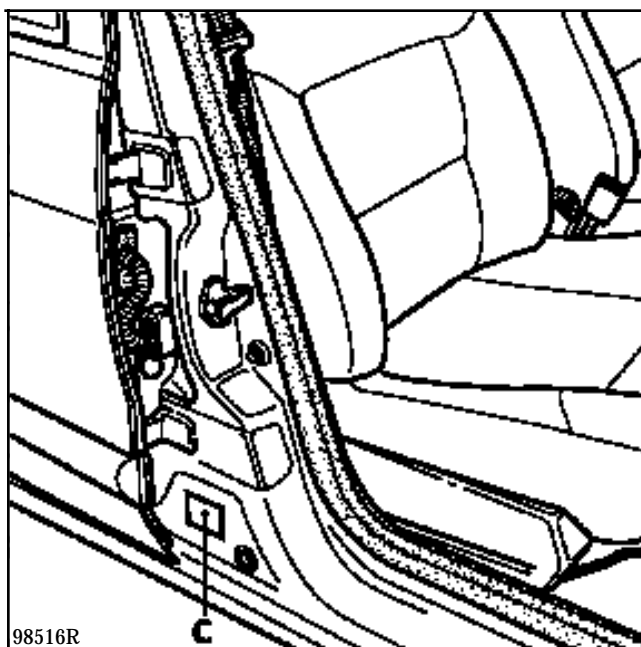
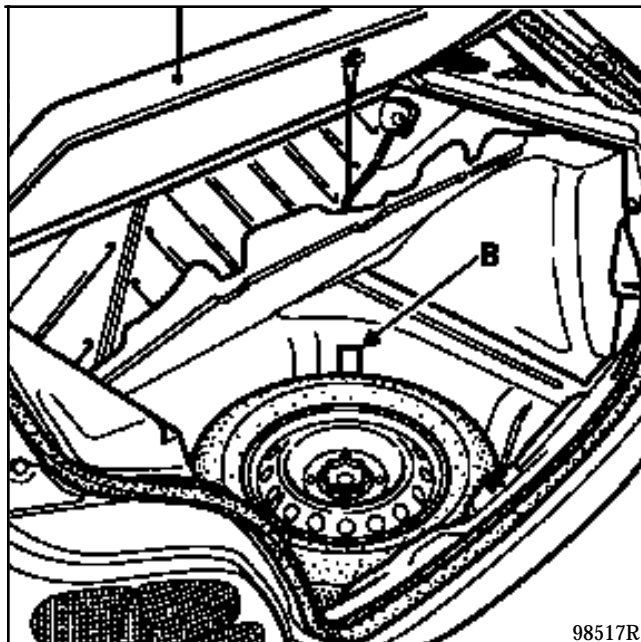
### LOCATION OF THE VEHICLE IDENTIFICATION PLATE

Two possible locations on the vehicle:

- in the engine compartment (A),

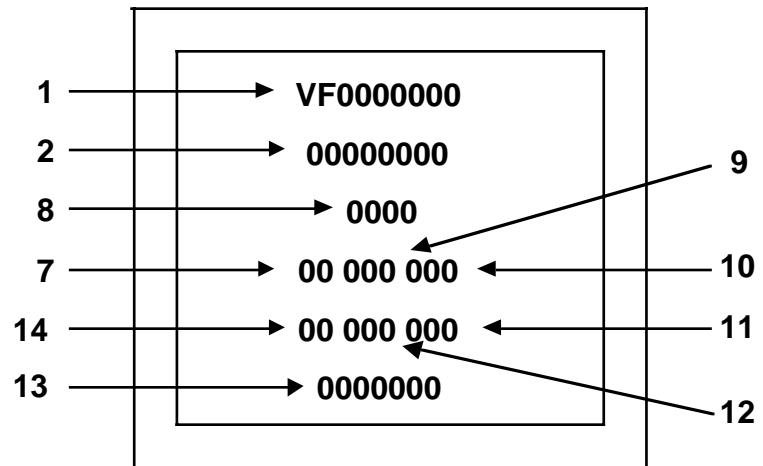
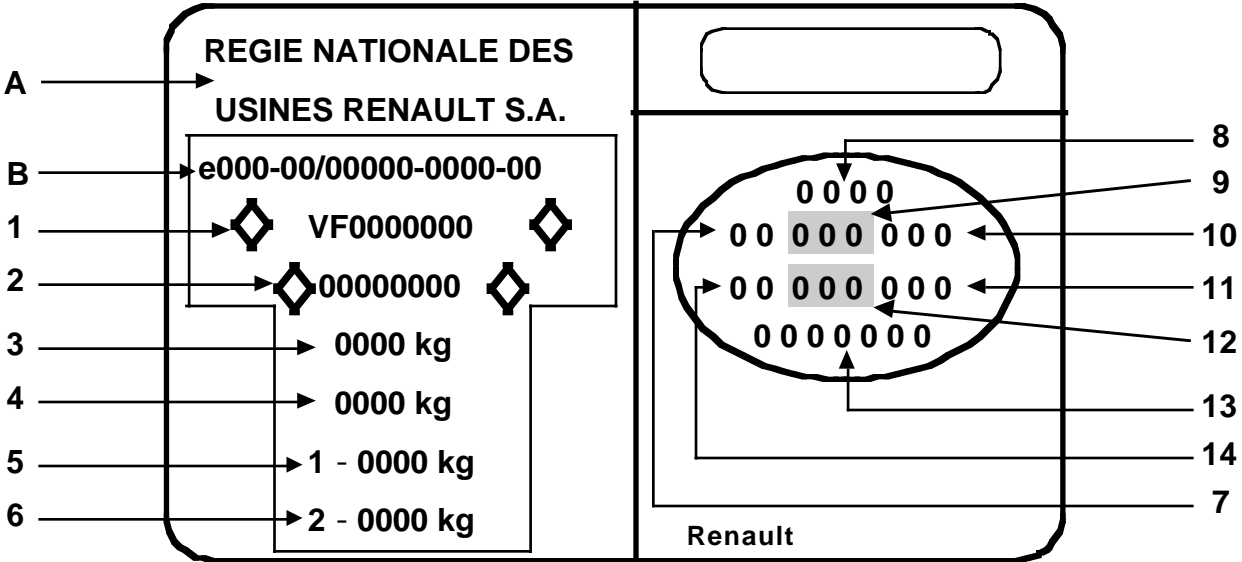


- near to the emergency spare wheel (B) with a duplicate label of the oval plate on the lower section of the passenger door (C).



**SPECIFICATIONS**  
**Vehicle identification**

**01**



# SPECIFICATIONS

## Vehicle identification

01

It shows:

- At A : the name of the manufacturer,
- At B : the E.E.C. approval number
- At 1 : the type mines of the vehicle preceded by the world manufacturers identification code (VF1 corresponds to RENAULT FRANCE),
- At 2 : the chassis number,
- At 3 : the maximum permissible weight,
- At 4 : the maximum permitted total train weight,
- At 5 : the maximum permitted weight on the front axle,
- At 6 : the maximum permitted weight on the rear axle,
- At 7 : the first figure indicates the gearbox or factory options,  
the second figure indicates the equipment level,
- At 8 : the vehicle type,
- At 9 : the technical equipment code,
- At 10 : additional factory optional equipment,
- At 11 : the equipment level,
- At 12 : the paint code,
- At 13 : a letter describing the factory of manufacture followed by the fabrication number,
- At 14 : the trim code.

**NOTE :** Depending on the country of export, certain details might not be given. The plate described above shows all possible information.

### ALLOCATION OF TECHNICAL EQUIPMENT CODES

The equipment code, the three letters which appear in (9), must be documented for vehicle identification reasons (ordering spare parts, warranty claim, etc.)

# LIFTING

## Trolley jack - Axle stands

02



Safety symbol (special precautions to be taken when carrying out operations).

| SPECIAL TOOLING REQUIRED |  |  |
|--------------------------|--|--|
| Cha. 280 -02             | Adaptable cross piece for trolley jack |  |
| Cha. 408 -01             | Adaptable socket for trolley jack      |  |
| or                       |  |  |
| Cha. 408 -02             |  |  |



If a trolley jack is used, appropriate axle stands must always be used.

It is **forbidden** to lift the vehicle by supporting its weight under the front suspension arm or under the V shaped part of the rear axle.

Depending on the type of trolley jack, use sockets **Cha. 408-01** or **Cha. 408-02** to position the cross piece **Cha. 280-02**.

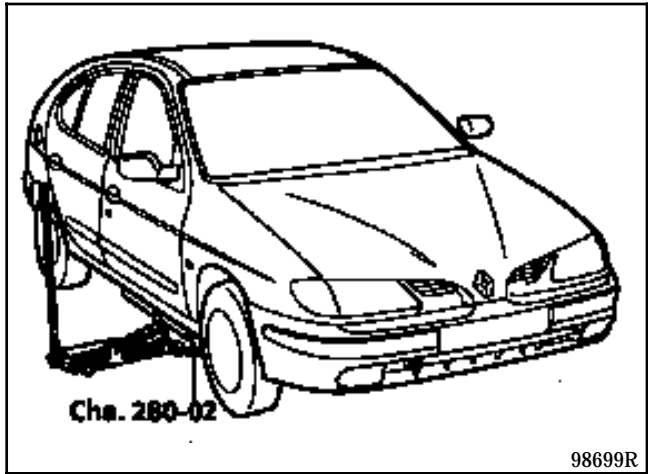
To lift the front or rear, support the vehicle's weight under the vehicle's jacking points .

### TROLLEY JACK USED FROM THE SIDE

Use cross piece **Cha. 280-02**.

Take the weight under the sill, level with the front door.

Position the flange correctly in the groove of the cross piece.

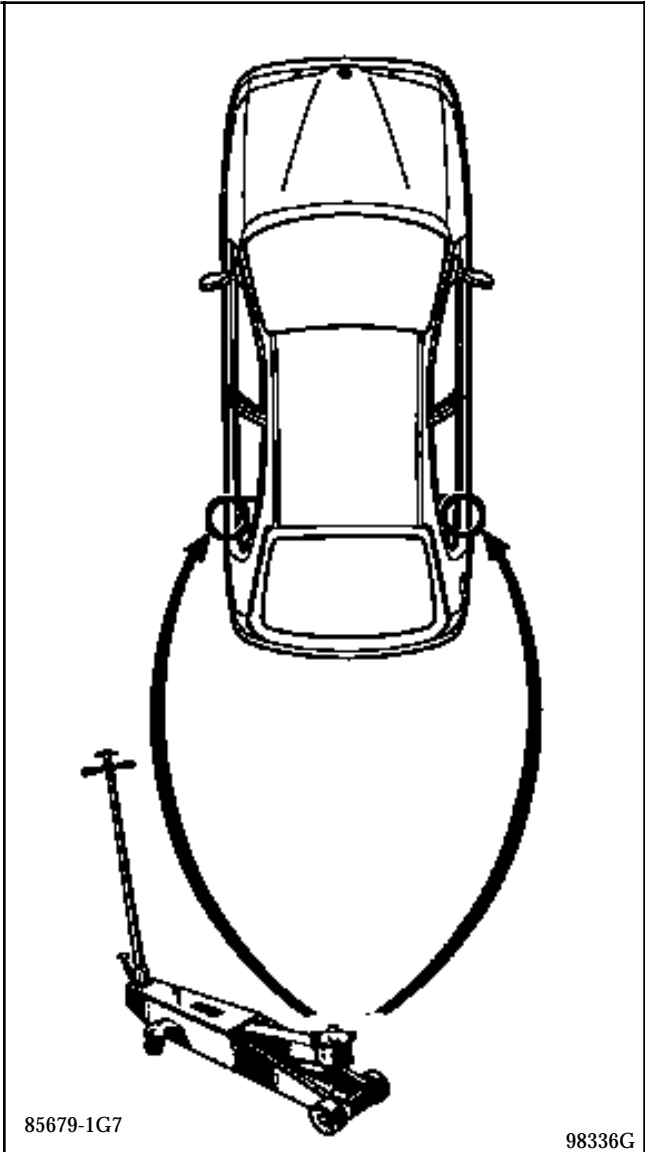


### AXLE STANDS

When putting the vehicle on axle stands, they must be positioned:

- either under the reinforcements designed for lifting the vehicle using the vehicle's jack,
- or under the points located behind the reinforcements.

Axle stands are positioned at the rear when the vehicle is lifted from the side.





### SAFETY INSTRUCTIONS



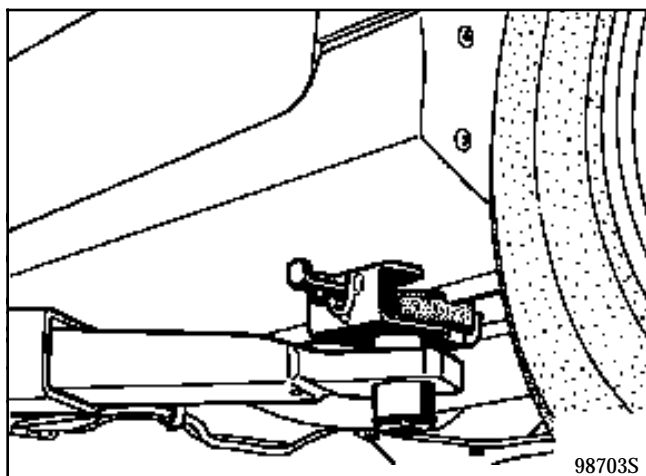
Several scenarios should be considered:

#### 1 - WHEN REMOVING COMPONENTS

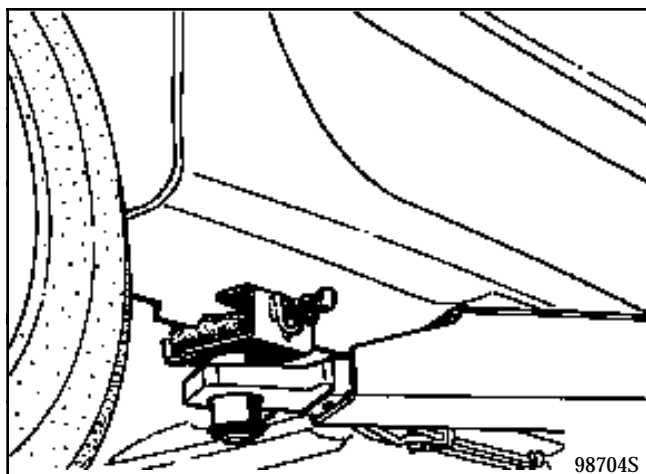
In general, **never use a 2 post lift**, if a four post lift can be used.

If this is not possible, position the lifting pads under the body sill, level with the vehicle's jacking points.

FRONT



REAR



These must be positioned in line with the vehicle's jacking points. They must be clipped into the holes in the body sill.

#### 2 - SPECIAL CASE - REMOVING AND REFITTING THE ENGINE AND TRANSMISSION ASSEMBLY

In this special case, the body of the vehicle must be firmly attached to the arms of the two post lift using the special pads.

**FOG**

**Reference FOG 449 8111 - 449 8411**

**or**

**CHEMICO**

**Reference 39 2550 0001**

**or**

**SCHENCH**

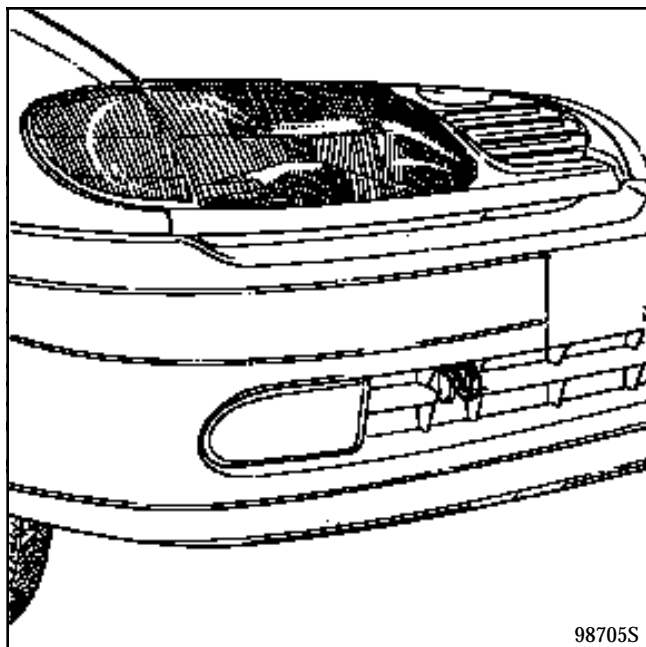
**Reference 776 684**

**OBSERVE THE LEGAL TOWING REQUIREMENTS OF THE COUNTRY YOU ARE IN.**

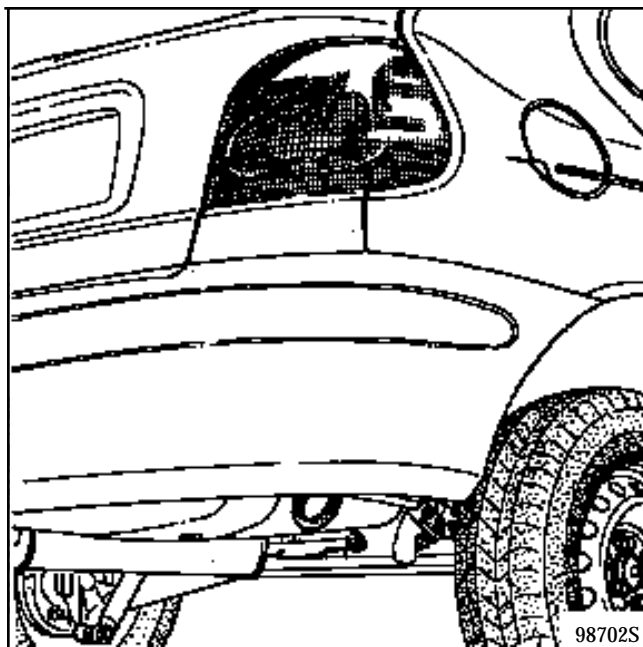
**NEVER USE THE DRIVESHAFTS FOR TOWING THE VEHICLE.**

The towing points may only be used for towing the vehicle on the road. They should never be used for removing the vehicle from a ditch or for any other similar breakdown operation or to lift the vehicle, either directly or indirectly.

**FRONT**



**REAR**



| DESCRIPTION   | PACKAGING               | PART NUMBER                    |
|---|-------------------------|--------------------------------|
| LUBRICANTS  |                         |                                |
| <ul style="list-style-type: none"><li>• <b>MOLYKOTE "BR2"</b><br/>for main bearing journal faces, thrust pad<br/>guide tubes, clutch fork pads, lower suspension<br/>arm bearings, torsion bar splines, steering box,<br/>driveshaft splines.</li></ul> | 1 kg tin                | 77 01 421 145                  |
| <ul style="list-style-type: none"><li>• <b>MOLYKOTE "33 Medium"</b><br/>tubular rear axle rings<br/>anti-roll bar rings.</li></ul>  | 100 g tube              | 77 01 028 179                  |
| <ul style="list-style-type: none"><li>• <b>ANTI-SEIZE</b><br/>(high temperature grease) Turbo etc.</li></ul>  | 80 ml tube              | 77 01 422 307                  |
| <ul style="list-style-type: none"><li>• <b>"MOBIL CVJ" 825 Black star<br/>or MOBIL EXF57C</b><br/>for driveshaft joints</li></ul>   | 180 g sachet            | 77 01 366 100                  |
| <ul style="list-style-type: none"><li>• <b>MULTIPURPOSE LUBRICANT</b><br/>wheel sensor</li></ul>  | Aerosol                 | 77 01 422 308                  |
| MECHANICAL SEALANTS   |                         |                                |
| <ul style="list-style-type: none"><li>• <b>Perfect-seal "LOWAC"</b><br/>coating fluid for seals.</li></ul>  | 100 g tube              | 77 01 417 404                  |
| <ul style="list-style-type: none"><li>• <b>Mastic</b><br/>for sealing exhaust pipe unions.</li></ul>  | 1.5 kg tin              | 77 01 421 161                  |
| <ul style="list-style-type: none"><li>• <b>HARDENER KIT</b><br/>("CAF 4/60 THIXO")<br/>for sealing sides of bearing caps.</li></ul>   | Kit                     | 77 01 421 080                  |
| <ul style="list-style-type: none"><li>• <b>AUTO joint blue</b><br/>sealing paste.</li></ul>   | 100 g tube<br>45 g tube | 77 01 396 227<br>77 01 397 027 |

| DESCRIPTION  | PACKAGING                    | PART NUMBER                    |
|--|------------------------------|--------------------------------|
| <b>MECHANICAL SEALANTS</b>   |                              |                                |
| • <b>AUTO joint grey</b><br>sealing paste.   | 100 g tube                   | 77 01 422 750                  |
| • <b>LOCTITE 518</b><br>for sealing the gearbox housing.                                     | 24 ml syringe                | 77 01 421 162                  |
| • <b>Leak detector</b>   | Aerosol                      | 77 11 143 071                  |
| <b>ADHESIVES</b>   |                              |                                |
| • <b>"LOCTITE - FRENETANCH"</b><br>stops bolts coming loose and allows them to be undone.    | 24 cc bottle                 | 77 01 394 070                  |
| • <b>"LOCTITE - FRENBLOC"</b><br>locks bolts.  | 24 cc bottle                 | 77 01 394 071                  |
| • <b>"LOCTITE SCELBLOC"</b><br>for bonding bearings.   | 24 cc bottle                 | 77 01 394 072                  |
| • <b>"LOCTITE AUTOFORM"</b><br>for bonding the flywheel to the crankshaft.                   | 50 cc bottle                 | 77 01 400 309                  |
| <b>CLEANING AGENTS - LUBRICANTS</b>  |                              |                                |
| • <b>"NETELEC"</b><br>unseizes, lubricates.  | 150 g aerosol                | 77 01 408 464                  |
| • <b>NC1 cleaner</b><br>electrical contact cleaner   | Aerosol                      | 77 01 422 379                  |
| • Carburettor cleaner  | 250 ml can<br>300 ml aerosol | 77 01 393 112<br>77 01 393 111 |
| • Injector cleaner   | 355 ml can                   | 77 01 423 189                  |
| • Super concentrated unseizing agent   | 500 ml aerosol               | 77 01 408 466                  |
| • <b>"DECAPJOINT " (FRAMET)</b> for cleaning the<br>gasket faces of aluminium cylinder heads | Aerosol                      | 77 01 405 952                  |
| • Brake cleaner  | 400 ml aerosol               | 77 01 421 282                  |

| DESCRIPTION  | PACKAGING              | PART NUMBER   |
|--|------------------------|---------------|
| VARNISHES  |                        |               |
| • "CIRCUIT PLUS"<br>varnish for repairing heated screens               | Bottle                 | 77 01 421 135 |
| • "CONTACT PLUS"<br>varnish for repairing rear screen supply terminals | Kit                    | 77 01 422 752 |
| BRAKES   |                        |               |
| • Brake fluid  | 0.5 litre bottle DOT 4 | 77 01 421 940 |

# DRAINING, RE-FILLING Engine

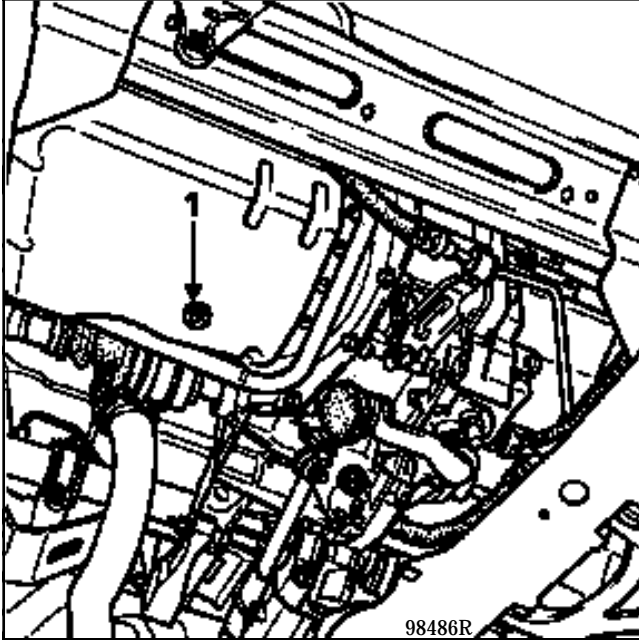
05

## TOOLING REQUIRED

Engine drain plug spanner

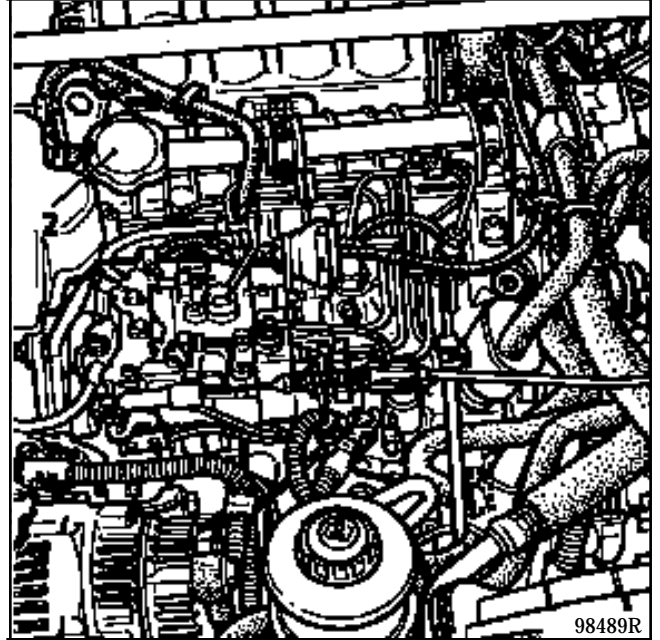
DRAINING: plug(1)

F3R - F8Q ENGINES

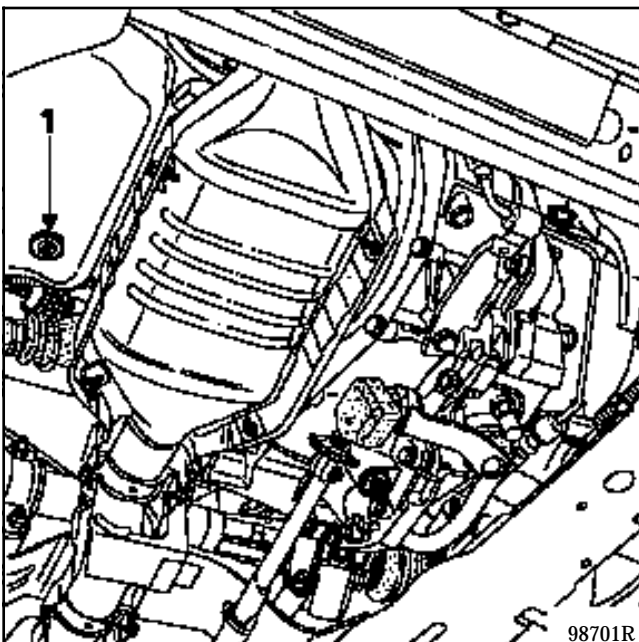


FILLING: plug(2)

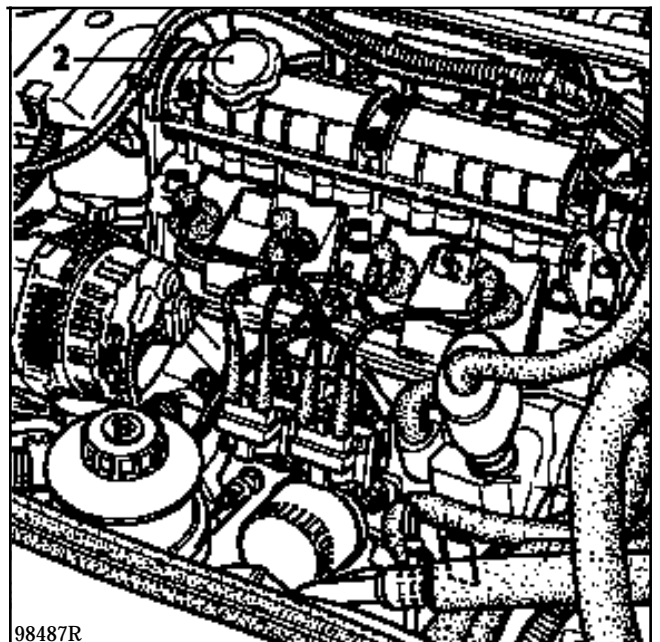
F8Q ENGINE



E7J - K7M ENGINE

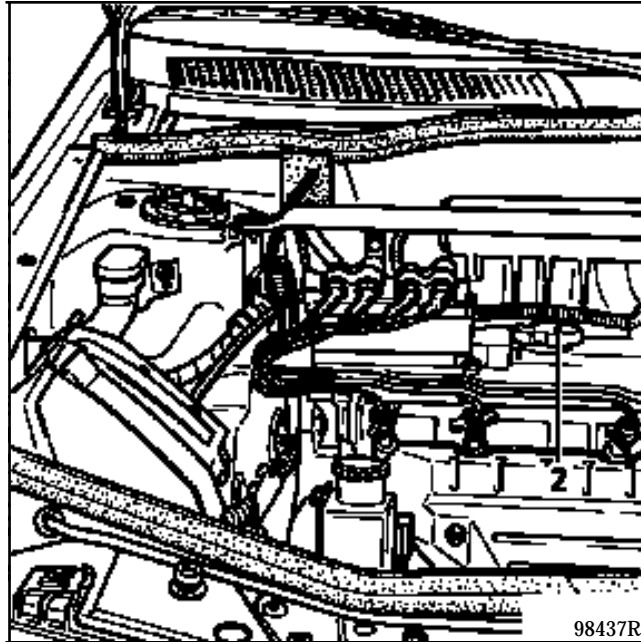


F3R ENGINE

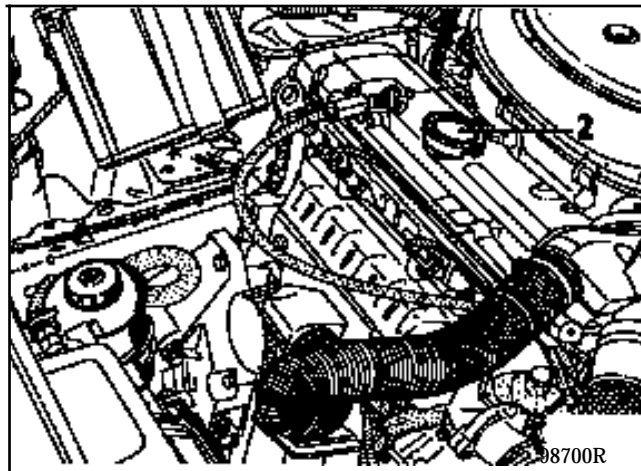


FILLING: plug(2)

K7M ENGINE



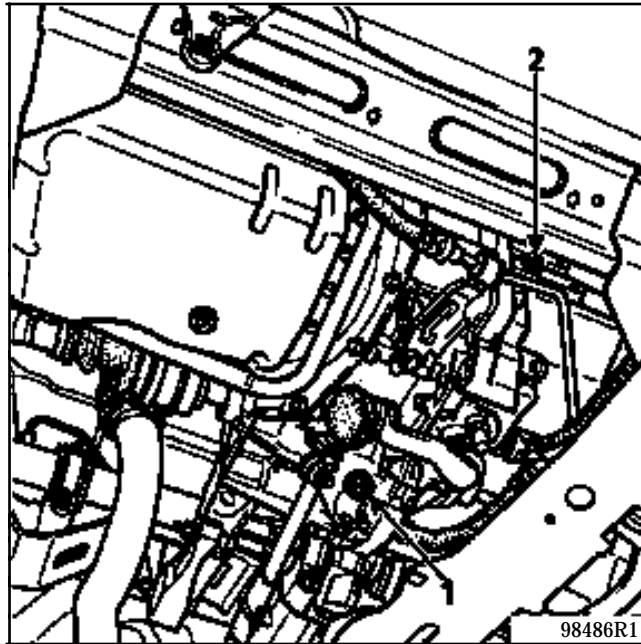
E7J ENGINE



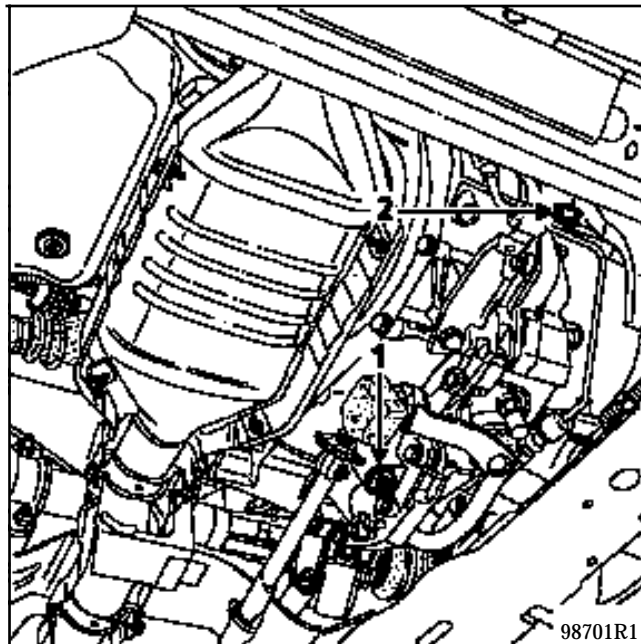
DRAINING: plug(1)

FILLING: plug(2)

F3R - F8Q ENGINE



E7J - K7M ENGINE





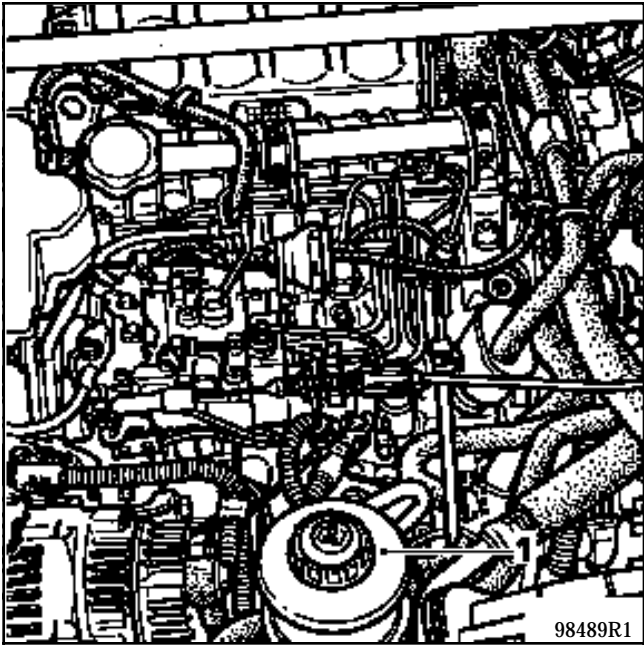
**CHECKING THE LEVEL**

**POWER ASSISTED STEERING PUMP LEVEL**

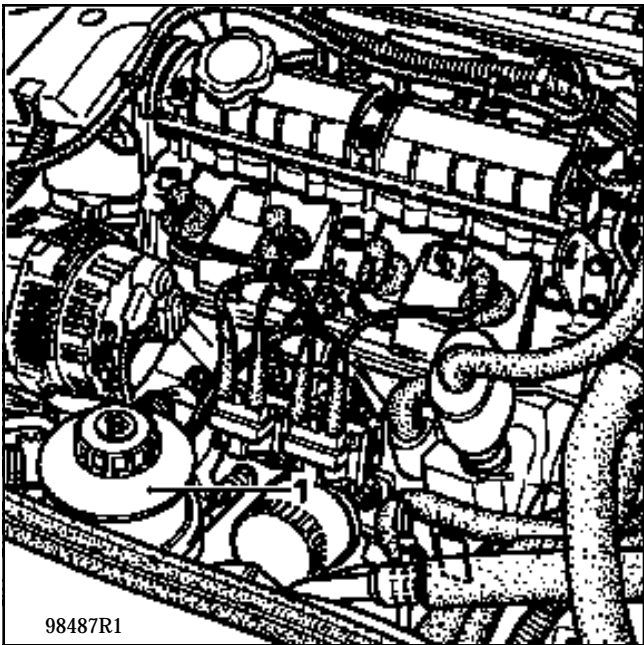
For topping up or filling, use **ELF RENAULTMATIC D2** or **MOBIL ATF 220** oil.

The level, when correct, should be visible between the **MINI** and **MAXI** marks on the reservoir (1).

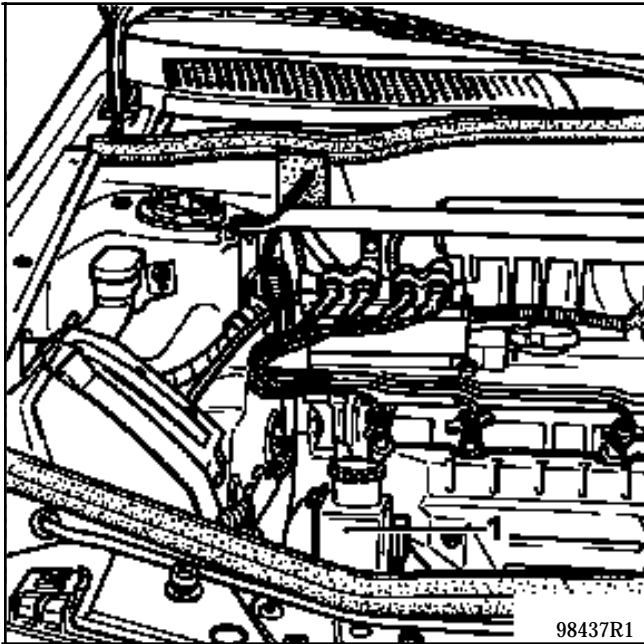
**F8Q ENGINE**



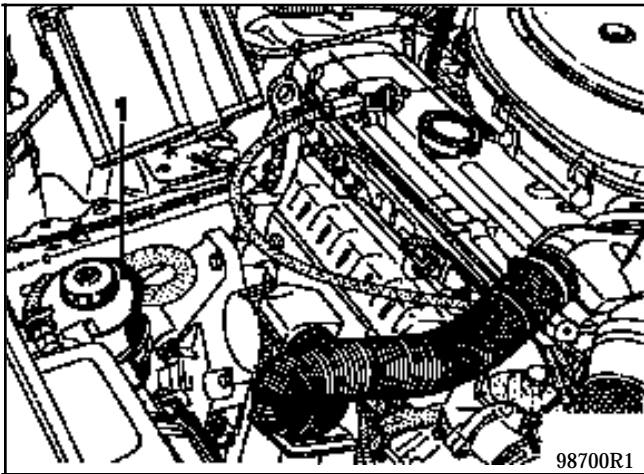
**F3R ENGINE**

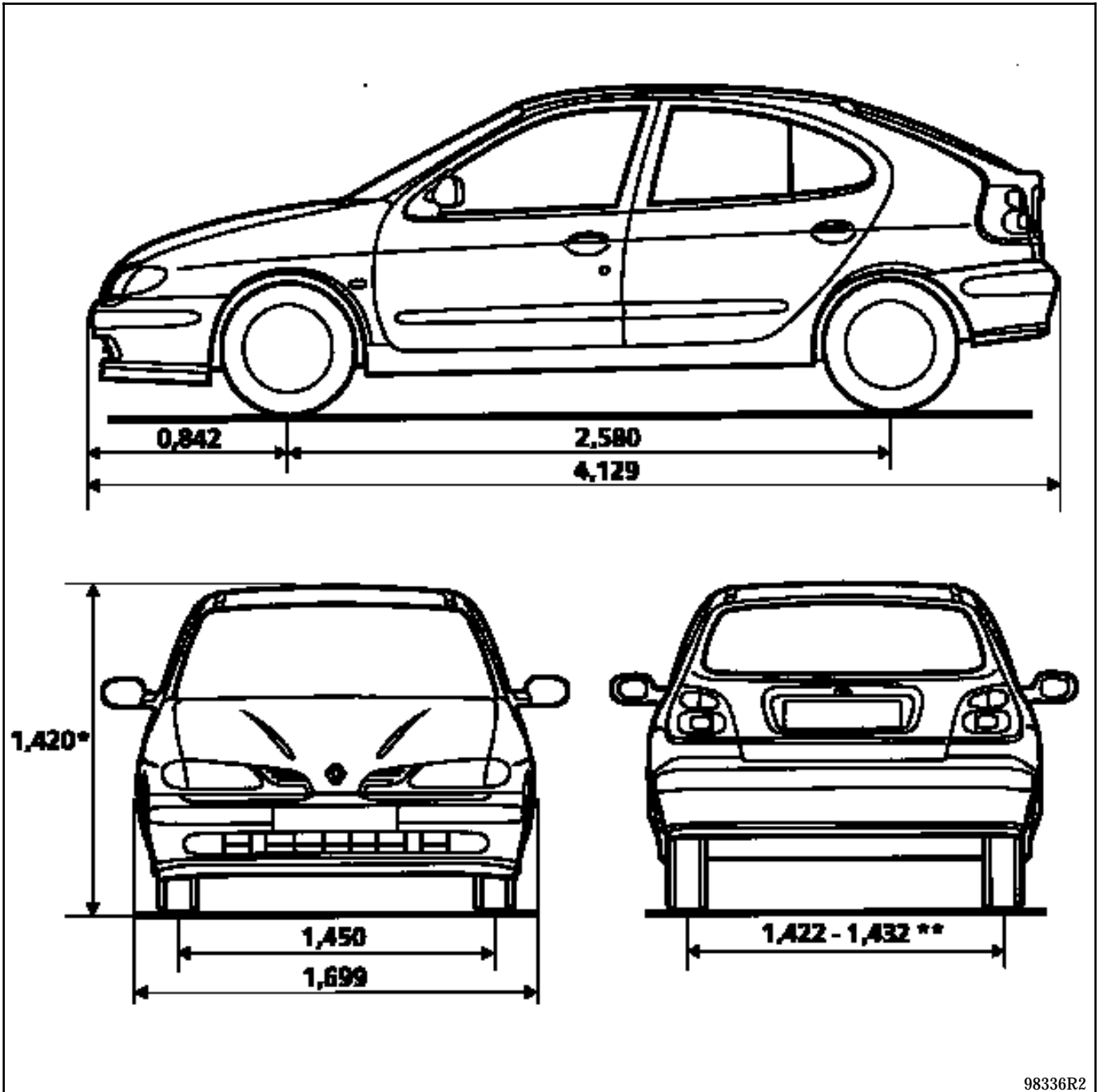


**K7M ENGINE**



**E7J ENGINE**





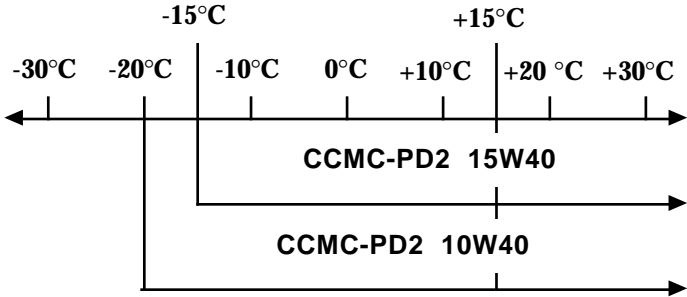
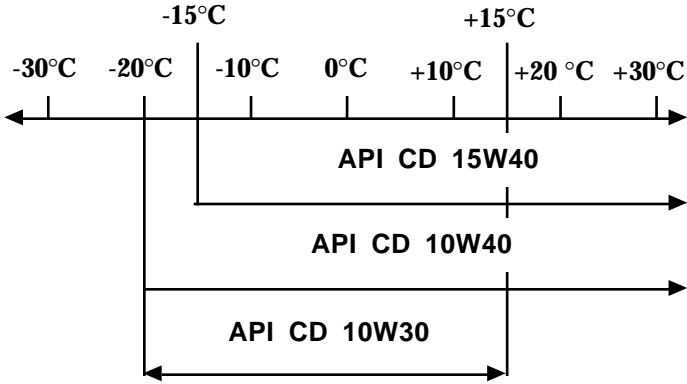
\* Unladen  
\*\* Depending on version  
Dimensions in metres

| Components             | Capacity<br>in litres                      | Grade            |
|------------------------|--|------------------|
| Petrol engine<br>(oil) | After<br>draining                          | E.E.C. countries |
|                        |  |                  |
| E7J<br>K7M }<br>F3R    | 3,5<br><br>5,5                             |                  |
|                        |  | Other countries  |
|                        | (plus 0.5 litres<br>for the oil<br>filter) |                  |

VALUES AND SETTINGS

Capacity - Grades

07

| Components             | Capacity<br>in litres                      | Grade  |
|------------------------|--|--|
| Diesel engine<br>(oil) | After<br>draining                          | E.E.C. countries   |
|                        |  |  <p>The diagram shows a temperature scale from -30°C to +30°C. Vertical lines are drawn at -20°C and -15°C. A horizontal line with arrows at both ends is positioned between -15°C and +15°C, labeled "CCMC-PD2 15W40". A second horizontal line with arrows at both ends is positioned between -10°C and +15°C, labeled "CCMC-PD2 10W40".</p>   |
| F8Q                    | 5  | Other countries  |
|                        | (plus 0.5 litres<br>for the oil<br>filter) |  <p>The diagram shows a temperature scale from -30°C to +30°C. Vertical lines are drawn at -20°C and -15°C. A horizontal line with arrows at both ends is positioned between -15°C and +15°C, labeled "API CD 15W40". A second horizontal line with arrows at both ends is positioned between -10°C and +15°C, labeled "API CD 10W40". A third horizontal line with arrows at both ends is positioned between -20°C and +15°C, labeled "API CD 10W30".</p> |

VALUES AND SETTINGS

Capacity - Grades

| Components              | Capacity in litres           | Grade   | Features   |
|-------------------------|------------------------------|---|--|
| Manual gearbox          |                              | All countries: TRANSELF TRX 75 W 80 W<br>( API GL5 or MIL-L 2105 C or D standards)          |  |
| JB1                     | 3 .4                         |   |  |
| JB3                     | 3 .4                         |   |  |
| Automatic transmission  |                              | ELF RENAULT MATIC D2 (D20104)<br>or use: MOBIL ATF 220 (D20104 or D21412)<br>TEXAMATIC 4011 |  |
| AD4                     | 4                            |   |  |
| Brake circuit           | Normal : 0.7<br>ABS : 1      | SAE J 1703<br>and DOT 3   | Brake fluids must be approved by the Technical<br>Department |
| Fuel tank               | approximately<br>60          | Unleaded<br>petrol/diesel   |  |
| Power assisted steering | Separate<br>reservoir<br>1.1 | ELF RENAULT MATIC<br>D2 or<br>MOBIL ATF 220   |  |
| Cooling circuit         |                              | GLACÉOL RX<br>(type D)<br>Only add coolant  |  |
| F3R                     | 7                            |   |  |
| F8Q                     | 7 .5                         |   |  |
| E7J - K7M               | 6                            |   |  |

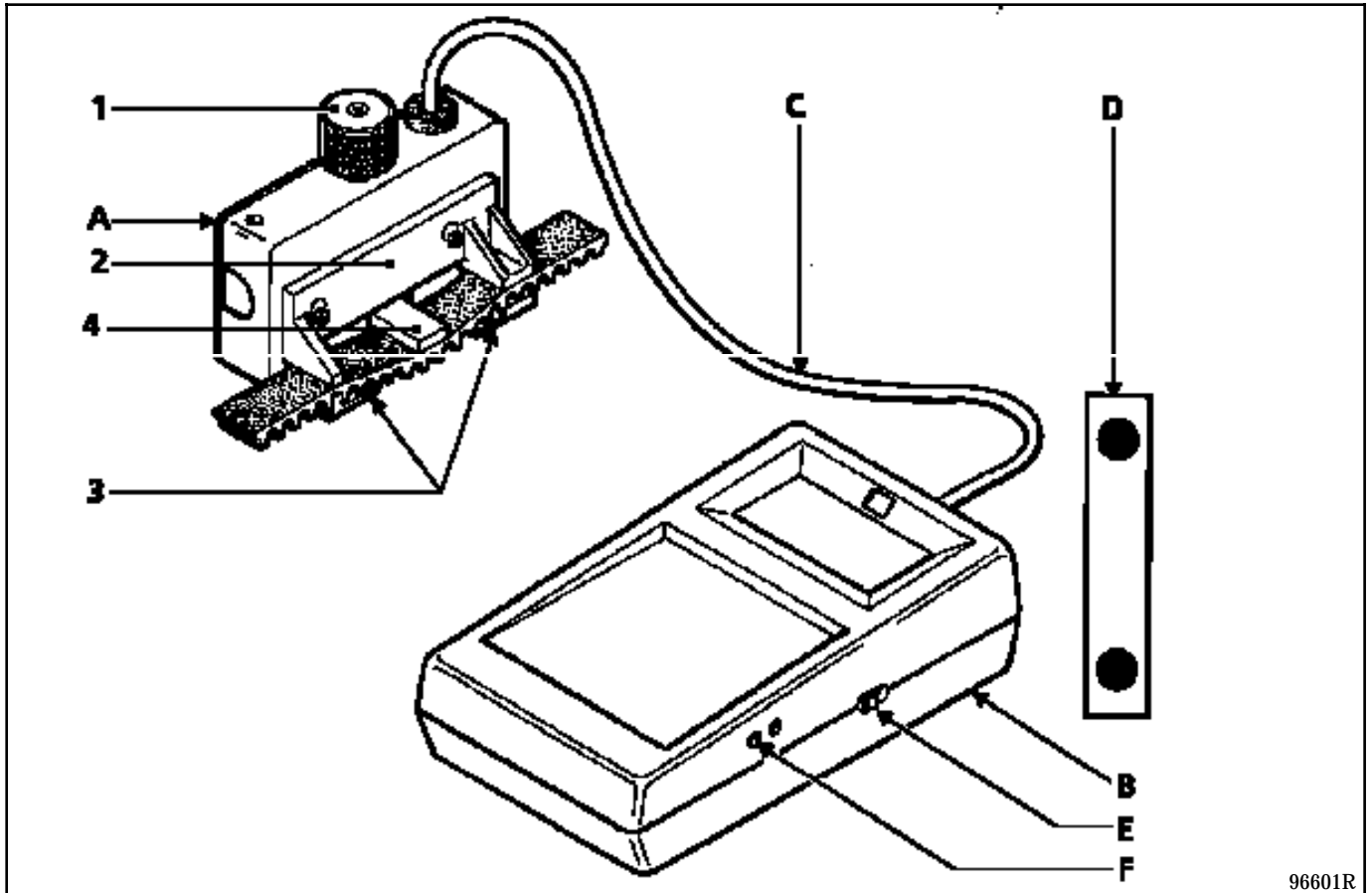
# VALUES AND SETTINGS

## Belt tension

07

### SPECIAL TOOLING REQUIRED

Mot. 1273      Tool for checking belt tension



96601R

- A Sensor
- B Display
- C Connecting lead
- D Calibration checking plate

### Principle

The sensor, through the adjusting button (1), the pressure device (2) and the outer lugs (3), applies a constant force to the belt.

The reaction from the belt is measured using a test piece (4) fitted with strain gauges.

Any movement on the gauges creates a variation in their electrical resistance. This variation, once it has been converted by the device, is displayed on the display in SEEM units (US).

### Calibrating the device

The device is set in the factory, however it must be recalibrated every six months.

### Procedure

Resetting zero:

- switch the device on (button E) with the adjusting button (1) fully screwed in,
- if 0 is displayed, do not touch anything,
- if nothing is displayed, check the condition of the 9 volt battery in the device ,
- if a value other than 0 is displayed, adjust screw (F) until 0 is displayed.

### Checking the calibration

Switch the device on (button E).

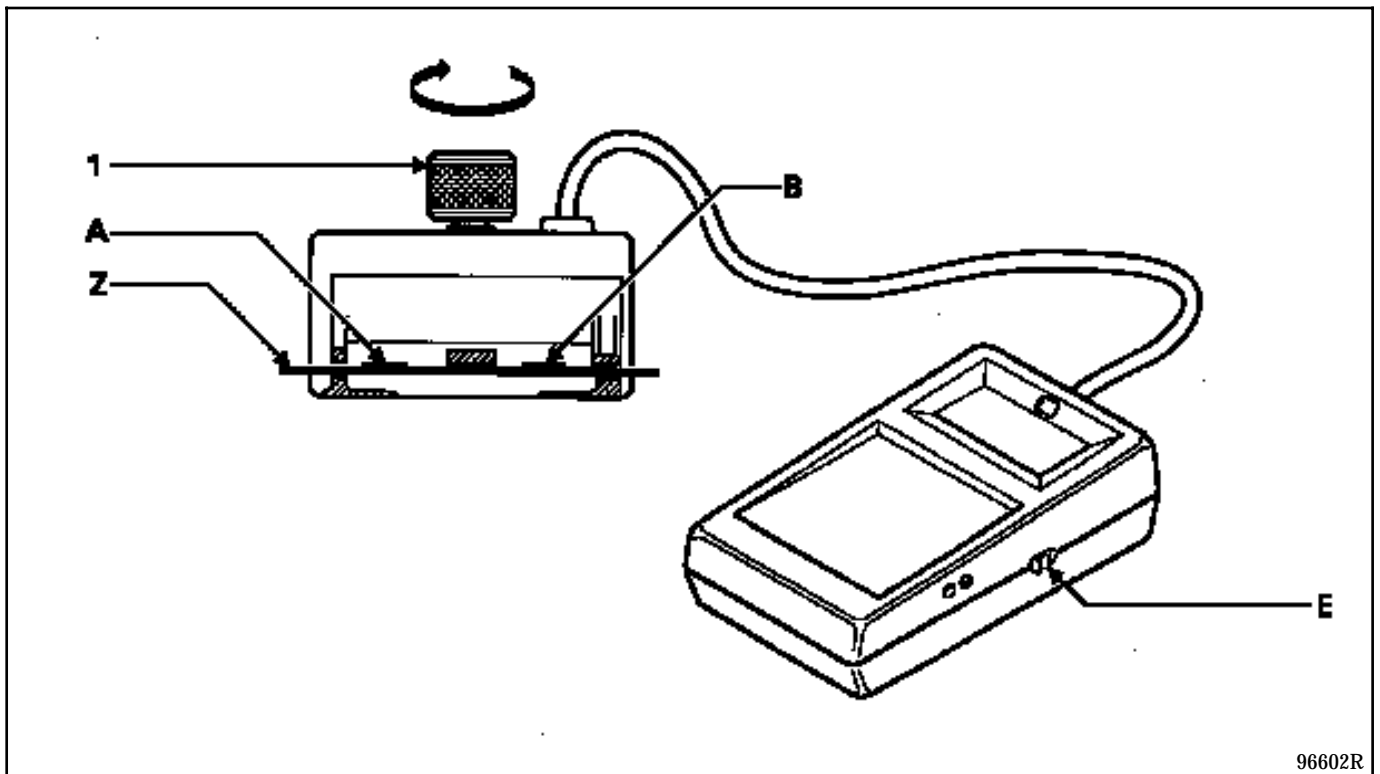
Position the calibration spring plate (Z) on the sensor as shown on the diagram (checking value engraved towards the top, (A) minimum value, (B) maximum value).

Tighten the adjusting button (1) until it goes "CLICK - CLICK - CLICK".

Check that a value X between the values (A and B) ( $A \leq X \leq B$ ) is displayed.

**Note:** it may be necessary to perform several preliminary tests in order to obtain the correct value. If the correct value is still not obtained after several attempts, contact SEEM.

**NOTE :** each device has its own calibration spring plate and they are not interchangeable.



- 1 Adjusting button
- A } Calibration plate checking value
- B }
- Z Calibration plate

### SEEM

For further information contact your After Sales Head Office.

### GENERAL INSTRUCTIONS:

- Never refit a belt which has been removed, replace it.
- Never retighten a belt for which the tension reading is between the fitting value and the minimum operating value.
- When checking, if the tension is below the minimum operating value, replace the belt.

### GROOVED BELT

#### Tensioning process

Engine cold (ambient temperature).

Fit the new belt.

Position the sensor of **Mot. 1273**.

Turn the adjusting button of the sensor until it disengages (three "CLICKS").

Tension the belt until the recommended fitting value is displayed on **Mot. 1273**.

Lock the tensioner, check it, adjust the value.

Turn the crankshaft over **three times**.

Check that the tension value is within the **fitting tension tolerance, otherwise readjust it**.

#### NOTE :

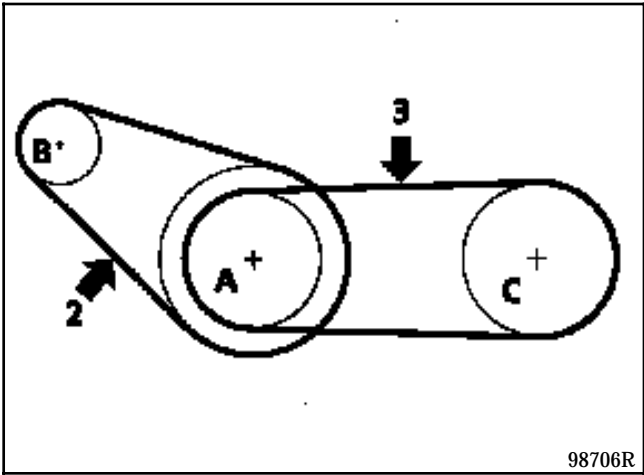
Never refit a belt which has been removed.

Replace the belt, if the tension is **below the minimum operating tension**.

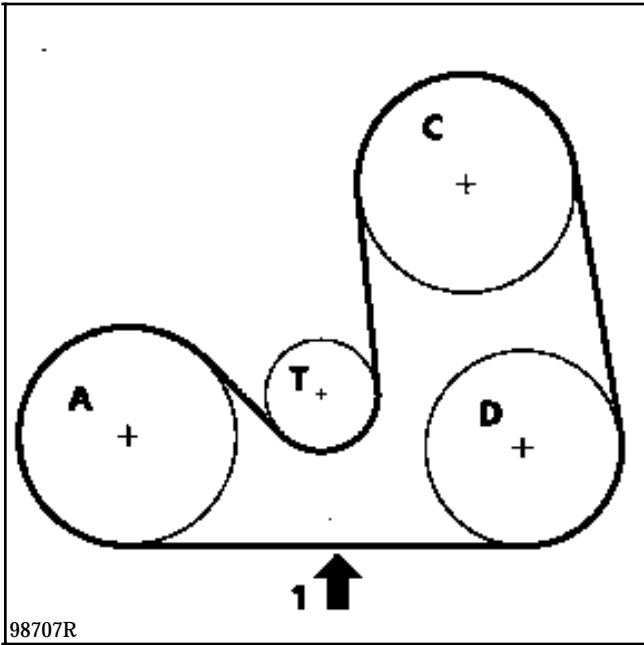
**Small cuts or cracks** do not mean that the belt has to be replaced.



ALTERNATOR AND POWER ASSISTED STEERING



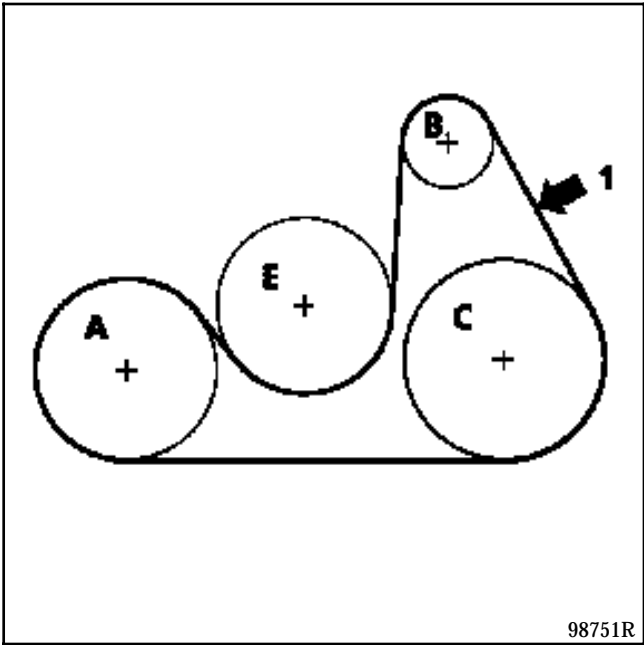
AIR CONDITIONING



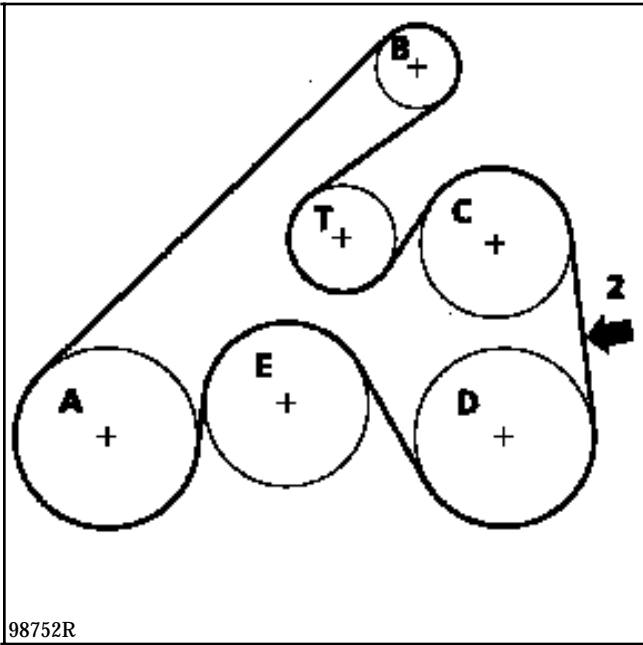
| Tension<br>(US=SEEM unit) | Multitoothed<br>air<br>conditioning<br>belt (1) | Multitoothed<br>alternator belt<br>(2) | Multitoothed<br>power assisted<br>steering belt<br>(3) |
|---------------------------|---|--|--|
| Fitting                   | 110 ± 7   | 84 ± 6                                 | 84 ± 6   |
| Minimum<br>operating      | 75  | 52                                     | 52   |

- A Crankshaft
- B Alternator
- C Power assisted steering pump
- D Air conditioning compressor
- T Tensioner
- Tension check point

ALTERNATOR AND POWER ASSISTED STEERING



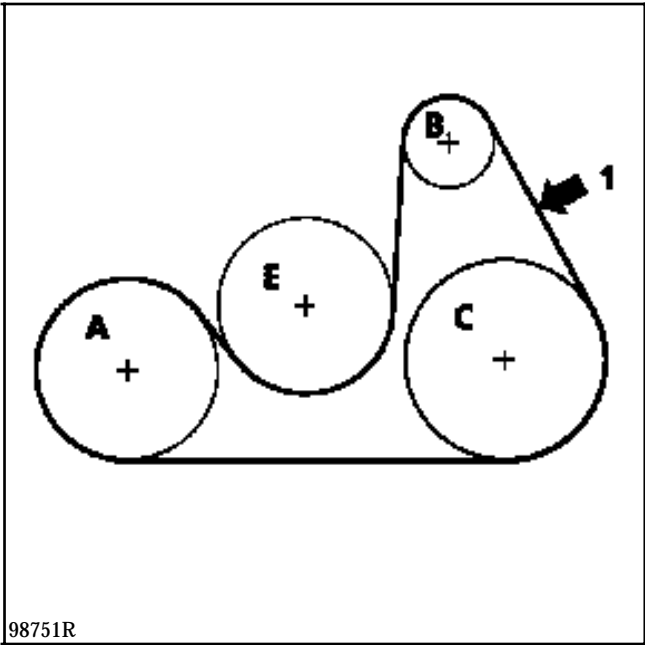
AIR CONDITIONING



| Tension<br>(US=SEEM unit) | Multitoothed<br>air<br>conditioning<br>belt (2) | Multitoothed<br>power assisted<br>steering belt<br>(1) |
|---------------------------|---|--|
| Fitting                   | 109 ± 3   | 107 ± 3  |
| Minimum<br>operating      | 62  | 62   |

- A     Crankshaft
- B     Alternator
- C     Power assisted steering pump
- D     Air conditioning compressor
- E     Water pump
- T     Tensioner
- Tension check point

ALTERNATOR AND POWER ASSISTED STEERING



| Tension<br>(US=SEEM unit) | Multitoothed power<br>assisted steering belt (1) |
|---------------------------|--|
| Fitting                   | 97 ± 3   |
| Minimum operating         | 67   |

- A Crankshaft
- B Alternator
- C Power assisted steering pump
- E Water pump
- T Tensioner
- Tension check point

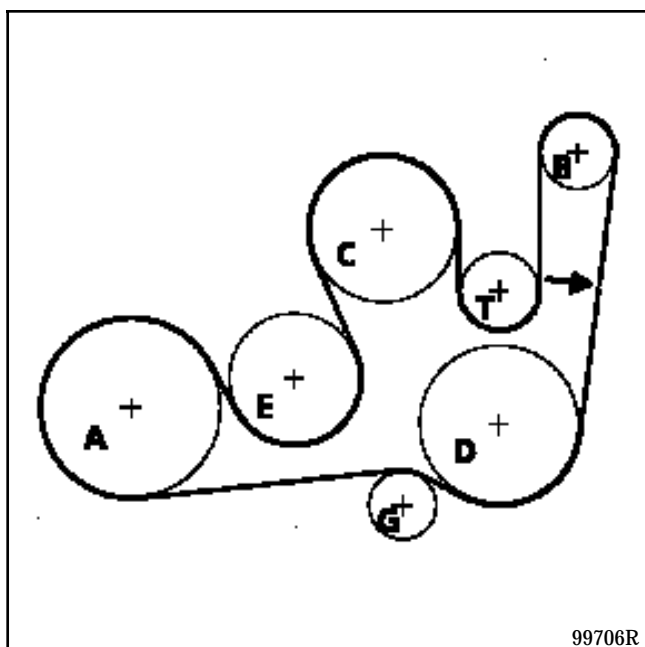
### SPECIAL NOTES FOR REMOVING THE ACCESSORIES BELT

#### REMOVAL

Disconnect the battery.

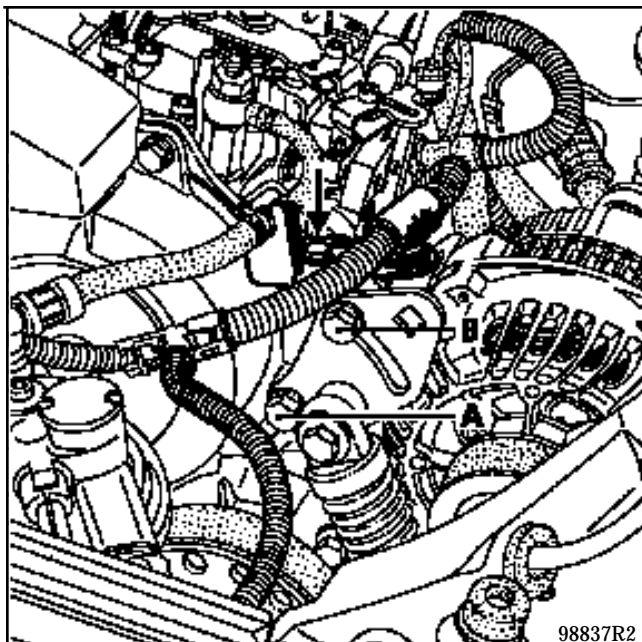
Before removing the accessories belt, check the value of the tension.

The tension measured must be between **61 and 77 SEEM units**.

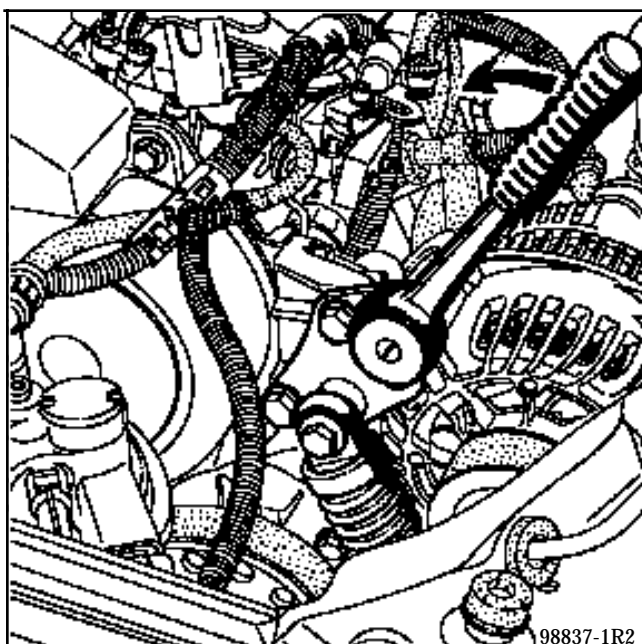


- A Crankshaft
- B Alternator
- C Power assisted steering pump
- D Air conditioning compressor
- E Water pump
- G Roller
- T Tensioner
- Tension check point

Remove the mounting bolt for the diesel pipe retaining bracket and move it.



Slacken bolt (A) then bolt (B), until the shoulder is exceeded, whilst holding the automatic tensioning plate using a **9 mm** socket (eg. : FACOM J 151 ratchet), then slacken the belt by moving the ratchet in the direction of the arrow.



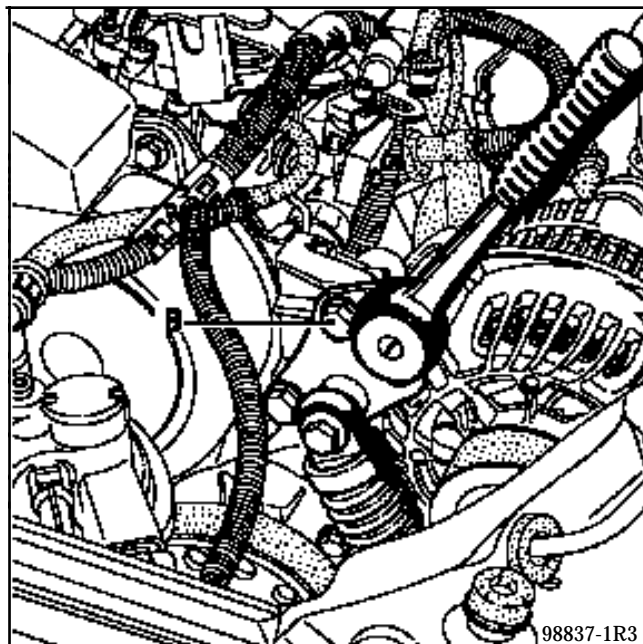
Remove :

- the lower timing cover,
- the belt.

### REFITTING

Refitting is the reverse of removal.

The belt is tensioned by bringing the automatic tensioner up against the bolt (B), without forcing it, using a **9 mm** socket (eg. : FACOM J151 rat-chet).



Check the tension of the accessories belt with the previously listed values.

**NOTE:** never refit a belt which has been removed.

### Tensioning process

Engine cold (ambient temperature).

Fit the new belt.

Position the sensor of **Mot. 1273**.

Turn the adjusting button of the sensor until it disengages (three "CLICKS").

Tension the belt until the recommended fitting value is displayed on **Mot. 1273**.

Lock the tensioner, check it and adjust the value.

Turn the crankshaft over **three times**.

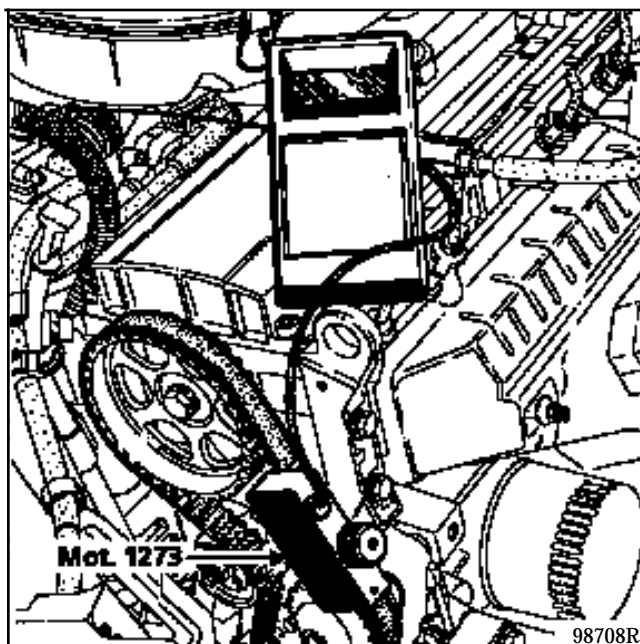
Check that the tension value is **within the fitting tension tolerance ( $\pm 10\%$ )**, otherwise readjust it.

### NOTE :

Never refit a belt which has been removed.

Replace the belt if the tension is **below the minimum operating tension**.

### E7J and K7M engine



**Belt tension (in SEEM units)**

**Fitting: 30 S.U**

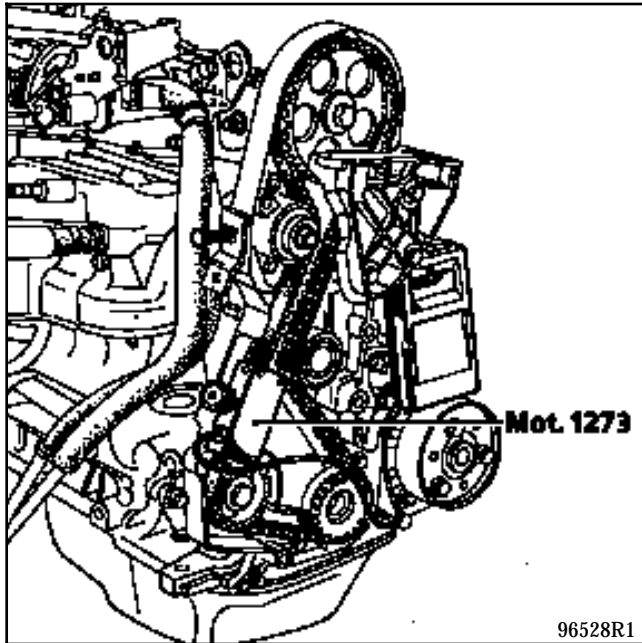
**Minimum operating : 26 S.U.**

# VALUES AND SETTINGS

## Timing belt tension

07

F3R engine

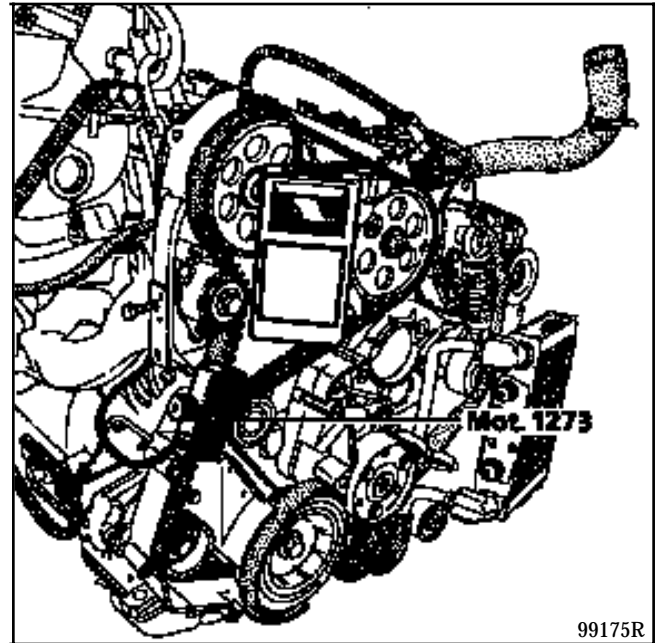


**Belt tension (n SEEM units)**

**Fitting: 29 S.U.**

**Minimum operating : 27 S.U.**

F8Q engine



**Belt tension (in SEEM units)**

**Fitting: 38 S.U.**

**Minimum operating: 36 S.U.**

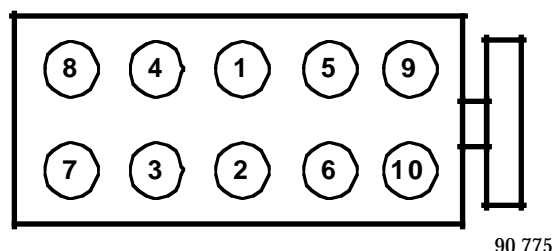
### E ENGINE

#### METHOD FOR TIGHTENING THE CYLINDER HEAD

Using engine oil, lubricate the threads and under the heads of the bolts.

**REMINDER:** to ensure that the bolts are correctly tightened, use a syringe to remove any oil which may be in the cylinder head mounting holes.

Tighten the bolts in the order given below:



1st tightening to **2 daN.m.**

2nd tightening (angle) :  $97^\circ \pm 2^\circ$ .

Wait at least 3 minutes.

Slacken bolts 1 and 2 then tighten to **2 daN.m.**

2nd tightening (angle) :  $97^\circ \pm 2^\circ$ .

Repeat the slackening and retightening operation for bolts 3, 4, 5, and 6 then 7, 8, 9 and 10.

There is no cylinder head retightening operation.

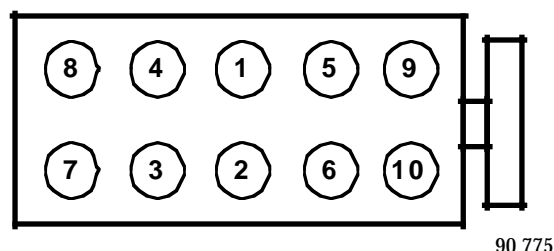
### K ENGINE

#### METHOD FOR TIGHTENING THE CYLINDER HEAD

Using engine oil, lubricate the threads and under the heads of the bolts.

**REMINDER:** to ensure that the bolts are correctly tightened. Use a syringe to remove any oil which may be in the cylinder head mounting holes.

Tighten the bolts in the order given below:



1st tightening to **2 daN.m.**

2nd tightening (angle) :  $100^\circ \pm 6^\circ$ .

Wait at least 3 minutes.

Slacken bolts 1 and 2 then tighten to **2 daN.m.**

2nd tightening (angle) :  $110^\circ \pm 6^\circ$ .

Repeat the slackening and retightening operation for bolts 3, 4, 5, and 6 then 7, 8, 9 and 10.

There is no cylinder head retightening operation.



# VALUES AND SETTINGS

## Tightening the cylinder head

07

### F ENGINE (diesel)

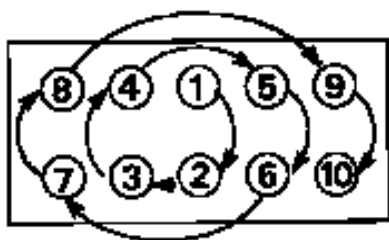
#### METHOD FOR TIGHTENING THE CYLINDER HEAD

All bolts must be systematically renewed after removal.

Using engine oil, lubricate the threads and under the heads of the bolts.

**REMINDER:** to ensure that the bolts are correctly tightened. Use a syringe to remove any oil which may be in the cylinder head mounting holes.

Tighten the bolts in the order given below:



81528-1S

1st tightening to **3 daN.m.**

2nd tightening (angle) :  **$50^\circ \pm 4^\circ$**

Wait at least 3 minutes.

Slacken bolts 1 and 2 then perform a 1st tightening to **2.5 daN.m.**

2nd tightening (angle) :  **$213^\circ \pm 7^\circ$** .

Repeat the slackening and retightening operation for bolts 3-4, 5-6, 7-8, 9-10.

There is no cylinder head retightening operation.

### F ENGINE (petrol)

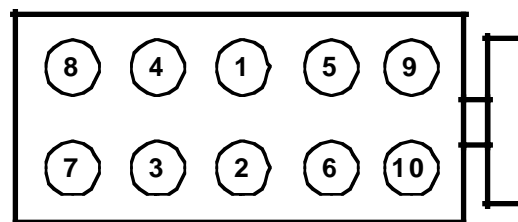
#### METHOD FOR TIGHTENING THE CYLINDER HEAD

All bolts must be systematically renewed after removal.

Using engine oil, lubricate the threads and under the heads of the bolts.

**REMINDER:** to ensure that the bolts are correctly tightened. Use a syringe to remove any oil which may be in the cylinder head mounting holes.

Tighten the bolts in the order given below:



90 775

1st tightening to **3 daN.m.**

2nd tightening (angle) :  **$50^\circ \pm 4^\circ$**

Wait at least 3 minutes.

Slacken bolts 1 and 2 by  $180^\circ$  then perform :

1st retightening to **2.5 daN.m.**

2nd tightening (angle) :  **$123^\circ \pm 7^\circ$** .

Repeat the slackening and retightening operation for bolts 3-4, 5-6, 7-8, 9-10.

There is no cylinder head retightening operation.

VALUES AND SETTINGS

Dimensions of the main braking components

|  | BA0A<br>BA0E<br>BA0L<br>BA0U | BA0F  | BA0G  |
|--|------------------------------|-------|-------|
| FRONT BRAKE (dimensions in mm)                     |                              |       |       |
| Slave cylinder diameter                            | 48                           | 48    | 48    |
| Disc diameter                                      | 238                          | 238   | 259   |
| Disc thickness                                     | 12                           | 20    | 20.60 |
| Minimum disc thickness                             | 10.3                         | 18.3  | 19    |
| Lining thickness (including backing plate)         | 18                           | 18    | 18    |
| Minimum lining thickness (including backing plate) | 7                            | 6.5   | 6     |
| Maximum disc run-out                               | 0.07                         | 0.07  | 0.07  |
| REAR BRAKE (dimensions in mm)                      |                              |       |       |
| Slave cylinder diameter                            | 17.5                         | 17.5  | 17.5  |
| Drum diameter                                      | 203.2                        | 203.2 | 203.2 |
| Maximum drum diameter after regrinding             | 204.4                        | 204.4 | 204.4 |
| MASTER CYLINDER (dimensions in mm)                 |                              |       |       |
| Diameter   | 20.6                         | 20.6  | 20.6  |

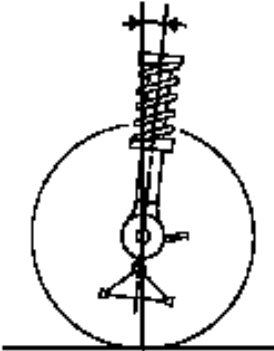
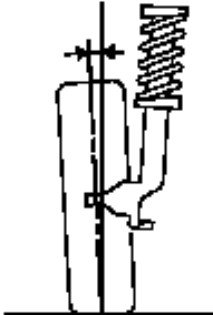
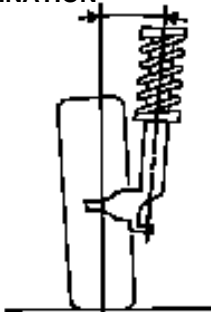
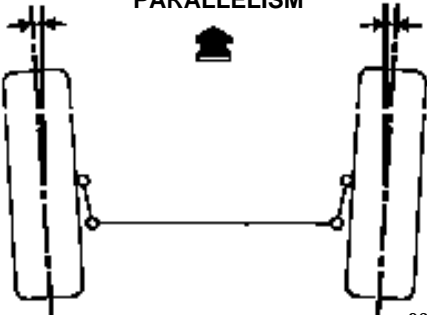
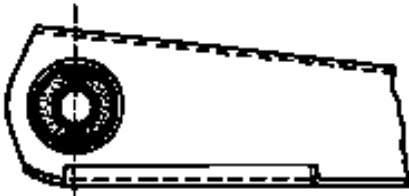
Brakes discs cannot be repaired. They must be replaced if large scratches or excessive wear occur.

# VALUES AND SETTINGS

## Values for checking the front axle geometry

07

### E7J ENGINE - TUBULAR AXLE - MANUAL STEERING

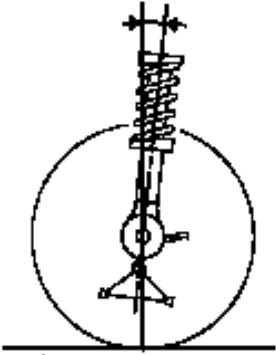
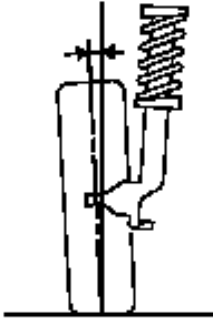
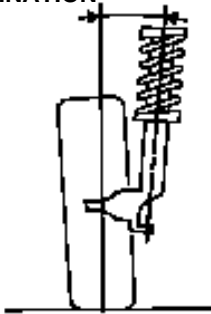
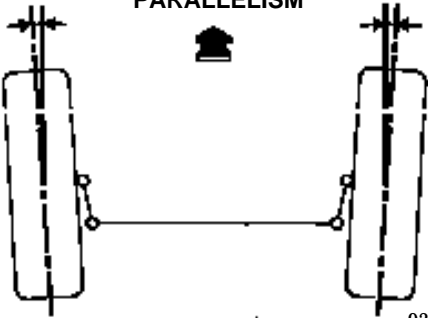
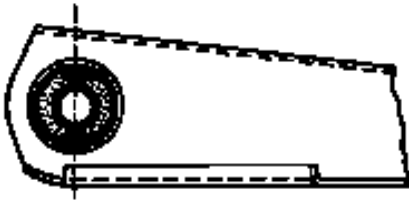
| ANGLES  | VALUES  | POSITION OF FRONT AXLE  | ADJUSTMENT  |
|---|---|---|---|
| <b>CASTOR</b><br> <p style="text-align: right;">93012-1S</p>                 | $\left. \begin{array}{l} 2^{\circ}30' \\ 2^{\circ} \\ 1^{\circ}30' \\ 1^{\circ} \\ 0^{\circ}30' \end{array} \right\} \pm 30'$ <p>Maximum left / right difference = <math>1^{\circ}</math></p> | $\begin{array}{ll} H5-H2= & 76.5 \text{ mm} \\ H5-H2= & 96.5 \text{ mm} \\ H5-H2= & 116.5 \text{ mm} \\ H5-H2= & 136.5 \text{ mm} \\ H5-H2= & 156.5 \text{ mm} \end{array}$ | NOT ADJUSTABLE  |
| <b>CAMBER</b><br> <p style="text-align: right;">93013-1S</p>                | $\left. \begin{array}{l} 1^{\circ}14' \\ - 0^{\circ}08' \\ 0^{\circ}25' \\ 0^{\circ}30' \end{array} \right\} \pm 30'$ <p>Maximum left / right difference = <math>1^{\circ}</math></p>         | $\begin{array}{ll} H1-H2= & 33 \text{ mm} \\ H1-H2= & 90 \text{ mm} \\ H1-H2= & 109 \text{ mm} \\ H1-H2= & 188 \text{ mm} \end{array}$                                      | NOT ADJUSTABLE  |
| <b>KING PIN INCLINATION</b><br> <p style="text-align: right;">93014-1S</p> | $\left. \begin{array}{l} 11^{\circ}10' \\ 13^{\circ}01' \\ 13^{\circ}29' \\ 14^{\circ}29' \end{array} \right\} \pm 30'$ <p>Maximum left / right difference = <math>1^{\circ}</math></p>       | $\begin{array}{ll} H1-H2= & 33 \text{ mm} \\ H1-H2= & 90 \text{ mm} \\ H1-H2= & 109 \text{ mm} \\ H1-H2= & 188 \text{ mm} \end{array}$                                      | NOT ADJUSTABLE  |
| <b>PARALLELISM</b><br> <p style="text-align: right;">93011-1S</p>          | <p>(For 2 wheels)</p> <p>(toe-out)</p> <p><math>10' \pm 10'</math></p> <p><math>(1 \pm 1 \text{ mm})</math></p>   | UNLADEN   | Adjustable by rotating track rod sleeves<br>1 turn= $30'$<br>(3 mm) |
| <b>RUBBER BUSHES</b><br> <p style="text-align: right;">81603S1</p>         | -   | UNLADEN   | -   |

# VALUES AND SETTINGS

## Values for checking the front axle geometry

07

E7J - E7M - F8Q ENGINE - TUBULAR AXLE - POWER ASSISTED STEERING

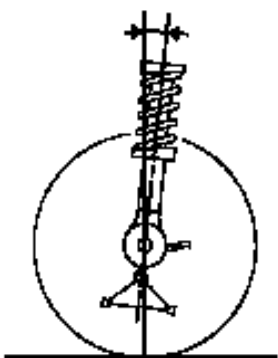
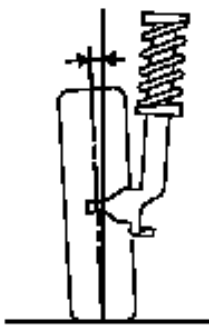
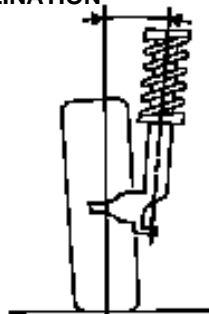
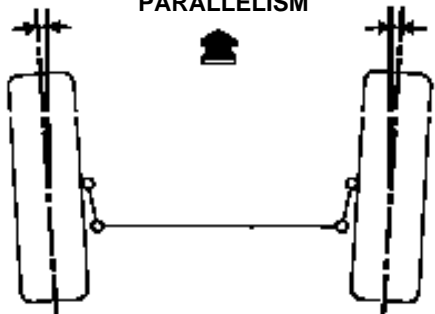
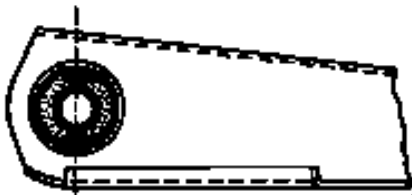
| ANGLES   | VALUES  | POSITION OF FRONT AXLE   | ADJUSTMENT   |
|--|---|--|--|
| <b>CASTOR</b><br> <p>93012-1S</p>                 | $\left. \begin{array}{l} 4^{\circ}30' \\ 4^{\circ} \\ 3^{\circ}30' \\ 3^{\circ} \\ 2^{\circ}30' \end{array} \right\} \pm 30'$ <p>Maximum left / right difference = <math>1^{\circ}</math></p> | <p>H5-H2= 76.5 mm<br/>H5-H2= 96.5 mm<br/>H5-H2= 116.5 mm<br/>H5-H2= 136.5 mm<br/>H5-H2= 156.5 mm</p> | NOT ADJUSTABLE   |
| <b>CAMBER</b><br> <p>93013-1S</p>                | $\left. \begin{array}{l} 1^{\circ}35' \\ - 0^{\circ}20' \\ - 0^{\circ}35' \\ - 0^{\circ}30' \end{array} \right\} \pm 30'$ <p>Maximum left / right difference = <math>1^{\circ}</math></p>     | <p>H1-H2= 22 mm<br/>H1-H2= 102 mm<br/>H1-H2= 122 mm<br/>H1-H2= 188 mm</p>                            | NOT ADJUSTABLE   |
| <b>KING PIN INCLINATION</b><br> <p>93014-1S</p> | $\left. \begin{array}{l} 10^{\circ}45' \\ 13^{\circ}21' \\ 13^{\circ}48' \\ 14^{\circ}32' \end{array} \right\} \pm 30'$ <p>Maximum left / right difference = <math>1^{\circ}</math></p>       | <p>H1-H2= 22 mm<br/>H1-H2= 102 mm<br/>H1-H2= 122 mm<br/>H1-H2= 188 mm</p>                            | NOT ADJUSTABLE   |
| <b>PARALLELISM</b><br> <p>93011-1S</p>          | <p>(For 2 wheels)</p> <p>(toe-out)</p> <p><math>10' \pm 10'</math></p> <p>(<math>1 \pm 1</math> mm)</p>   | UNLADEN  | Adjustable by rotating track rod sleeves<br>1 turn= 30' (3 mm) |
| <b>RUBBER BUSHES</b><br> <p>81603S1</p>         | -   | UNLADEN  | -  |

# VALUES AND SETTINGS

## Values for checking the front axle geometry

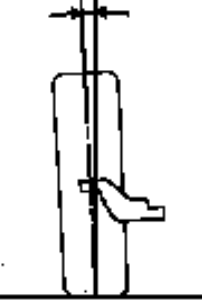
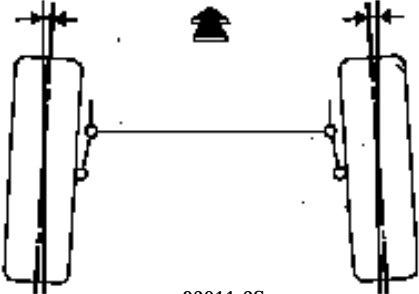
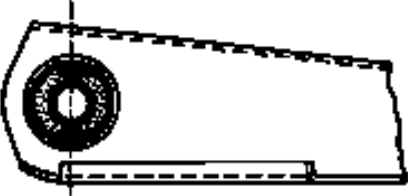
07

### F3R ENGINE - 4 BAR AXLE - POWER ASSISTED STEERING

| ANGLES  | VALUES  | POSITION OF FRONT AXLE  | ADJUSTMENT   |
|---|---|---|--|
| <b>CASTOR</b><br> <p style="text-align: right;">93012-1S</p>                 | $\left. \begin{array}{l} 4^{\circ}30' \\ 4^{\circ} \\ 3^{\circ}30' \\ 3^{\circ} \\ 2^{\circ}30' \end{array} \right\} \pm 30'$ <p>Maximum left / right difference = <math>1^{\circ}</math></p> | H5-H2= 71,5 mm<br>H5-H2= 91,5 mm<br>H5-H2= 111,5 mm<br>H5-H2= 131,5 mm<br>H5-H2= 151,5 mm | NOT ADJUSTABLE   |
| <b>CAMBER</b><br> <p style="text-align: right;">93013-1S</p>                | $\left. \begin{array}{l} 1^{\circ}35' \\ - 0^{\circ}20' \\ - 0^{\circ}37' \\ - 0^{\circ}30' \end{array} \right\} \pm 30'$ <p>Maximum left / right difference = <math>1^{\circ}</math></p>     | H1-H2= 22 mm<br>H1-H2= 102 mm<br>H1-H2= 122 mm<br>H1-H2= 188 mm                           | NOT ADJUSTABLE   |
| <b>KING PIN INCLINATION</b><br> <p style="text-align: right;">93014-1S</p> | $\left. \begin{array}{l} 10^{\circ}45' \\ 13^{\circ}20' \\ 13^{\circ}53' \\ 14^{\circ}32' \end{array} \right\} \pm 30'$ <p>Maximum left / right difference = <math>1^{\circ}</math></p>       | H1-H2= 22 mm<br>H1-H2= 102 mm<br>H1-H2= 122 mm<br>H1-H2= 188 mm                           | NOT ADJUSTABLE   |
| <b>PARALLELISM</b><br> <p style="text-align: right;">93011-1S</p>          | (For 2 wheels)<br>(toe-out)<br>$10' \pm 10'$<br>$(1 \pm 1 \text{ mm})$  | UNLADEN   | Adjustable by rotating track rod sleeves<br>1 turn= 30' (3 mm) |
| <b>RUBBER BUSHES</b><br> <p style="text-align: right;">81603S1</p>         | -   | UNLADEN   | -  |

**VALUES AND SETTINGS**  
**Values for checking the rear axle geometry**

**07**

| ANGLES   | VALUES                                      |  | POSITION OF REAR AXLE       | ADJUSTMENT                  |
|--|---|--|-----------------------------|-----------------------------|
|  | REAR AXLE                                   |  | TUBULAR AND 4 BAR REAR AXLE | TUBULAR AND 4 BAR REAR AXLE |
|  | TUBULAR                                     | 4 BAR                                      |                             |                             |
| <div><p><b>CAMBER</b></p><p>93013-2S</p></div>        | - 1° ± 15'                                  | - 0°50' ± 15'                              | UNLADEN                     | NOT ADJUSTABLE              |
| <div><p><b>PARALLELISM</b></p><p>93011-2S</p></div>   | - 50' ± 20'<br>(Toe- in)<br>or<br>- 5 ± 2mm | - 30' ± 20'<br>(Toe-in)<br>or<br>- 3 ± 2mm | UNLADEN                     | NOT ADJUSTABLE              |
| <div><p><b>RUBBER BUSHES</b></p><p>81603S1</p></div> |   | -  | UNLADEN                     | -                           |

VALUES AND SETTINGS

Underbody heights

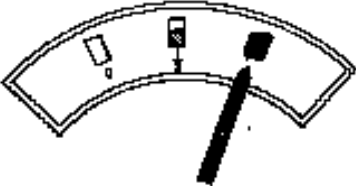
|                         |                                  |            |
|-------------------------|----------------------------------|------------|
| Axle type               | Tubular axle                     | 4 bar axle |
| Vehicle type            | BA0A - BA0E - BA0F - BA0L - BA0U | BA0G       |
| Wheel diameter (inches) | 13"                              | 14"        |
| H1 - H2 (mm)            | 121 ± 5                          | 123.5 ± 5  |
| H4 - H5 (mm)            | 44.5 ± 11                        | 52 ± 11    |



These vehicles are fitted with limiters which are load sensitive.

They are checked and adjusted when :

- the vehicle is unladen,
- the fuel tank is full,
- the driver is in the vehicle.

| Vehicle type                         | Fuel tank  | Control pressure (Bar)               |      |
|--------------------------------------|--|--------------------------------------|------|
|                                      |  | Front                                | Rear |
| BA0G                                 | <br>Full<br>90966S | 100 → 72 <sup>+0</sup> <sub>-8</sub> |      |
| BA0A<br>BA0E<br>BA0F<br>BA0L<br>BA0U |  | 100 → 62 <sup>+0</sup> <sub>-8</sub> |      |