



---

## **0** General

**01** SPECIFICATIONS

**02** LIFTING

**03** TOWING

**04** LUBRICANTS, CONSUMABLES

**05** DRAINING, FILLING

**07** VALUES AND SETTINGS

---

***BB0A - BB0C - BB0D - BB0E - CB0A - CB0C - CB0D - CB0E***

---

**77 11 197 289**

**DECEMBER 1997**

**Edition Anglaise**

---

"The repair methods given by the manufacturer in this document are based on the technical specifications current when it was prepared.

The methods may be modified as a result of changes introduced by the manufacturer in the production of the various component units and accessories from which his vehicles are constructed."

All copyrights reserved by Renault.

Copying or translating, in part or in full, of this document or use of the service part reference numbering system is forbidden without the prior written authority of Renault.

## Contents

	Page		Page
<b>01 SPECIFICATIONS</b>		<b>05 DRAINING FILLING</b>	
Engine - Clutch - Gearbox	01-1	Engine	05-1
Vehicle identification	01-2	Gearbox	05-3
		Power assisted steering	05-4
<b>02 LIFTING</b>		<b>07 VALUES AND SETTINGS</b>	
Trolley jack - Axle stands	02-1	Dimensions	07-1
Vehicle lifts	02-2	Capacity - Grades	07-2
		Belt tension	07-5
		Accessories belt tension	07-7
		Timing belt tension	07-12
		Tightening the cylinder head	07-13
		Wheels and Tyres	07-15
<b>03 TOWING</b>		Brakes	07-16
All types	03-1	Brake limiter	07-17
		Underbody heights	07-18
		Values for checking the front axle geometry	07-20
		Values for checking the rear axle geometry	07-21
<b>04 LUBRICANTS CONSUMABLES</b>			
Packaging	04-1		

---

The **CLIO** Workshop Repair Manual has been prepared by repair and diagnostic methods specialists.

The document contains the methods and diagnostic procedures required in order to obtain high quality repairs on this vehicle.

However, if removal - refitting involves no special features, difficulties or special tooling requirements, then the method is considered to be very simple for a car repair specialist and is not described in the manual.

The labour times are the result of operations timings carried out in real time in our workshops, even though certain methods are not described in the Workshop Repair Manual.

#### **UNITS OF MEASUREMENT**

- All dimensions are given in millimetres (**mm**) unless otherwise indicated.
- Tightening torques are given in deca Newton metres (**daN.m**).
- Pressures are in **bars** (reminder: **1 bar = 100 000 Pa**).
- Electrical resistance values are in ohms ( $\Omega$ ).
- Voltages are in Volts (**V**).

#### **TOLERANCES**

The following tolerances must be observed for tightening torques given without tolerance:

- In **degrees** :  $\pm 3^\circ$ .
- In **daN.m** :  $\pm 10\%$ .

#### **EQUIPMENT AND TOOLING**

The repair methods described for vehicles made by **RENAULT** require special equipment and tooling in some cases. A wide range of such items may be found in the specialist equipment and tooling catalogues.

---

# SPECIFICATIONS

## Engine- Clutch - Gearbox

01

Vehicle type	Engine		Clutch type	Manual gearbox type
	Type	Capacity (cm3)		
B/C B0A	D7F	1149	180 CP 3300	JB1
B/C B0C	E7J	1390	180 CP 3300	
B/C B0D	K7M	1598	200 CPOV 3500	
B/C B0E	F8Q	1870	200 CPOV 3250	

### VEHICLE IDENTIFICATION

Example : BB0A

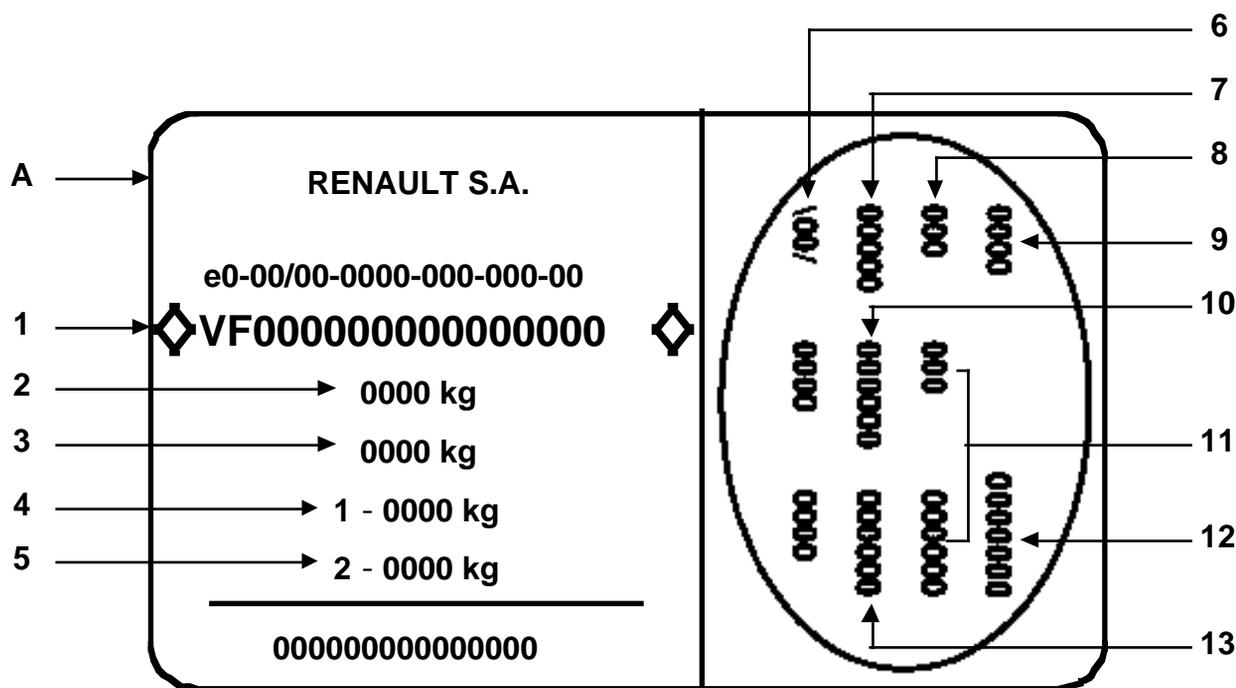
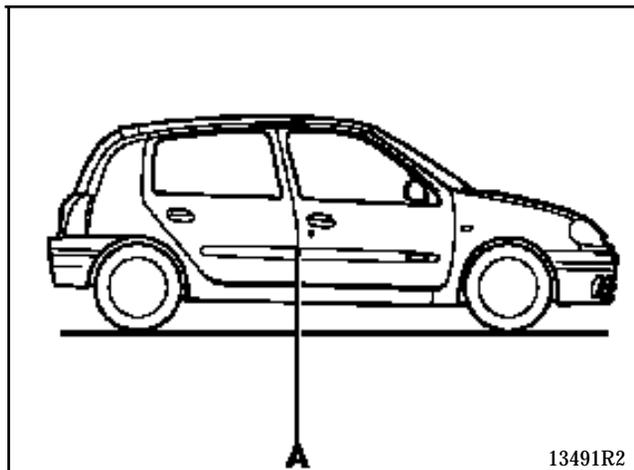
- B : Body type (5 doors)
- B : Project code
- 0A : Engine suffix

# SPECIFICATIONS

## Vehicle identification

01

### LOCATION OF VEHICLE IDENTIFICATION PLATE



- 1 The type mines of the vehicle and the serial number
- 2 MTMA (Maximum permitted all up weight)
- 3 MTR (Maximum permitted total train weight - vehicle loaded with trailer)
- 4 MTMA front axle
- 5 MTMA rear axle

- 6 The technical features of the vehicle
- 7 The paint code
- 8 The equipment level
- 9 The vehicle type
- 10 The trim code
- 11 Additional equipment definition
- 12 Fabrication number
- 13 The interior matching trim code

# 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 or Cha. 408 -02	} Adaptable socket for trolley jack



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 arms or under the rear axle assembly.

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

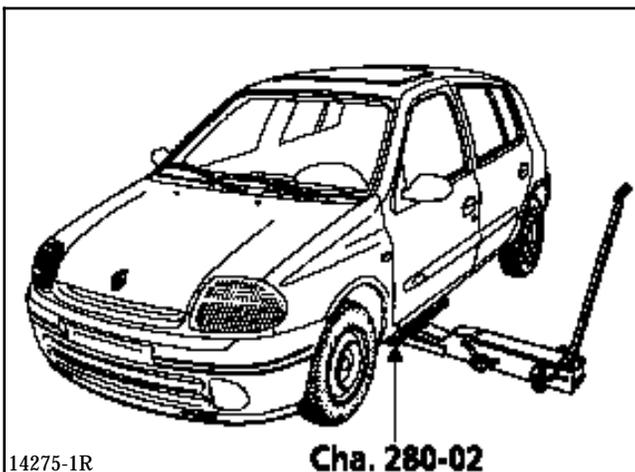
To lift at the front or the rear, take the weight under the vehicle jacking points.

### TROLLEY JACK AT THE SIDE

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

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

Position the sill flange correctly in the cross piece groove.

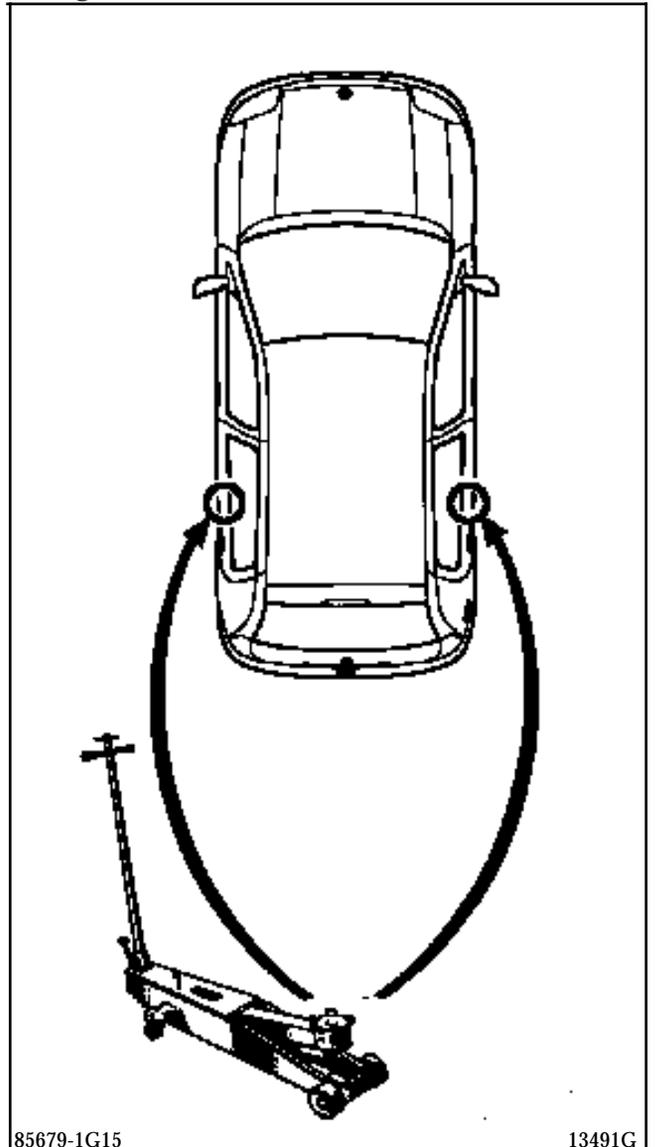


### AXLE STANDS

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

- either under the reinforcements provided for lifting the vehicle with its jack,
- or under the jacking points located behind the reinforcements.

The axle stands are positioned at the rear by lifting the vehicle at the side.



## SAFETY INSTRUCTIONS



Various cases may be considered:

### 1 - REMOVING COMPONENTS

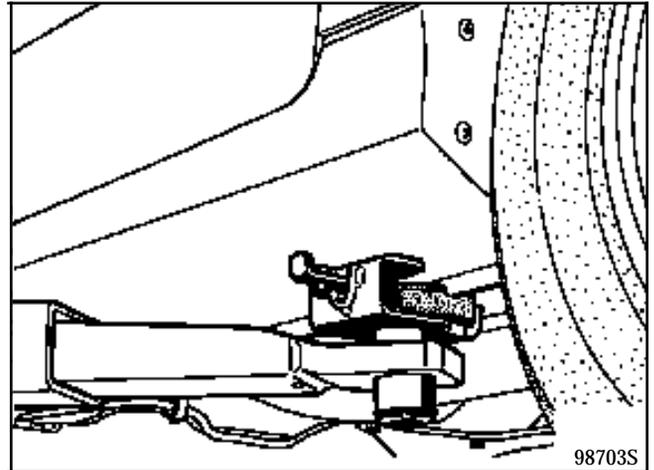
In general, **never use a 2 post lift** whenever a 4 post lift may be used.

If this cannot be avoided, place lifting pads underneath the sill flange, level with the vehicle jacking points.

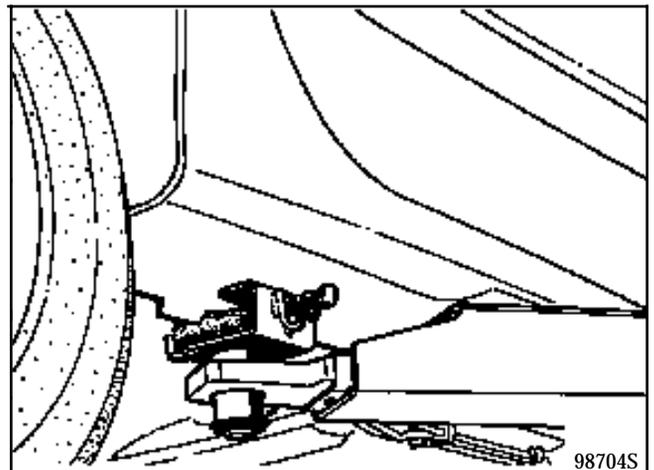
### 2 - REMOVING - REFITTING THE ENGINE AND TRANSMISSION ASSEMBLY

In these cases, the vehicle body must be secured to the arms of the 2 post lift using special pads.

FRONT



REAR



These must be placed underneath the vehicle jacking points. They must click into the slots in the sill flanges.

# TOWING

## All types

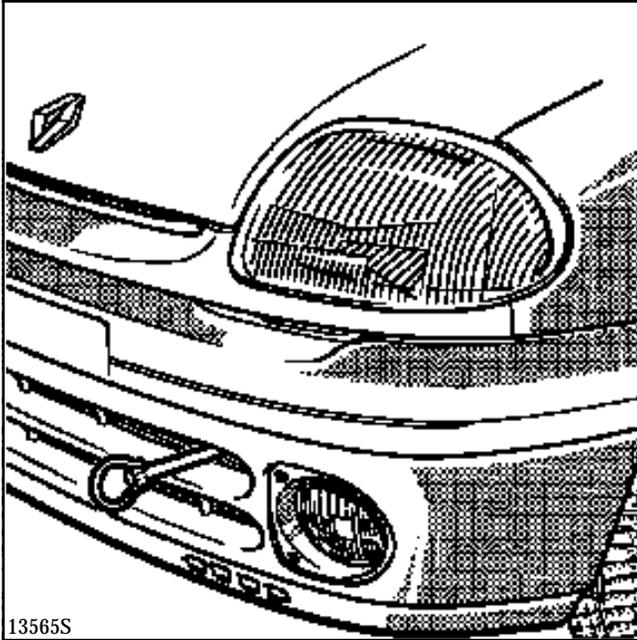
03

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

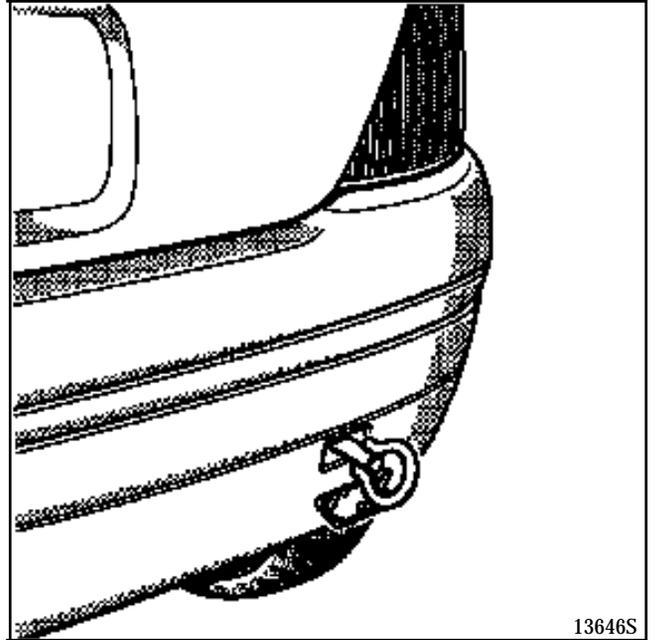
NEVER USE THE DRIVESHAFTS AS ATTACHMENT POINTS.

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



# LUBRICANTS CONSUMABLES

## Packaging

04

DESCRIPTION	PACKAGING	PART NUMBER
<b>LUBRICANTS</b>		
<ul style="list-style-type: none"> <li>• <b>MOLYKOTE "BR2"</b> <i>for main bearing journal faces, thrust pad guide tubes, clutch fork pads, lower suspension arm bearings, torsion bar splines, steering rack, driveshaft splines.</i></li> </ul>	<i>1 kg tin</i>	77 01 421 145
<ul style="list-style-type: none"> <li>• <b>MOLYKOTE "33 Medium"</b> <i>tubular rear axle bushes anti-roll bar bushes.</i></li> </ul>	<i>100 g tube</i>	77 01 028 179
<ul style="list-style-type: none"> <li>• <b>ANTI-SEIZE</b> <i>(high temperature grease) Turbo etc.</i></li> </ul>	<i>80 ml tube</i>	77 01 422 307
<ul style="list-style-type: none"> <li>• <b>"MOBIL CVJ" 825 Black star or MOBIL EXF57C</b> <i>for driveshaft joints</i></li> </ul>	<i>180 g sachet</i>	77 01 366 100
<ul style="list-style-type: none"> <li>• <b>MULTIPURPOSE LUBRICANT</b> <i>wheel sensor</i></li> </ul>	<i>Aerosol</i>	77 01 422 308
<b>MECHANICAL SEALANTS</b>		
<ul style="list-style-type: none"> <li>• <b>Perfect-seal "LOWAC"</b> <i>coating fluid for seals.</i></li> </ul>	<i>100 g tube</i>	77 01 417 404
<ul style="list-style-type: none"> <li>• <b>Mastic</b> <i>for sealing exhaust pipe unions.</i></li> </ul>	<i>1.5 kg tin</i>	77 01 421 161
<ul style="list-style-type: none"> <li>• <b>RHODORSEAL 5661</b></li> </ul>	<i>100 g tube</i>	77 01 421 042 77 01 404 452
<ul style="list-style-type: none"> <li>• <b>HARDENER KIT (RHODORSEAL 5661)</b> <i>for sealing sides of bearing caps</i></li> </ul>	Kit	77 01 421 080
<ul style="list-style-type: none"> <li>• <b>AUTO joint blue</b> <i>sealing paste.</i></li> </ul>	<i>100 g tube</i>	77 01 396 227

# LUBRICANTS CONSUMABLES

## Packaging

04

DESCRIPTION	PACKAGING	PART NUMBER
<b>MECHANICAL SEALANTS</b>		
<ul style="list-style-type: none"> <li>• <b>AUTO joint grey</b> <i>sealing paste.</i></li> </ul>	<i>100 g tube</i>	77 01 422 750
<ul style="list-style-type: none"> <li>• <b>LOCTITE 518</b> <i>for sealing the gearbox housing.</i></li> </ul>	<i>24 ml syringe</i>	77 01 421 162
<ul style="list-style-type: none"> <li>• <b>Leak detector</b></li> </ul>	<i>Aerosol</i>	77 11 143 071
<b>ADHESIVES</b>		
<ul style="list-style-type: none"> <li>• <b>"LOCTITE - FRENETANCH"</b> <i>stops bolts slackening and allows them to be released</i></li> </ul>	<i>24 cc bottle</i>	77 01 394 070
<ul style="list-style-type: none"> <li>• <b>"LOCTITE - FRENBLOC"</b> <i>locks bolts</i></li> </ul>	<i>24 cc bottle</i>	77 01 394 071
<ul style="list-style-type: none"> <li>• <b>"LOCTITE SCELBLOC"</b> <i>for bonding bearings</i></li> </ul>	<i>24 cc bottle</i>	77 01 394 072
<ul style="list-style-type: none"> <li>• <b>"LOCTITE AUTOFORM"</b> <i>for bonding the flywheel to the crankshaft</i></li> </ul>	<i>50 cc bottle</i>	77 01 400 309
<b>LUBRICANT CLEANING AGENTS</b>		
<ul style="list-style-type: none"> <li>• <b>"NETELEC"</b> <i>unseizes, lubricates</i></li> </ul>	<i>Aerosol - 150 g</i>	77 01 408 464
<ul style="list-style-type: none"> <li>• Carburettor cleaner</li> </ul>	<i>300 ml can</i>	77 11 171 437
<ul style="list-style-type: none"> <li>• Injector cleaner</li> </ul>	<i>355 ml can</i>	77 01 423 189
<ul style="list-style-type: none"> <li>• Super concentrated unseizing agent</li> </ul>	<i>Aerosol - 500 ml</i>	77 01 408 466
<ul style="list-style-type: none"> <li>• <b>"DECAPJOINT " (FRAMET)</b> for cleaning the gasket faces of aluminium cylinder heads</li> </ul>	<i>Aerosol</i>	77 01 405 952
<ul style="list-style-type: none"> <li>• Brake cleaner</li> </ul>	<i>Aerosol - 400 ml</i>	77 11 170 801

# LUBRICANTS CONSUMABLES

## Packaging

04

DESCRIPTION	PACKAGING	PART NUMBER
<b>VARNISHES</b>		
• "CIRCUIT PLUS" varnish for repairing heated screens	<i>Bottle</i>	77 01 421 135
• "CONTACT PLUS" varnish for repairing rear screen supply terminals	<i>Kit</i>	77 01 422 752
<b>BRAKES</b>		
• Brake fluid	0.5 litre bottle DOT4	77 01 421 940

# DRAINING - FILLING Engine

05

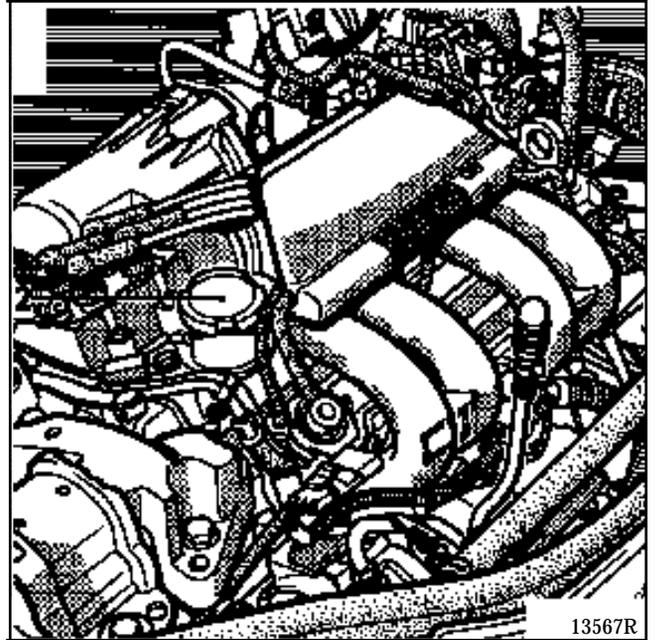
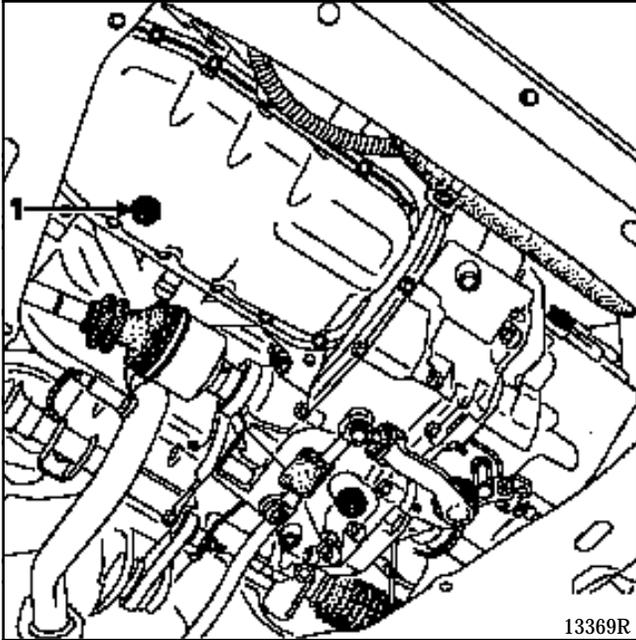
TOOLING REQUIRED

Engine drain plug spanner

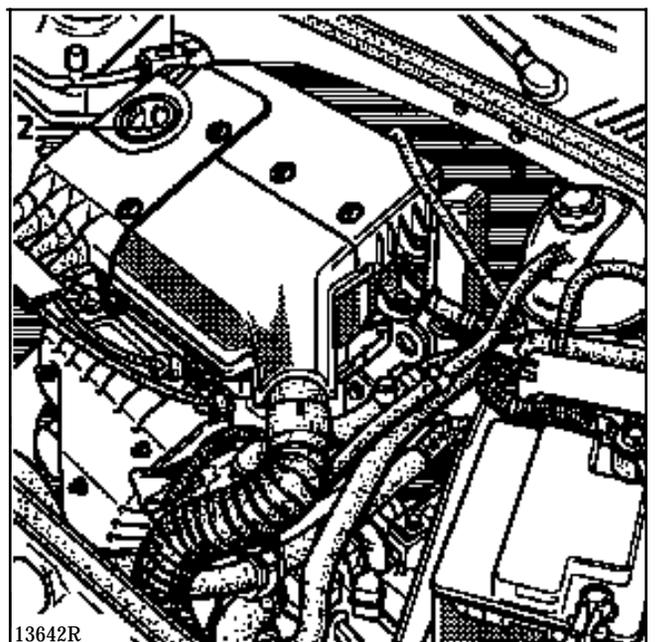
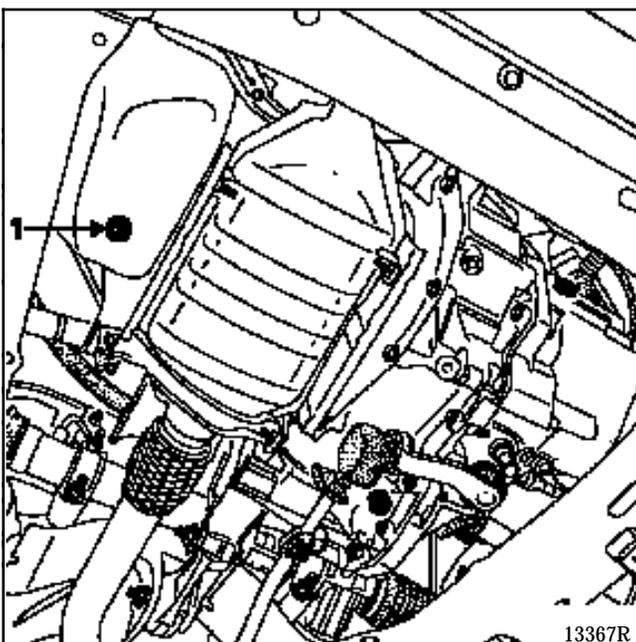
DRAINING: plug (1)

FILLING: plug (2)

## D7F ENGINE



## E7J and K7M ENGINES



# DRAINING - FILLING

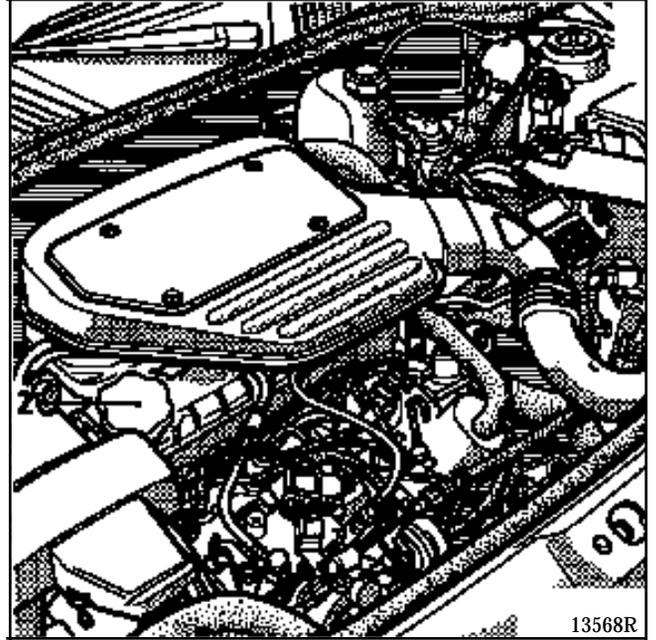
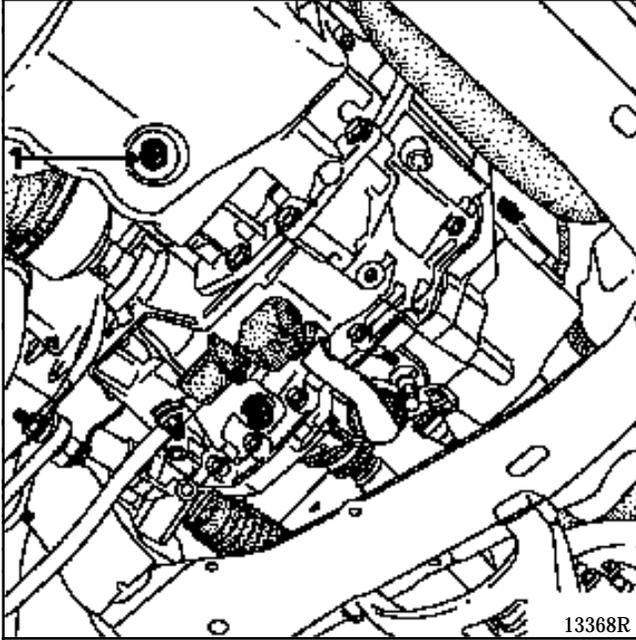
## Engine

05

DRAINING: plug (1)

FILLING : plug (2)

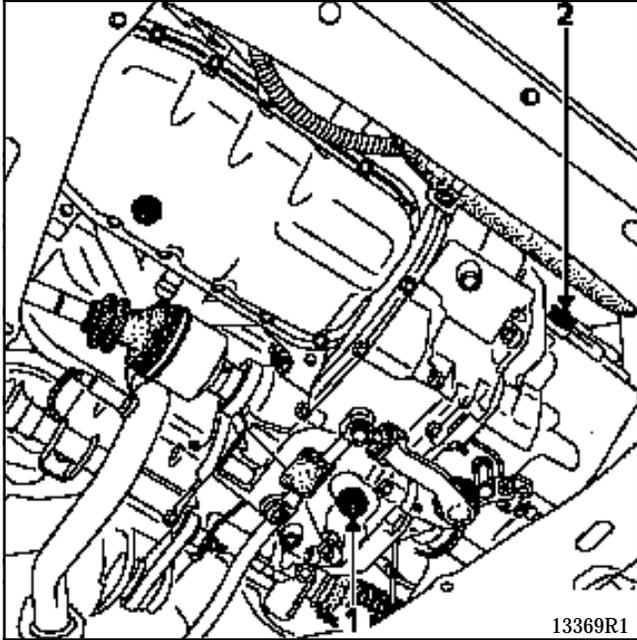
### F8Q ENGINE



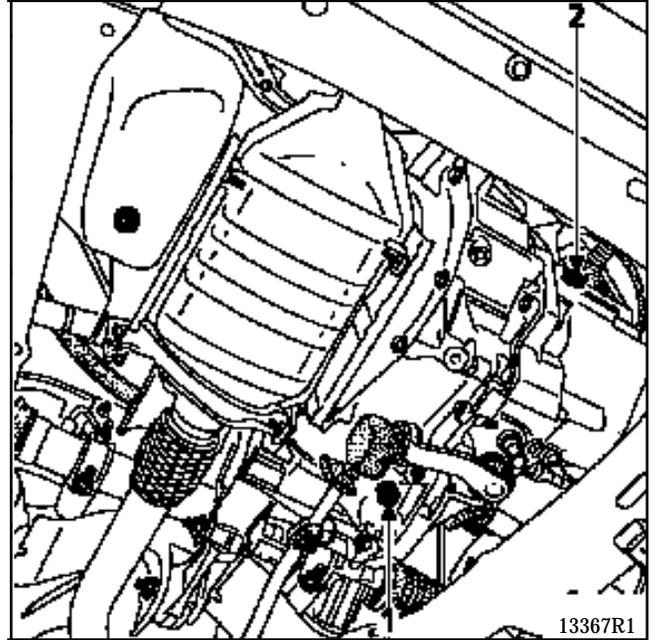
DRAINING: plug (1)

FILLING: plug (2)

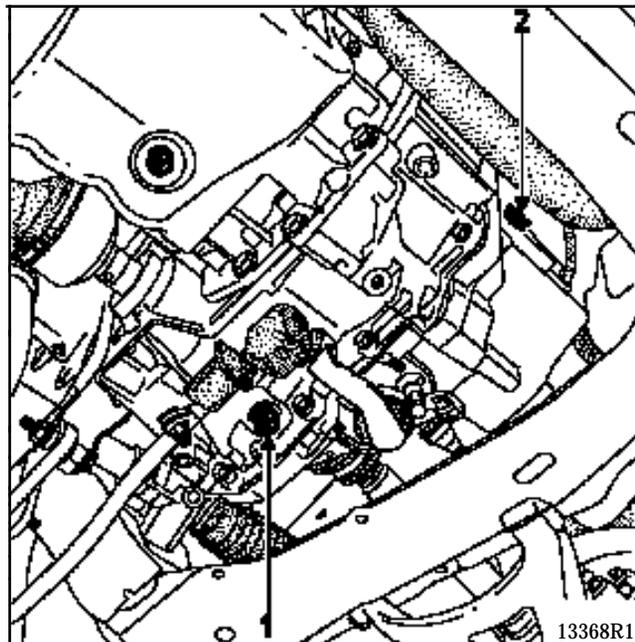
D7F ENGINE



E7J and K7M ENGINES



F8Q ENGINE



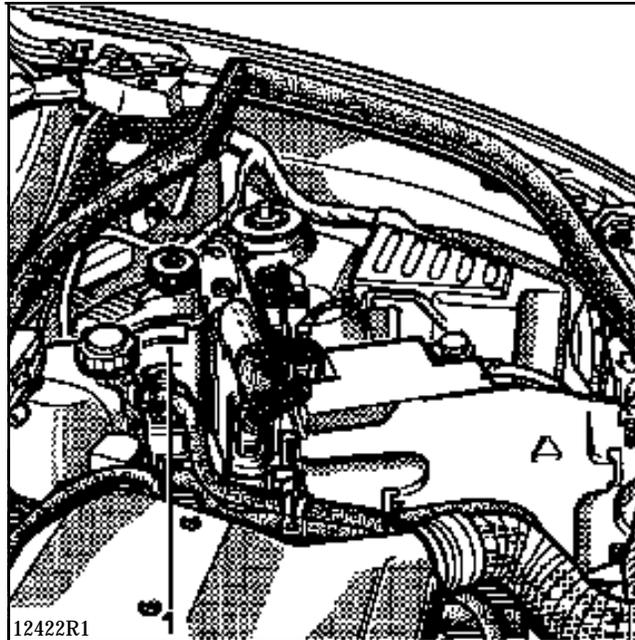
### CHECKING THE LEVEL

#### POWER ASSISTED STEERING PUMP LEVEL

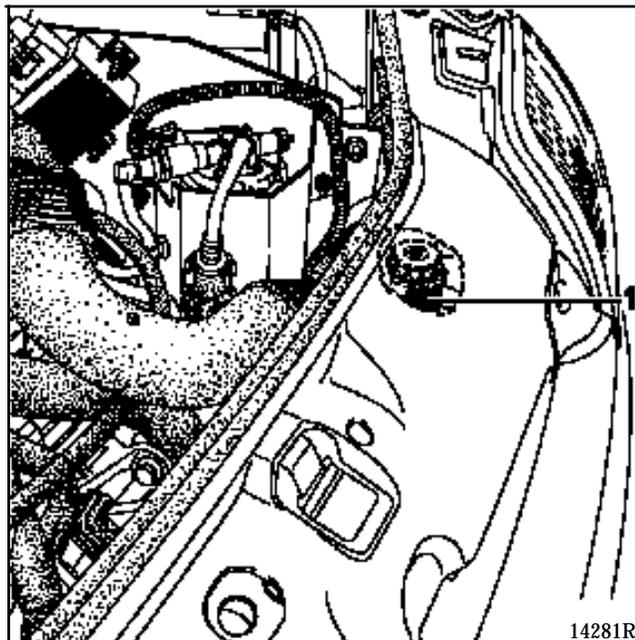
For topping up or filling, use **ELF RENAULTMATIC D2** or **MOBIL ATF 220** oil.

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

#### D7F - E7J - K7M and F8Q ENGINES



#### F8Q ENGINE with air conditioning

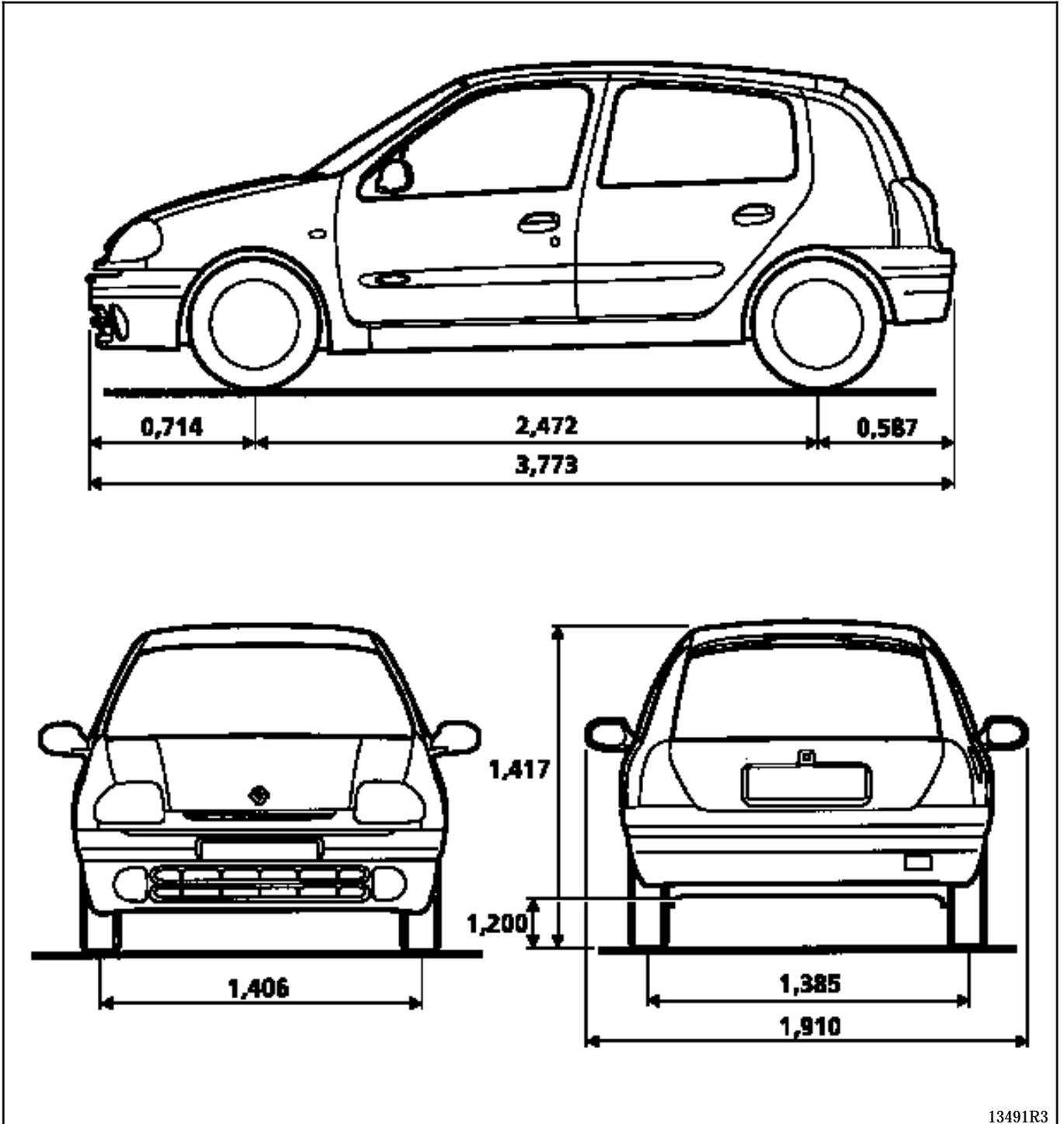


# VALUES AND SETTINGS

## Dimensions

07

Dimensions in metres



# VALUES AND SETTINGS

## Capacity - Grades

07

Components	Capacity in litres (approx.)*	Grade
Petrol engine (oil)	When draining	<p>E.E.C. countries</p> <p style="text-align: center;"> <math>-30\text{ }^{\circ}\text{C}</math>   <math>-20\text{ }^{\circ}\text{C}</math>   <math>-15\text{ }^{\circ}\text{C}</math>   <math>-10\text{ }^{\circ}\text{C}</math>   <math>0\text{ }^{\circ}\text{C}</math>   <math>+10\text{ }^{\circ}\text{C}</math>   <math>+20\text{ }^{\circ}\text{C}</math>   <math>+25\text{ }^{\circ}\text{C}</math>   <math>+30\text{ }^{\circ}\text{C}</math> </p> <p style="text-align: center;"> <b>ACEA A2/A3    15W40-15W50</b>  <b>ACEA A1*/A2/A3    10W30-10W40-10W50</b>  <b>ACEA A1*/A2/A3    0W30-5W30</b>  <b>ACEA A1*/A2/A3    0W40-5W40-5W50</b> </p> <p>ACEA A1-98 standard                      Except turbo - biturbo - F7R - F7P</p> <p>* Oil for fuel economy</p>
		<p>Other countries</p> <p style="text-align: center;"> <math>-30\text{ }^{\circ}\text{C}</math>   <math>-20\text{ }^{\circ}\text{C}</math>   <math>-15\text{ }^{\circ}\text{C}</math>   <math>-10\text{ }^{\circ}\text{C}</math>   <math>0\text{ }^{\circ}\text{C}</math>   <math>+10\text{ }^{\circ}\text{C}</math>   <math>+20\text{ }^{\circ}\text{C}</math>   <math>+30\text{ }^{\circ}\text{C}</math> </p> <p style="text-align: center;"> <b>API SH/SJ    15W40-15W50</b>  <b>API SH/SJ    10W40-10W50</b>  <b>API SH/SJ    10W30</b>  <b>API SH/SJ    5W30</b>  <b>API SH/SJ    5W40-5W50</b> </p> <p>Oil for fuel economy:                      API SJ-IL SAC GF2 standard</p>
D7F	3.5 3.7 (1)	
E7J	2.7 2.9 (1)	
K7M	3.5 3.7 (1)	

\* Check with the dipstick

(1) After replacing the oil filter



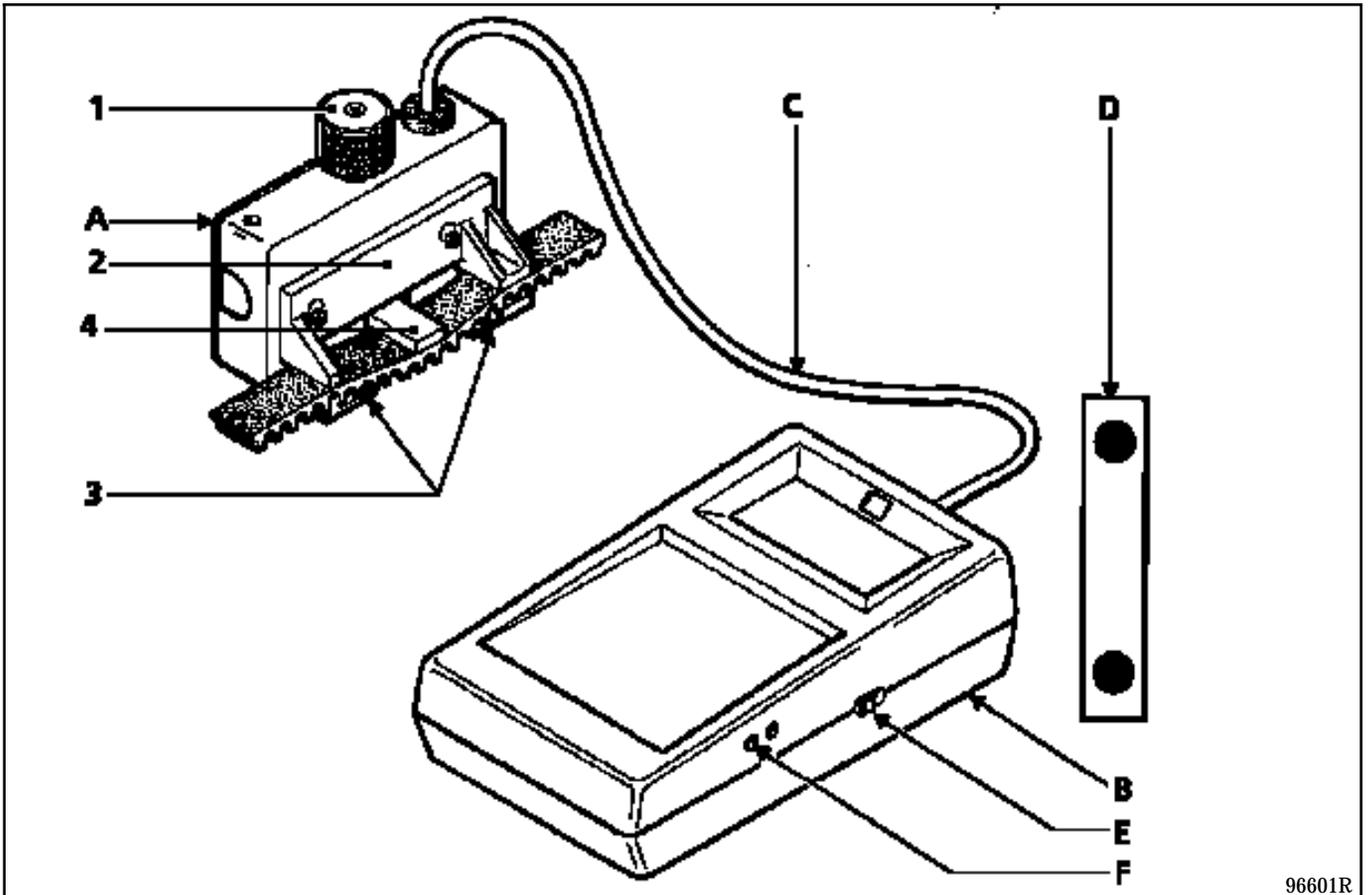
# VALUES AND SETTINGS

## Capacity - Grades

07

Components	Capacity in litres	Grade	Notes
Manual gearbox  JB1	3.4	All countries: TRANSELF TRX 75 W 80 W ( API GL5 or MIL-L 2105 C or D standards)	
Brake circuit	Normal : 0.7 ABS : 1	SAE J 1703 and DOT 4	Brake fluids must be approved by the Technical Department
Fuel tank	approx. 50	Unleaded petrol / diesel	-
Power assisted steering	Separate reservoir 1.1	ELF RENAULT MATIC D2 or MOBIL ATF 220	-
Cooling circuit  D7F  E7J and K7M  F8Q	 5  5.5  7.4	GLACEOL RX (type D) Only add coolant of the same type	  -  

SPECIAL TOOLING REQUIRED	
Mot. 1273	Tool for checking belt tension



96601R

- A Sensor
- B Display
- C Connecting cable
- 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 in SEEM units (US).

### Calibrating the device

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

### Procedure

Resetting to 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 obtained.

### Checking the calibration

Switch the device on (button E).

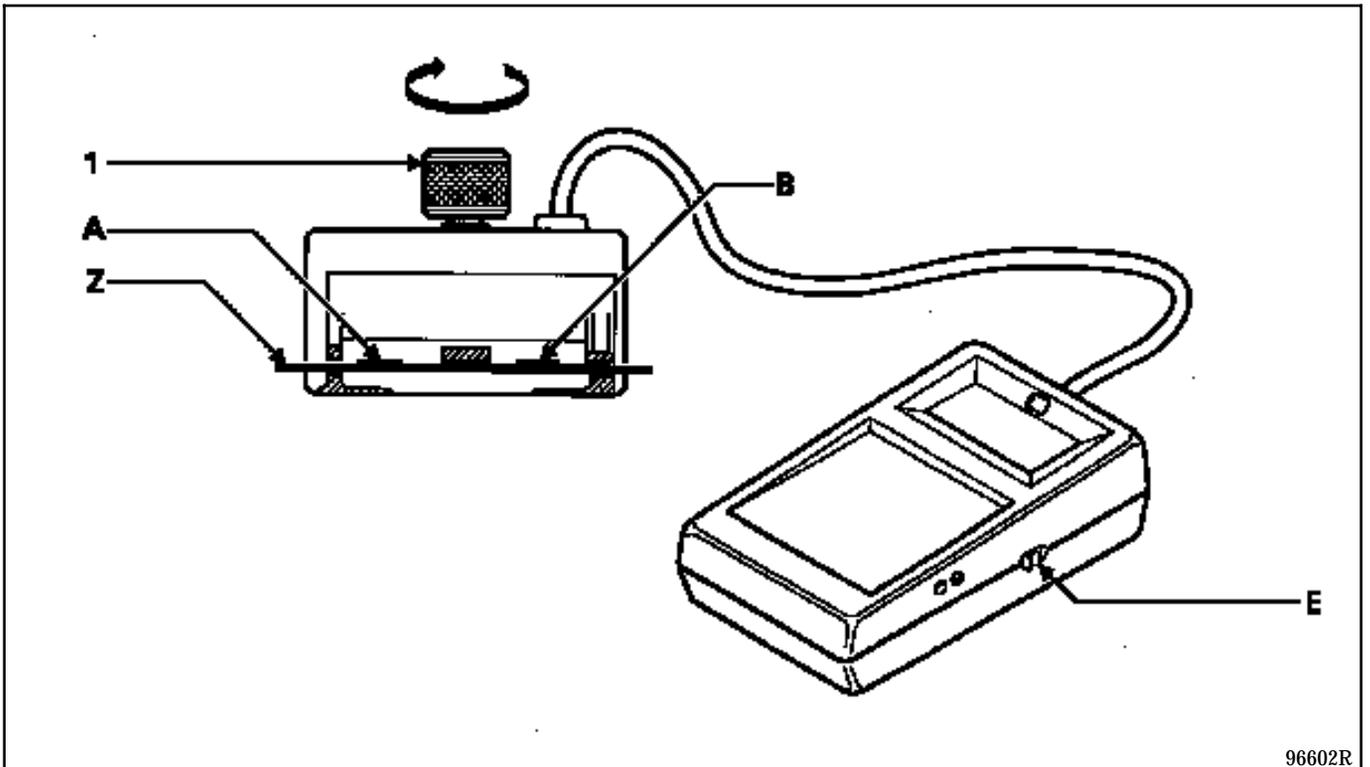
Position the calibration spring plate (Z) on the sensor as shown on the diagram (control value engraved towards the top, (A) minimum value, (B) maximum value).

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 Knurled button
- A } Calibration plate control value
- B }
- Z Calibration plate

### SEEM

Contact your After Sales Head Office for further information.

### 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, change the belt.

### MULTI "V" BELT

#### Tensioning process

Engine cold (ambient temperature).

Fit the new belt.

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

Turn the wheel 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.

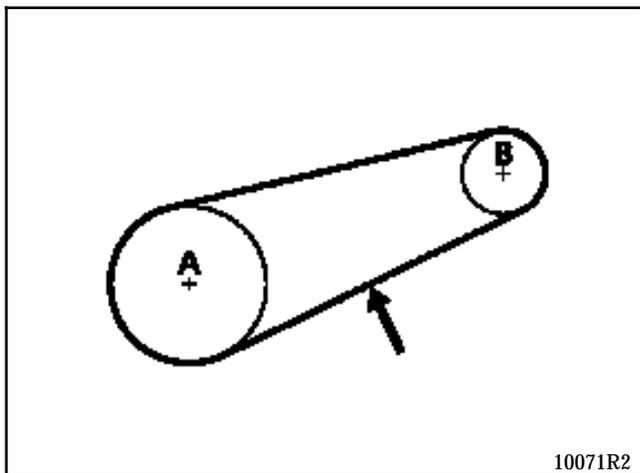
Replace the belt, if the tension is **below the minimum operating tension**.

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

**SPECIAL TOOLING REQUIRED**

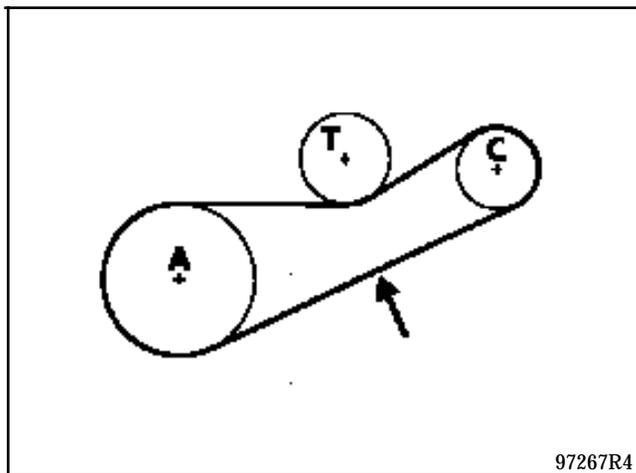
Mot. 1273 Tool for checking belt tension

**ALTERNATOR BELT**

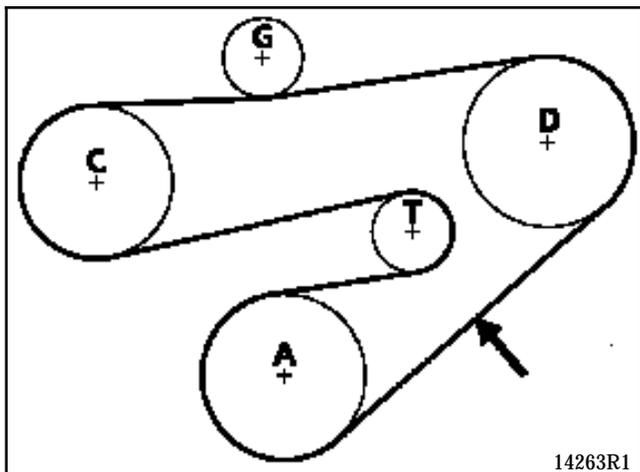


10071R2

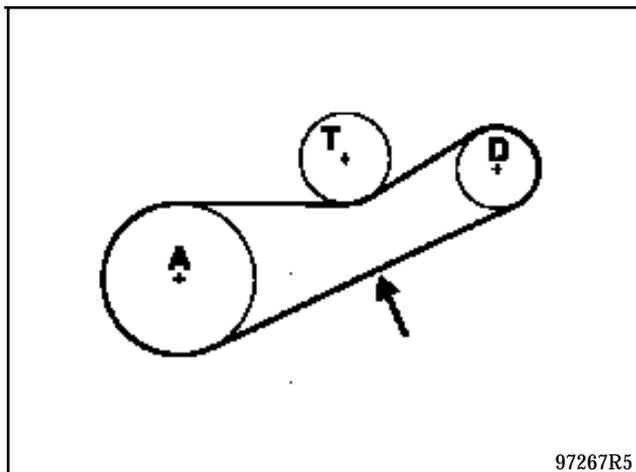
**POWER ASSISTED STEERING BELT**



97267R4



14263R1



97267R5

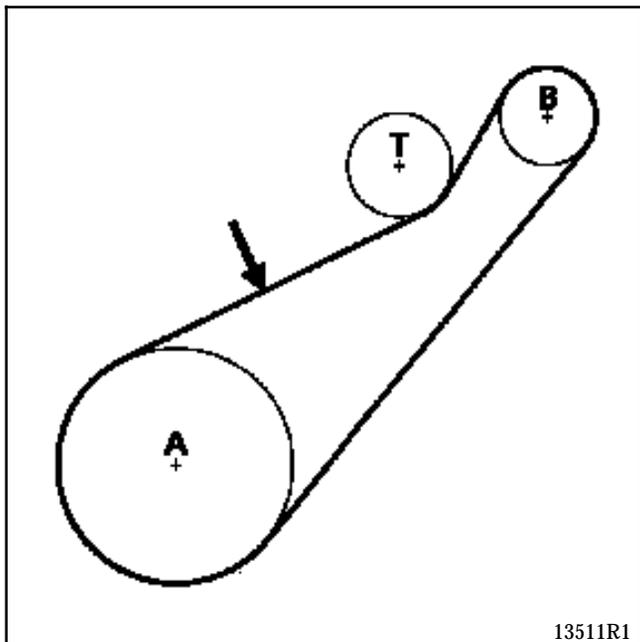
- A Crankshaft
- B Alternator
- C Power assisted steering pump
- D Air conditioning compressor
- G Roller
- T Tensioner
- Point for checking belt tension

Tension (US=SEEM unit)	Alternator belt multi "V"	Power assisted steering belt multi "V"	Air conditioning compressor belt multi "V"	Air conditioning/ power assisted steering belt multi "V"
Fitting	<b>102 ± 7</b>	<b>96 ± 5</b>	<b>104±6</b>	<b>101±6</b>
Minimum operating	<b>53</b>	<b>43</b>	<b>56</b>	<b>51</b>

**SPECIAL TOOLING REQUIRED**

Mot. 1273 Tool for checking belt tension

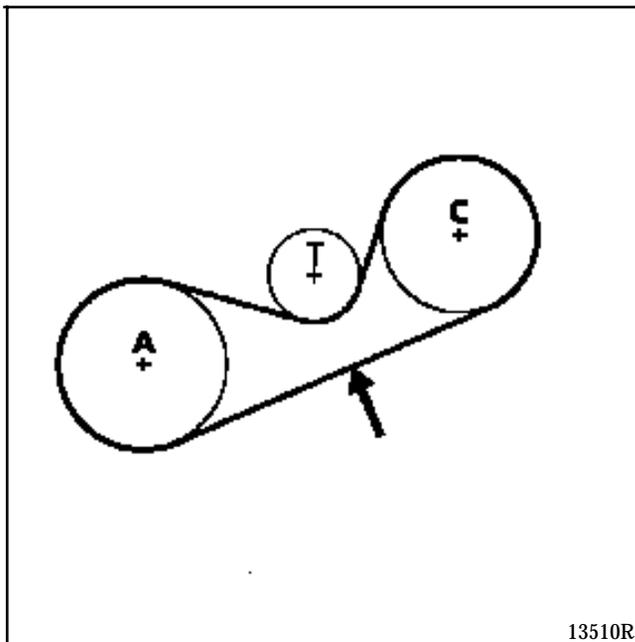
### ALTERNATOR BELT



13511R1

- A Crankshaft
- B Alternator
- C Power assisted steering pump
- T Tension roller
- Point for checking belt tension

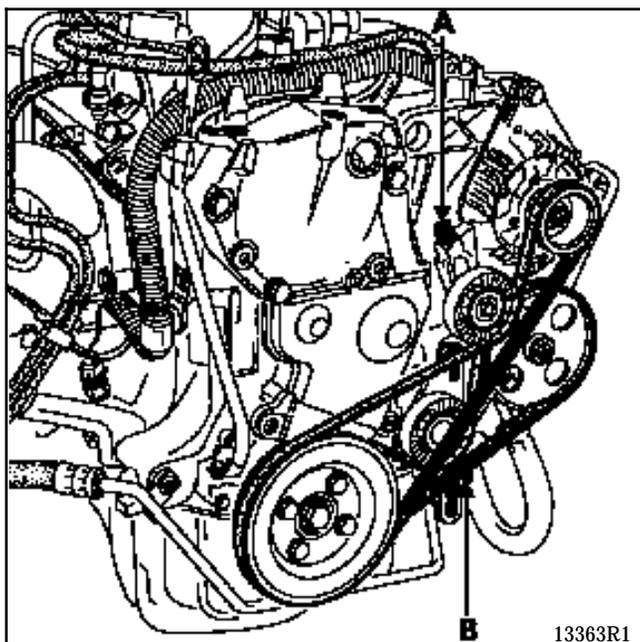
### POWER ASSISTED STEERING BELT



13510R

- Bolt A: alternator belt tension
- Bolt B: power steering belt tension

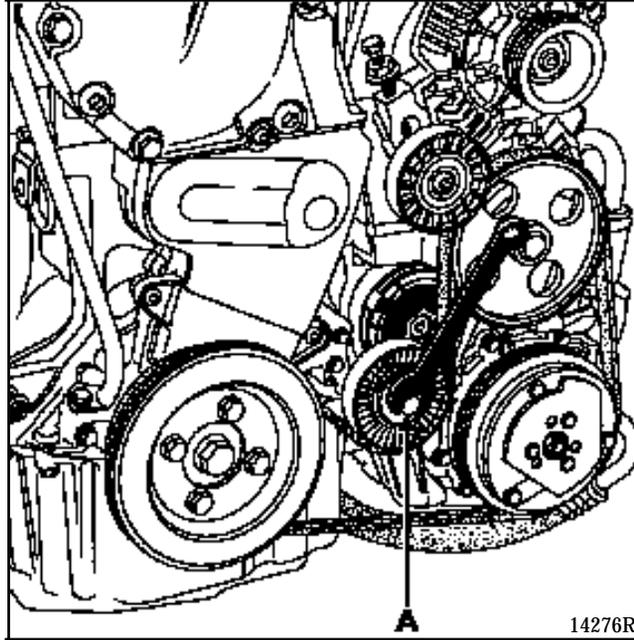
**NOTE :** after tensioning, tighten the nuts of bolts (A) and (B).



13363R1

Tension (US=SEEM unit)	Alternator belt multi "V"	Power assisted steering belt multi "V"
Fitting	<b>101 ± 6</b>	<b>106 ± 6</b>
Minimum operating	52	59

### POWER ASSISTED STEERING PUMP AND AIR CONDITIONING COMPRESSOR BELT



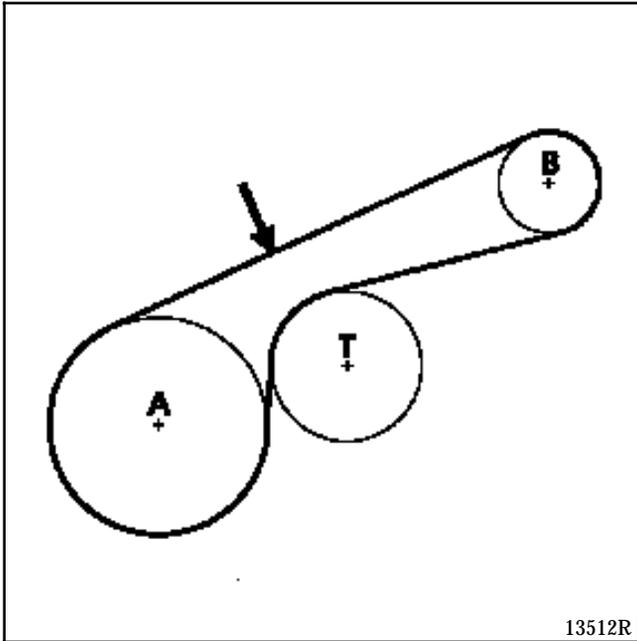
14276R

The belt may be slackened and tensioned by means of bolt (A).

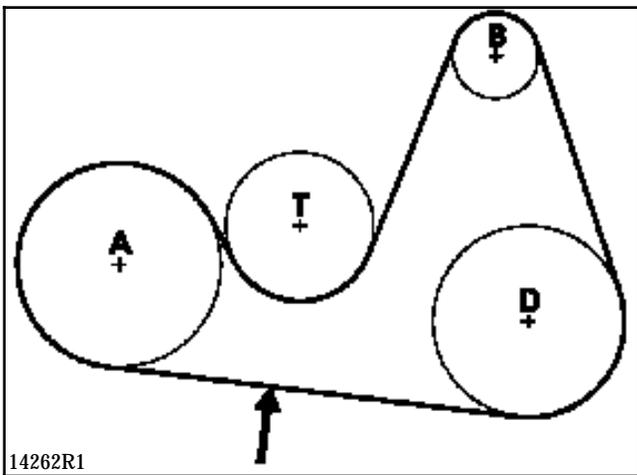
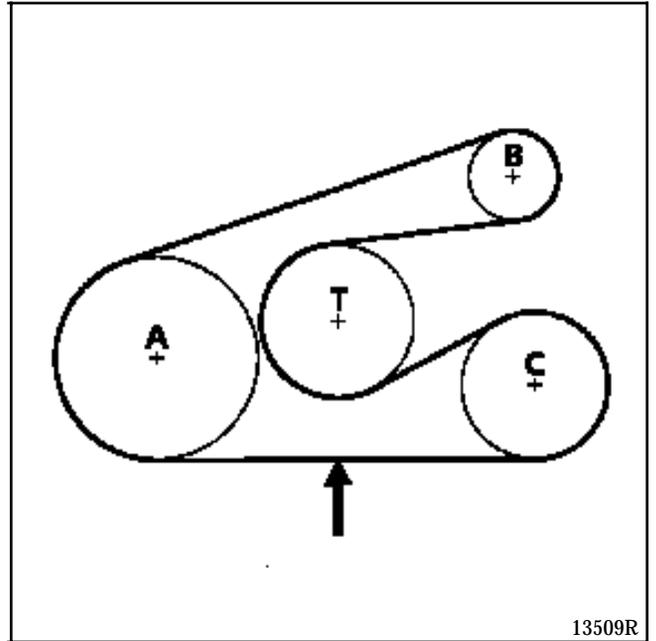
SPECIAL TOOLING REQUIRED

Mot. 1273 Tool for checking belt tension

ALTERNATOR BELT



ALTERNATOR AND POWER ASSISTED STEERING BELT



- A Crankshaft
- B Alternator
- C Power assisted steering pump
- D Air conditioning compressor
- T Tension roller
- Point for checking belt tension

Tension (US=SEEM unit)	Alternator belt multi "V"	Power assisted steering belt multi "V"	Air conditioning compressor belt multi "V"
Fitting	<b>115 ± 5</b>	<b>116 ± 6</b>	<b>115 ± 6</b>
Minimum operating	<b>70</b>	<b>68</b>	<b>82</b>

### Tensioning process

Engine cold (ambient temperature).

Fit the new belt.

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

Turn the wheel 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 **four times** .

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

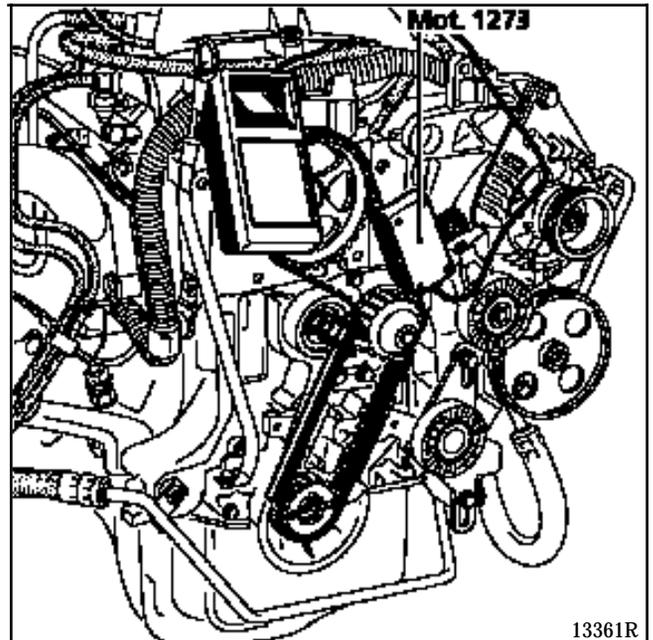
#### NOTE :

- For the **F8Q** engine, remove the pin **Mot 1054** before fitting the sensor of **Mot 1273** and press hard on the piece of belt between the intermediate shaft sprocket (or idle sprocket) and the tension roller, then carry out the measurement.
- Never refit a belt which has been removed.
- Replace the belt if the tension is **below the minimum operating tension**.

### D7F engine

There are special notes for the timing belt tension of this engine. Therefore refer to section 11.

### E7J and K7M engines

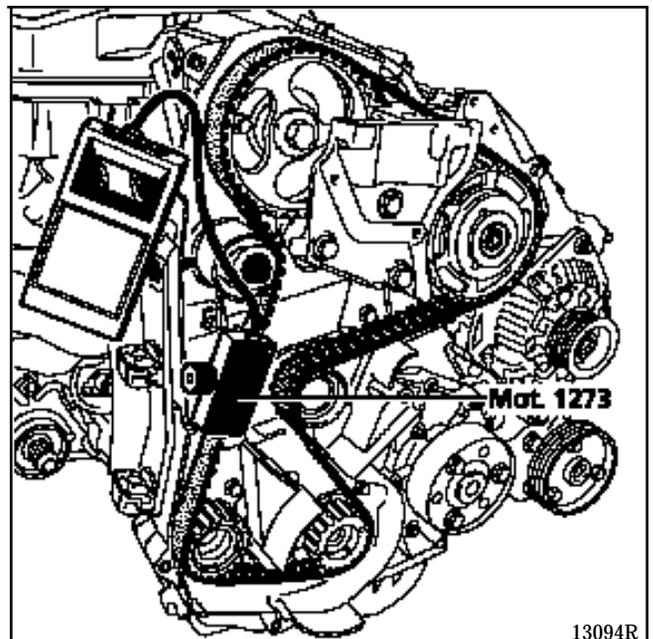


**Belt tension (in SEEM units)**

**Fitting: 30 U.S.  $\pm 5\%$**

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

### F8Q engine



**Belt tension (in SEEM units)**

**Fitting: 29 U.S.  $\pm 5\%$**

**Minimum operating : 25 U.S.**

### METHOD FOR TIGHTENING THE CYLINDER HEAD

#### 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.

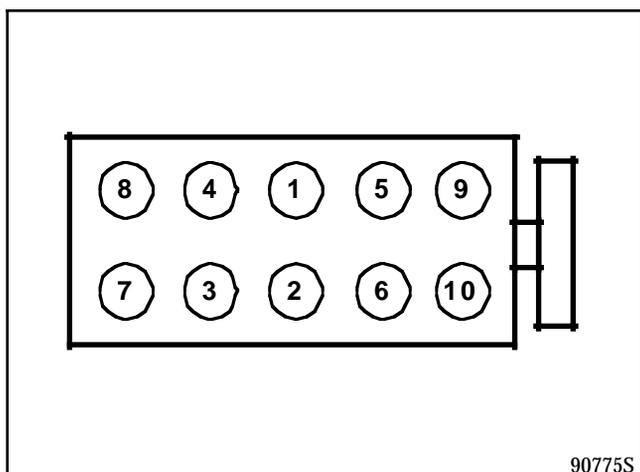
All the cylinder head bolts must be systematically replaced after any removal. There is no cylinder head retightening operation.

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

#### D7F ENGINE

##### Preseating the gasket

Tighten all the bolts to **2 daN.m**, then angle tighten to **90°** in the order indicated below.



Wait 3 minutes settling time.

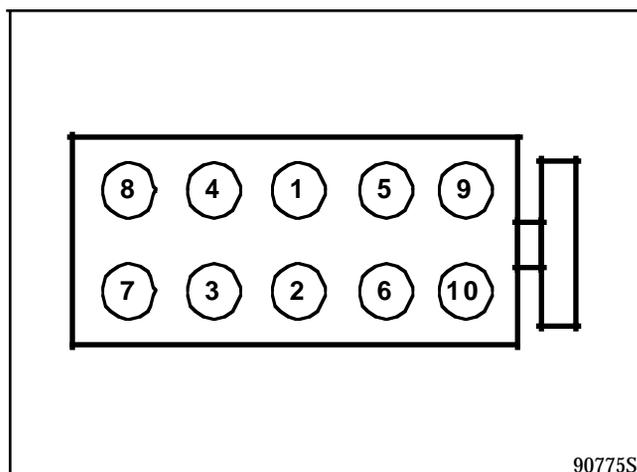
##### Tightening the cylinder head:

- The cylinder head is tightened in stages, applying the following procedure successively to bolts **1-2 then 3-4, 5-6, 7-8 and 9-10**.
- Slacken bolts **1-2** until they are completely free.
- Tighten bolts **1-2** to **2 daN.m**, then angle tighten to **200°**.
- Repeat the slackening and re-tightening operation for bolts **3-4, 5-6, 7-8 and 9-10**.

#### E7J ENGINE

##### Preseating the gasket

Tighten all the bolts to **2 daN.m**, then angle tighten to **97° ± 2°** in the order indicated below.



Wait 3 minutes settling time.

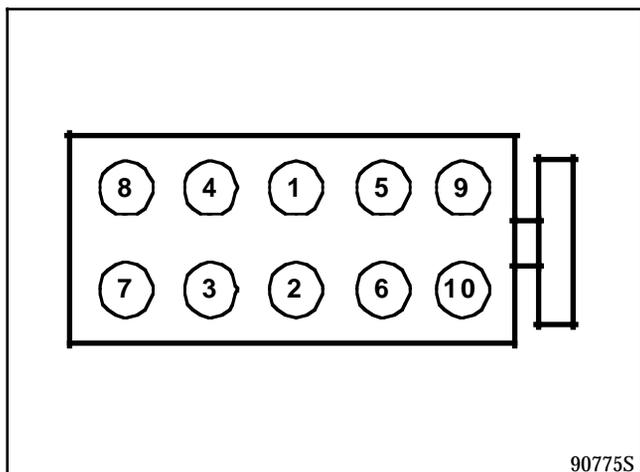
##### Tightening the cylinder head:

- The cylinder head is tightened in stages, applying the following procedure successively to bolts **1-2 then 3-4, 5-6, 7-8 and 9-10**.
- Slacken bolts **1-2** until they are completely free.
- Tighten bolts **1-2** to **2 daN.m**, then angle tighten to **97° ± 2°**.
- Repeat the slackening and re-tightening operation for bolts **3-4, 5-6, 7-8 and 9-10**.

### K7M ENGINE

#### Preseating the gasket

Tighten all the bolts to **2 daN.m**, then angle tighten to **100° ± 6°** in the order indicated below.



Wait 3 minutes settling time.

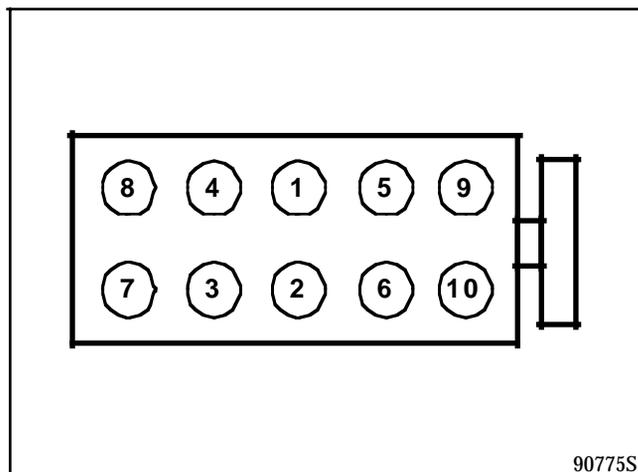
#### Tightening the cylinder head:

- The cylinder head is tightened in stages, applying the following procedure successively to bolts **1-2 then 3-4, 5-6, 7-8 and 9-10**.
- Slacken bolts **1-2** until they are completely free.
- Tighten bolts **1-2** to **2 daN.m**, then angle tighten to **110° ± 6°**.
- Repeat the slackening and re-tightening operation for bolts **3-4, 5-6, 7-8 and 9-10**.

### F8Q ENGINE

#### Preseating the gasket

Tighten all the bolts to **3 daN.m**, then angle tighten to **80° ± 4°** in the order indicated below.



Wait 3 minutes settling time.

#### Tightening the cylinder head:

- The cylinder head is tightened in stages, applying the following procedure successively to bolts **1-2 then 3-4, 5-6, 7-8 and 9-10**.
- Slacken bolts **1-2** until they are completely free.
- Tighten bolts **1-2** to **2.5 daN.m**, then angle tighten to **213° ± 7°**.
- Repeat the slackening and re-tightening operation for bolts **3-4, 5-6, 7-8 and 9-10**.

# VALUES AND SETTINGS

## Wheels and tyres

07

Vehicle	Rim	Tyres	Cold inflation pressure (in bars) (1)	
			Front	Rear
B/C B0A	5 B 13	165/70 R 13 T	2.2	2.1
B/C B0C			2.3	2.1
B/C B0D	5 B 13 5,5 J 14	165/70 R 13 T 165/60 R 14 T 165/65 R 14 T	2.4	2.1
B/C B0E	5 B 13	165/70 R 13 T 175/70 R 13 T (2)	2.3	2.1

- (1) Fully laden and motorway use.
- (2) With air conditioning.

Wheel nuts tightening torque : **9 daN.m**  
 Rim run-out : **1.2 mm**

# VALUES AND SETTINGS

## Brakes

07

Vehicle	Drum diameter or disc thickness (in mm)				Max. disc run-out (in mm)	
	Front		Rear			
	Normal	Min.	Normal	Max. (1)	Front	Rear
B/C B0A	12 no ABS	10.5 no ABS	180.25	181.25	0.07	-
B/C B0E B/C B0C B/C B0D	12 no ABS 20 with ABS	10.5 no ABS 17.7 with ABS	203.2	204.2	0.07	-
B/C B0E (2) (3) B/C B0D (2)	20.6	17.6	203.2	204.2	0.07	-

- (1) Drum: maximum wear diameter.
- (2) With ABS and without underbody protection.
- (3) With air conditioning.

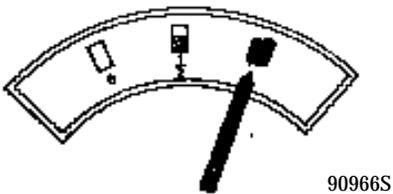
Vehicle	Lining thickness (in mm) (including backing plate)				Brake fluid
	Front		Rear		
	New	Min.	New	Min.	
B/C B0A	18.2	6	4.85	2	SAE J1703 DOT 4
B/C B0C	18.2	6	4.6 (1) 3.3 (2)	2	SAE J1703 DOT 4
B/C B0E	18.2	6	4.6 (1) 3.3 (2)	2	SAE J1703 DOT 4
B/C B0D	18.2	6	4.6 (1) 3.3 (2)	2	SAE J1703 DOT 4

- (1) Primary lining.
- (2) Secondary lining.

# VALUES AND SETTINGS

## Brake limiter

### BRAKING PRESSURE

Vehicle	Fuel tank level (driver aboard)	Test pressure (1) (in bars)	
		Front	Rear
B/C B0A B/C B0C B/C B0D B/C B0E		100	→ 56 <sup>0</sup> / <sub>-18</sub>

(1) The checking is carried out with two pressure gauges arranged in an X layout.

# VALUES AND SETTINGS

## Underbody heights

**07**

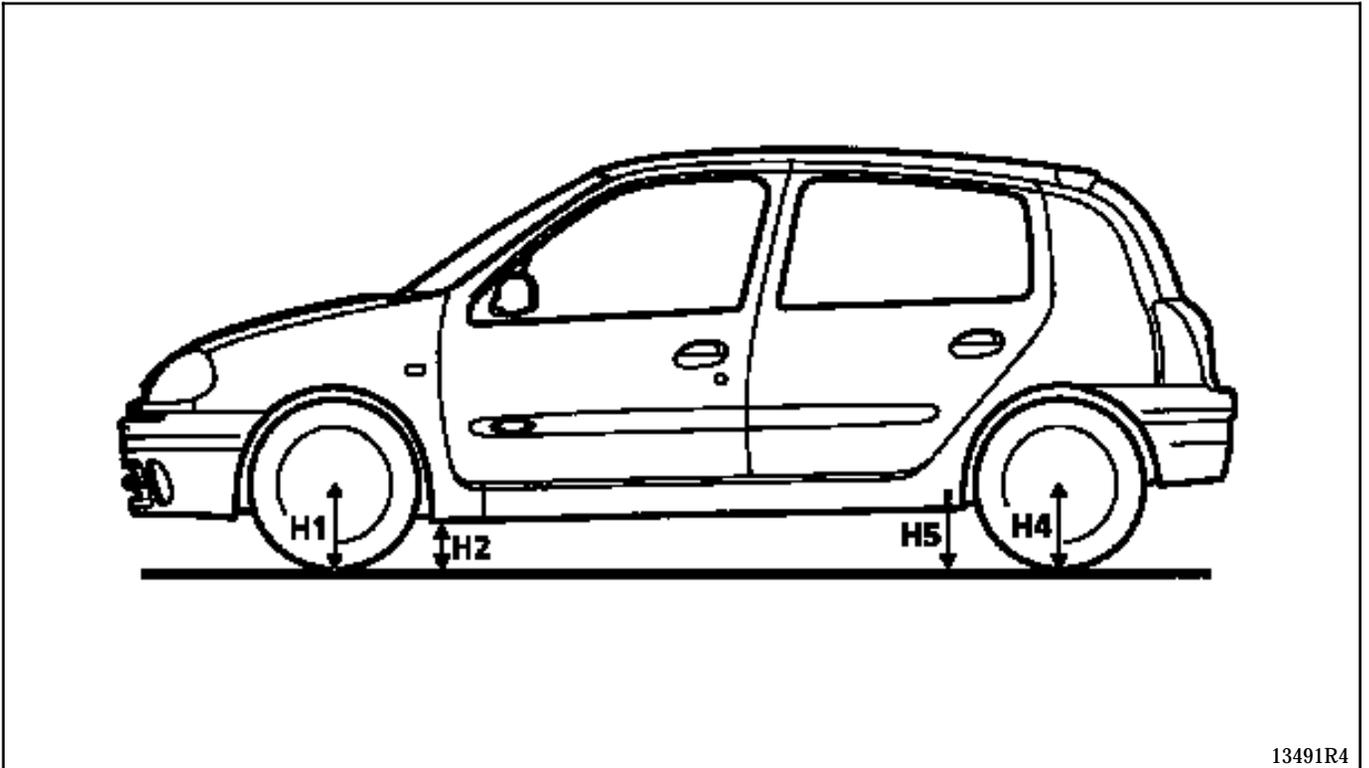
Vehicle	At the front H1 - H2 = ... mm	At the rear H4 - H5 = ... mm	Dimension X (in mm) R-H and L-H
B/C B0A B/C B0C	90.6	- 29	-
B/C B0D	98.2	- 23	-
B/C B0E	96	- 23	-

Tolerance :  $\pm 10.5$  mm

The difference between the right-hand side and the left-hand side on the same axle of a vehicle must not exceed **5 mm**, with the driver's side always being the higher.

Any work carried out on the underbody height requires adjustment of the brake limiter and of the headlights.

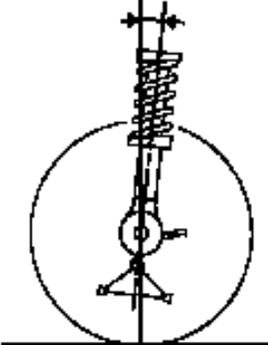
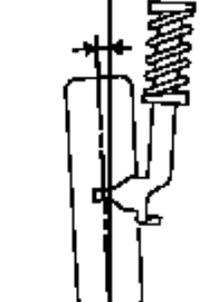
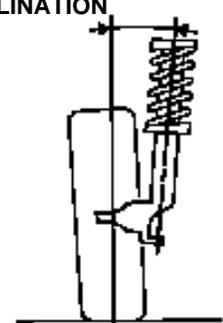
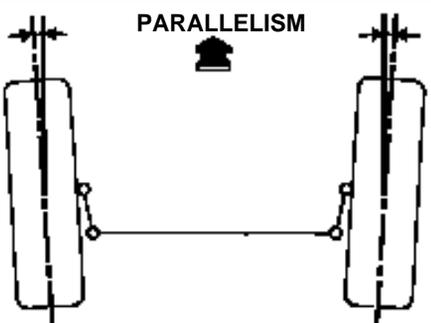
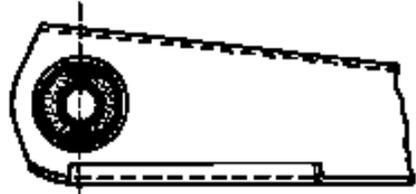
MEASURING POINTS



13491R4

**NOTE :** dimension H5 is measured from the axis of the rubber bush.

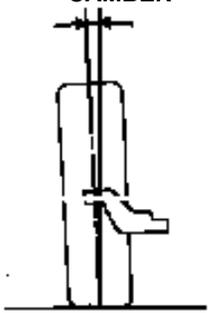
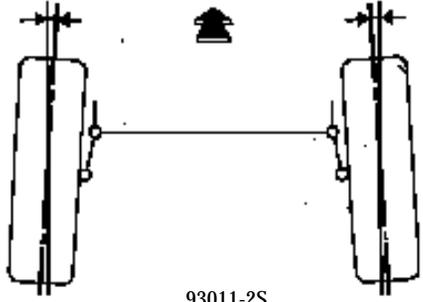
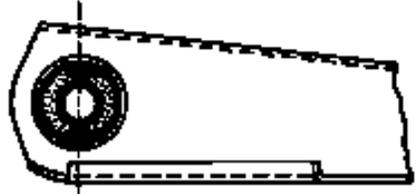
## Values for checking the front axle geometry

ANGLES	VALUES	POSITION OF FRONT AXLE	ADJUSTMENT				
<b>CASTOR</b>  93012-1S	$\left. \begin{array}{l} 4^\circ \\ 3^\circ 30' \\ 3^\circ \\ 2^\circ 30' \end{array} \right\} \pm 30'$ <p>Maximum left / right difference = <math>1^\circ</math></p>	H5-H2 = 32 mm H5-H2 = 51 mm H5-H2 = 70 mm H5-H2 = 89 mm	NOT ADJUSTABLE				
<b>CAMBER</b>  93013-1S	<table style="width: 100%; border-collapse: collapse;"> <tr> <td style="text-align: center;"><b>E7J/K7M F8Q</b></td> <td style="text-align: center;"><b>D7F</b></td> </tr> <tr> <td style="text-align: center;"> <math display="block">\left. \begin{array}{l} 0^\circ 16' \\ -1^\circ 10' \\ -1^\circ 20' \\ -0^\circ 45' \end{array} \right\} \pm 30'</math> </td> <td style="text-align: center;"> <math display="block">\left. \begin{array}{l} 0^\circ 54' \\ -0^\circ 25' \\ -0^\circ 34' \\ 0^\circ 05' \end{array} \right\} \pm 30'</math> </td> </tr> </table> <p>Maximum left / right difference = <math>1^\circ</math></p>	<b>E7J/K7M F8Q</b>	<b>D7F</b>	$\left. \begin{array}{l} 0^\circ 16' \\ -1^\circ 10' \\ -1^\circ 20' \\ -0^\circ 45' \end{array} \right\} \pm 30'$	$\left. \begin{array}{l} 0^\circ 54' \\ -0^\circ 25' \\ -0^\circ 34' \\ 0^\circ 05' \end{array} \right\} \pm 30'$	H1-H2 = 17 mm H1-H2 = 89 mm H1-H2 = 115 mm H1-H2 = 179 mm	NOT ADJUSTABLE
<b>E7J/K7M F8Q</b>	<b>D7F</b>						
$\left. \begin{array}{l} 0^\circ 16' \\ -1^\circ 10' \\ -1^\circ 20' \\ -0^\circ 45' \end{array} \right\} \pm 30'$	$\left. \begin{array}{l} 0^\circ 54' \\ -0^\circ 25' \\ -0^\circ 34' \\ 0^\circ 05' \end{array} \right\} \pm 30'$						
<b>KING PIN INCLINATION</b>  93014-1S	$\left. \begin{array}{l} 8^\circ 30' \\ 10^\circ 50' \\ 11^\circ 20' \\ 12^\circ 00' \end{array} \right\} \pm 30'$ <p>Maximum left / right difference = <math>1^\circ</math></p>	H1-H2 = 17 mm H1-H2 = 89 mm H1-H2 = 115 mm H1-H2 = 179 mm	NOT ADJUSTABLE				
<b>PARALLELISM</b>  93011-1S	<p>(For 2 wheels)</p> <p>toe-out</p> <p>+ <math>0^\circ 16' \pm 20'</math></p> <p>+ 1.6 mm <math>\pm</math> 2 mm</p>	UNLADEN	Adjustable by rotating track rod sleeves.  1 turn = $30'$ (3 mm)				
<b>RUBBER BUSHES</b>  81603S1	-	UNLADEN	-				

# VALUES AND SETTINGS

## Values for checking the rear axle geometry

07

ANGLES	VALUES	POSITION OF REAR AXLE	ADJUSTMENT
<p><b>CAMBER</b></p>  <p>93013-2S</p>	<p>- 0°42' ± 20'</p>	<p>UNLADEN</p>	<p>NOT ADJUSTABLE</p>
<p><b>PARALLELISM</b></p>  <p>93011-2S</p>	<p>(For 2 wheels)</p> <p>Toe-in</p> <p>- 30' ± 30'</p> <p>- 3 mm ± 3 mm</p>	<p>UNLADEN</p>	<p>NOT ADJUSTABLE</p>
<p><b>RUBBER BUSHES</b></p>  <p>81603S1</p>	<p>-</p>	<p>UNLADEN</p>	<p>-</p>