



Renault Range

Type

5/Section

**TWINGO**

C 06 3

11

16

*This note cancels and replaces Technical Note 2097 Part No : 77 11 099 606*

## 11 REPLACING THE WATER PUMP - REMOVING-REFITTING THE ALTERNATOR

Other Sub-sections concerned :

16

- Engine :
- Gearbox :

Basic Manual : **M.R. 305**

- 1) Aligning the water pump pulley on a vehicle equipped with air conditioning when removing-refitting or replacing the water pump.
- 2) Special points concerning the removal-refitting of the alternator on a vehicle equipped with air conditioning.

# TOP AND FRONT ENGINE

## Water Pump

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### REMOVAL-REFITTING or REPLACING

#### ESSENTIAL SPECIAL TOOLING

Mot. 591-04	Angular wrench for tightening the cylinder head. ( 1/2" drive)
Mot. 591-02	Magnetised flexible shaft with pointer for angular wrench for tightening cylinder head
Mot. 1273	Tool for checking belt tension
MOT. 1324	Tool for aligning the water pump and alternator pulleys

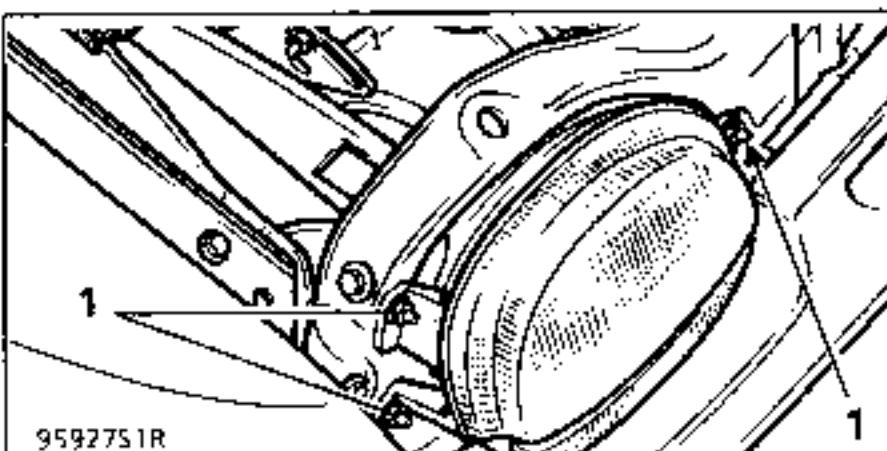
#### TIGHTENING TORQUES (in daN.m)



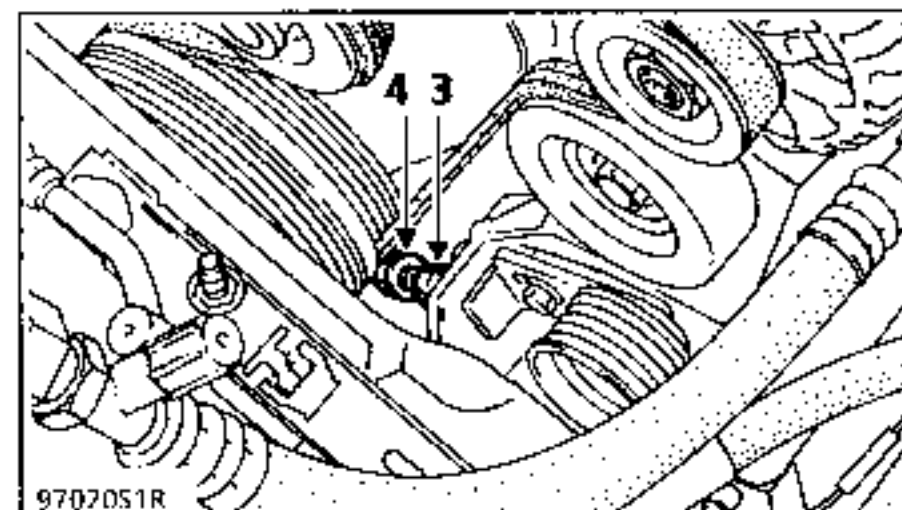
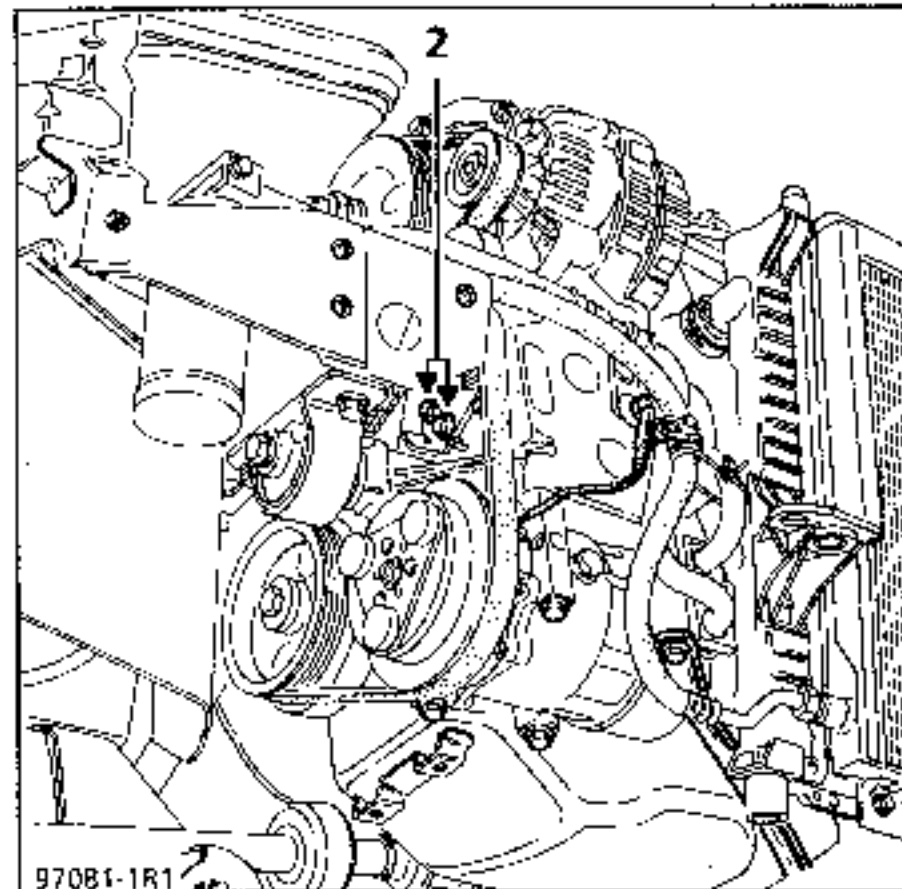
Water pump securing bolts	2 to 2.5
Nut securing the pulley to the water pump	4 + 105°

### REMOVAL

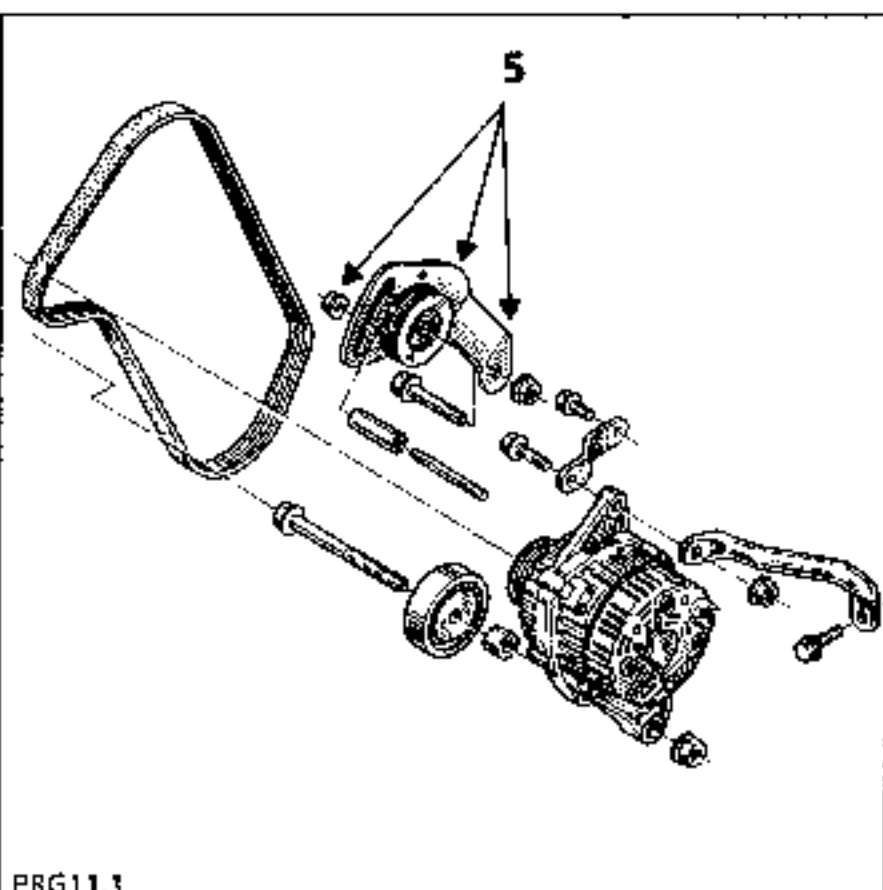
Disconnect the battery.  
 Raise the vehicle on a 2-post lift.  
 Remove the engine protection plate.  
 Drain the cooling circuit.  
 Undo the right-hand side headlamp securing unit nuts (1).  
 Take out the headlamp unit.



Slacken off the compressor belt :  
 - tensioner pulley support bolt(2),  
 - lock nut (3),  
 - tension adjustment bolt (4)



Undo the fixings for the water pump and alternator belt tensioner pulley (5).



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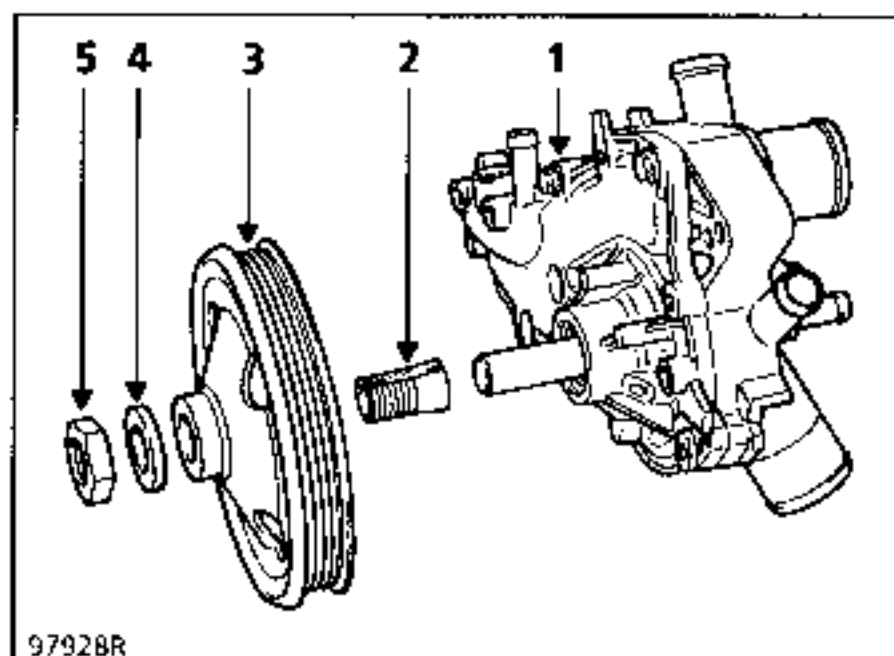
Remove :

- the belt,
- the water pump hoses,
- the bolts securing the water pump to the cylinder head and then take these out.

Clean the joint faces.

### REFITTING

Refit the water pump with a new gasket.  
Torque tighten the bolts (2 to 2.5 daN.m)



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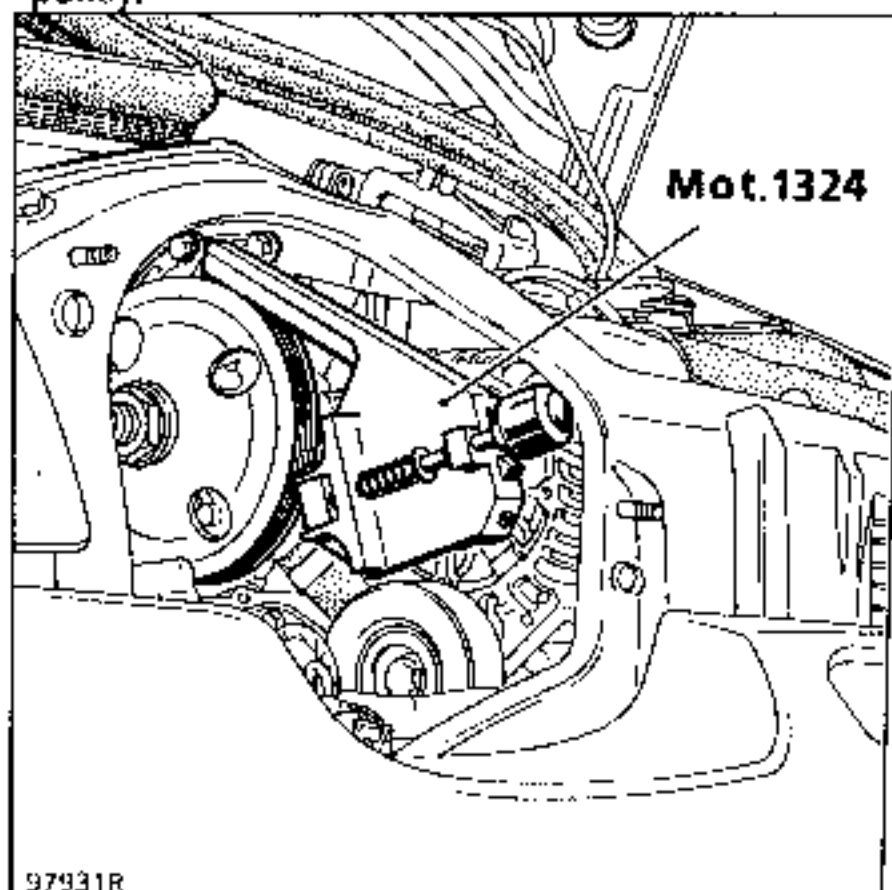
The water pump consists of the following :

- water pump (1),
- tightening cone (2),
- pulley (3),
- support washer (4),
- nut (5).

Fit these parts in ascending order onto the water pump.

Fit the water pump and alternator pulley alignment tool **Mot. 1324**.

Clamp the tool **Mot. 1324** onto the alternator pulley.



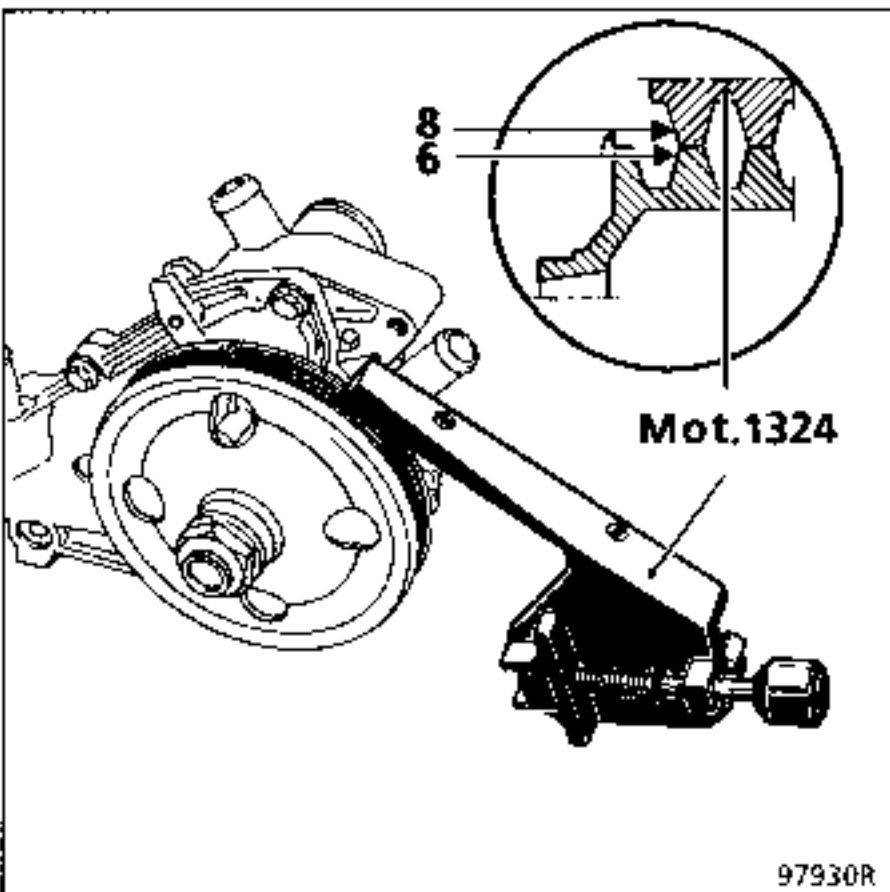
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# TOP AND FRONT ENGINE

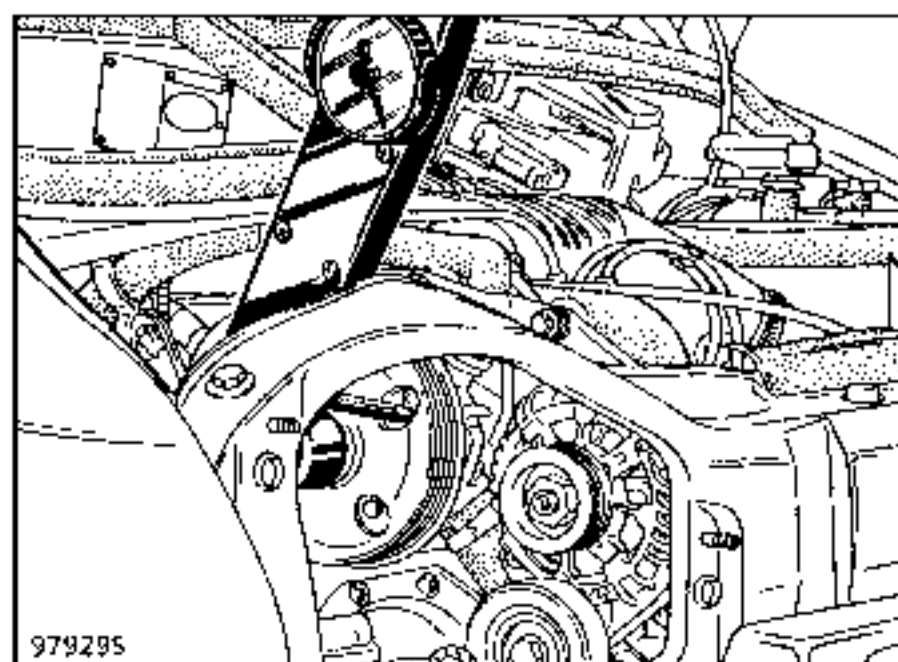
## Water Pump

11

Position the pulley towards the front of the engine so that the top of the water pump pulley (6) is face to face with the top of the tool Mot. 1324 (8)



Torque tighten the water pump central bolt to 4 daN.m plus an angle of 105°.



The teeth of the tool Mot. 1324 should fall into alignment with the gaps between the teeth of the water pump pulley .

If this operation was not successful the first time, recommence the operation by moving the water pump, either towards the front or towards the rear of the engine, after having first checked the positioning of the tool on the water pump pulley from the first operation .

Refit the hoses to the water pump.

# TOP AND FRONT ENGINE

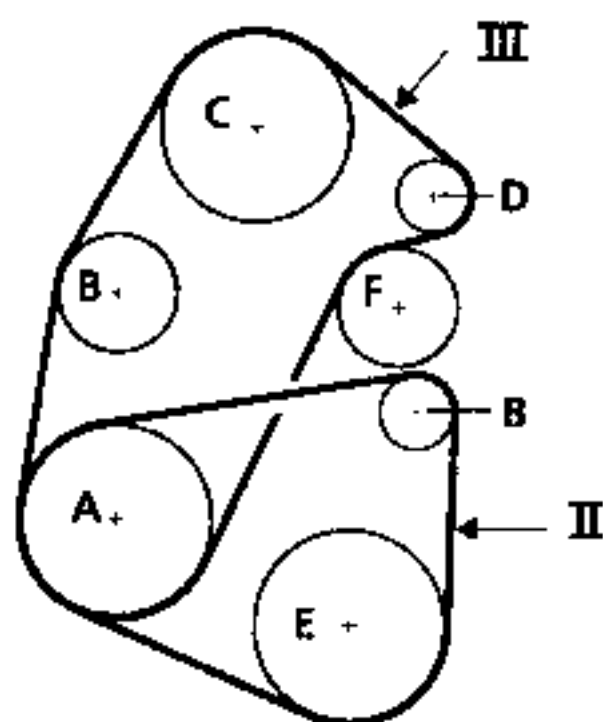
## Water Pump

11

Instructions for tensioning the belts :

- Engine cold (ambient temperature),
- Fit the sensor of tool **Mot. 1273** on to the section marked (→),
- Turn the sensor wheel until it clicks into place,
- Tension the belt until the recommended fitting value shown below appears on the display of tool **Mot. 1273**,
- Lock the tensioner in place, carry out a check. To adjust the value turn the crankshaft over 3 times,
- Check that the tension value is between the fitting tension value and the minimum operating tension value (same instruction in the case of a simple tension check without removal),
- Do not refit the belt which has been removed. Fit a new belt.

Tension (US = SEEM Units)	Air Conditioning Belt II	Alternator Belt III
	Multi-tooth	Multi-tooth
Fitting tension	$116 \pm 7$ US	$92 \pm 6$ US
Minimum operating tension	75 US	53 US



97541-1R

- A Crankshaft pulley
- B Tensioner pulley
- C Water pump pulley
- D Alternator pulley
- E Air conditioning compressor pulley
- F Tensioner pulley
- Checking point

Refit :

- the engine protection plate
- the front right-hand headlamp unit
- Refill and bleed the cooling circuit

# STARTING - CHARGING

## Alternator

### IDENTIFICATION

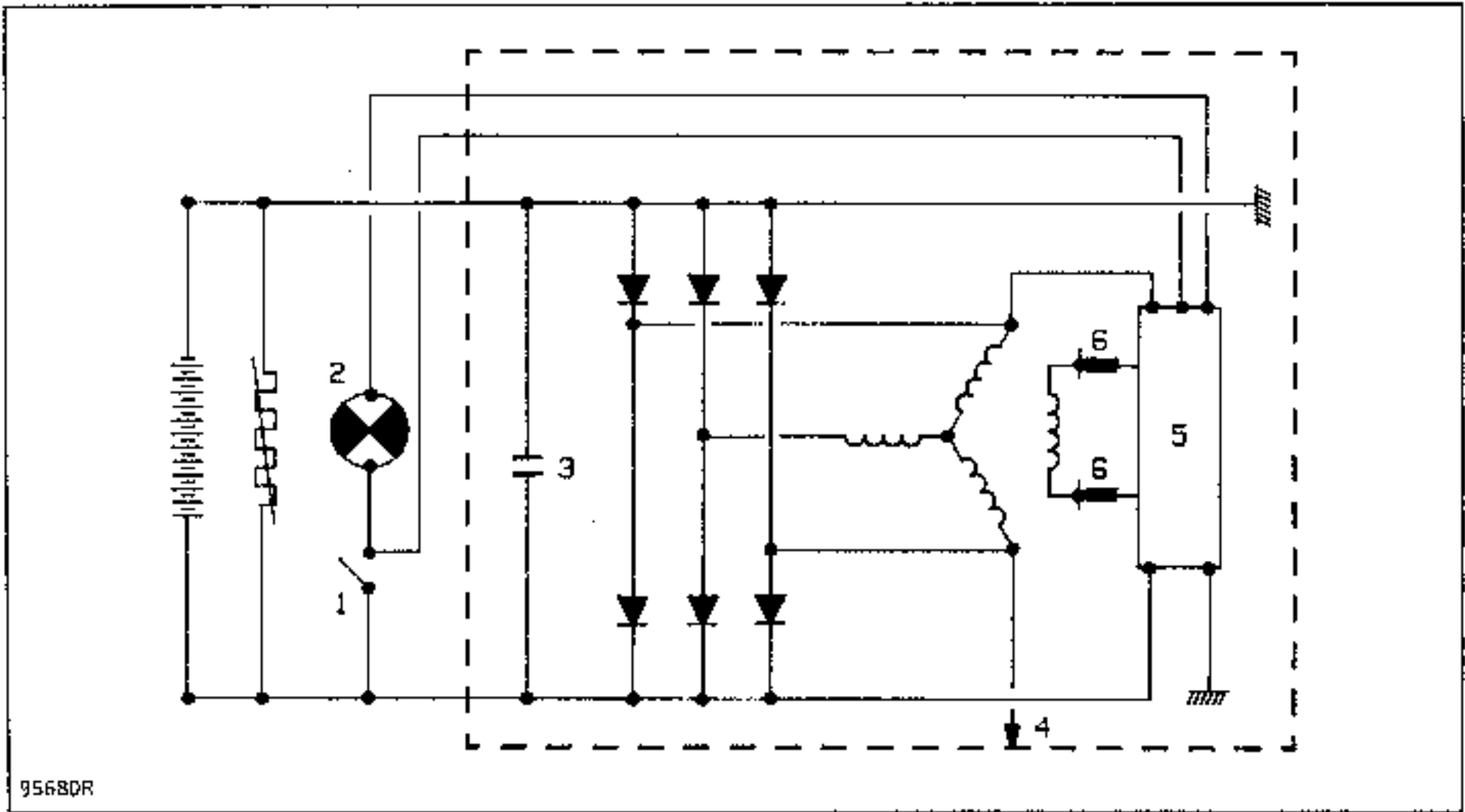
VEHICLE	ENGINE	ALTERNATOR	INTENSITY
C063	C3G	VALEO A 11 VI 29	75A

### CHECKING

To be carried out after 15 minutes at a voltage of 13 Volts.

Rpm	Amps
1 500	24
3 000	62
6 000	71

### OPERATING DIAGRAM



- 1 Starter switch

2 1.2 w warning light

3 2.2 μ F capacitor
- 4 Not used

5 Regulator

6 Brushes

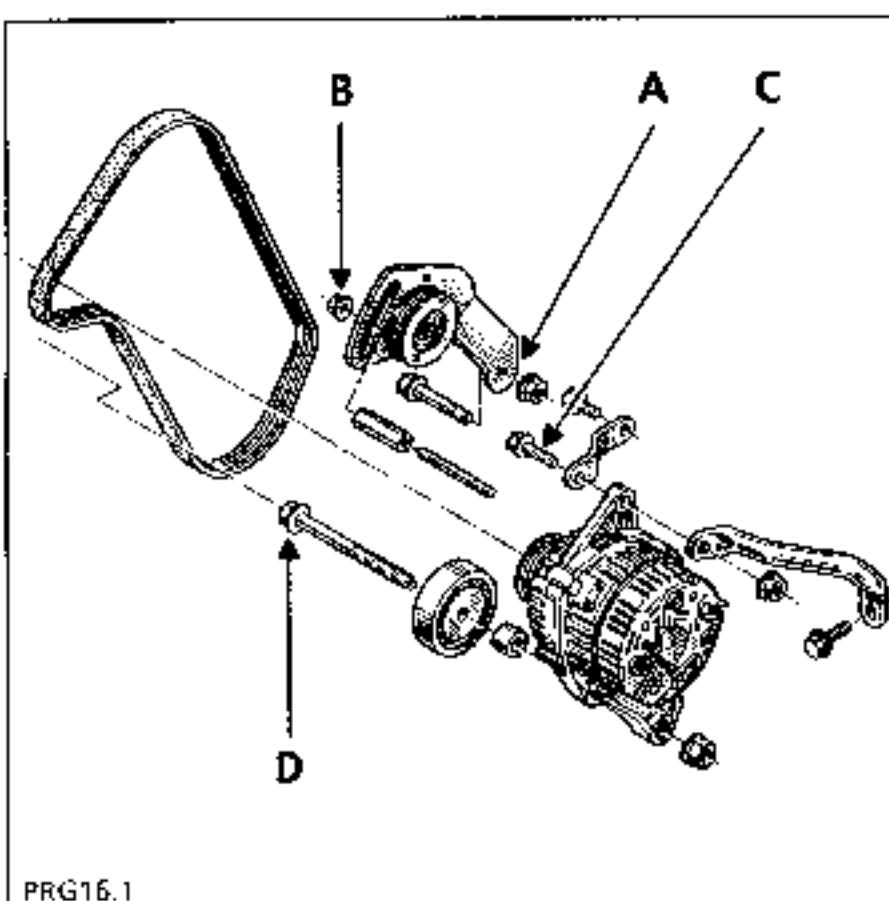
### REMOVAL-REFITTING

#### ESSENTIAL SPECIAL TOOLING

Mot. 1273	Tool for checking belt tension
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### REMOVAL

Disconnect the battery.



Release tensioner pulley shaft (A) .

Undo adjusting screw (B) and remove the belt.  
Remove the alternator upper securing bolt (C) (if necessary, remove the support plates).

Slacken off :

- the alternator positive feed terminal nut,
- the alternator lower securing bolt.

Release bolt (D). The pulley remains fixed to this.

Release the alternator in order to remove the regulator connector.

Remove the alternator.

### REFITTING

Refit all of the lower securing bolts (D) and refit the pulley above the refrigerant fluid pipes.

Refit the alternator onto its lower mounting and screw on the nut without lock tightening it.

Refit the alternator upper mountings and lock tighten the two securing bolts.

Reconnect the alternator feed and refit the connector onto the regulator.

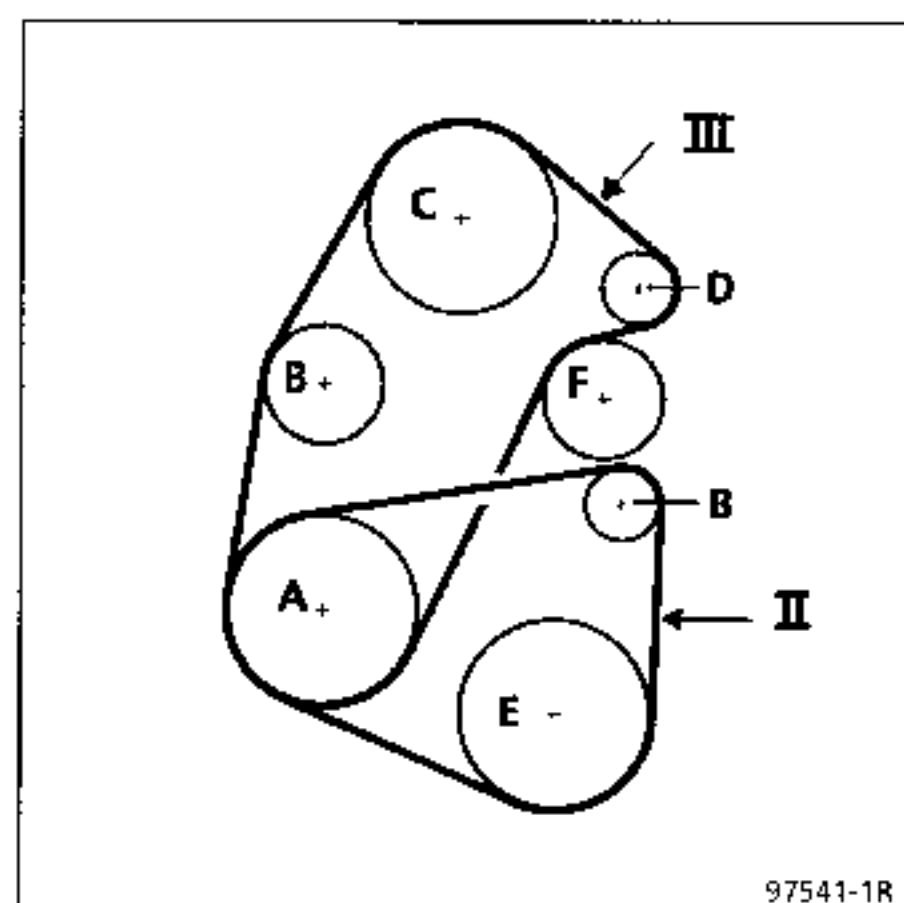
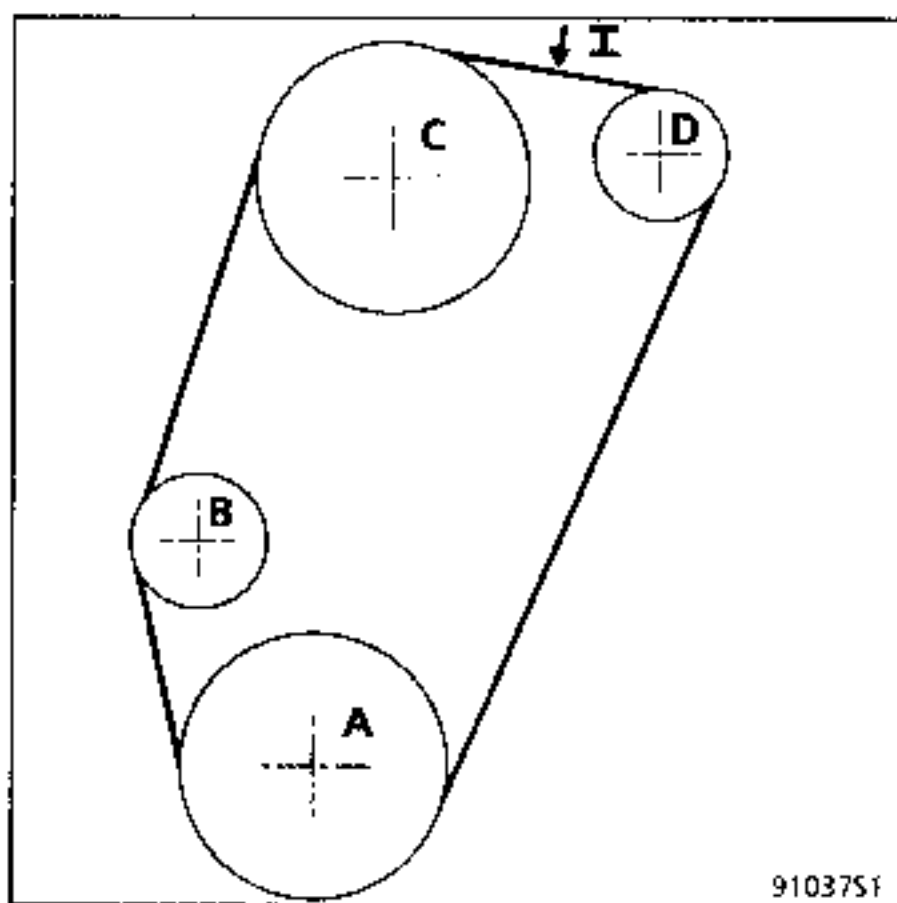
Refit the belt and tension it.

Check the alignment of the belts as indicated in chapter 11.

Instructions for tensioning the belt :

- Fit the sensor of tool Mot. 1273 onto the point marked (→).
- Turn the sensor wheel until it clicks into place.
- Tension the belt until the recommended fitting value shown below appears on the display of tool Mot. 1273 .
- Lock the tensioner in place; carry out a check and adjust the value.
- Turn the crankshaft over 3 times.
- Check that the tension value is between the fitting tension value and the minimum operating tension value (same instruction in the case of a simple tension check without removal).

Tension (US – SEEM Units)	Alternator Belt I	Air Conditioning Belt II	Alternator Belt III
	Trapezoidal	Multi-tooth	Multi-tooth
Fitting tension	96 ± 9 US	116 ± 7 US	92 ± 6 US
Minimum operating tension	50 US	75 US	53 US



- A Crankshaft pulley.
- B Tensioner pulley.
- C Water pump pulley.
- D Alternator pulley.
- E Air conditioning compressor pulley.
- F Tensioner pulley.
- Checking point.

**NOTE :** The regulator may be removed without removing the alternator completely.

## Method

Undo :

- the three nuts securing the plastic cover in order to remove the regulator.
- the two nuts securing the regulator to the alternator.

Remove the earthing bolt.

When refitting, it is necessary to pull back the plastic cover covering the brushes and to push back the brushes in order to refit the assembly onto the shaft.