



Type

SSection

RENAULT Clio

X57 9 CU

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MODIFICATION TO THE INSTALLATION OF THE COMPRESSOR ON F3 P ENGINES

● Engine : F3 P

● Gearbox : Basic manual : M.R. 295

This technical note gives details on the new installation (removing/refitting) the air conditioning compressor on type F3P engines.

In addition, this note gives the method and compressor belt tensioning values as well as the use of the tool **Mot. 1273**.

* 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.

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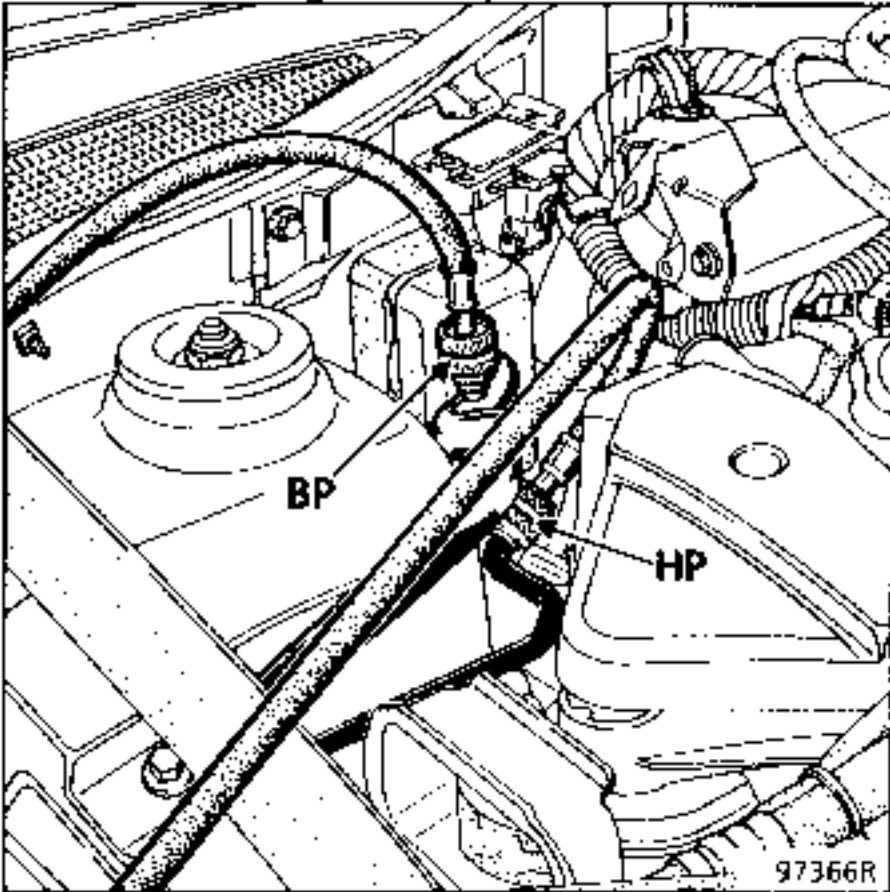
The compressors fitted to the X57 are of the axial alternating flow type compressor of the make **SANDEN** ; type SD 709.

For further information on the maintenance of compressors, refer to the "Air Conditioning" manual.

Removal

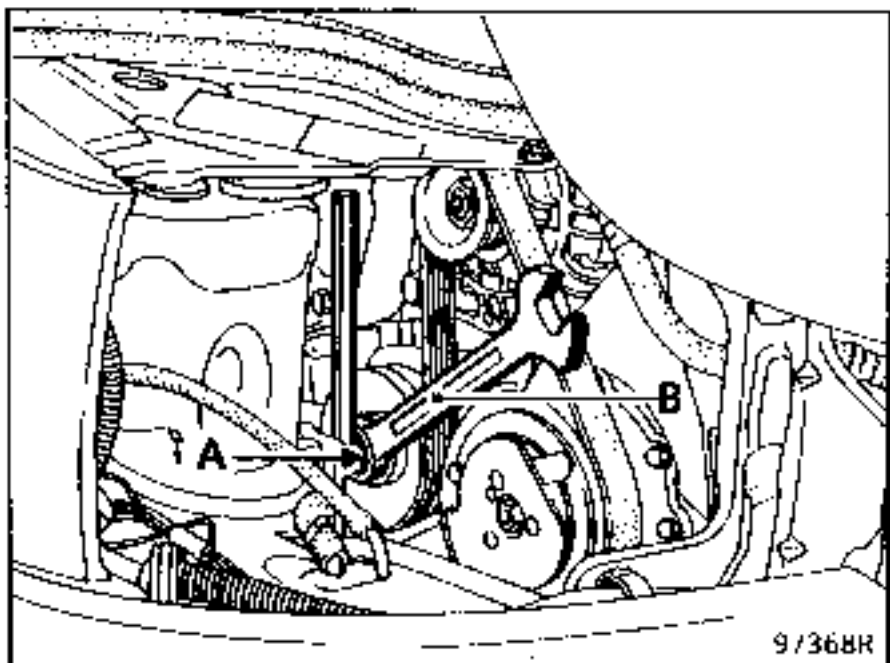
Disconnect the battery.

Drain the refrigerant circuit (See method in the "Air Conditioning" manual)



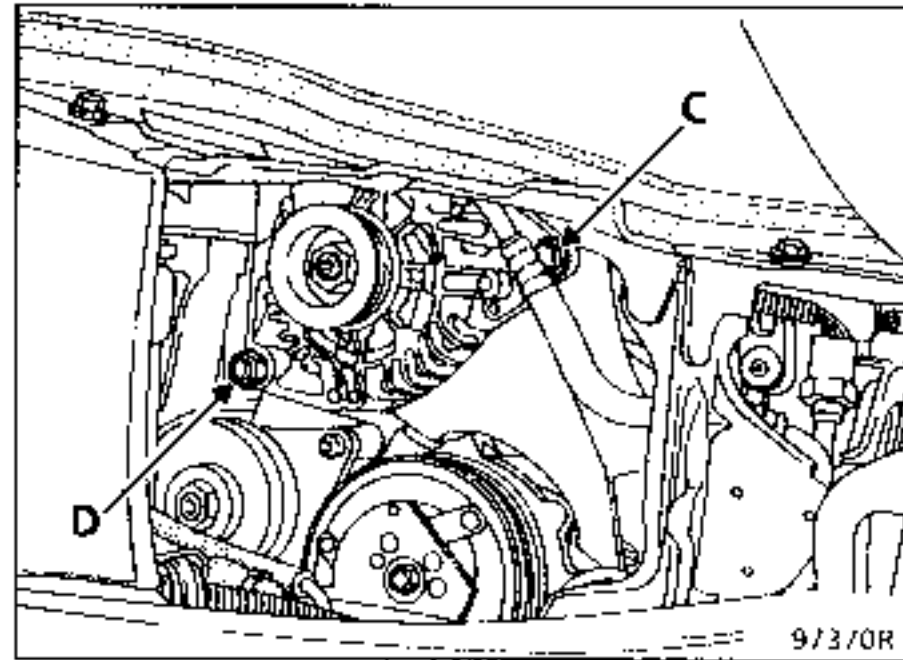
Remove:

- the front grill, held in place by 2 screws.
- the right-hand side direction indicator light assembly, held in place by 4 screws.
- the alternator-compressor belt, by loosening the 6 cross-headed tensioner pulley screw (A) whilst holding the tensioner pulley with a flat headed spanner (B) (to make this operation easier it is possible to remove the fuel pipe mounting).



Disconnect the 2 alternator electrical connections.

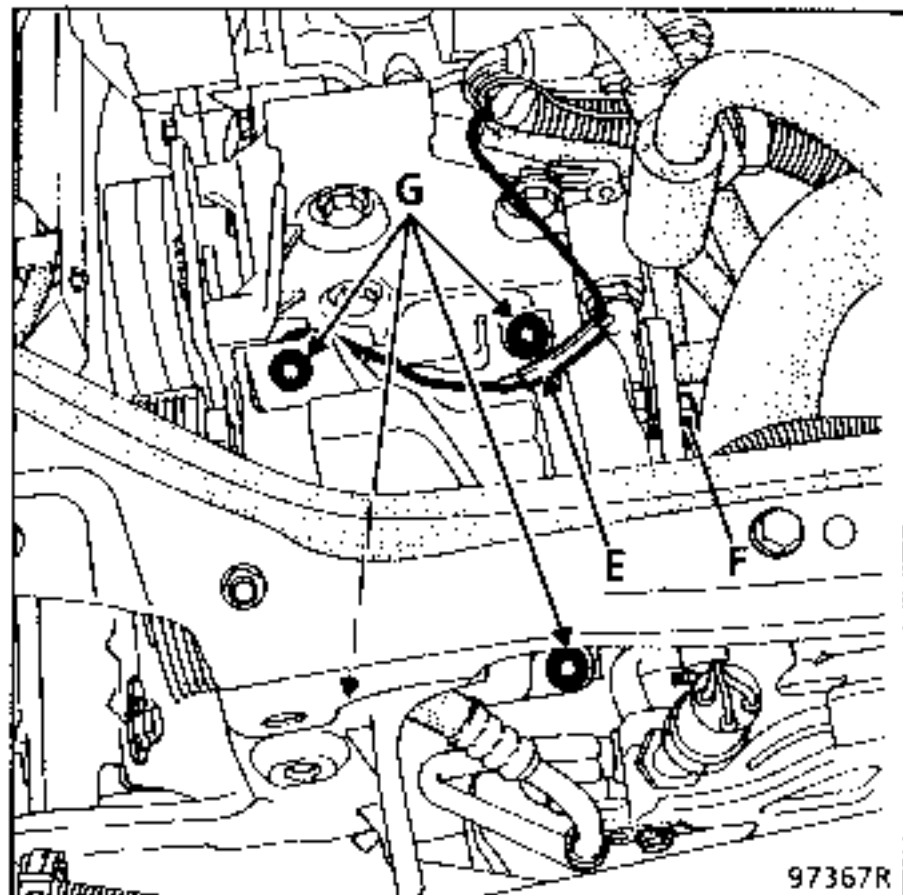
Remove the bolt (C) and the screw piece (D) whilst supporting the alternator and then remove the alternator.



Disconnect the clutch compressor electrical feed (E).

Disconnect the compressor pipes and remove the flange mounting bolt (F).

Unscrew the 4 screws (G) whilst supporting the compressor and then remove the compressor.



Refitting

In the case of new compressors, the oil has already been topped up.

To remove and refit a compressor without replacing it (Eg: repairing a clutch) there are two methods for topping up the oil

- If you have a Robinair type system (Renault approved) with an oil recuperator and the vehicle air conditioning system is filled with R 134a type refrigerant, then in this case refer to the method described in the manual "Air Conditioning - New refrigerant R134a".
- If you do not have a Robinair type system or the vehicle air conditioning system is filled with Freon R12, then in both cases, refer to the section entitled "oil level"

Check the condition of the air conditioning pipe seals.

For refitting, carry out the instructions as for removal in reverse order.

To tension the belt, refer to the section entitled "belt tension".


The belt must be replaced whenever it is removed

Check the headlight adjustment.

Refilling

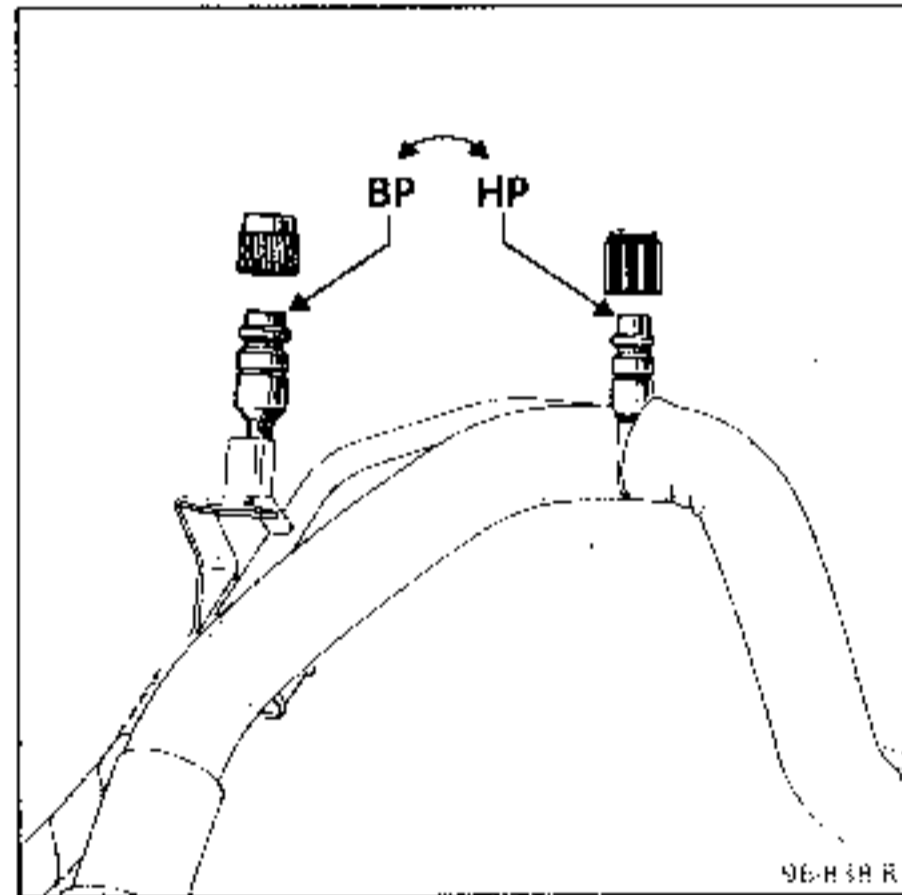
It is to be noted that Clio vehicles are filled with Freon R12 and later models with refrigerant R134a.

There are 2 ways of recognising those vehicles filled with liquid refrigerant R134a :

- a label affixed on the underside of the bonnet with the symbol,  indicating the type of refrigerant used,
- the refill valves are of the "snap" type with a difference in diameter between the high pressure and low pressure valves (BP and HP).

To refill the system, depending on the type of liquid refrigerant, refer to the following manuals:

- "Air Conditioning - New refrigerant R134a" for R134a type refrigerant and,
- "Air Conditioning" for refrigerant type R12.



Key : BP = Low Pressure valve
HP = High Pressure valve

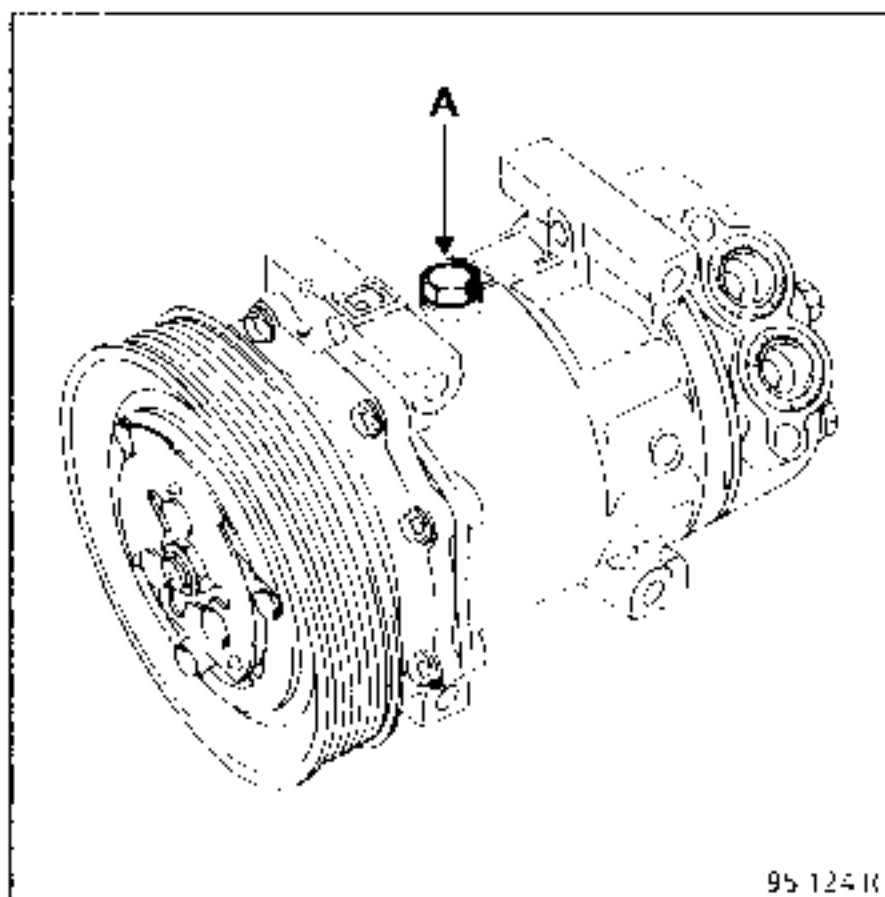
Capacities

| Type | R12 | R134a |
|-------------------|------------|------------|
| X57 (F engine) | 800 g ± 50 | 660 g ± 50 |

Oil levels

It is essential to remove the compressor.

Unscrew and pull off the oil plug (A)



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Turn the compressor over and allow the oil to run out of the compressor housing (to drain the maximum amount of oil, manually turn the compressor).

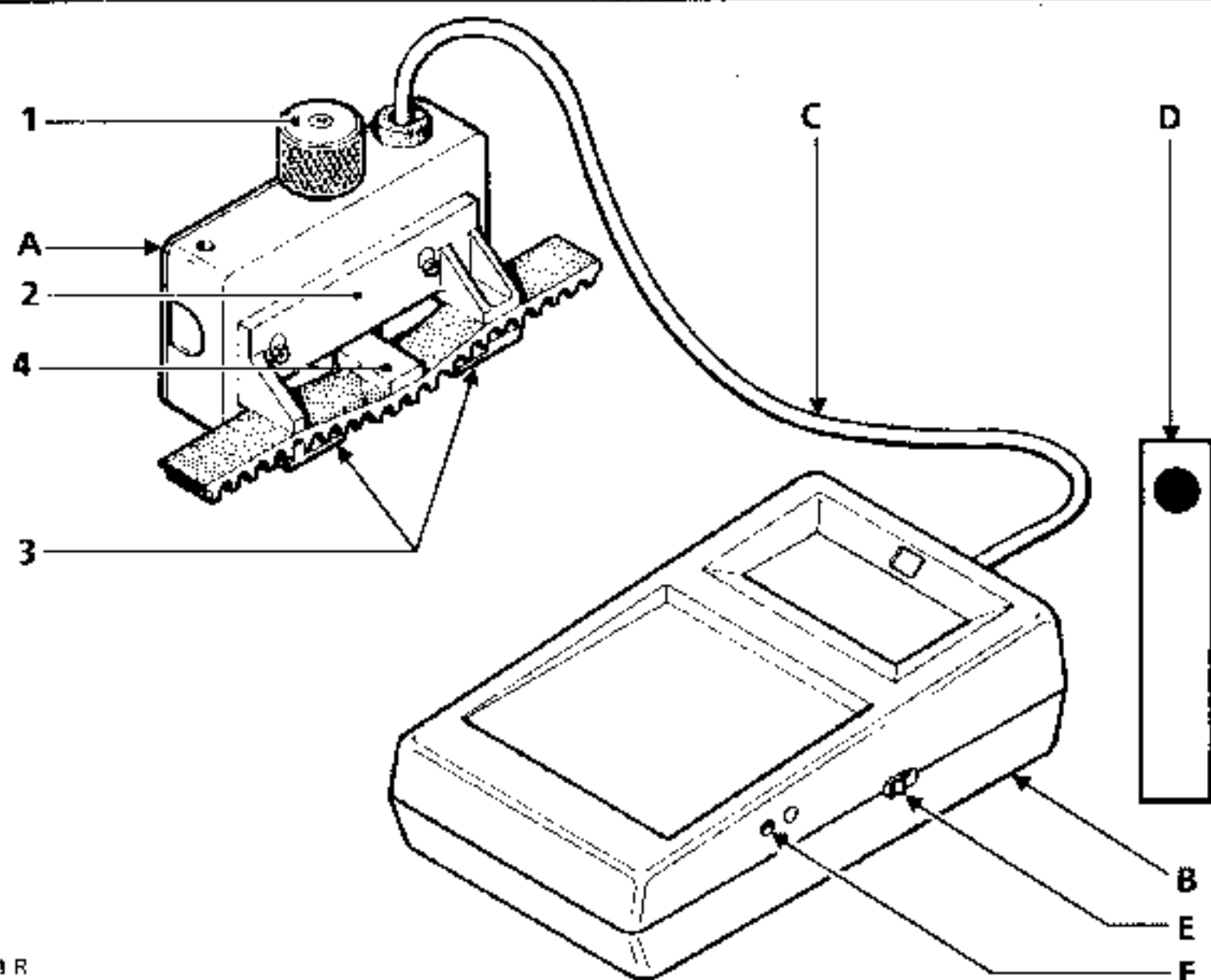
Top up the oil in the compressor by injecting 120 cm³ **ELF RIMA 100** oil for type R12 refrigerant, Part N° 77 01 417 655 (approximately 1 glass) (in principle 15 cm³ will be remaining in the compressor, despite having drained the oil) and **sanden SP 20** oil for type R134a refrigerant, Part N° 77 11 143 700.

Refit the drain plug taking care to ensure that the surface and the seal are clean (torque tighten to 1 daN.m)

Refit the compressor.

IMPORTANT : It is essential to top up the oil in the compressor when a pipe has burst .

| ESSENTIAL SPECIAL TOOLING | |
|---------------------------|--------------------------------|
| Mot. 1273 | Tool for checking belt tension |



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- A : SENSOR
- B : DISPLAY
- C : CABLE CONNECTOR
- D : LEAF SPRING FOR CHECKING ADJUSTMENT

Principle of operation:

Via press button (1), pressure pad (2) and the external slides (3) the sensor imposes a continuous deflection on the belt.

The force of reaction of the belt is measured by a test piece (4) fitted with restrictor gauges.

Stretching of these gauges creates a variation in their electrical resistance.

Once this variation is converted by the apparatus, it appears on the display as a value in SEEM (US) units.

Adjusting the apparatus

The apparatus is adjusted at the factory, however, it is necessary to check its adjustment every six months.

Procedure:

- Zero adjusting:

- place the apparatus under tension (button E) with the press button head lowered (1)
- Display at 0 - do not touch anything.
- No display - check the charging condition of the 9V battery
- Display at a value other than 0 - turn screw (F) until the figure 0 is obtained

- **Checking the adjustment:**

Place the apparatus under tension (button E).

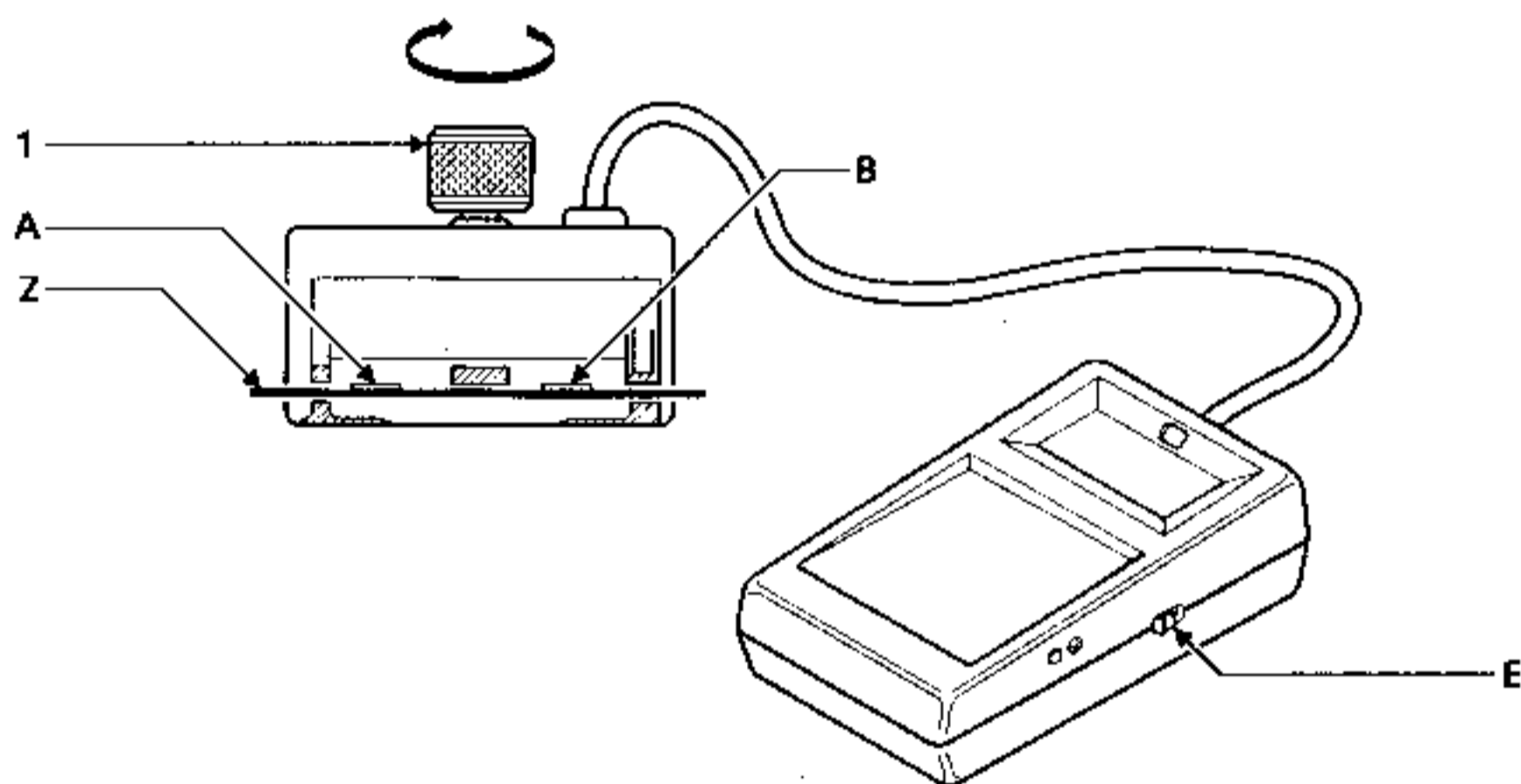
Fit the leaf spring (Z) on the sensor as shown in the diagram below (Checking values recorded near the to (A) = minimum value, (B) = maximum value).

Tighten the press button (1) until you hear "CLICK - CLICK - CLICK".

Check to make sure that the display is showing a value "X" between the two values (A and B) ($A \leq X \leq B$).

Observation: It may be necessary to carry out a few preliminary tests in order to obtain the correct value. Should you obtain incorrect values after carrying out several tests, contact your local After Sales Head Office.

Note: Each apparatus has its own particular leaf spring which is **not interchangeable**.



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- 1 Grooved button (press button).
- (A,B) Leaf spring adjustment checking value.
- Z Leaf spring for checking adjustment.

GENERAL INSTRUCTIONS

- Do not refit a belt which has been removed - replace it with a new one.
- Do not increase the tension on a belt whose tension value is between the fitting value and the minimum operating value.
- If, when checking, the tension value is below the MINIMUM operating value, replace the belt.

Adjusting the tension

All removed belts must be replaced with a new belt.

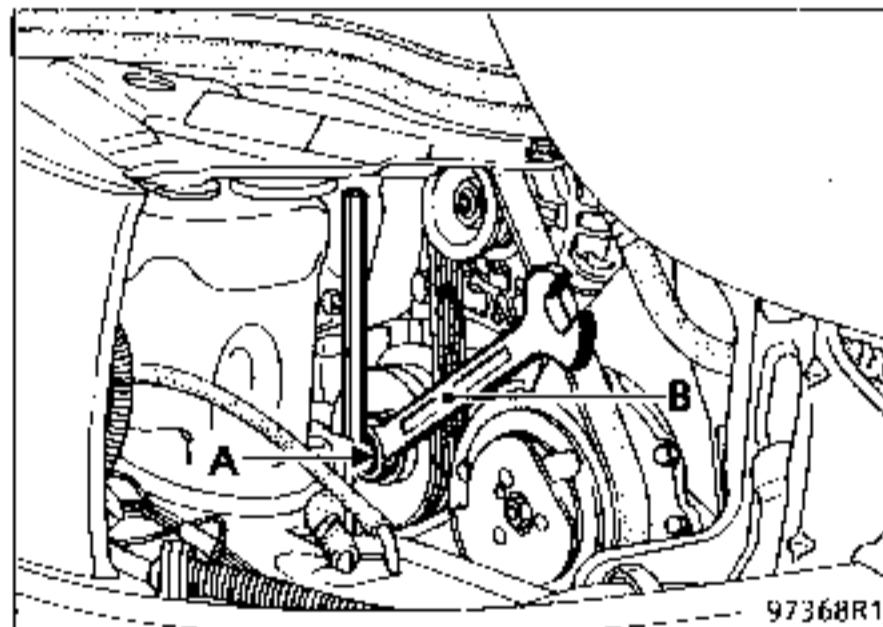
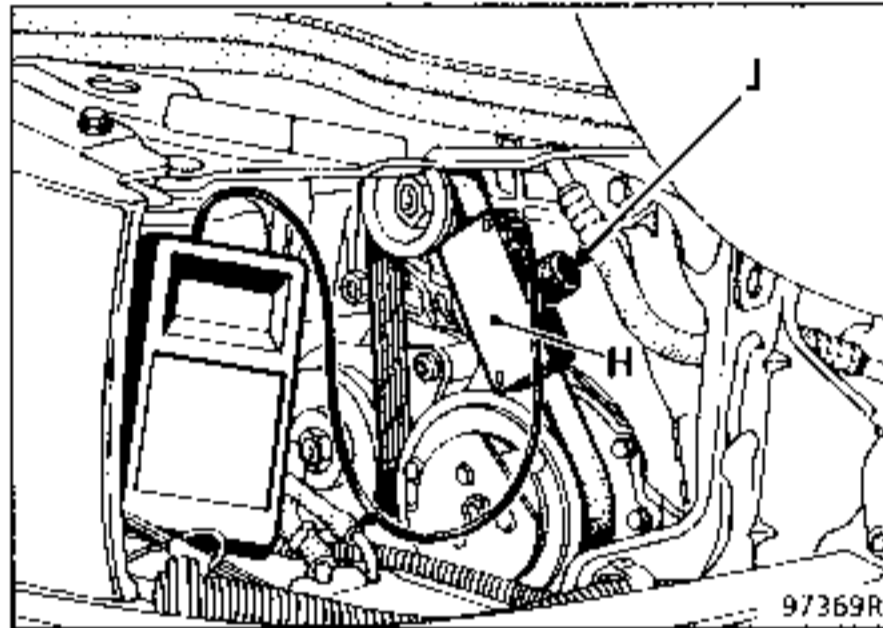
Fit the belt.

Fit the tool **Mot. 1273 (H)** onto the belt.

Turn the sensor button (J) until it clicks into place.

Adjust the value shown on the **Mot. 1273** tool display by moving the tensioner pulley using a flat spanner (B) until the following value is obtained :
 104 ± 7 SU (SEEM units)

Tighten the tensioner pulley by tightening the 6 cross-headed screw (A).



Check the tension without removing the belt.

Fit the tool **Mot. 1273**.

Turn the sensor button (J) until it clicks into place.

Check the value shown on the **Mot. 1273** tool display. It should be between: 55 SU (SEEM units) the minimum operating value, and 104 ± 7 SU (SEEM units), the fitting value.