



**N.T. 3312E**

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**LB03**

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## **Special features of tricorps vehicles**

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**For all parts not dealt with in this Technical Note,  
refer to Workshop Repair Manual M.R. 337**

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**77 11 203 516**

**SEPTEMBER 1999**

**EDITION ANGLAISE**

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"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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## Contents

	Pages		Pages
<b>07</b> <b>VALUES AND SETTINGS</b>		<b>17</b> <b>INJECTION</b>	
Accessories belt tensioning	07-1	Specifications	17-1
Tyres and wheels	07-3	Immobiliser function	17-2
Brakes	07-4	Injection/AC programming	17-3
Brake compensator	07-5	Idle speed correction	17-4
Underbody height	07-6	Mixture regulation	17-5
Front axle angle checking values	07-8	Adaptive mixture correction	17-7
Rear axle angles checking values	07-9	Centralised coolant temperature management	17-8
		Computer	17-9
<b>12</b> <b>FUEL MIXTURE</b>		<b>20</b> <b>CLUTCH</b>	
Specifications	12-1	Mechanism - Disc	20-1
Air filter unit	12-4		
Manifolds	12-5		
<b>13</b> <b>FUEL SUPPLY</b>		<b>21</b> <b>MANUAL GEARBOX</b>	
Antipercolation device	13-1	Identification	21-1
		Ratios	21-2
		Capacities - Lubricants	21-3
<b>14</b> <b>ANTI POLLUTION</b>		<b>36</b> <b>STEERING ASSEMBLY</b>	
Fuel vapours rebreathing	14-1	Mechanical power steering pump	36-1
<b>16</b> <b>STARTING - CHARGING</b>		<b>62</b> <b>AIR CONDITIONING</b>	
Alternator	16-1	General	62-1

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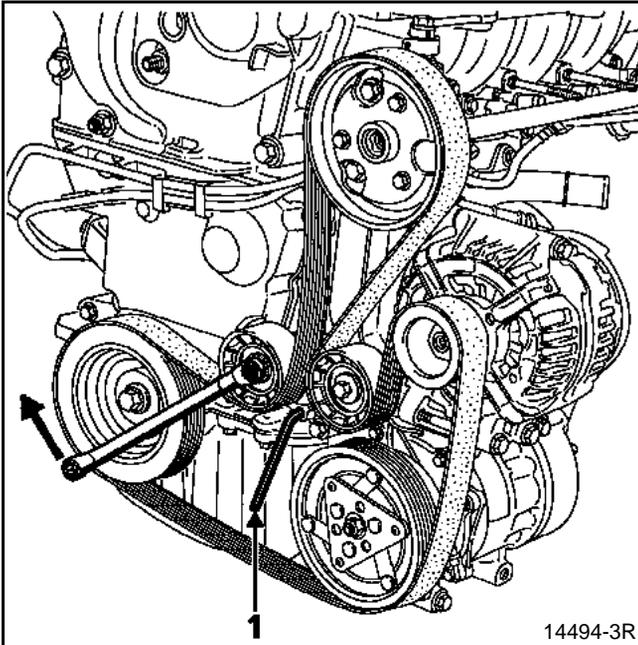
### REMOVAL

Put the vehicle on a 2 post lift.

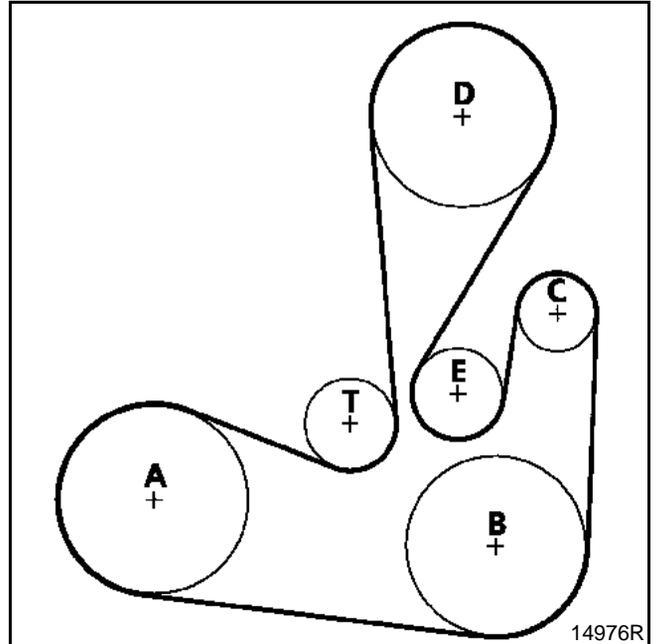
Disconnect the battery.

Remove the wheel as well as the front right mud flap.

Pivot the automatic belt tightener in the direction shown below using a **13 mm offset ring wrench**. Clamp the tensioner using a **6 mm Allen key (1)**.



### ALTERNATOR, POWER STEERING AND AIRCONDITIONING



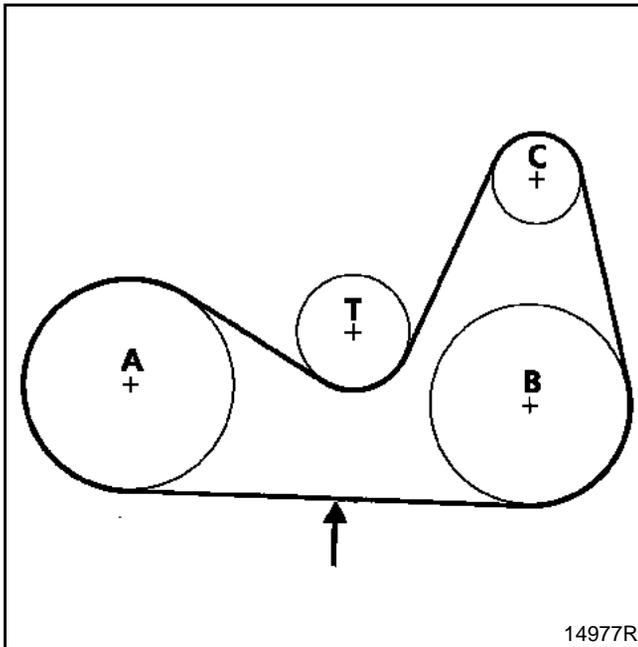
- A Crankshaft
- B Air conditioning compressor
- C Alternator
- D Power steering pump
- E Roller gear
- T Automatic tensioner

### REFITTING

Refitting is the reverse of removal.

SPECIAL TOOLING REQUIRED		
Mot.	1273	Tool for checking belt tension
Mot.	1505	Tool for measuring belt tension

### ALTERNATOR AND POWER ASSISTED STEERING

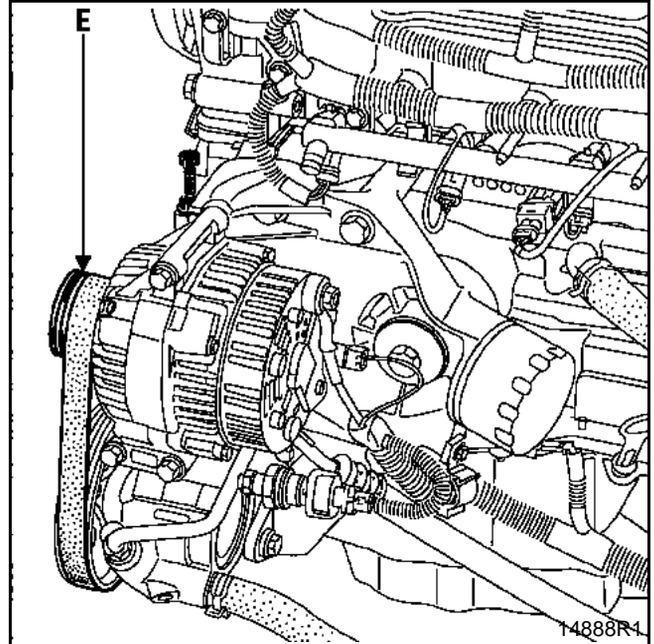


Multitooth power assisted steering belt	Tension (US=SEEM unit)	Voltage (Hertz)
108 ± 6	Fitting	190 ± 10
60	Operating minimum	-

- A Crankshaft
- B Power steering pump
- C Alternator
- T Tensioner

→ Point for checking belt tension

**NOTE:** refer to **Technical Note 3247A** for the procedure for using **Mot. 1505**.



**NOTE:** the accessories belt has five teeth, while the alternator pulleys, assisted steering pump and the crankshaft have six. It is therefore imperative that you ensure, when fitting the belt, that the tooth at the end of the pulleys (E) remains "free".

# VALUES AND SETTINGS

## Tyres and wheels

07

Vehicle	Rim	Tyres	Tyre pressure when cold (in bar) (1)	
			Front	Rear
LB03	5 B 13	175/70R13T 155/80R13T	2.3	2.1

(1) During motorway use with full load.

Wheel nut tightening torque: **9 daN.m**

Rim run-out: **1.2 mm**

# VALUES AND SETTINGS

## Brakes

07

Vehicle	Disc thickness (in mm)		Drum diameter or disc thickness (in mm)	
	Normal	Min.	Normal	Max.
LB03	12	10.5	180.25	181.25

(1) Drum: maximum wear diameter

The disc run-out is 0.07 maximum.

Vehicle	Lining thickness (in mm)				Brake fluid
	Front (including support)		Rear		
	New	Min.	New	Min.	
LB03	18.2	6	3.1 (2) 4.5 (1)	2	SAE J1703 DOT 4

(1) Primary lining

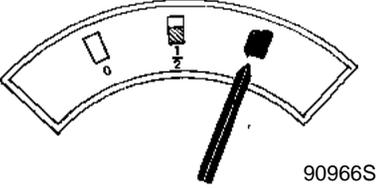
(2) Secondary lining

# VALUES AND SETTINGS

## Brake compensator

07

### BRAKING PRESSURE

Vehicle	Fuel level status (driver on board)	Check pressure (1) (in bars)	
		Front	Rear
LB03		100	47 +0 -18

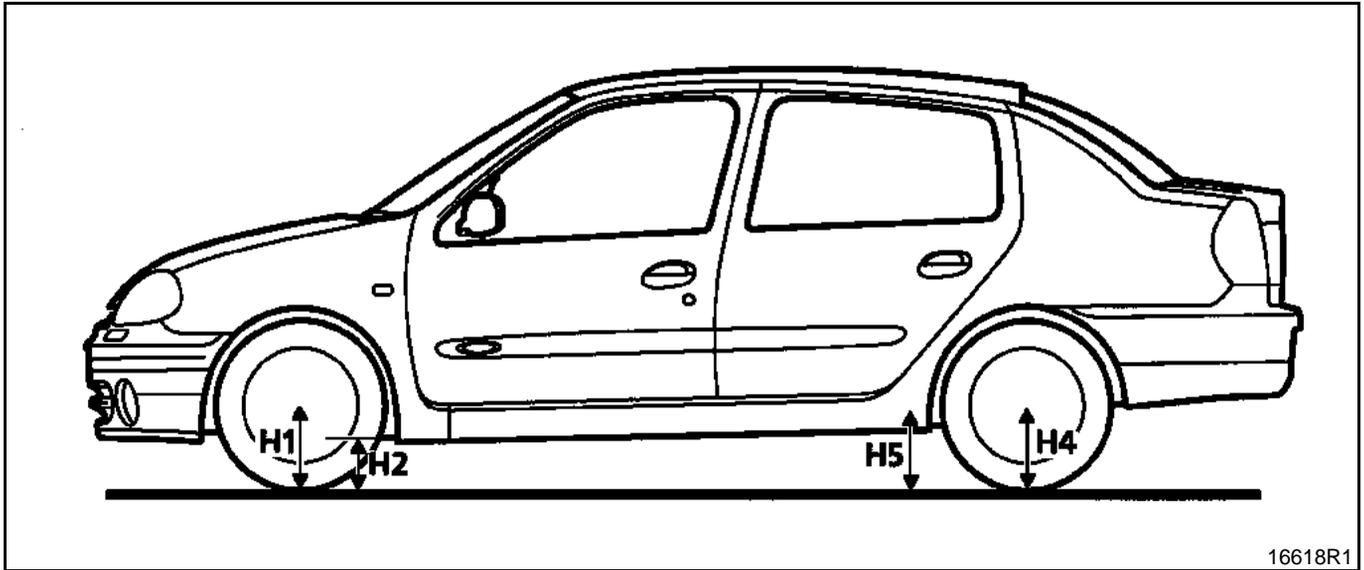
(1) The check is carried out using two pressure gauges arranged in an X formation.

# VALUES AND SETTINGS

## Underbody height

07

### MEASUREMENT POINTS



16618R1

# VALUES AND SETTINGS

## Underbody height

07

Vehicle	At the front H1 - H2 = ... mm	At the rear H4 - H5 = ... mm	Dimension X (in mm) D and G
LB03	78	- 34	-

Tolerance:  $\pm 10.5$  mm

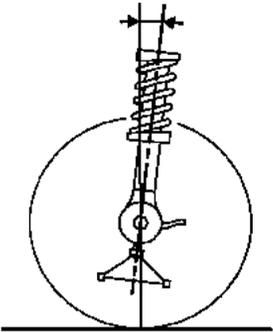
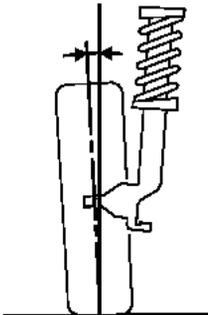
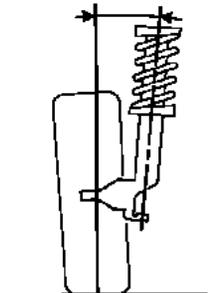
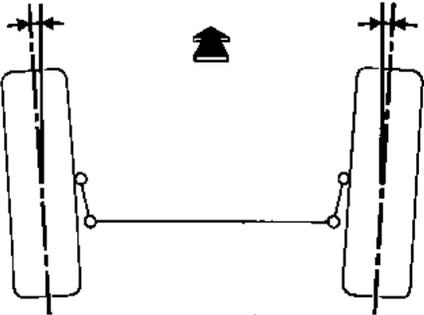
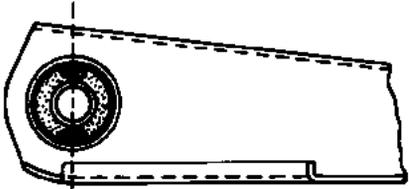
The difference between the right-hand side and the left-hand side of the same axle of a vehicle must not exceed **5 mm**, the driver's side always being the highest.

Any alteration to the underbody height also requires adjustment of the brake compensator and of the headlights.

# VALUES AND SETTINGS

## Front axle angle checking values

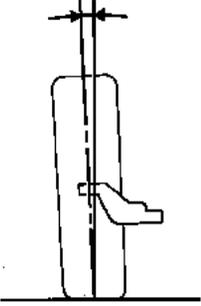
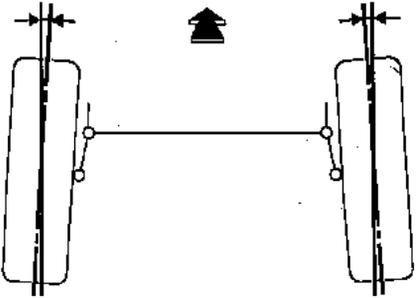
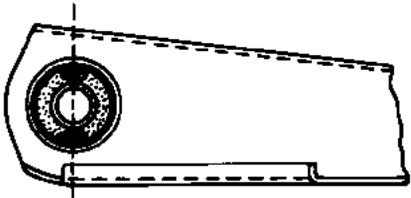
07

ANGLES	VALUES	POSITION OF FRONT AXLE	SETTING
<p><b>CASTOR</b></p> 	<p> <math>2^{\circ}50'</math>  <math>2^{\circ}20'</math>  <math>1^{\circ}50'</math> </p> <p style="text-align: center;">} <math>\pm 30'</math></p> <p>Max. right/left difference = <math>1^{\circ}</math></p>	<p>H5 - H2 = 80 H5 - H2 = 100 H5 - H2 = 120</p>	<p>NOT ADJUSTABLE</p>
<p><b>CAMBER</b></p> 	<p> <math>-0^{\circ}19'</math>  <math>-0^{\circ}26'</math>  <math>-0^{\circ}33'</math> </p> <p style="text-align: center;">} <math>\pm 30'</math></p> <p>Max. right/left difference = <math>1^{\circ}</math></p>	<p>H1 - H2 = 78 H1 - H2 = 92 H1 - H2 = 106</p>	<p>NOT ADJUSTABLE</p>
<p><b>PIVOT</b></p> 	<p> <math>10^{\circ}12'</math>  <math>11^{\circ}07'</math>  <math>11^{\circ}33'</math> </p> <p style="text-align: center;">} <math>\pm 30'</math></p> <p>Max. right/left difference = <math>1^{\circ}</math></p>	<p>H1 - H2 = 78 H1 - H2 = 92 H1 - H2 = 106</p>	<p>NOT ADJUSTABLE</p>
<p style="text-align: center;"><b>PARALLELISM</b></p> 	<p>(for 2 wheels)</p> <p><math>+0^{\circ}17' \pm 25'</math> opening</p> <p><math>+1.7 \text{ mm} \pm 25 \text{ mm}</math></p>	<p>UNLADEN</p>	<p>Adjusted by rotating track rod sleeves</p> <p>1 turn = <math>30'</math> (3 mm)</p>
<p><b>POSITION FOR TIGHTENING RUBBER BUSHES</b></p> 	<p>-</p>	<p>UNLADEN</p>	<p>-</p>

# VALUES AND SETTINGS

## Rear axle angles checking values

07

ANGLES	VALUES	POSITION OF REAR AXLE	SETTING
<p><b>CAMBER</b></p> 	$- 0^{\circ}46' \pm 20'$	UNLADEN	NOT ADJUSTABLE
<p><b>PARALLELISM</b></p> 	(For 2 wheels) Pince $- 20' \pm 30'$ $- 2 \text{ mm} \pm 3 \text{ mm}$	UNLADEN	NOT ADJUSTABLE
<p><b>POSITION FOR TIGHTENING RUBBER BUSHES</b></p> 	-	UNLADEN	-

# FUEL MIXTURE Specifications

# 12

Vehicle	Gearbox	Engine							Depollution standard
		Type	Index	Bore (mm)	Stroke (mm)	Cubic capacity (cm <sup>3</sup> )	Ratio	Catalytic converter	
LB03	JB1	K7J	700	79.5	70	1390	9.5/1	◇ C63	EU 93

Engine		Tests at idle speed*					Fuel*** (minimum octane rating)
		Engine speed (rpm)	Pollutant emission **				
Type	Index		CO (%) (1)	CO <sub>2</sub> (%)	HC (ppm)	Lambda (λ)	
K7J	700	750	0.5 max	14.5 min	100 max	0.97<λ<1.03	Unleaded (OR 95)

(1) at **2500 rpm**, **CO** must be a maximum of **0.3**

\* For a coolant temperature above **80°C** and after stable speed of **2500 rpm**, for about **30 seconds**. Test to be carried out after return to idle speed.

\*\* For legal values refer to your country specification.

\*\*\* **OR 91** unleaded compatible.

Temperature in °C (± 1°)	- 10	25	50	80	110
<b>Air temperature sensor</b> CTN type Resistance in Ohms	10 450 to 8 525	2 120 to 1 880	860 to 760	-	-
<b>Coolant temperature sensor</b> CTN type Resistance in Ohms	-	2 360 to 2 140	770 to 850	275 to 290	112 to 117

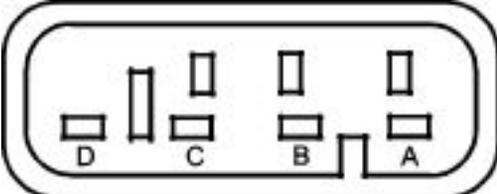
# FUEL MIXTURE Specifications

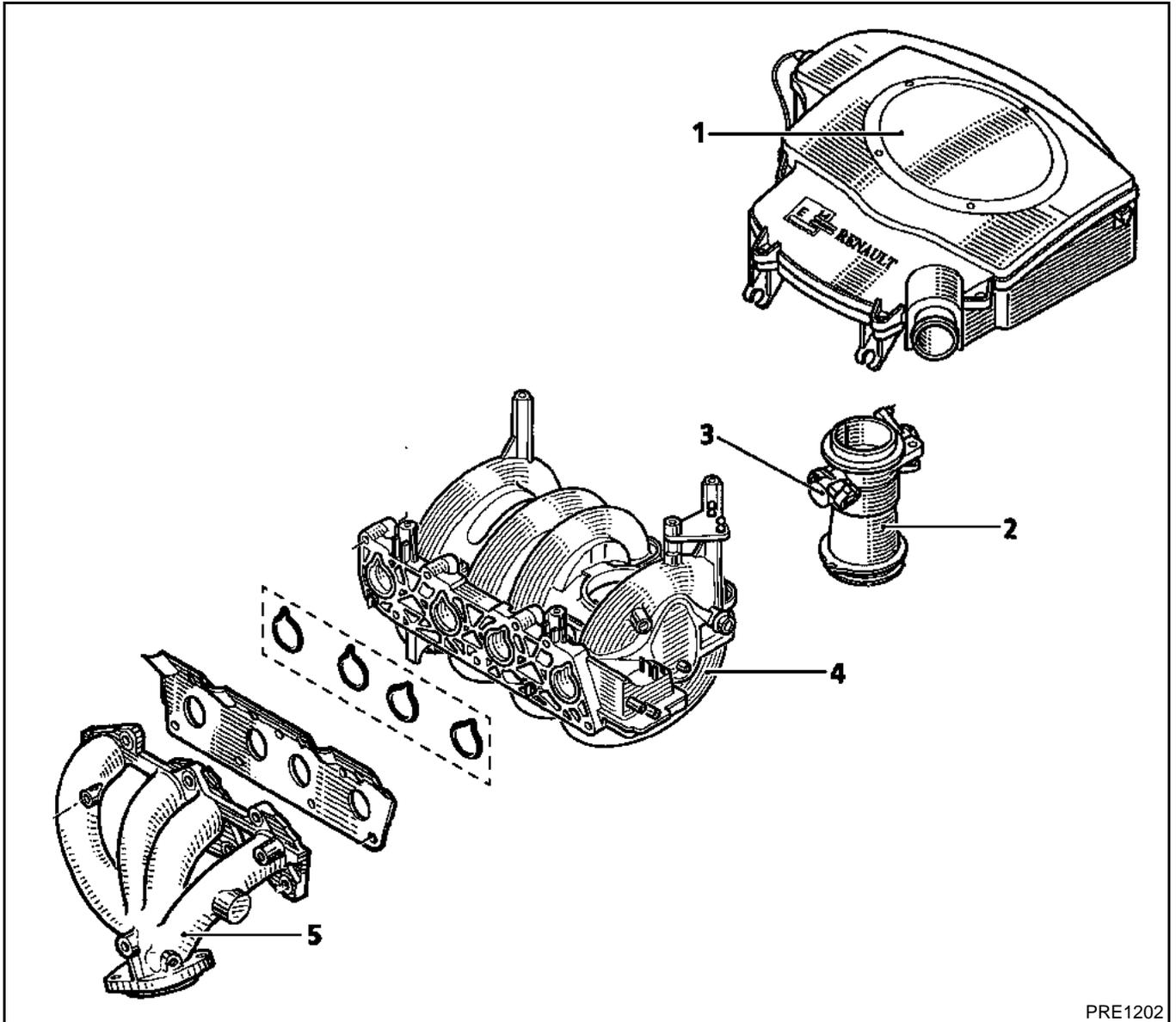
# 12

DESCRIPTION	BRAND/TYPE	SPECIAL NOTES
Computer	SIEMENS "SIRIUS"	90 tracks
Injection	-	Sequential multipoint
Stepper motor	PHILIPS	Resistance $\approx$ <b>53 <math>\Omega</math> at 25°C</b>
Throttle potentiometer	PIERBURG	Incorporate in throttle housing Track resistance : <b>&lt; 1050 <math>\Omega</math></b> Cursor resistance: <b>1200<math>\pm</math> 240 <math>\Omega</math></b>
Magnetic sensor (TDC and engine speed)	ELECTRIFIL or SIEMENS	Incorporated connector Resistance = <b>200 to 270 <math>\Omega</math></b>
Canister solenoid valve	SAGEM	Incorporated in the canister Resistance: <b>26<math>\pm</math>4 <math>\Omega</math> at 23°C</b>
Injector	SIEMENS	Resistance: <b>14.5 <math>\Omega</math> at 20°C</b> Leakage flow: <b>0.7 cm<sup>3</sup>/min. max.</b>
Pressure sensor	DELCO ELECTRONICS	Resistance $\approx$ <b>100 k<math>\Omega</math></b>
Pinking sensor	SAGEM	Piezo-electric type - Tightened to <b>2 daN.m</b>
Oxygen sensor	NTK	80 Track (earth) and 45 (signal) Heater resistance Resistance = <b>6<math>\pm</math>1 <math>\Omega</math> at 23°C</b> Rich mixture <b>&gt; 750<math>\pm</math>70 mvolts</b> Lean mixture <b>&lt; 150<math>\pm</math>50 mvolts</b>
Coolant pressure sensor.	TEXAS INSTRUMENTS	For cold catch operation (air conditioning computer integrated in the injection computer)

# FUEL MIXTURE Specifications

# 12

DESCRIPTION	MAKE/TYPE	SPECIAL NOTES
Ignition coil	SAGEM	<p>Monobloc coil with four outputs                      Primary resistance <math>\approx 0.5 \Omega</math>                      Secondary resistance: <math>7.2 \pm 1 \text{ k}\Omega</math>                      Tightened to <math>0.9 \pm 0.1 \text{ daN.m}</math>                      A: Controlling cylinders 1 and 4                      B: Controlling cylinders 2 and 3                      C: Supply                      D: Supply (internal connection)</p> 
Spark plugs	EYQUEM	<p><b>RFC 50 LZ 2E</b>                      Tightened to <b>2.5 to 3 daN.m</b></p>
Idle speed manifold pressure	-	<b>330 <math>\pm</math>40 mbars</b>
Submerged fuel pump	-	<p><b>3 bars <math>\pm</math>0.06 at 80 l/h</b> for circuit with return  <b>3.5 bars ; 160 l/h</b> for circuit without return</p>



PRE1202

- 1 Air filter unit.
- 2 Throttle housing
- 3 Throttle potentiometer
- 4 Inlet manifold
- 5 Exhaust manifold

## TIGHTENING TORQUES (in daN.m)



<b>Inlet manifold bolt</b>	<b>2.5±0.2</b>
<b>Exhaust manifold bolt</b>	<b>2.5±0.2</b>
<b>Exhaust down pipe bolt</b>	<b>2.5±0.2</b>

## REMOVING THE INLET MANIFOLD

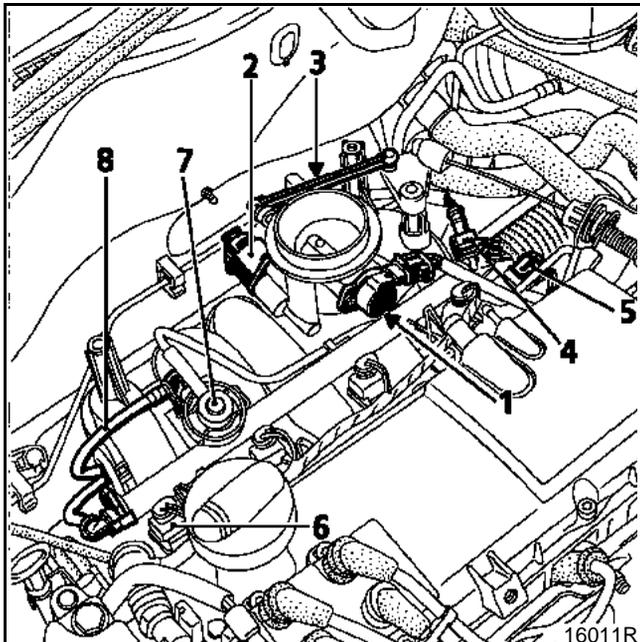
Put the vehicle on a 2 post lift.

Disconnect the battery.

Remove the air filter unit.

Disconnect:

- the throttle potentiometer(1),
- the idle speed regulation valve (2)
- the throttle control lever (3),
- the air temperature sensor (4),
- the pressure sensor (5),
- the injectors (6),
- the petrol pressure regulator (according to version) (7),
- the fuel supply and return pipes (according to version) (8).



Remove:

- the air duct comprising the throttle potentiometer and the idle speed regulation valve,
- the injection gallery with the injectors and the regulator (according to version),
- the upper bolts on the inlet manifold,
- the inlet manifold stay,
- the lower bolts on the inlet manifold (underneath the vehicle).

## REFITTING

If necessary, allow for the replacement of manifold and throttle body seals.

Replace the lower bolts on the inlet manifold at the same time as the manifold to make it easier to tighten them. Then replace the stay and the upper bolts.

**NOTE: respect the tightening torque on the inlet manifold bolts.**

Check that the air duct comprising the throttle body is positioned correctly.

### OPERATING PRINCIPLE

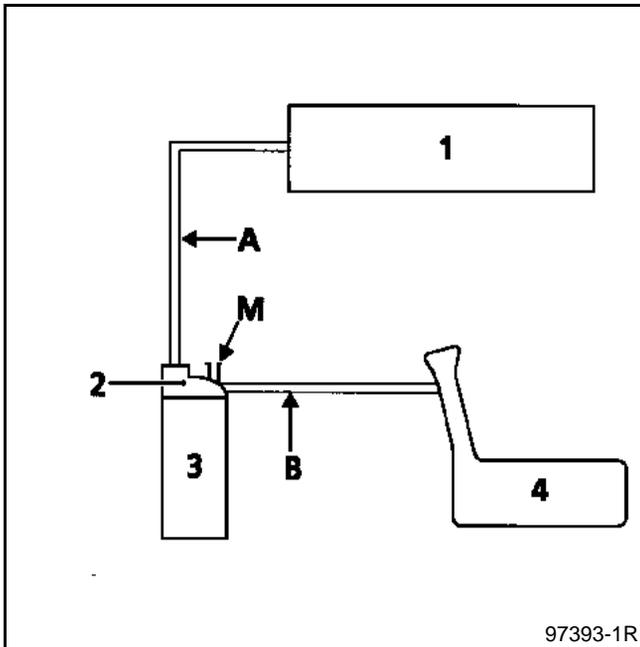
The antipercolation system is controlled directly by the injection computer.

The coolant temperature information is repeated on the injection coolant temperature sensor (see section 17 - CCTM).

After switching the ignition off, the injection calculator moves into monitoring mode. If the engine coolant temperature falls below **102°C** during the three minutes after the engine is switched off, the fan low speed relay is supplied.

If the temperature rises above **96°C** again, the fan relay is cut off (operation must not exceed a duration of **10 minutes**).

### BASIC DIAGRAM OF THE CIRCUIT



- 1 Inlet manifold
- 2 Integrated canister purge solenoid valve
- 3 Fuel vapour absorber (canister) with solenoid valve
- 4 Fuel tank
- M Breather
- A Canister pipes (inlet manifold)
- B Tank pipes/canister

### CANISTER PURGE CONDITIONS

The canister purge solenoid valve is controlled by track 4 of the computer when:

- the coolant temperature is greater than **40 °C**,
- the air temperature is greater than **10 °C**,
- a load threshold is reached,
- the throttle potentiometer position is not at **no load**,
- outside idling speed.

It is possible to display canister purge solenoid valve opening cycle ratio using the diagnostic equipment by consulting the parameter "Canister purge solenoid valve RCO".

The solenoid valve is closed if the value is less than or equal to 3 % (minimum value).

### CANISTER PURGE OPERATION CHECK

A system malfunction may result in an unstable idle or stalling of the engine.

Check the conformity of the circuit (see basic diagram) and the condition of the pipes to the tank (refer to Workshop Repair Manual M.R. 337).

### SPECIAL TOOLING REQUIRED

Mot.	1273	Tool for checking belt tension
Mot.	1505	Tool for measuring belt tension

### REMOVAL

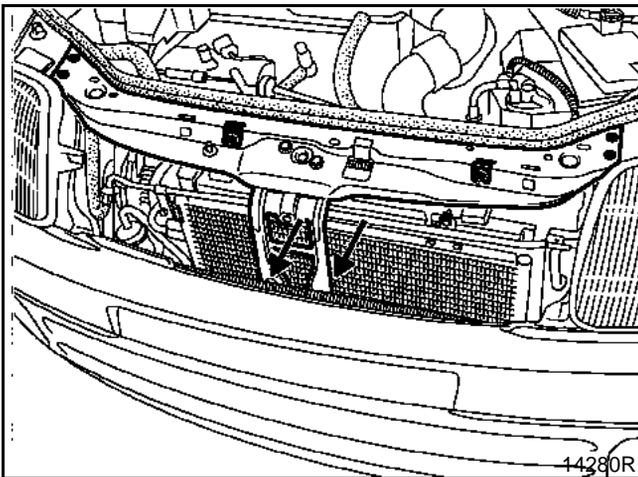
Put the vehicle on a 2 post lift.

Disconnect the battery.

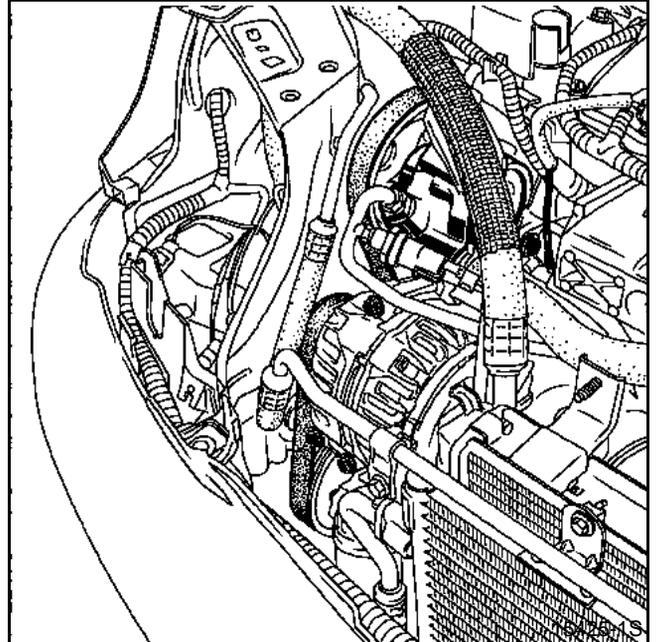
#### Special features of vehicles fitted with air conditioning

Remove:

- the front right wheel as well as the right and left mud flaps,
- the bumper,
- the upper cross member (by loosening the two lower mounting bolts) and fit it to the engine,



- the accessories belt (see section **07 "Accessories belt tension"**),
- the air conditioning pump pulley,
- the air conditioning pump mountings on its support,



- the alternator by removing the air conditioning pump.

**NOTE:** vehicles without air conditioning require only the removal of the accessories belt.

### REFITTING

Carry out the refitting operations in the reverse order to removal.

See section **07 "Accessories belt tension"** for the tension values.

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## SPECIAL FEATURES OF THE MULTIPOINT DIRECT INJECTION FITTED IN THE K7J 700 ENGINE

- 90 track computer **SIEMENS "SIRIUS 32"** controlling injection and ignition.
- Use of diagnostic equipment (except XR25).
- Multipoint injection operating in sequential mode without a cylinder marking or camshaft position sensor. This means that phasing is carried out by software from the TDC sensor.
- Injection warning light on instrument panel not operational.
- Specific precautions linked to immobilising: insertion of a 2<sup>nd</sup> generation type immobiliser implying a specific method for replacing the computer.
- Two possible fuel circuits:
  - circuit with fuel return to tank (the regulator is located on the injection gallery),
  - circuit without fuel return to tank (the regulator is located on the pump and sender unit).
- Idle speed :
  - nominal idle speed **750 rpm.**
- Idle speed corrected in line with:
  - air conditioning
  - power steering pressure switch information,
  - electrical balance.
- Maximum speed **6000 rpm.**
- Canister purge solenoid valve controlled by opening cyclic ration (RCO) in line with the engine operating speed.
- Control of the fan and coolant temperature warning light on the instrument panel using the injection computer.

This vehicle is fitted with a 2<sup>nd</sup> generation engine immobiliser system.

### REPLACING THE INJECTION COMPUTER

All injection computers are supplied without a code, but they can all be programmed with one.

If a computer is replaced, it must be programmed with the code of the vehicle and the correct operation of the engine immobiliser function must be checked.

To do this, simply switch on the ignition for a few seconds without starting the engine and then switch it off. Remove the key to guarantee the immobiliser function.

### SPECIAL FEATURES OF THE INJECTION COMPUTER TESTS

Remove the ignition switch key, after **10 seconds** the red immobiliser warning light should flash.

#### **IMPORTANT:**

These vehicles are fitted with a specific injection computer which only functions when coded.

Consequently, it is strongly recommended that you do not carry out tests using computers borrowed from the warehouse or on another vehicle to prevent coding and uncoding problems which may leave the computer useless.

### UNCODING PROCEDURE

If the injection computer has learnt a code and must be returned to the workshop it is imperative that you uncode it before removing it.

### THE COMPRESSOR IS OF THE VARIABLE CUBIC CAPACITY TYPE

There is no air conditioning computer on this type of engine. The injection computer directly controls the clutch compressor, taking into account the power absorbed by the compressor and the pressure of the coolant fluid in the circuit.

The tracks used for air conditioning operation are:

- one wire from the injection computer to track **10**. This wire conveys information authorising or forbidding operation of the compressor,
- one wire from track **46** which conveys information on the power absorbed (PA),
- one wire from tracks **82 and 83** to supply the coolant pressure sensor,
- one wire from track **18** of the pressure sensor for information sent to the injection computer.

When the **AC** switch is activated, the injection computer authorises clutch compression according to the parameters and adopts a fast idling speed. This speed may reach **850 rpm**. according to the power absorbed by the compressor and the coolant pressure.

**WARNING:** the value in the: "**PR power absorbed**" parameter is never equal to 0, regardless of the state of the compressor. The minimum value read is **250 watts**.

### COMPRESSOR OPERATION PROGRAMMING

During certain stages of operation, the diesel injection computer stops the compressor from functioning.

#### Engine start programming

After the engine has started running, the compressor is prevented from functioning for **10 seconds**.

#### Thermal protection programming

The compressor does not engage in cases where the coolant temperature is greater than **+ 120 °C**.

#### Max. speed protection programming

The compressor is disengaged if the engine speed is greater than **6200 rpm**.

#### Stalling prevention programming

The compressor is prevented from operating if the engine speed is less than **544 rpm**. It is engaged again if the engine speed exceeds **1000 rpm**.

#### Recovery of performance

In 1<sup>st</sup> gear, if the position of the potentiometer is greater than **50 %**, if the engine speed is less than **2300 rpm**. and if the vehicle speed is less than **4 km/h**, the compressor cannot be operated for **7 seconds**. It is authorised if the engine speed reaches **2800 rpm**., if the vehicle speed exceeds **15 km/h** or if the gear changes.

### POWER STEERING PRESSURE SWITCH - INJECTION COMPUTER CONNECTION

The injection computer receives information from the power steering pressure switch (which can be displayed on the diagnostic equipment). This depends on the pressure in the hydraulic circuit and on the fluidity of the power steering fluid. The higher the pressure, the more energy is used by the power steering pump.

The injection computer alters the engine idle speed to a speed of **850 rpm**.

### ELECTRICAL CORRECTION IN LINE WITH THE BATTERY VOLTAGE AND THE ELECTRICAL BALANCE

The purpose of this correction is to compensate for the drop in voltage, due to operation of a power consuming component when the battery is at low charge. To do this, the idle speed is increased, allowing the rotation of the alternator to be increased and, consequently, the battery voltage.

The lower the voltage, the more significant the correction. Correction of the engine speed is therefore variable. It begins when the voltage falls below **12.7 Volts**. Correction begins at the engine idle speed and may reach a maximum of **865 rpm**

**NOTE:** after starting at cold and long operation at idle speed it is possible to notice a sharp drop in the engine speed of around **100 rpm**. This drop in speed is caused by the presence of a starter motor.

### ADAPTIVE IDLE SPEED CORRECTION

This correction only takes effect if the coolant temperature is greater than **75 °C**, **30 seconds** after starting the engine and if the nominal idle speed regulation phase is active.

### IDLE SPEED RCO VALUES AND ADAPTIVE CORRECTION

PARAMETER	K7J 700 Engines
Nominal idle speed	X = 750 rpm
Idle RCO	8 % ≤ X ≤ 18%
Adaptive idle RCO	Limit: – minimum: - 10 % – maximum: + 12 %

Every time the engine is switched off the computer resets the stepper motor to its lower limit.

**IMPORTANT:** it is imperative after erasing the computer memory that you start the engine and then switch it off to allow the stepper motor to be retimed. Start it again and let it run at idle speed so that the adaptive correction can take place.

This engine is fitted with a single oxygen sensor located upstream from the catalytic converter

### HEATING THE SENSOR

The oxygen sensor is reheated by the injection computer when the engine is started.

Heating the oxygen sensor is stopped:

- if the vehicle speed is greater than **145 km/h**, (value given for information only),
- according to the load and engine speed.

### UPSTREAM SENSOR VOLTAGE

The value read on the diagnostic equipment (except XR25) under the parameter: "Upstream sensor voltage" represents the voltage supplied to the computer by the oxygen sensor located upstream from the catalytic converter. It is expressed in millivolts.

When regulated the richness the voltage should fluctuate between two values:

- **150 ± 100 mV** for a lean mixture,
- **750 ± 100 mV** for a rich mixture.

The smaller the gap between the upper and lower values, the poorer the information from the sensor (the gap is usually at least **500 mV**).

**NOTE:** in case of a small gap, check the heating of the sensor.

### MIXTURE CORRECTION

The value read on the diagnostic equipment under the parameter: "Mixture correction" represents the average of mixture corrections made by the computer in line with the richness of the fuel mixture seen by the oxygen sensor located upstream from the catalytic converter.

The correction value has a mid-point of **128** and limits of **0** and **255**:

- value less than **128** : leaner mixture required,
- value greater than **128** : richer mixture required,

### ENTRY INTO MIXTURE REGULATION MODE

The mixture regulation starts after a given starting delay of between **50 seconds** and **10 minutes** if the coolant temperature is greater than **22 °C** at no load and if the upstream sensor is ready (sufficiently warm).

The starting delay depends on the coolant temperature :

- to **20 °C**, the starting delay is between **20 and 192 seconds**.

When the mixture regulation is complete the parameter value is **128**.

### Unlooping phase

In the mixture regulation phase, the phases of operation during which the computer does not take into account the value of the voltage supplied by the upstream sensor are:

- at full load,
- during heavy acceleration,
- during deceleration and no load information,
- in case the oxygen sensor is faulty.

### DOWNGRADED MODE IN THE EVENT OF FAILURE OF THE OXYGEN SENSOR

If the voltage from the oxygen sensor is incorrect (varies only slightly or not at all) during mixture regulation, the computer will only enter downgrade mode if the fault has been present for **3 minutes**. In this case only the fault will be memorised, the parameter: "Mixture correction" is **128** .

If an oxygen sensor fault is present and recognised and if the fault has already been stored, the system enters the open loop mode directly.

# INJECTION

## Adaptive mixture correction

### PRINCIPLE

In loop phase the mixture regulation corrects the injection time to obtain a dosage as close as possible to mixture **1**. The correction value is close to **128**, with limits of **0** and **255**.

The adaptive correction makes it possible to offset the injection map to realign the mixture regulation around **128**.

Therefore, it is necessary, following reinitialisation of the computer (return to **128** of the adaptive corrections) to carry out a special road test.

PARAMETER	K7J 700 Engines
Mixture correction	$80\% \leq X \leq 180\%$
Adaptive operating mixture	$80\% \leq X \leq 176\%$
Adaptive idle mixture	$80\% \leq X \leq 176\%$

### ROAD TEST

#### Conditions :

- Engine warm (coolant temperature > **75° C**).
- Do not exceed an engine speed of **4800 rpm**

#### Pressure zones which must be passed through during the test

	Range n° 1 (mbars)	Range n° 2 (mbars)	Range n° 3 (mbars)	Range n° 4 (mbars)	Range n° 5 (mbars)
K7J 700	258 ----- 410 ----- 528 ----- 646 ----- 764 ----- 882				
	Average 334	Average 469	Average 587	Average 705	Average 823

Following this test the corrections will be operational.

The test must be followed by normal smooth and varied driving for a distance of **5 to 10 kilometres**.

After the test read the mixture adaptation values. Initially **128**, they may have changed. If not, repeat the test taking care to observe the conditions strictly.

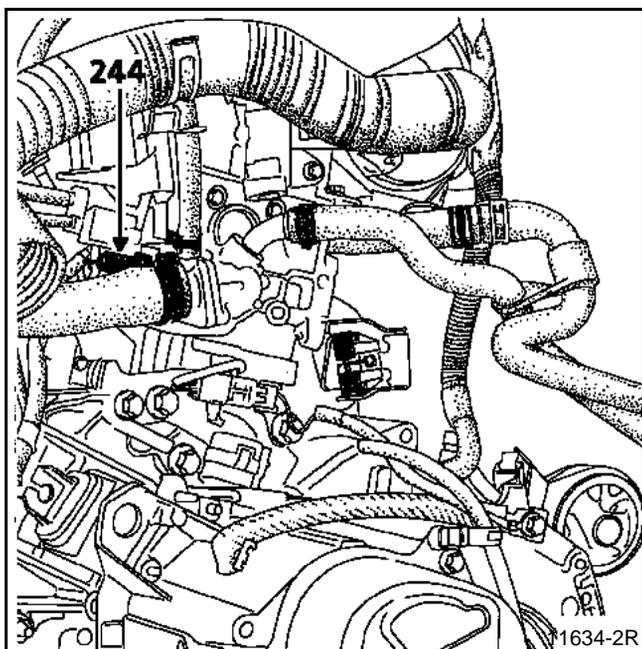
### INTERPRETATION OF VALUES GATHERED FOLLOWING A ROAD TEST

In the case of a lack of fuel (injectors clogged, pressure and flow of fuel too low, ...), the mixture regulation increases to obtain a mixture as close as possible to **1** and the adaptive mixture correction increases until the mixture correction again fluctuates around **128**.

In the event of an excessive amount of fuel the reasoning is reversed: the mixture regulation decreases and the adaptive correction decreases as well to realign the mixture correction around **128**.

## Centralised coolant temperature management

## CCTM



244 Coolant temperature sensor (injection and coolant temperature indication on the instrument panel).

**3 way** sensor, two for the coolant temperature information and one for the indication on the instrument panel.

This system is fitted with a single coolant temperature sensor which is used by the injection, the fan assembly and the temperature warning light on the instrument panel.

### Operating principle

Sensor **244** enables:

- the coolant temperature to be indicated on the instrument panel,
- the injection computer to be informed of the engine coolant temperature .

Depending on the coolant temperature, the injection computer controls:

- the injection system,
- the fan assembly relays,
  - the **fan** is controlled at low speed if the coolant temperature exceeds **100 °C** and stops when the temperature falls below **96 °C**,
  - the **fan** is controlled at low speed if the coolant temperature exceeds **102 °C** and stops when the temperature falls below **100 °C**,
  - the **fan** may be controlled at low or high speed for the AC and at low speed for the antipercolation device.
- temperature warning light.

### COOLANT TEMPERATURE WARNING LIGHT

The coolant temperature warning light is controlled by the injection computer if the coolant temperature exceeds **120 °C**.

## ALLOCATION OF INJECTION COMPUTER INPUTS AND OUTPUTS

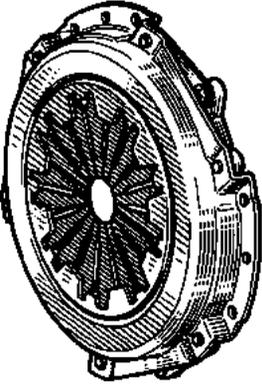
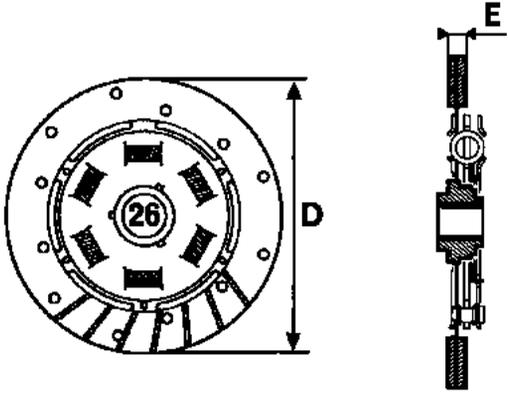
61	31	1
62	32	2
63	33	3
64	34	4
65	35	5
66	36	6
67	37	7
68	38	8
69	39	9
70	40	10
71	41	11
72	42	12
73	43	13
74	44	14
75	45	15

76	46	16
77	47	17
78	48	18
79	49	19
80	50	20
81	51	21
82	52	22
83	53	23
84	54	24
85	55	25
86	56	26
87	57	27
88	58	28
89	59	29
90	60	30

- 1 → IGNITION COIL 2-3 CONTROL
- 3 --- POWER EARTH
- 4 → CANISTER PURGE CONTROL
- 8 → FAN ASSEMBLY 1 CCTM RELAY CONTROL
- 9 → COOLANT TEMPERATURE WARNING LIGHT
- 10 → AC COMPRESSOR CONTROL
- 12 → IDLE REGULATOR CONTROL (TRACK B)
- 13 ← COOLANT TEMPERATURE SENSOR INPUT
- 15 --- PRESSURE SENSOR EARTH
- 16 ← PRESSURE SENSOR MANIFOLD INPUT SIGNAL
- 18 ← COOLANT PRESSURE SENSOR SIGNAL
- 19 --- PINKING SENSOR SCREENING
- 20 ← PINKING SENSOR SIGNAL INPUT
- 24 ← SPEED SENSOR SIGNAL INPUT
- 26 --- FAULT FINDING
- 28 --- POWER EARTH
- 29 --- + AFTER IGNITION FEED
- 30 --- + BEFORE IGNITION
- 32 → IGNITION COIL 1-4 CONTROL
- 33 --- POWER EARTH
- 38 → FAN ASSEMBLY 2 CCTM RELAY CONTROL
- 39 → ACTUATOR RELAY CONTROL
- 41 → IDLE REGULATOR CONTROL (TRACK B)
- 42 → IDLE REGULATOR CONTROL (TRACK C)
- 43 ← THROTTLE POTENTIOMETER SIGNAL
- 45 ← OXYGEN SENSOR SIGNAL INPUT
- 46 ← AIR CONDITIONING SIGNAL
- 49 ← AIR TEMPERATURE SENSOR INPUT
- 53 ← VEHICLE SPEED INPUT
- 54 ← SPEED SENSOR SIGNAL INPUT
- 56 --- FAULT FINDING
- 58 ← IMMOBILISER SYSTEM
- 59 → INJECTOR 1 CONTROL
- 60 → INJECTOR 3 CONTROL
- 63 → OXYGEN SENSOR REHEATING CONTROL
- 66 --- + AFTER IGNITION FEED
- 68 → FUEL PUMP RELAY CONTROL
- 70 → TDC ENGINE SPEED INFORMATION
- 72 → IDLE REGULATOR CONTROL (TRACK D)
- 73 --- COOLANT TEMPERATURE SENSOR EARTH
- 74 --- THROTTLE POTENTIOMETER SUPPLY
- 75 --- THROTTLE POTENTIOMETER EARTH
- 77 --- AIR TEMPERATURE SENSOR EARTH
- 78 --- PRESSURE SENSOR SUPPLY
- 79 --- PINKING SENSOR EARTH
- 80 --- OXYGEN SENSOR EARTH
- 82 --- COOLANT PRESSURE SENSOR EARTH
- 83 --- COOLANT PRESSURE SENSOR SUPPLY
- 85 → PAS PRESSURE SWITCH INFORMATION DEPENDING
- 89 → INJECTOR 4 CONTROL
- 90 → INJECTOR 2 CONTROL

# CLUTCH Mechanism - Disc

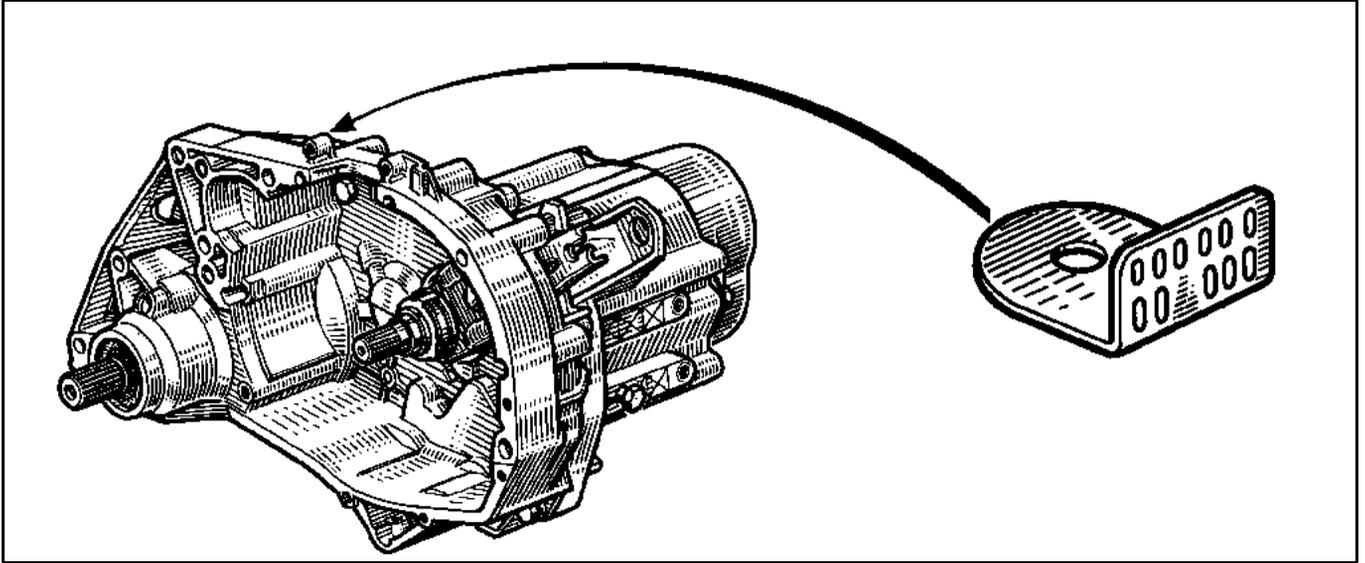
20

VEHICLE TYPE	ENGINE MODEL	COVER	DISC
LB03	K7J	 <p style="text-align: center; font-weight: bold; margin-top: 10px;">180 CPO 3300</p>	<p>26 splines D = 181.5 mm E = 6.8 mm</p> <div style="text-align: center;">  </div> <p style="text-align: right; margin-top: 10px;">90693R7 76906R</p>

Cable-controlled dry-operating single disc clutch.

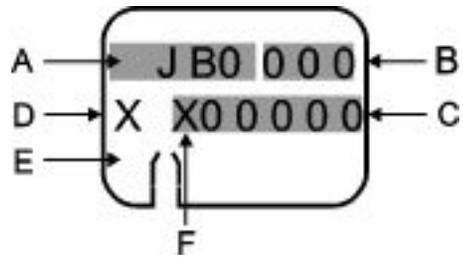
This type of vehicle is fitted with **JB** gearboxes.

Workshop Repair Manual "**B.V. JB**" deals with the complete repair of this component.



## IDENTIFICATION PLATE

- In A : type of gearbox
- In B : gearbox index
- In C : manufacturing number
- In D : factory of manufacture
- In E : a slot if the gearbox is assembled with an E engine
- In F : the letter before the manufacturing numbers greater than 999999



# MANUAL GEARBOX Ratios

JB1

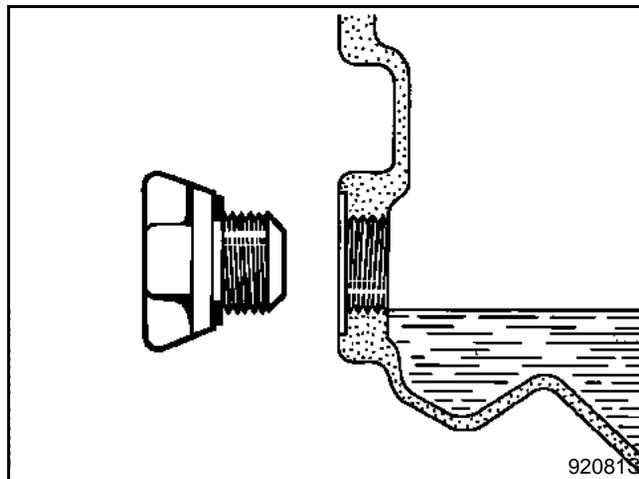
Index	Type	Differential ratio	Speedo meter gear	1 <sup>st</sup>	2 <sup>nd</sup>	3 <sup>rd</sup>	4 <sup>th</sup>	5 <sup>th</sup>	Reverse gear
926	LB03	$\frac{14}{63}$	$\frac{21}{19}$	$\frac{11}{41}$	$\frac{21}{43}$	$\frac{28}{37}$	$\frac{30}{29}$	$\frac{41}{31}$	$\frac{11}{39}$ 26

CAPACITY (in litres)

5 gear box	
JB1	3.4

Viscosity grade
TRX 75W 80W

## CHECKING THE LEVEL



Fill up to the level of the orifice

# STEERING ASSEMBLY

## Mechanical power steering pump

36

SPECIAL TOOLING REQUIRED		
Mot.	453-01	Hose clamps

Put the vehicle on a 2 post lift.

### REMOVAL

Disconnect the battery.

Remove:

- the front right wheel along with the right mudguard,
- the accessories belt using an Allen key which allows the tensioner to be blocked after it is tilted.

Fit a clamp **Mot. 453-01** to the supply pipe.

Disconnect the high pressure and supply pipes, be prepared for the flow of **power steering** fluid.

**WARNING:** as the alternator is located below the pump it is necessary to protect it against the flow of **power steering** fluid.

Disconnect the pump pressure switch connector.

Remove:

- the three power steering pump pulley bolts,
- the three power steering pump mounting bolts,
- the power steering pump.

### REFITTING

Proceed in the reverse order from removal.

Fill and bleed the circuit turning from lock to lock with the engine running.

### CONSUMABLES

- Compressor oil:  
**SANDEN SP 10: 135 cm<sup>3</sup>**
- Refrigerant:  
**R134a: 660 ± 35 g**
- Compressor:  
**SANDEN DV 6V 12**

### SPECIAL FEATURE

The air conditioning assembly is controlled by the injection computer (see section **Injection**).