

I - FASCIA PANEL HARNESS

C1 (3 way)
C2 (15 way)
C3 (15 way)
C4 (4 way)
C5 (4 way)

} connectors under fascia panel

PM4 : earth point on glove box light switch fastening.

PM5 : earth point on "A" post.

II - RIGHT HAND LEFT HAND REAR HARNESSES

C4 (4 way)
C5 (4 way)

} connectors under fascia panel

C6 (2 way)
C7 (2 way)

} connectors on rear roof upper
cross member

PM6 : earth point on the rear right hand corner stiffener.

PM7 : earth point on the rear left hand corner stiffener.

III - ENGINE RIGHT HAND WIRING HARNESS

PM1 : earth point on horn support.

PM2 : earth point on windscreen wiper support

IV - ENGINE LEFT HAND WIRING HARNESS

PM3 : earth point on inner front wing.

LEGEND

White pages

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Diagnostic socket

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— Specifications

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— Diagnostic socket

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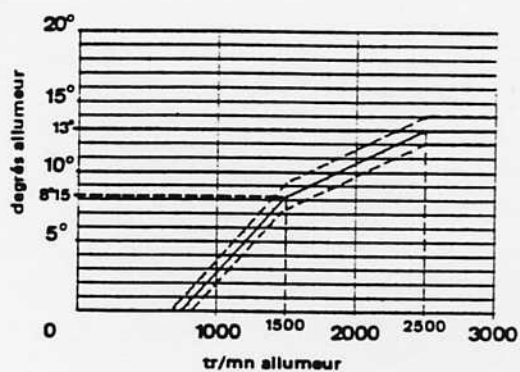
A1.002

A1.102 and 103

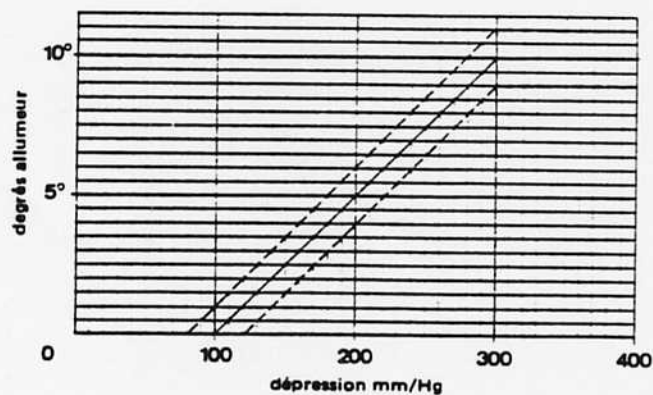
A1.202 and 203

A1.002	12	IGNITION SYSTEM ENGINES XM7T-XN1T and XN1TA DATA			J5
Engines		XM7T-XN1T Conventional ignition	XM7T-XN1T Electronic ignition	XN1TA Electronic ignition	
Distributor type		DUCELLIER : 525 303 A	DUCELLIER : 525450 BOSCH : 0237002093		DUCELLIER : 525627
Timing curves		M130	M130E	C013 D018	
Ignition module			MTR 01 BOSCH : 0221122317		
Firing order		1-3-4-2			
Cam angle		57 ± 2°			
Initial timing		10°	10° at 800 rpm	10° at 700 rpm	
Condenser (capacity)		0.22 µF			
Spark plugs Electrode spark gap Tightening torque (on a cold engine)		CHAMPION UN9Y - EYQUEM 750LS - PRO CP10 0.6 mm 25 N.m (18.4 lbf.ft.)			
Coil		DUCELLIER 520019	BTR01 - DUCELLIER : 520015 - BOSCH : 0221122317		
Primary resistance at 20°		1.32 Ω	0.8 Ω ± 5 %	0.82 Ω ± 10 %	
Secondary resistance at 20°		≅ 6500 Ω	6000 Ω 5 %	8250 Ω ± 10 %	
Additional resistance at 20°		0.70 Ω			
Ignition harness		ELECTRIFIL Bougicord 403			
Length and resistance					
Coil lead		450 mm	= 2500 Ω		
No. 1 cyl. lead		700 mm	= 3900 Ω		
No. 2 cyl. lead		525 mm	= 2900 Ω		
No. 3 cyl. lead		450 mm	= 2500 Ω		
No. 4 cyl. lead		300 mm	= 1700 Ω		

I



II



IGNITION SYSTEM, XN1T and XM7T ENGINES CHECKING THE DISTRIBUTOR ON THE TEST BENCH

Description :

- 1 - Closed angle (dwell)
- 2 - Angle during which points are open.
- 3 - Tolerances.

Preliminary checks

Before carrying out an accurate check on the distributor ensure that :

- the points are clean and in good condition,
- that the cam follower is seated down correctly on the cam.
- Replace these parts if necessary.
- Pre-adjust the points gap, fig. I, to 0.40 mm.
- Mount the distributor on the test bench.

Defects :

If the first part of curve, fig. IV, starts too soon :

- increase the tension on the thin wire spring.

If the first part of the curve, fig. IVb, starts too late :

- release some of the tension on the thin wire spring.

Checking the cam symmetry

- Run the distributor at approximately 300 rpm in a clockwise direction.
- Check, fig. I, angle (3) between each point at which the points open.
This should be 90° and the difference must not exceed $\pm 1^\circ$.

Checking the dwell angle

- Adjust the points gap to obtain a dwell angle (angle during which the points are closed) of :
 $57^\circ \pm 3^\circ$, that is to say a Dwell % $63\% \pm 3\%$.
- Check :
 - that between 400 and 2 500 rpm :
 - the cam angle does not vary by more than 3° ,
 - that there is no auxiliary light sector at (a), fig. II (caused by cam follower bounce).

If the second part of the curve, fig. Va, starts too soon :

- increase the tension of the thick wire spring.

If the second part of the curve, fig. Vb, starts too late :

- release some of the tension on the thick wire spring.

Adjusting the centrifugal advance curve

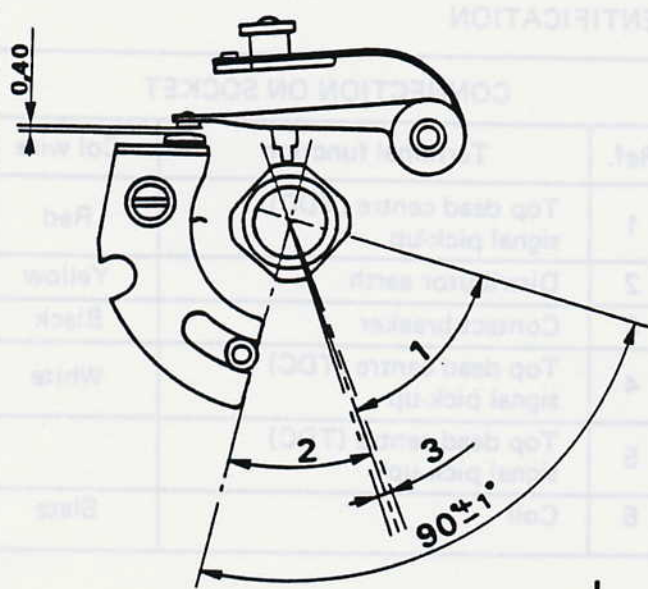
- Run the distributor at 200 rpm and bring the 0 on the graduated ring in line with one of the points at which the contacts open, fig. III.
- Compare the advance curve of the distributor under test with the nominal advance curve.

Adjusting the vacuum advance curve

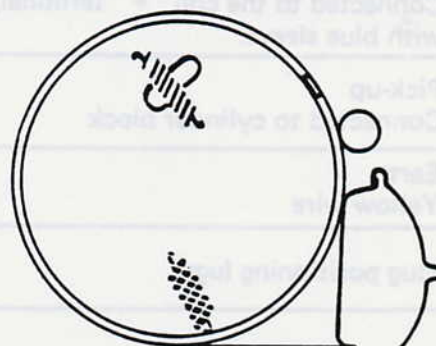
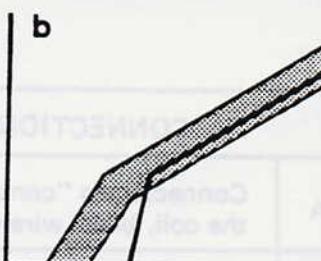
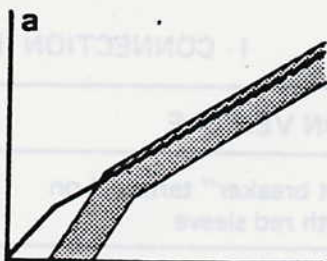
- Run the distributor at 1 500 rpm and bring the 0 on the graduated ring in line with one of the points at which the contact open.
- Connect the vacuum pipe to the vacuum pump on the test bench.
- Note down, point by point, the changes in the timing advance following changes in the vacuum.
- Compare the curve obtained with the nominal curve.

NOTE - If the curve starts too soon, turn the serrated cam, fig. VI, in a clockwise direction.

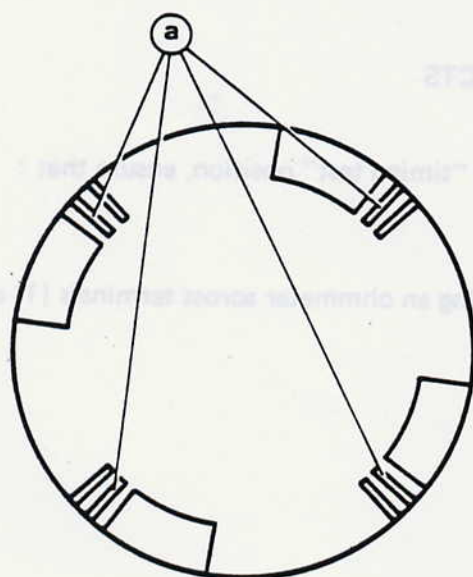
If the curve starts too late, turn the serrated cam in an anti-clockwise direction.



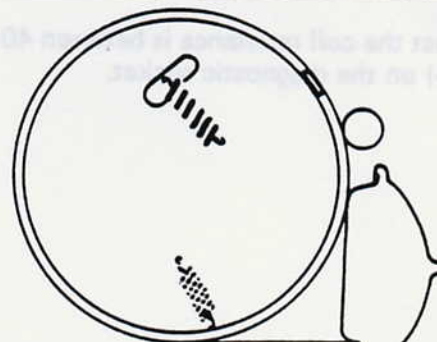
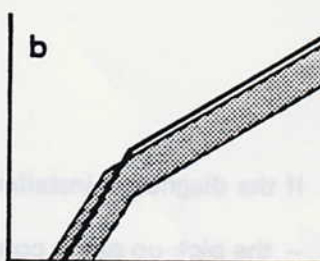
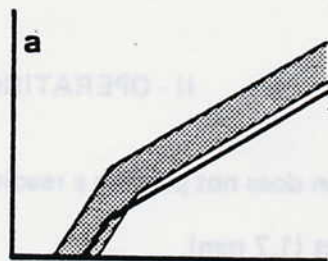
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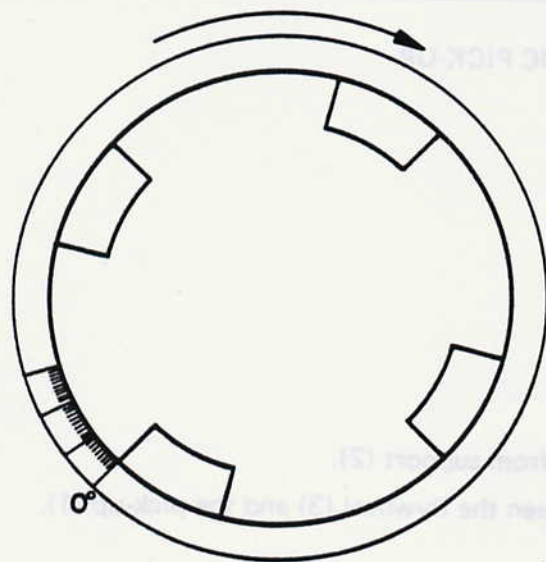
IV



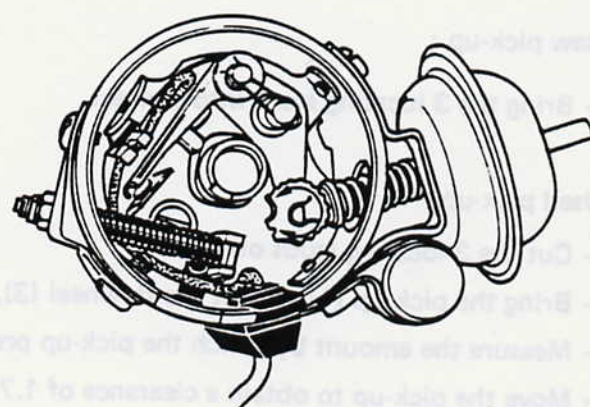
II



V



III



VI

IGNITION SYSTEM DIAGNOSTIC PLUG IDENTIFICATION ADJUSTING THE PICK-UP

I - CONNECTION IDENTIFICATION

CONNECTION ON VEHICLE		CONNECTION ON SOCKET		
A	Connected to "contact breaker" terminal on the coil, black wire with red sleeve	Ref.	Terminal function	Col wire
B	Connected to the coil "+" terminal, slate wire with blue sleeve.	1	Top dead centre (TDC) signal pick-up	Red
C	Pick-up Connected to cylinder block	2	Distributor earth	Yellow
D	Earth Yellow wire	3	Contact breaker	Black
X	Plug positioning lugs	4	Top dead centre (TDC) signal pick-up	White
Y		5	Top dead centre (TDC) signal pick-up	
		6	Coil	Slate

II - OPERATING DEFECTS

If the diagnostic installation does not provide a reading in the "timing test" position, ensure that :

- the pick-up gap is correct (1.7 mm),
- that the coil resistance is between 40 and 60 Ω by connecting an ohmmeter across terminals (1) and (4) on the diagnostic socket.

III - ADJUSTING THE TDC PICK-UP

New pick-up :

- Bring the 3 locating studs into contact.

Used pick-up :

- Cut the 3 locating studs off flush.
- Bring the pick-up (1) against the flywheel (3).
- Measure the amount by which the pick-up projects out from support (2).
- Move the pick-up to obtain a clearance of 1.7 mm between the flywheel (3) and the pick-up (1).

STARTER MOTOR SPECIFICATIONS

MAKES AND TYPES

PARIS-RHONE D9 E 36 (flat commutator starter),

DUCELLIER 6189

BOSCH 001 208 211

STALL CURRENT (fully charged battery)

PARIS-RHONE 340 A

DUCELLIER 400 A

BOSCH 330 A

FREE RUNNING CURRENT (starter motor removed)

 $\approx 50.$

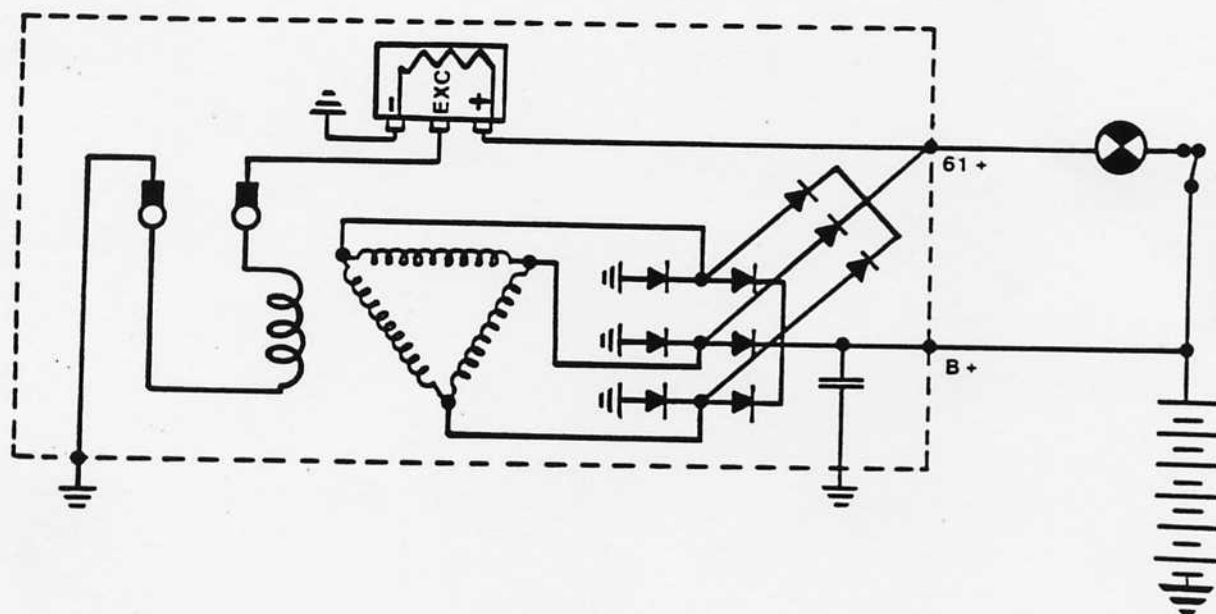
BATTERY

- 12 volts 225 A/55 Ah

ALTERNATOR

- Alternator with integral electronic voltage regulator.
- Make and type : MOTOROLA 9 AR 2673 K.
- Power : 750 W.
- Output at 20° at a voltage of 13.5 V : 47 A at an alternator speed of 4 000 rpm.
- Regulated voltage : between 13.8 and 14.8 at 20°C.
- Rotor resistance : 4 ohms.
- Maximum speed : 15 000 rpm.
- Drive ratio : 2.06:1.

MOTOROLA



CHECKING THE CHARGING SYSTEM

2 different methods can be used to check the charging system on the vehicle, depending on the nature of the defect noted.

1st METHOD - Voltage check

Method to be used :

- if there is no charge (charge/discharge warning light remains switched on),
- if the system is overcharging (bulbs burned out, excessive battery electrolyte consumption).

2nd METHOD - Checking both voltage and current

Method to be used in case of defects other than :

- no charge,
- overcharging.

METHOD 1

PRELIMINARY CHECKS

Check :

- the battery condition (electrolyte level, individual cell output voltages),
- all connections,
- the drive belt tension.

EQUIPMENT REQUIRED

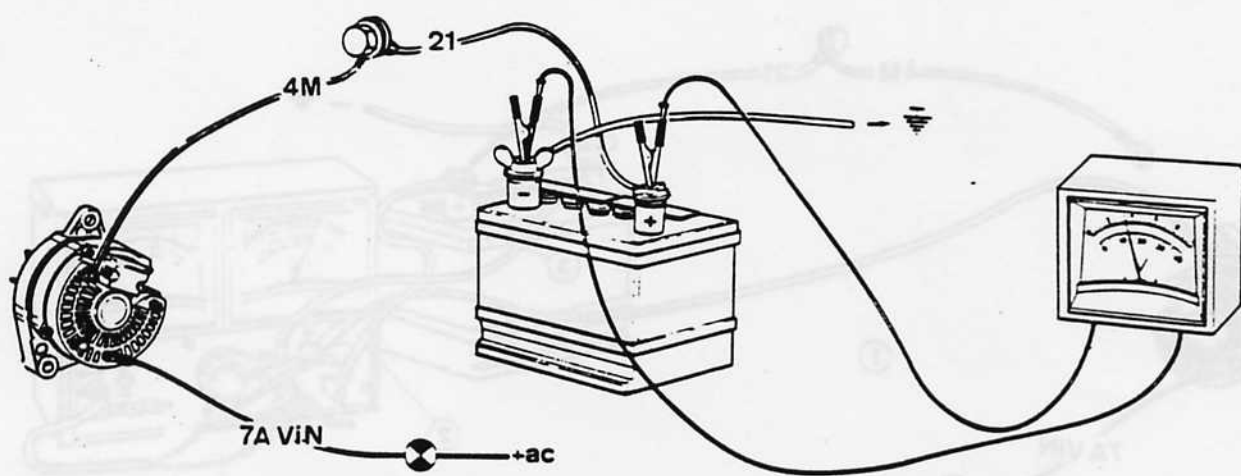
- A volt meter to be connected, in parallel, across the battery posts.
- A tachometer.

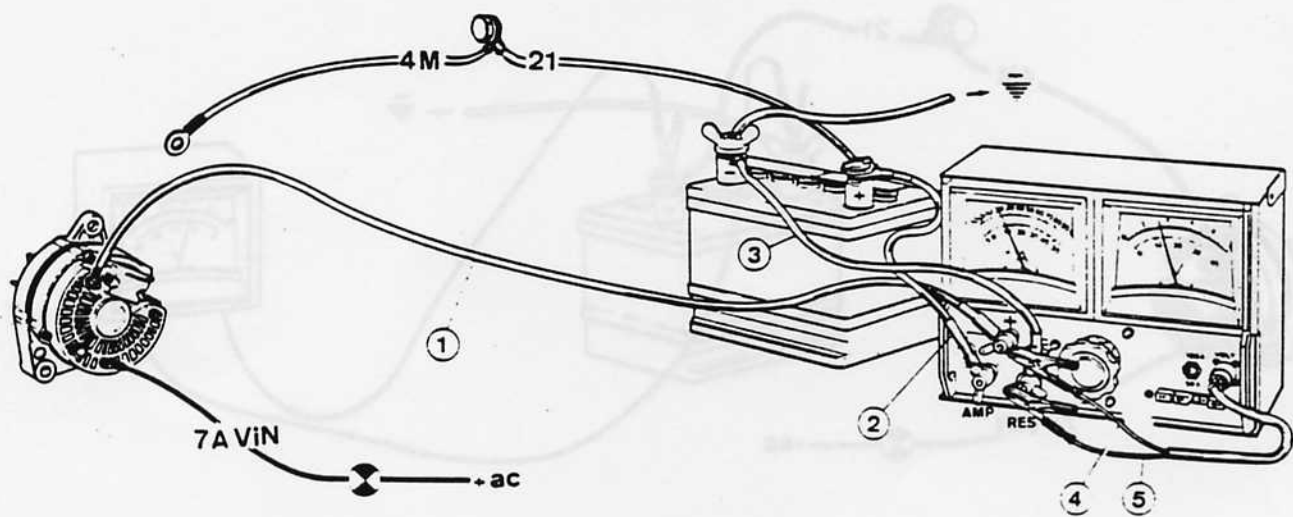
METHOD

The test is to be carried out with the engine hot and running at 3 000 rpm.

- 1 - Check that none of the electrical components is switched on ➡ the voltage should be between 13.3 V and 14.8 V.
- 2 - Switch on the electrical components (headlights, heater etc.) ➡ the voltage should remain within the 13.3 V to 14.8 bracket).

If the readings are not within the limits stated above, replace the voltage regulator. If the defect still occurs, check the alternator.





CHECKING THE CHARGING SYSTEM

METHOD II

PRELIMINARY CHECKS

Check :

- the battery condition (electrolyte level, individual cell output voltages),
- all connections,
- the drive belt tension.

EQUIPMENT REQUIRED

- SOURIAU type 1290 or 1490 volt meter/ammeter,
- tachometer.

Place the switches in the 50 A or 100 A and the 20 V positions.

Unscrew the variable resistance control to its maximum extent.

Disconnect the battery.

Disconnect the output lead from the alternator + terminal and insulate the end of the lead.

Connect up as follows.

TERMINALS TO BE INTER-CONNECTED

LEADS TO BE USED

Alternator	+	Ammeter	+
Battery	+	Ammeter	AMP
Battery	–	Ammeter	RES
Voltmeter	+	Ammeter	+
Voltmeter	–	Ammeter	RES

Yellow lead 1
Red lead 2
Green lead 3

} Test kit leads 4 and 5

Reconnect the battery and start the engine. Carry out the tests with the engine warm, so that the charging system is operating under normal conditions.

CHECKS

1 - Note the voltages and amperages shown on the test instruments :

a - the voltage should be between 13.3 and 14.8 V,

b - the amperage should be less than 9 A. If it is not, either the battery is in a low state of charge or none of the current consuming services has been left switched on.

2 - Screw in the variable resistance to obtain a voltage of 13 V. Check that the corresponding amperage is more than 44 A (on a 750 W alternator).

If the readings are not within the above stated figures, replace the voltage regulator. If the defect persists, check the alternator.

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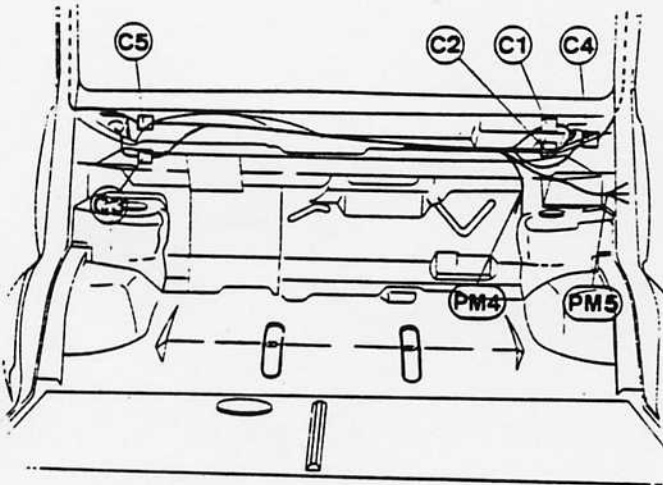
- Wiring harness layout, J5 van, petrol engine
- Wiring diagram, J5 van, petrol engine

Z1.002 and 003

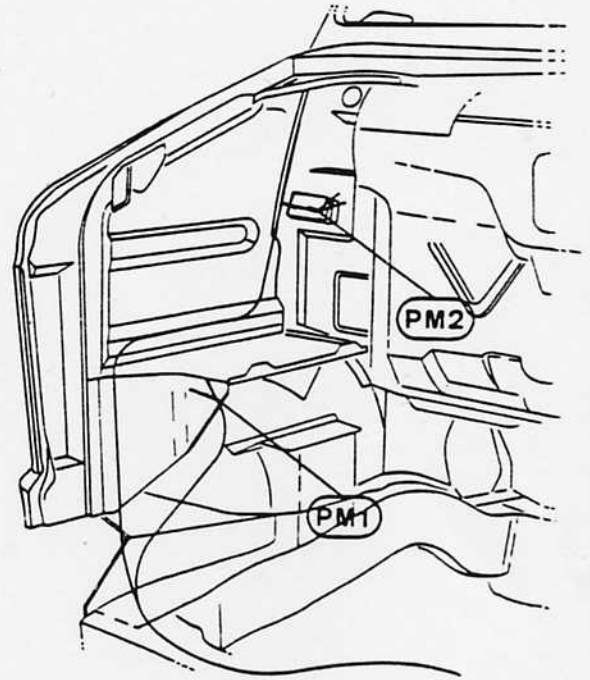
Z1.101 and 201

ELECTRICAL WIRING

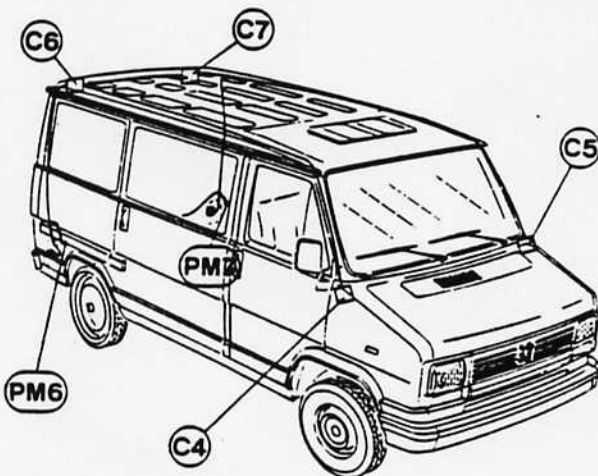
I



III



II



IV

