

## 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.

## III - ENGINE RIGHT HAND WIRING HARNESS

PM1 : earth point on horn support.

PM2 : earth point on windscreen wiper support

## II - RIGHT HAND LEFT HAND REAR HARNESSSES

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.

## IV - ENGINE LEFT HAND WIRING HARNESS

PM3 : earth point on inner front wing.

LEGEND

White pages

A - IGNITION SYSTEM

Specifications	A1.001 to 003
Checking the distributor on the test bench	A1.101 to 103
Diagnostic socket	A1.201 to 203

B - STARTING SYSTEM

Starter specifications	B1.001 and 002
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C - CHARGING SYSTEM

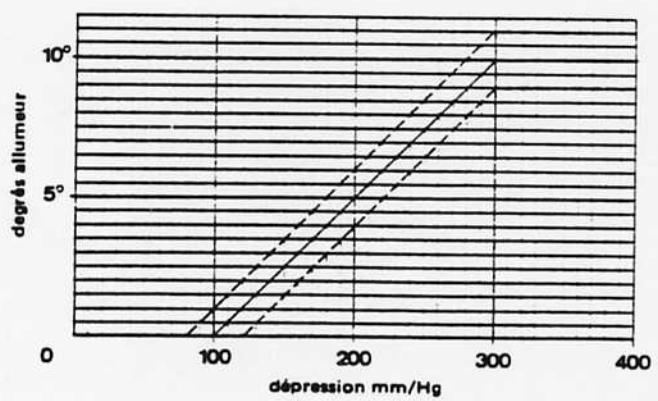
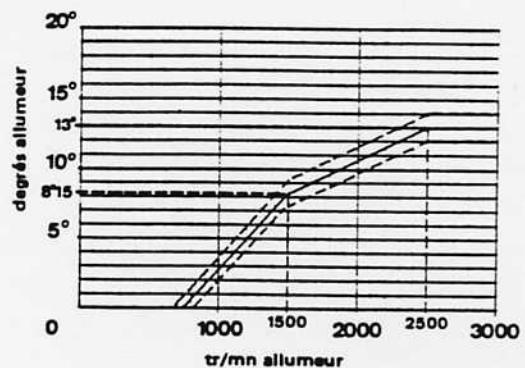
Specifications	C1.001 to 003
Checking	C1.101 to 105

Z - ELECTRICAL WIRING

Wiring harness layout	Z1.001 to 003
Electrical wiring diagram	Z1.101 and 201



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		DUCCELLIER : 525 303 A	DUCCELLIER : 525450 BOSCH : 0237002093	DUCCELLIER : 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		CHAMPION UN9Y - EYQUEM 750LS - PRO CP10				
Electrode spark gap		0.6 mm				
Tightening torque (on a cold engine)		25 N.m (18.4 lbf.ft.)				
Coil		DUCCELLIER 520019	BTR01 - DUCCELLIER : 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		450 mm	= 2500 Ω			
Coil lead		700 mm	= 3900 Ω			
No. 1 cyl. lead		525 mm	= 2900 Ω			
No. 2 cyl. lead		450 mm	= 2500 Ω			
No. 3 cyl. lead		300 mm	= 1700 Ω			
No. 4 cyl. lead						



**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  $90^\circ$  and the difference must not exceed  $\pm 1^\circ$ .

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.

**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  $3^\circ$ ,
  - that there is no auxiliary light sector at (a), fig. II (caused by cam follower bounce).

**Adjusting the centrifugal advance curve**

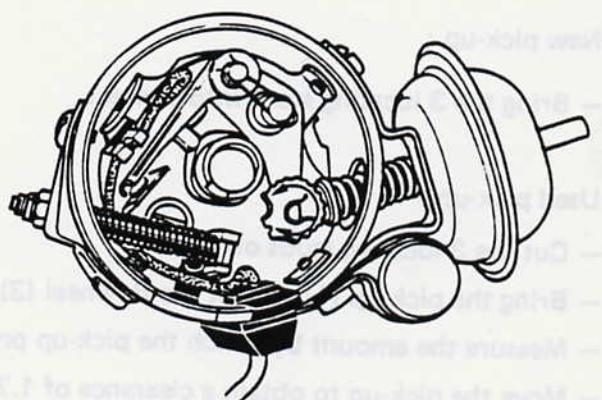
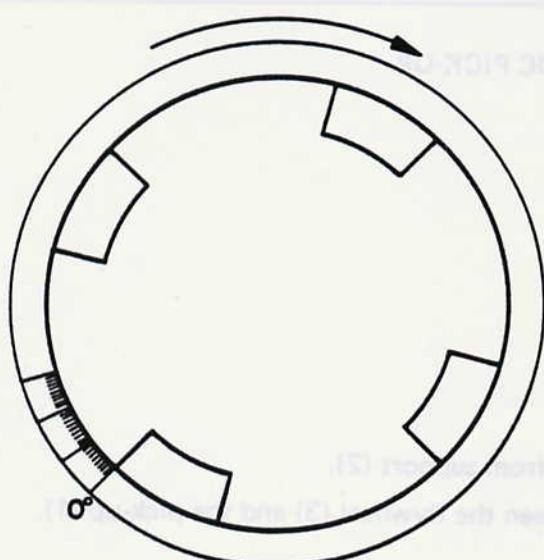
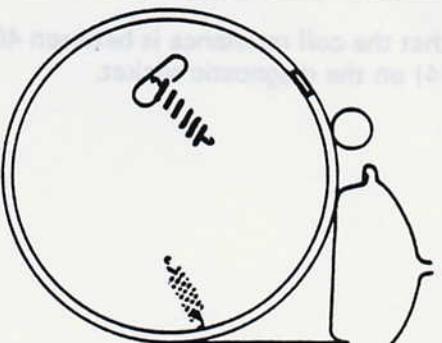
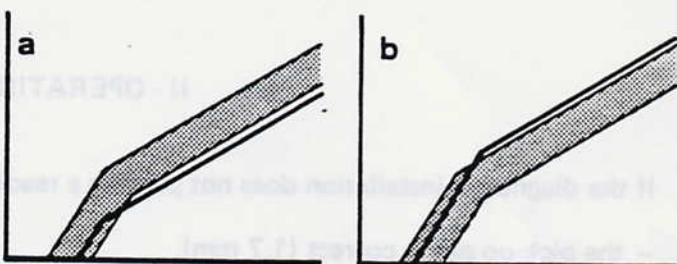
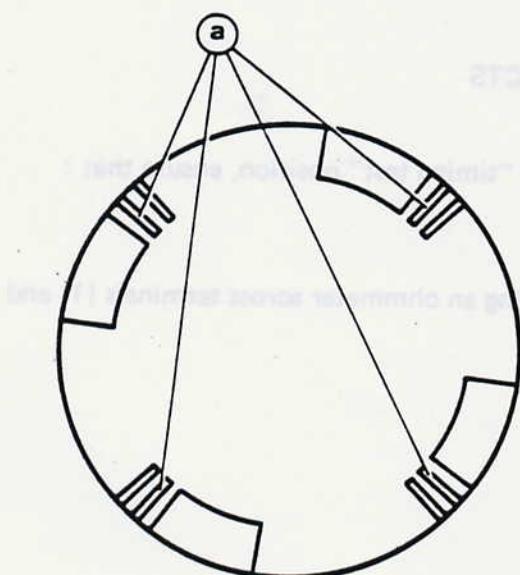
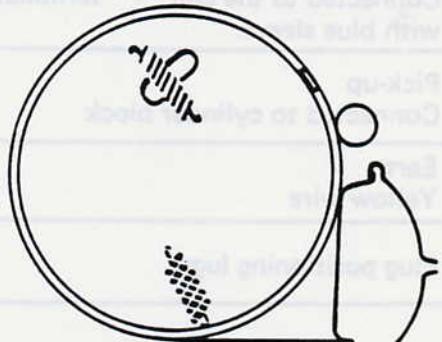
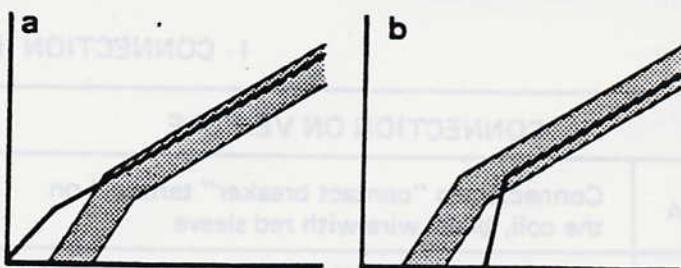
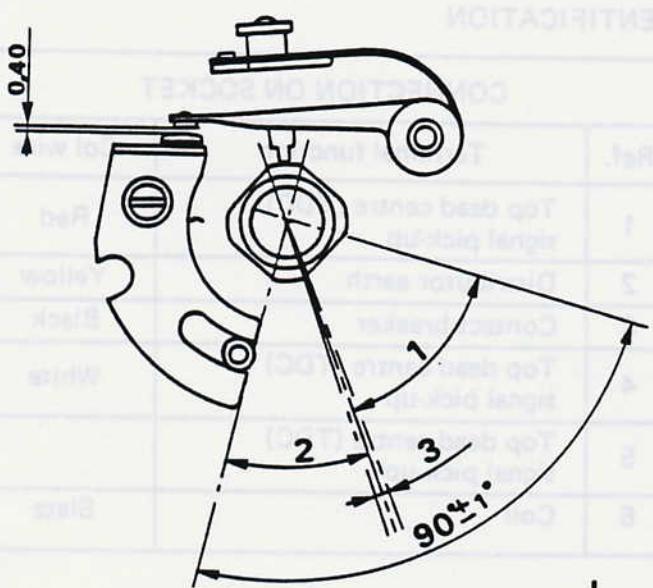
- Run the distributor at 200 rpm and bring the 0 on the graduated ring in line with one of the points at which the contacts open, fig. III.
- Compare the advance curve of the distributor under test with the nominal advance curve.

**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.**



**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  $60\Omega$  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).

**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.**

CHARGING SYSTEM, XN1T and XM7T  
SPECIFICATIONS

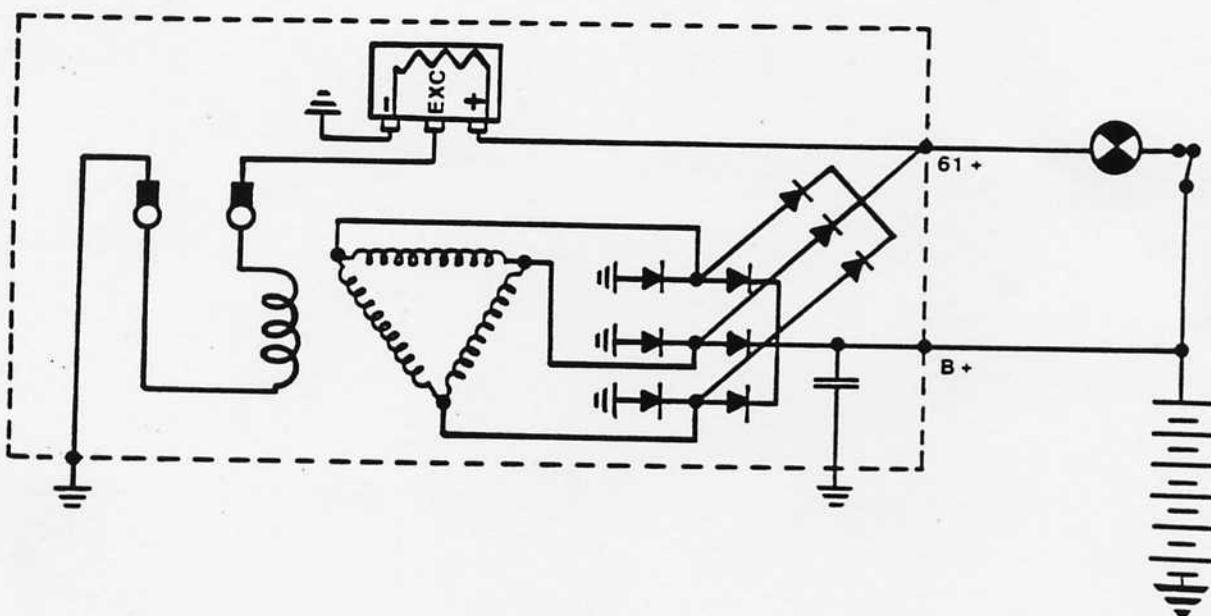
**BATTERY**

- 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**

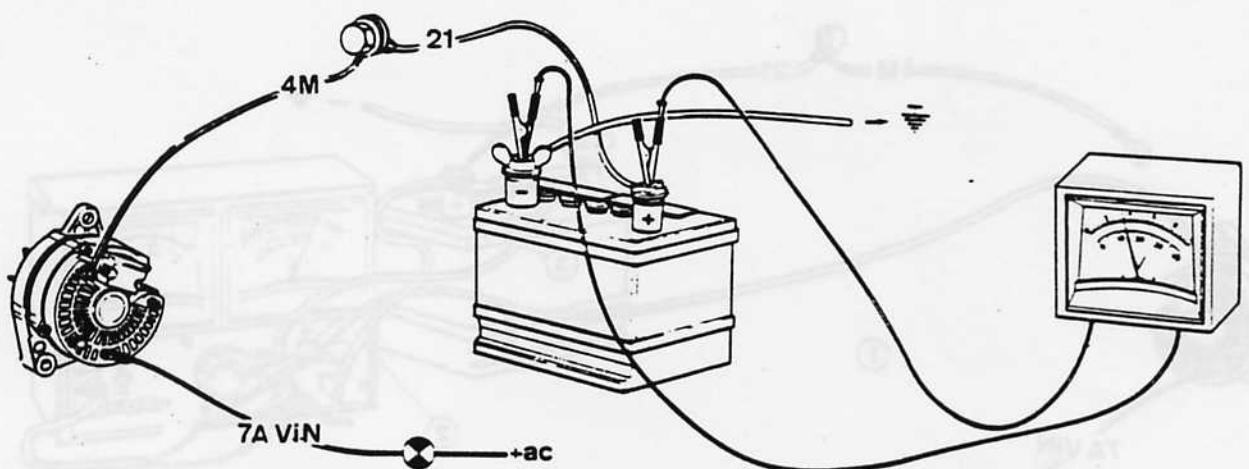
- A volt meter to be connected, in parallel, across the battery posts.
- A tachometer.

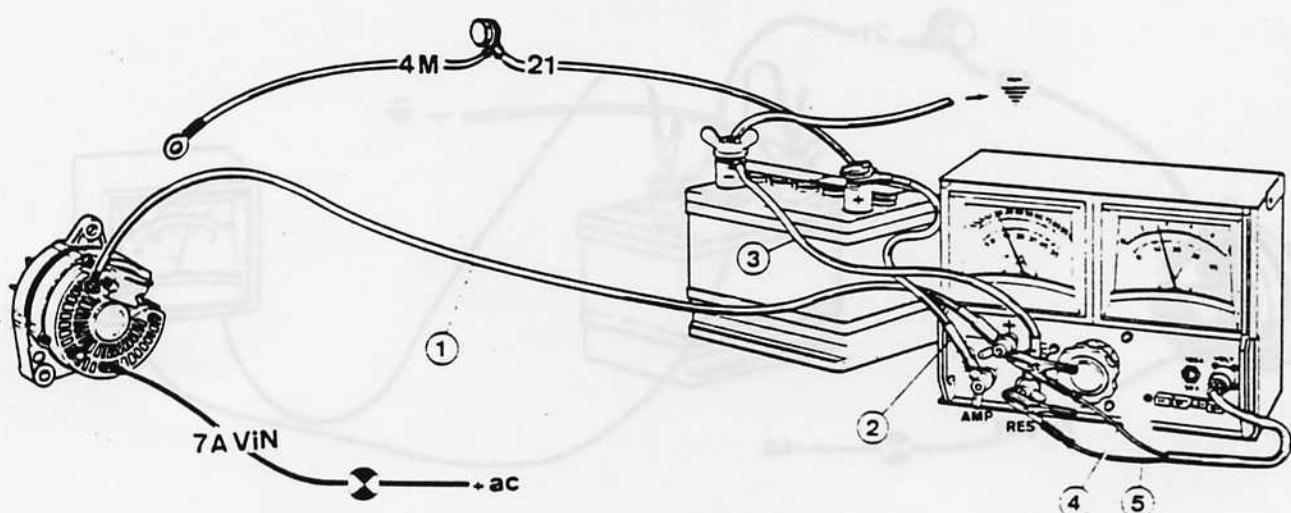
**METHOD**

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.

## (II) - ENGINE RIGHT HAND HARNESS

## - ELECTRICAL PANEL HARNESS

- right hand side panel point no. 1709

(view 6) 10  
 (view 21) 90  
 (view 27) 80  
 (view 4) 90  
 (view 1) 80

- right hand side panel point no. 1709

- front side panel point no. 1709

- right hand side panel point no. 1709

Page

— Wiring harness layout, J5 van, petrol engine

Z1.002 and 003

— Wiring diagram, J5 van, petrol engine

Z1.101 and 201

## (III) - ENGINE LEFT HAND HARNESS

## - ELECTRICAL PANEL HARNESS

- left hand side panel point no. 1709

(view 4) 90  
 (view 4) 80

- front side panel point no. 1709  
 (view 5) 80  
 (view 5) 90

- front side panel point no. 1709  
 (view 5) 80  
 (view 5) 90

- front side panel point no. 1709  
 (view 5) 80  
 (view 5) 90

ELECTRICAL WIRING

