XR 25

ACTIA

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MULTIMETER

FAULT FINDING

APPENDIX

General

The XR 25 test box is designed to analyse diagnostic information emitted by the computers fitted to the vehicle.
It enables the result to be clearly displayed for diagnosing the electronic system rapidly and precisely in-situ.

The test box offers the user three different ways of operating :
- Diagnostic function : analyses and displays data.
- Multimeter functions : voltmeter
  continuity tester
  pulse detector and generator.
- Memory function : enables the context in which the incident occured to be stored and displayed.

The functions are selected on a 16 key keyboard.

The data are displayed by 2 types of display :
- Bar graphs (left-hand side of apparatus).
- By a four-digit liquid crystal display (at the top of the apparatus).

This apparatus can be used both with the vehicle stationary and in a road test.

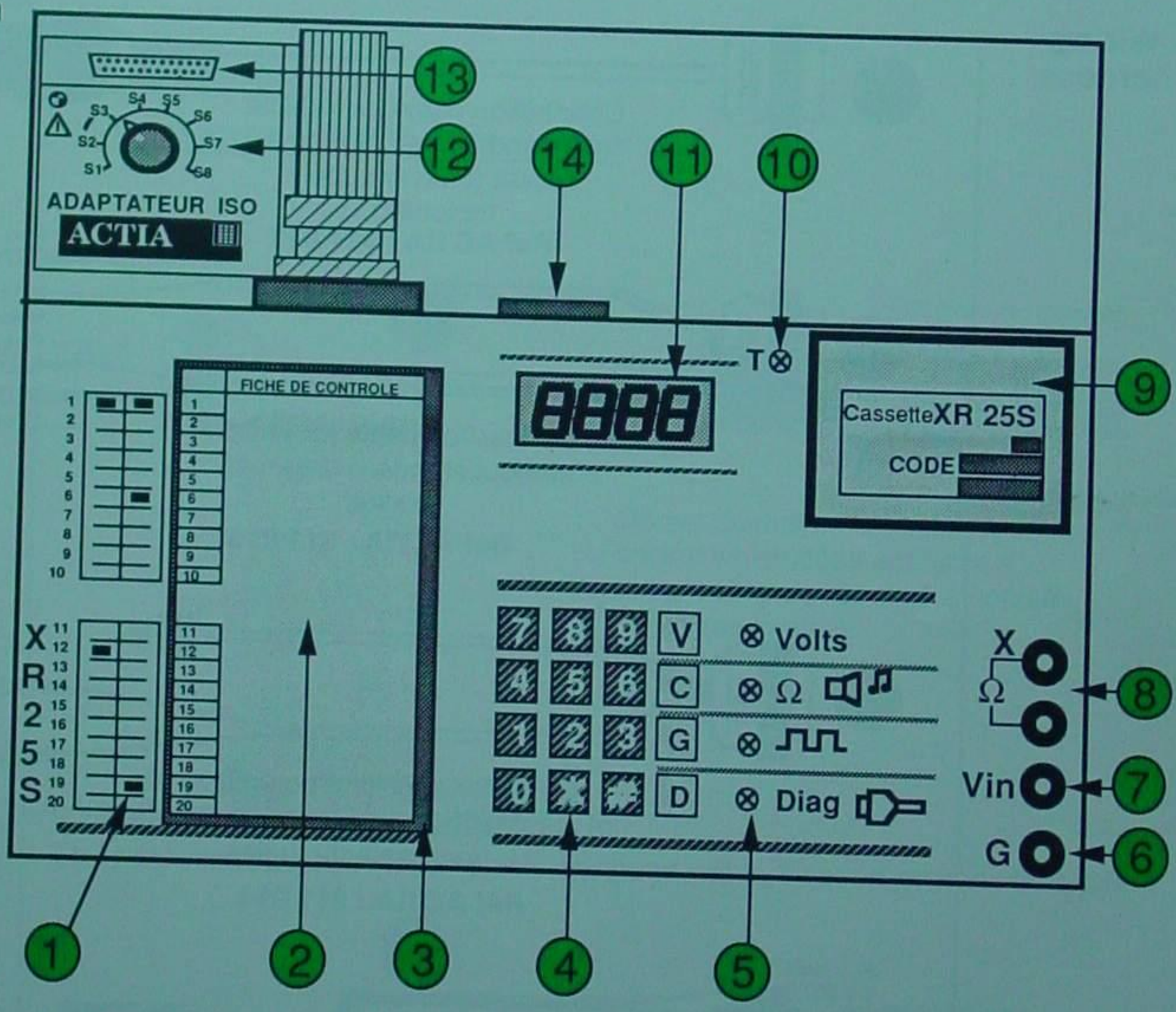
It is fed directly by the vehicle's battery :
- Either by means of the same cable connected to the diagnostic socket.
- Or by a cable connected directly to the battery (supplied with the apparatus).

The functions necessary for interpreting the diagnostic data are contained in a memory cassette.

This cassette (9) is interchangable so as to allow the test programme to be updated in accordance with product developments and tests performed on new products available in the network. Each new cassette cancels and supersedes the preceding one.

The ISO adaptor (12) enables the operation of the test box to be rendered compatible with certain diagnostic transmission features of the new computers such as : Bendix ABS, Air conditioning, Memorised seats, Automatic transmission.

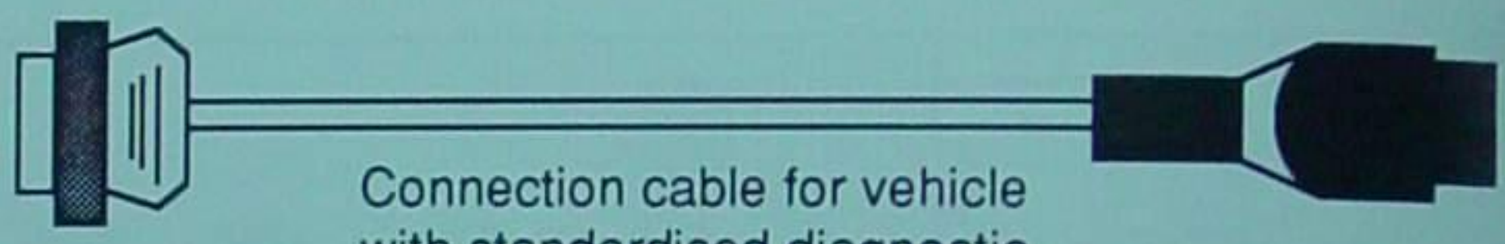
Description



1. Result display
2. Test card corresponding to test
3. Magnetic mounting
4. Selector keyboard
5. Lights showing function selected
6. Pulse generator output
7. Pulse sensor / voltmeter input
8. Continuity or insulation check
9. Programme memory cassette
10. Cassette connection warning light
11. Numerical value display
12. ISO adaptor
13. Diagnostic socket connection
14. Diagnostic bay connection

Wiring harness

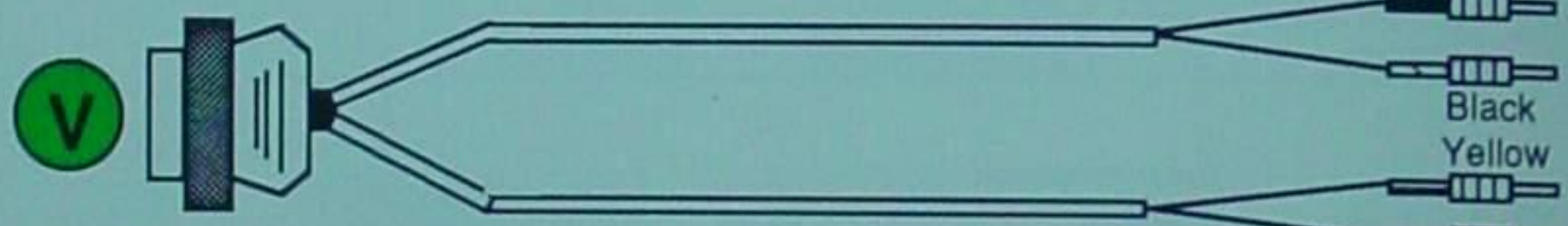
U



Connection cable for vehicle with standardised diagnostic socket (battery supply included)

Ref ACTIA : 911 012

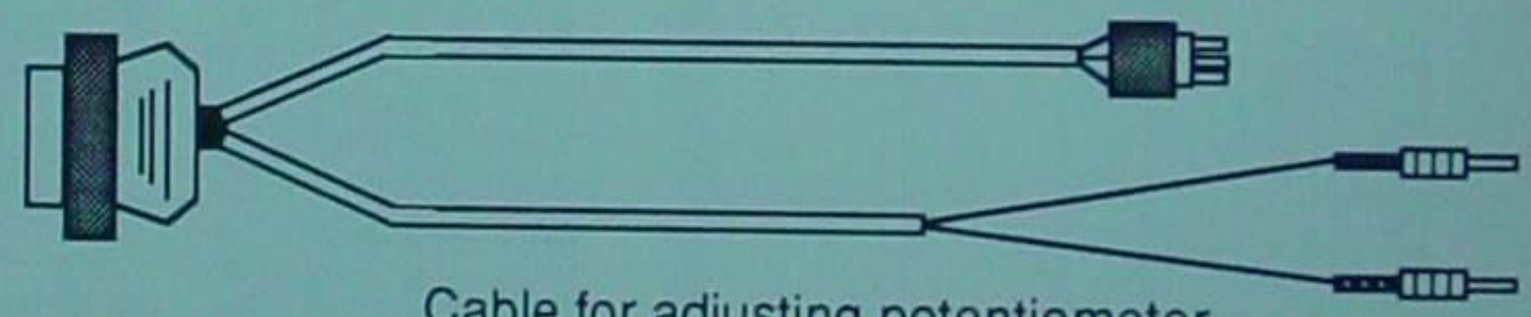
V



Connection cable for vehicle without standard diagnostic socket

Ref ACTIA : 911 013

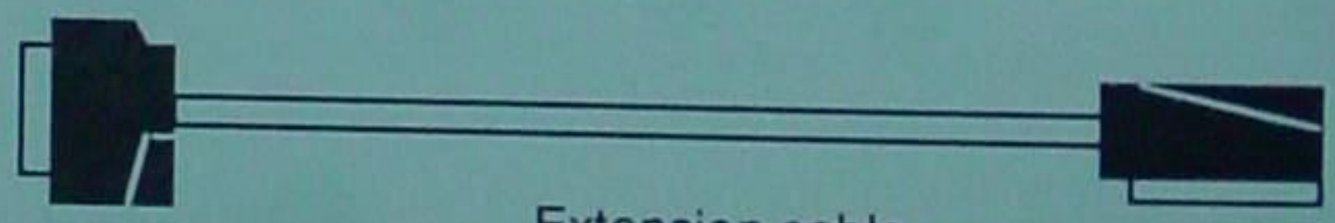
W



Cable for adjusting potentiometer of automatic gearbox (M type 3 speed) load potentiometer

Ref ACTIA : 911 014

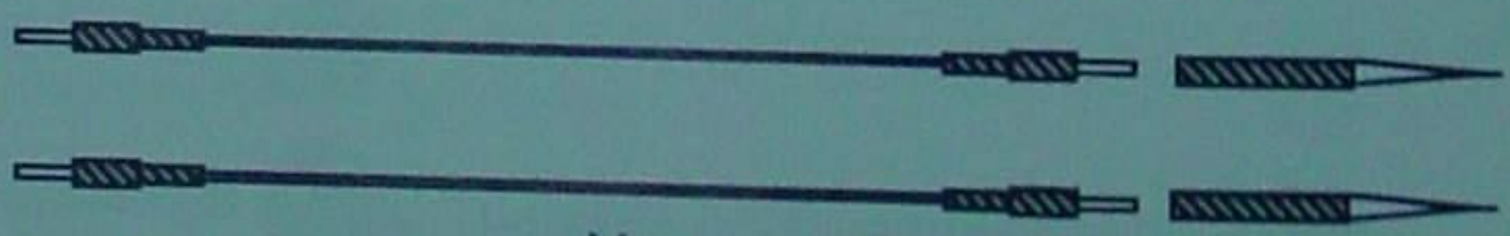
T



Extension cable

Ref ACTIA : 463 007

X



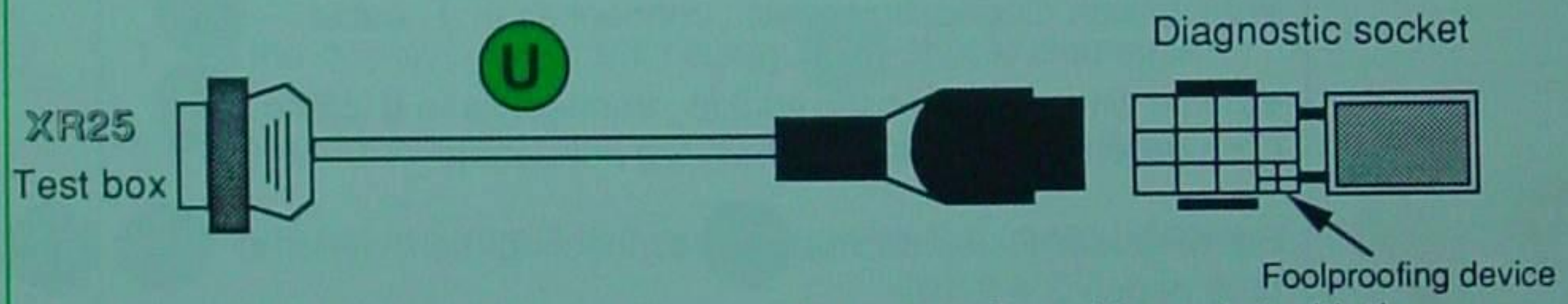
Measuring leads and probe tips

Ref ACTIA : 450 040, 450 041, 403 005, 403 006

Connection to vehicle

For fault finding :

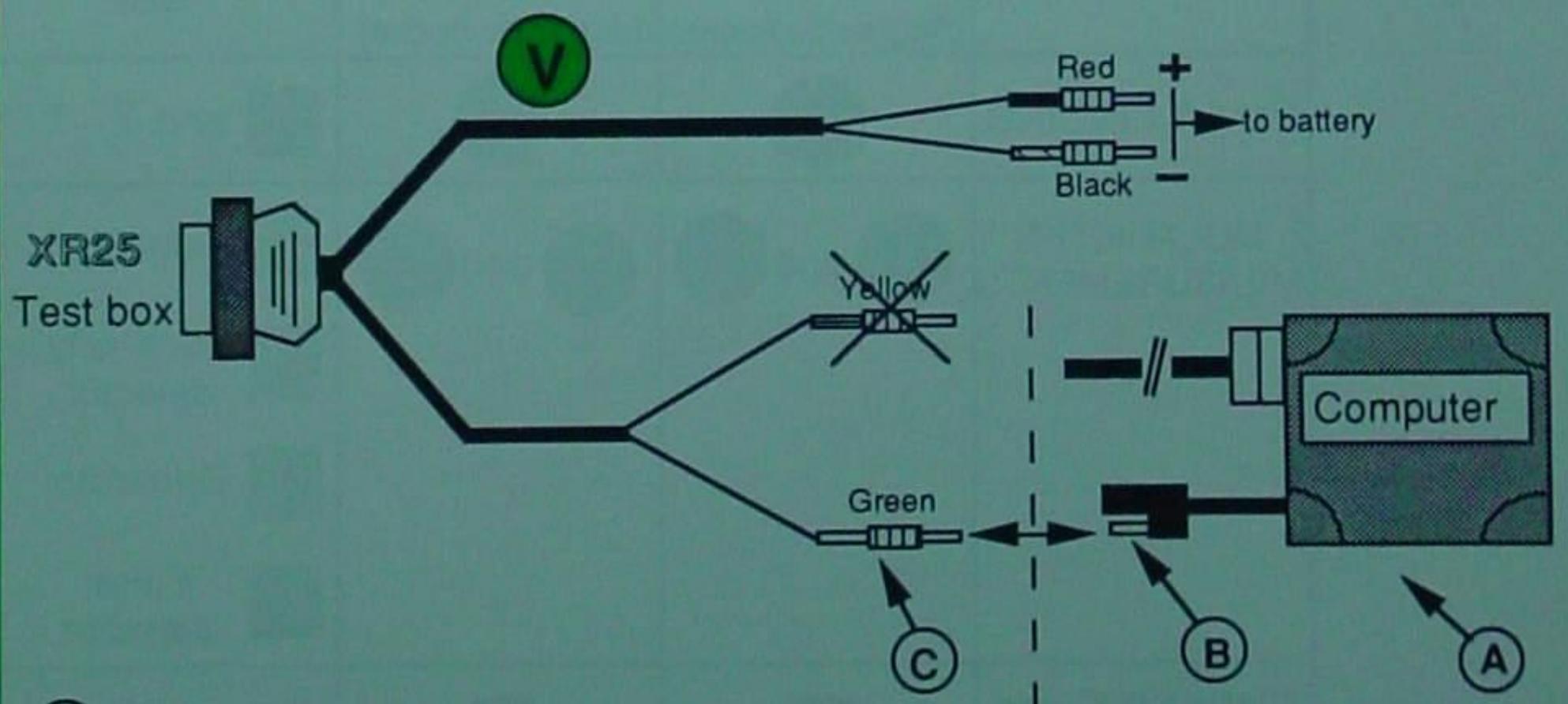
I) Vehicle equipped with diagnostic socket



Do not confuse this socket with the socket which does not have a foolproofing device and is used to check the ignition.

II) Vehicle without diagnostic socket

The connection below is for a vehicle equipped with a 3-speed gearbox (M type).



(A) Identify the computer.

(B) Disconnect the warning light feed.

(C) Connect the green terminal as shown.

Note : The yellow terminal is not used.

Connection to vehicle (continued)

For measuring

- Voltmeter.
- Continuity detector.
- Pulse sensor.
- Frequency generator.

Vehicle with diagnostic socket : connect as in **I** cable (U)

Vehicle without diagnostic socket : connect as in **II** câble (V)
(The green and yellow terminals are not used).

For measuring, use cables (X) connecting them either at (6) (7) or (8)
(see pages 3-4-9-10).

TEST TYPE	HARNESS TO USE depending on vehicle		KEYS TO USE	PAGE
	WITH diagnostic socket	WITHOUT diagnostic socket		
FAULT FINDING	U	V	D and ? ?	13
MULTIMETER MEASUREMENTS	U and X	V and X	V Voltmeter	10
			C Continuity detector	10
			G Generator	9
			V Pulse detector	10
CHECKING and ADJUSTING the potentiometer	W	W	V and 1	18

Self-test

Each time it is switched on, the test box tests itself automatically.

In order to avoid incorrect fault finding, it is important to test all the displays visually as occurs when the test box is switched on.

Each time the test box is switched on :

1) All the displays on central display 11 should illuminate.

2) The bar graphs illuminate one after another separately.

3) All the figures from 0 to 9 run through on the central display.

4) **"r 25** "is displayed to indicate the end of this automatic test.

If this phase does not occur, check warning light 10

If it is not illuminated, the cassette is not in the correct position.

Note : The self-test function may be suspended by pressing any of the keys on the keyboard.

MULTIMETER

Multimeter connections

In order to use the test box for one of the multimeter functions, it must be connected to the battery by means of cable (U) or (V) (see page 6).

The cords and probe tips (X) enable data to be input or output.

Frequency generator

This function is selected by pressing key G followed by a number allocated to each frequency desired. The ouput signal is available on the female terminal " G ".
Currenctly, 9 frequencies are programmed :

0 = 2 Hz 1 = 50 Hz 2 = 100 Hz 3 = 150 Hz 4 = 200 Hz

5 = 250 Hz 6 = 300 Hz 7 = 350 Hz 8 = 400 Hz

The central display indicates the number selected.
This function generates square pulses of maximum amplitude equal to the battery voltage.
This output is protected against short circuits or connecting to the battery + terminal.

Examples of use :
- Simulating vehicle speed, checking ignition power module, etc....

Voltmeter

This function is selected by pressing key V. The female terminal "Vin " enables data to be input.The test box feed earth serves as a reference.
Only continuous voltage can be measured.
The input resistance is 1 MO and the tolerance is ± 4 % from 0 to 25 volts (do not connect to secondary HT winding).

Pulse detector

This function is selected by pressing key G

The signal is input via the female " **Vin** " terminal 7

The central display indicates the duration of the positive pulse in milliseconds.
Measurements possible between 1 and 1999 ms with 5 % accuracy.
The input resistance is 1 MO and the trigger threshold for the measurement is 2 volts ± 0.5.

Example of use :
- Checking idling speed regulating valve, etc.

Continuity detector

This function is selected by pressing key C

Information is input via the " Ω " female terminals 8

They are protected against earthing or connection to + 12 volts.
The component to be tested must be electrically disconnected and must not be connected to the vehicle's earth.

Example of use :
Checking relay coil continuity.

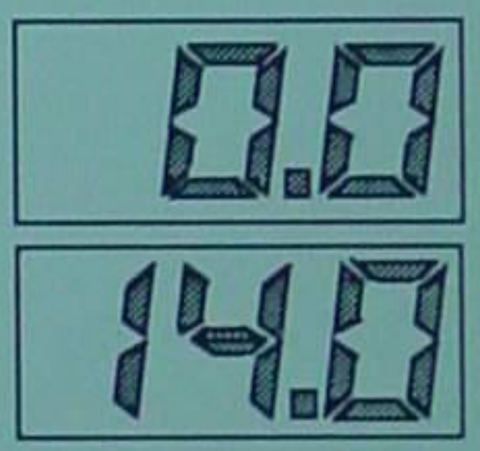
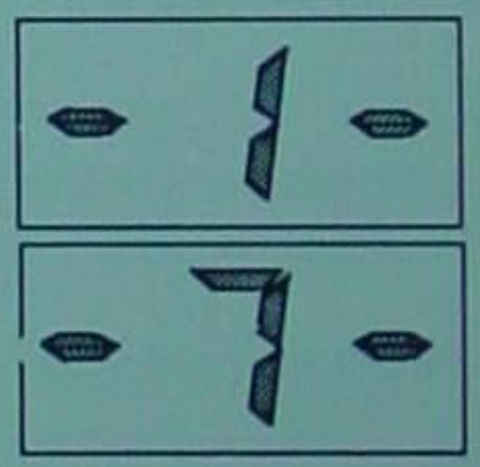
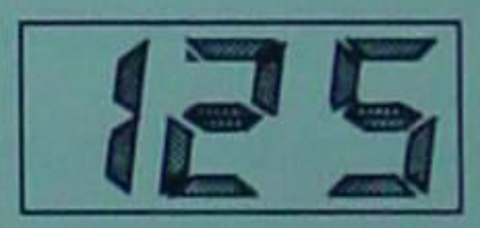
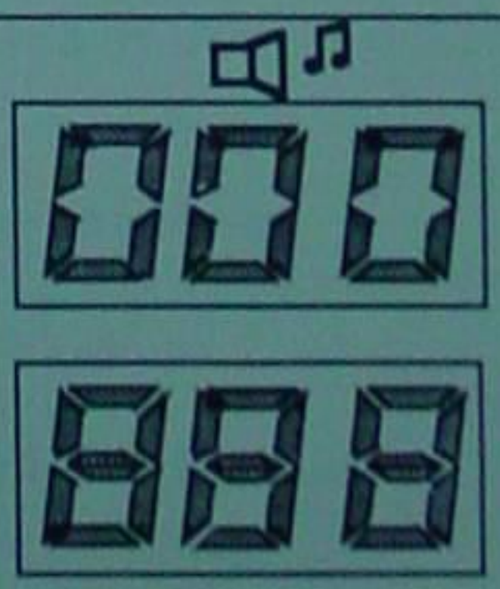
Copy function

This function is selected by pressing keys [redacted] and [redacted] **simultaneously.**

It enables the top or bottom condition which may be present on one of the 8 terminals of the diagnostic socket to be displayed on the bar graphs and their voltage levels to be detected (change of state level equal to 5 volts).

Example of use :
Checking whether one of the terminals or harness on the vehicle's diagnostic socket has been accidentally earthed.

Multimeter displays

FUNCTION	KEY	DISPLAY
Voltmeter Voltage 0 volt ..... Voltage 14 volts	V	
Frequency generator Frequency selected 50 Hz ..... Frequency selected 350 Hz	G 1 7	
Pulse detector Duration measured 125 ms	G	
Copy The top levels are on the left-hand side The lower levels are on the right-hand side		
Continuity detector If resistance less than 1 KΩ ..... If resistance greater than 1 KΩ	C	

FAULT FINDING

To use the test box for this function, it must be connected to the vehicle by means of cable U or V (see page 4).

Slide card 2 corresponding to the computer to be analysed in the magnetic mounting opposite the bar graphs (all the possible tests are indicated there).

Position the selector on the ISO adaptor 12 as required (specified on the card and page 15).

Ensure that the warning light ⚠ on the ISO adaptor is extinguished.

Press key D followed by the two code numbers given on the diagnostic card corresponding to the product tested.

Example : D 0 3 for injection.

READING THE RESULTS :

The central display 11 indicates the message corresponding to the product selected if the diagnostic grid has been recognised, followed by a figure representing the computer identity number.

If nothing is displayed, the test box does not recognise the computer.
Horizontal lines indicate that fault finding is not being emitted or that a cassette is out of date.

If the grid is recognised, the bar graph on the top right-hand side is permanently illuminated.

Extinguished bar graphs indicate data is absent.
Flashing bar graphs indicate transitory incidents stored in the computer.

ADDITIONAL TESTS :

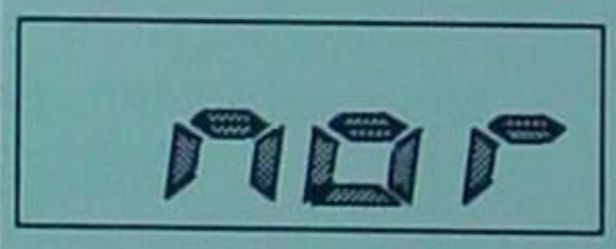
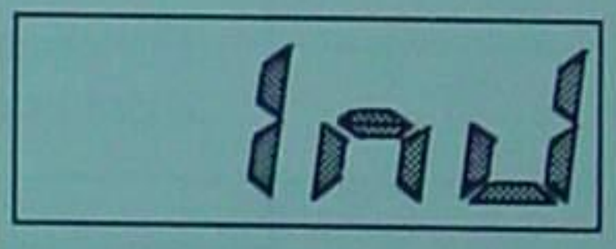
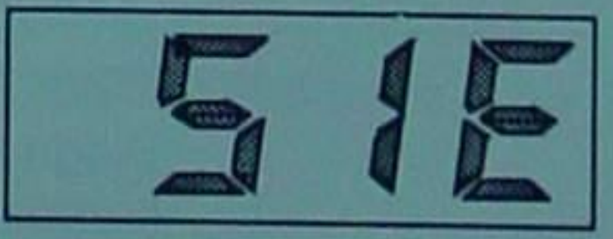
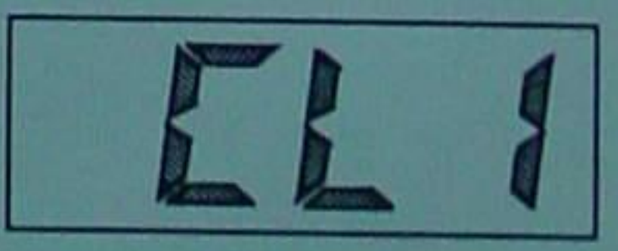
Additional tests are intented to provide information regarding the different parameters of the engine.

The list of parameters measured is indicated on the test card for the computer tested.

To obtain them, just press the * key followed by a number corresponding to the type of parameter selected.

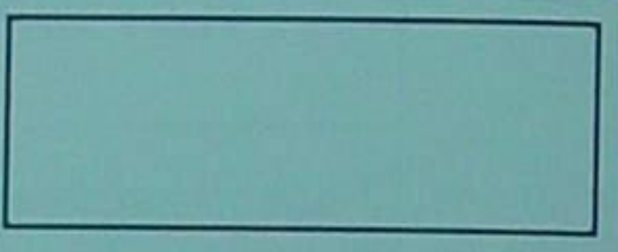
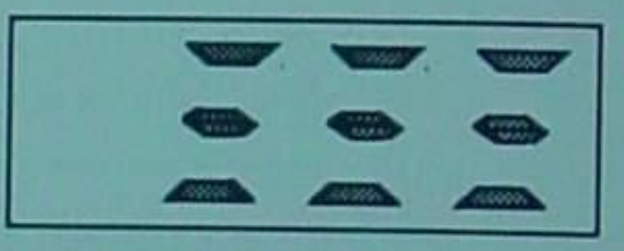
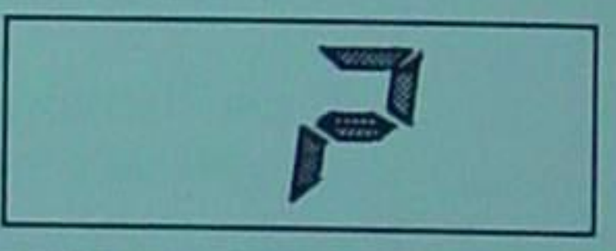
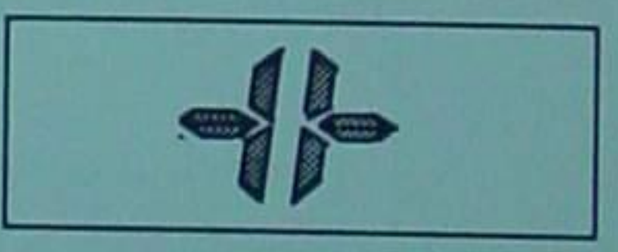
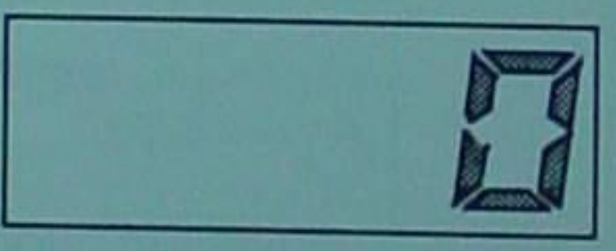
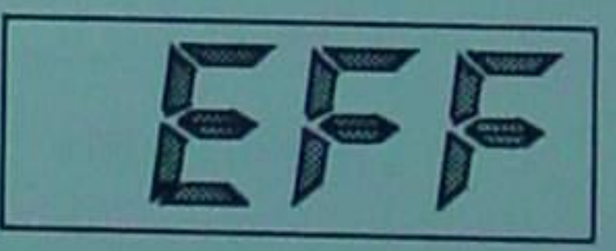
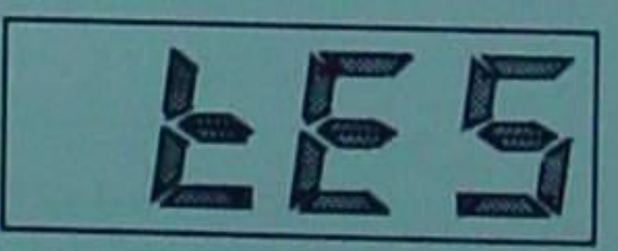
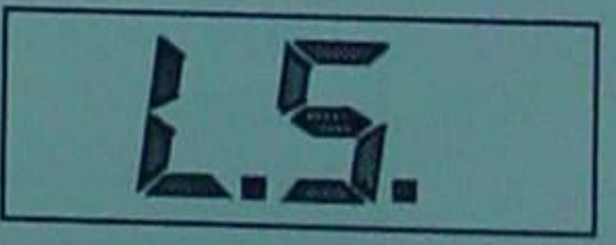
Example: * 0 1

Diagnostic displays

TEST TYPE	Position of (12)	KEYS	DISPLAY
3-speed automatic transmission (type M) Erase memory by switching off vehicle's ignition	Not used	D 0 1	
Cruise control (Bendix) Erase memory by switching off vehicle's ignition	Not used	D 0 2	
Injection computer Erase memory by disconnecting battery	Not used	D 0 3	
4-speed automatic transmission (type AR4) Erase memory via XR 25 test box	S4	D 0 4	
Bendix ABR Erase memory via XR 25 test box	S5	D 0 5	
Memorised electric seat Erase memory via XR 25 test box	S6 or S7	D 0 6	
Regulated air conditioning Erase memory via XR 25 test box	S8	D 0 7	

Note: An incident stored in the computer (but not displayed when the test is performed) causes the bar graph in question to flash regularly.

Examples of displays

Check the test box feed and that cassette is to specification	
Test box waiting for diagnostic messages to be emitted : no readings possible	
Waiting for action on keyboard	
Function requested by key does not exist in computer tested	
Measurement requested is possible but value is zero	
Computer memory being erased	
Test requested being performed	
Diagnostic bay connected to test box (series connection)	

Storing in memory

This enables the context in which the incident occurs to be displayed by storing the results from the computer tested.

These results are displayed by the bar graphs and by pressing the [ ] key followed by two numbers, the list of which is to be found on each diagnostic card.

Using the XR 25 memory

The memory is controlled when the engine is running and after the computer has been selected (for example DO3 for an injection computer).

Store request :

When incident occurs, to store ----> press key [0]

Special case (first generation injection computers) :

These computers are characterised by no diagnostic display if the defect is not permanent (displayed by horizontal lines on the test box display) when the engine is running.

Store request :

Engine running, press key [0] **before** setting up conditions for reproducing incident.

Comment : On this type of computer, when the engine is running and there is no incident, an incident must be created to read the data.
(for example : disconnect the air temperature sensor).

Memory loss

The memory is lost by pressing the keyboard function keys or by disconnecting the test box feed.

Adjusting the potentiometer

This function is selected in order to adjust the position of the load sensor for type M automatic transmission (3-speed).

For this adjustment, even if the vehicle has a diagnostic socket, the test box must be connected by cable W

Press keys V and 1

A Identify the throttle potentiometer.

B Disconnect the 3-way connector.

C Connect the 3-way connector to cable W

Switch on the ignition and **press the accelerator pedal down completely**.

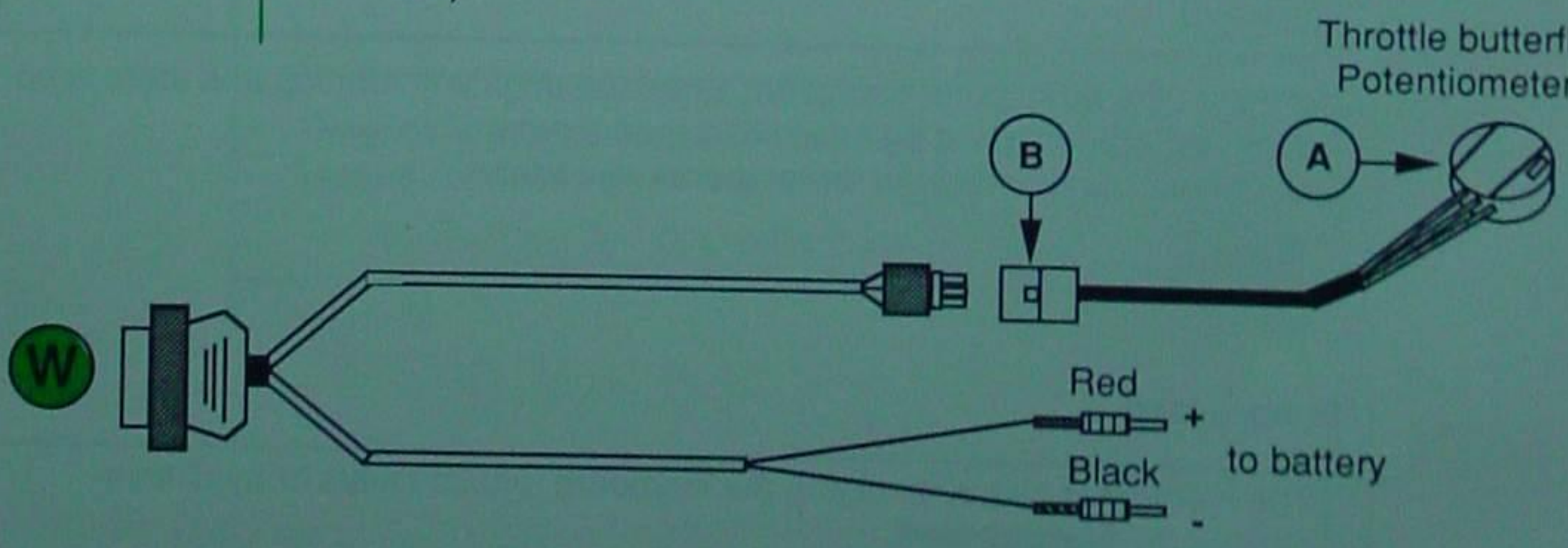
READING OFF THE RESULTS :

A figure between 0 and 3 should be read off on the central display 11 (0 being the optimum value).

If this figure is above 3 :

- adjust the potentiometer so that 0 appears on the central display.

(which corresponds to an alignment of the two bar graphs on the test box).



Connection to diagnostic bay

Only for XR25S

The new version of the XR25S test box enables direct connection to a diagnostic bay without the intermediary of an external serie connection interface (ILS) as previously.

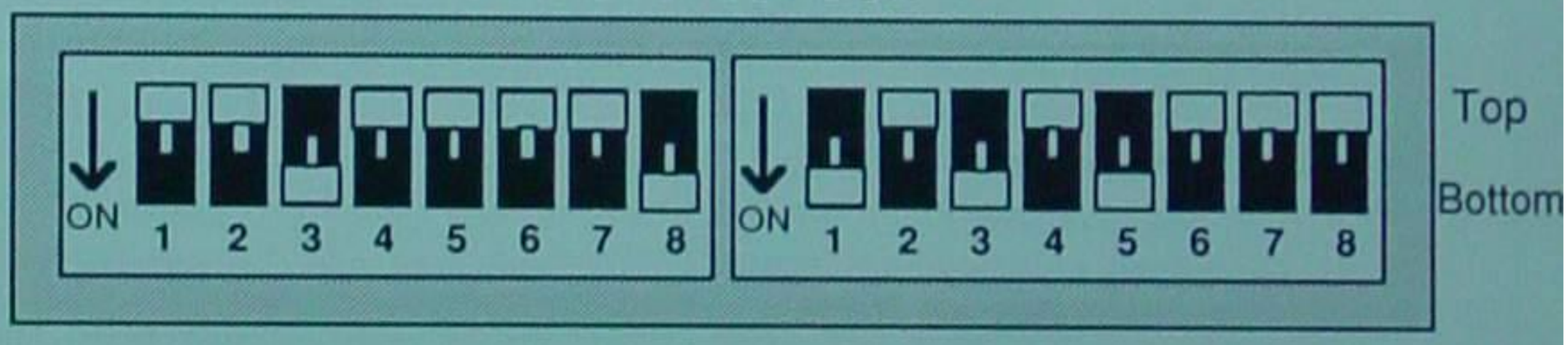
The cable for connection to the bay is connected at (14)

As soon as the connection has been made, the test box self-tests the series connection.
The results of this self-test are displayed on the bar graphs.
If one or more bar graphs are illuminated on the right-hand side, this indicates and operating incident on the connection.

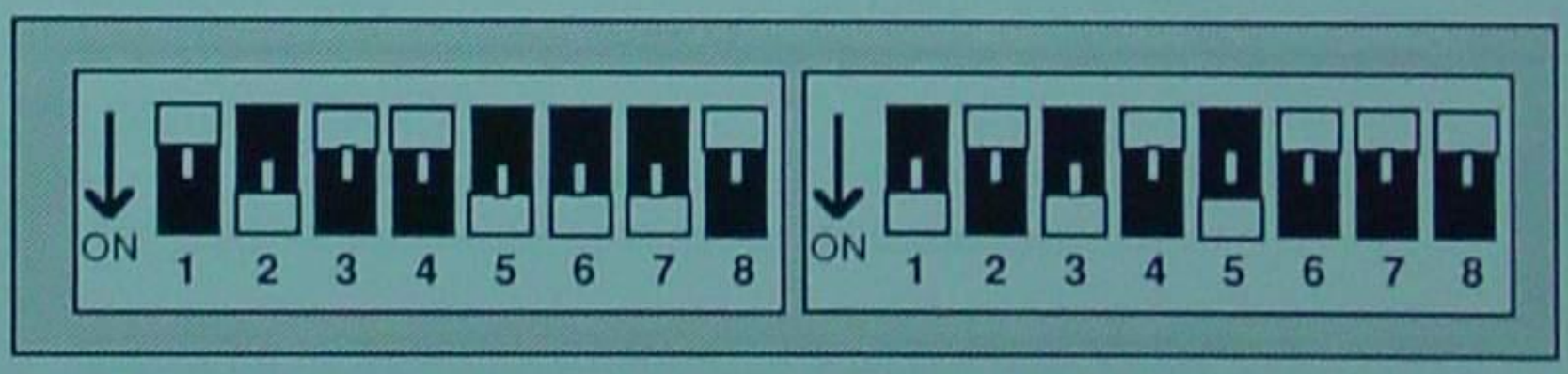
Different types of connection are possible by placing the switches located on the rear of the apparatus in the positions shown below.

REAR OF XR25S TEST BOX

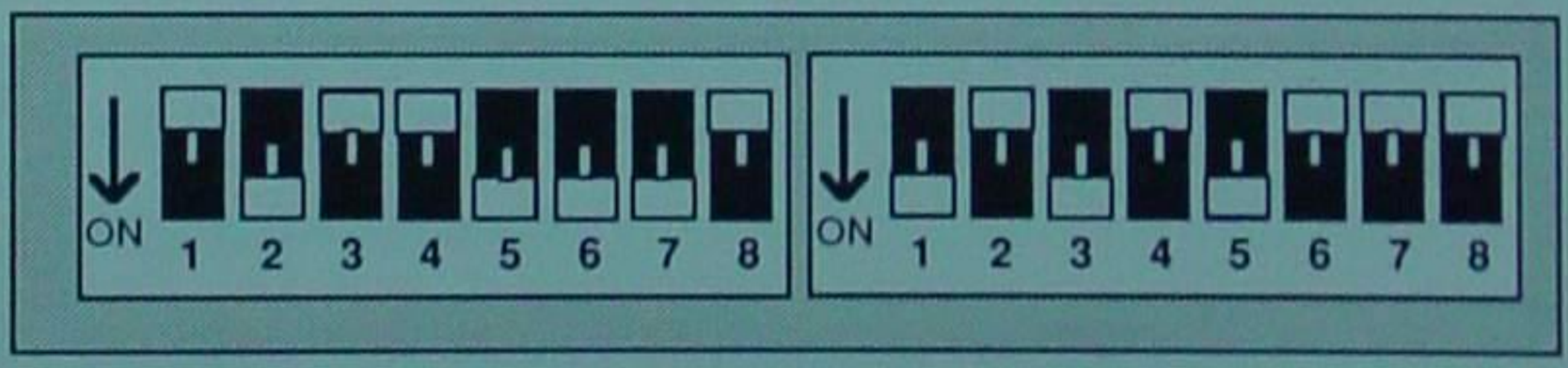
SOURIAU type bay



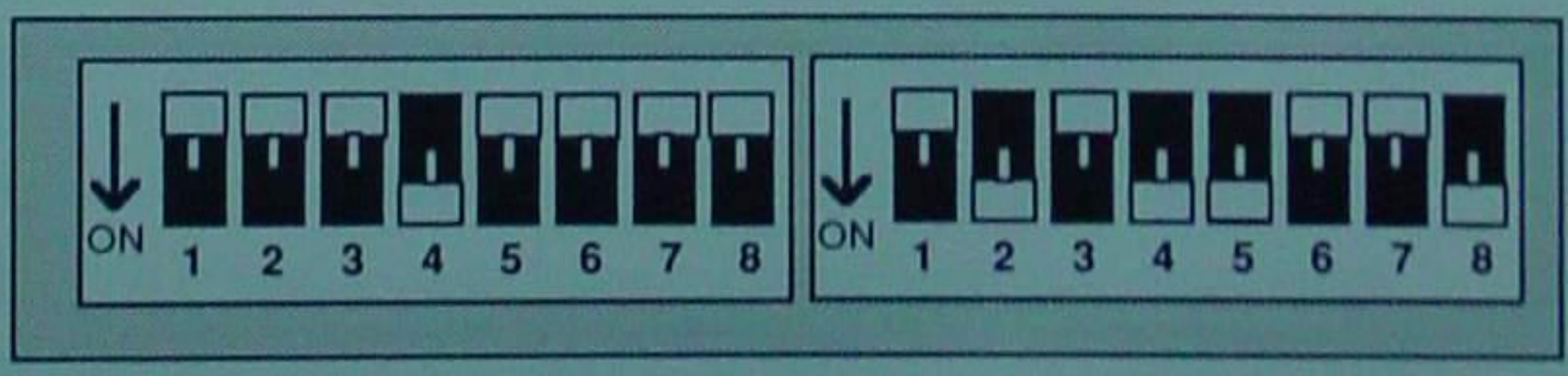
TECALEMIT type **SOURIAU** Bay



SAGEM Bay (TXE)



RS232C type output



APPENDIX

Abbreviations

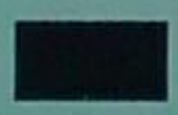
AC	Air conditioning
ALIM	Feed
APC	Plus after ignition
APP	Press
ARd	Rear right-hand
ARG	Rear left-hand
ATMO	Normally aspirated
AUTO	Automatic
AVd	Front right-hand
AVG	Front left-hand
B	Good
CAPT	Sensor
CC	Short-circuit
CIRC	Circuit
CLIQ	Pinking
CLIMAT	Air conditioning
CO	Open circuit
CORRECT	Correction
CONS	Reference
DEF	Incident
DEM	Starter
EGR	Gas regulating solenoid valve
EL	Solenoid valve
EV	Solenoid valve
EVDA	Solenoid valve
EVM	Modulating solenoid valve
GMV	Engine fan assembly
G1 ✱	Press keys G, 1, ✱
INFO	Data
MPA	Ignition power module
M	Incorrect
N	Neutral
P	Park
PF	Full load
PG	Full load
PL	No load
POT	Potentiometer
PRESS	Pressure
RAP	Ratio
RCO	Cyclic opening ratio
RES	Restriction
T.A	Automatic transmission
TEMP	Temperature
TENS	Voltage (battery)
VIT	Speed
V.MIXAGE	Mixer flap

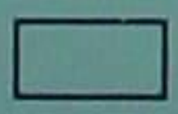
Signs used

SIGNS USED ON THE CARDS

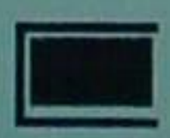

Bar graph illuminated : indicates data present


Action must be taken (indicated on diagnostic card).


If bar graph illuminated, refer to corresponding text on diagnostic card (indicates data present).


Bar graph extinguished.


Bar graph illuminated on left-hand side : see left-hand text on card.


Bar graph illuminated on right-hand side : see text on right-hand side of card

G1✱ Action requested by test box (for example memorised seat)

G13✱ End of test request : takes computer out of diagnostic mode.

G0✱ Erasure of computer's internal memory.

Incidents

Before returning the test box for repairs, you must ensure that the operating incident is not due to incorrect use.

A- Nothing illuminates

- Check if vehicle ignition on.
- Check battery voltage.
- Check continuity of cables U and T (see page 23).

B- No self-test

- Check that warning light 10 is illuminated.
  If extinguished, then check position of cassette and condition of its terminals.

C- " C xx " displayed (xx being a figure) :

- Faulty cassette.

D- Warning light ⚠ on ISO adaptor 12 illuminated :

- Disconnect then reconnect diagnostic socket.
  If light stays illuminated, check test box harness to diagnostic socket.

E- Bar graph display unsteady or erratic (engine running) :

- Check that test box and its feed harness are not too close to a high tension source such as the spark plug leads, distributor, ignition coil.

F- Results blocked (readings do not change) :

- Check that the test box memory has not been requested by accidentally pressing key 0
  If it has, the last bar graph on the bottom right-hand side will be illuminated. (See page 17 : loss of memory)
- Otherwise see E-

G- Keys press but nothing happens :

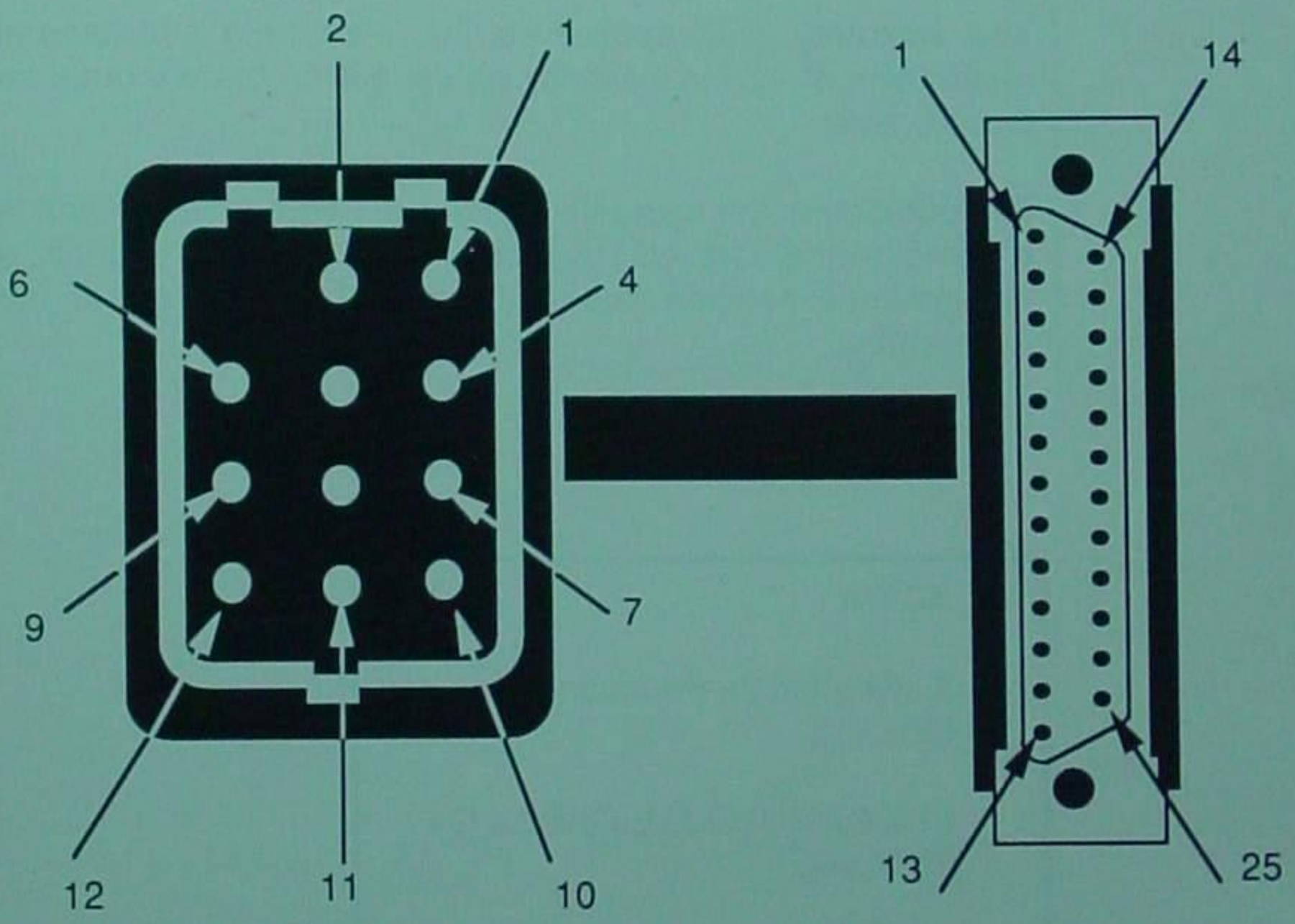
- See E-

Note : In cases E-F-G, the test box may have to be disconnected then reconnected to unblock it (cut test box feed).

Wiring diagram

CABLE U

If there is no fault finding or feed to the test box, check the continuity of the cable connections.



1	Green	5
2	Black	24
4	Grey	2
5	Pink	6
6	Red	11
7	Yellow	1
8	Brown	7
9	White/green	3
10	White	4
11	White/brown	8
12	Blue	9

After-Sales Service

WARRANTY :

The XR25 test box comprises :
- An electric sub-assembly (test box, computer, cassette and ISO adaptor).
- A cable sub-assembly.
- A documentation sub-assembly (cards and notes).

The warranty only applies to the electronic sub-assembly and within the restrictions of ACTIA's liability as set out on the warranty certificate attached to the test box.

The duration of the warranty granted is 1 year for parts and labour inclusive.
It starts on the date ACTIA receives the warranty coupon, and this date cannot exceed the expedition date of the test box as indicated on the certificate + 6 months.

ACTIA

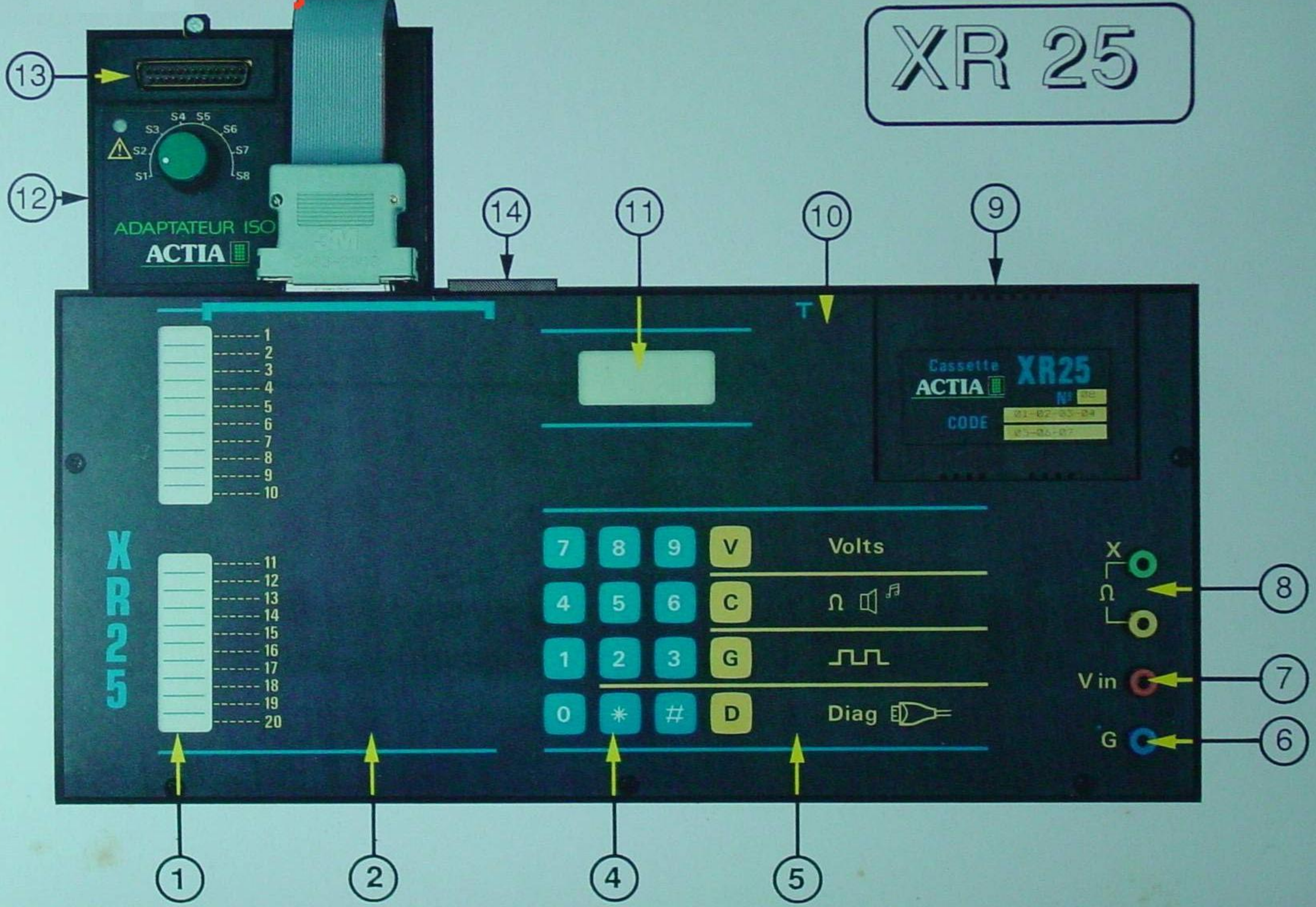
4 , Chemin de Pouvourville
BP 4215

31432 TOULOUSE CEDEX O4
(FRANCE)

tél: 61.17.61.61
télécopie : 61.55.42.31

Contact : Network Standards Swindon
for further information.

XR 25


13
12
14
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10
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S1
S2
S3
S4
S5
S6
S7
S8
ADAPTATEUR ISO
ACTIA
T
Cassette
ACTIA
XR25
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