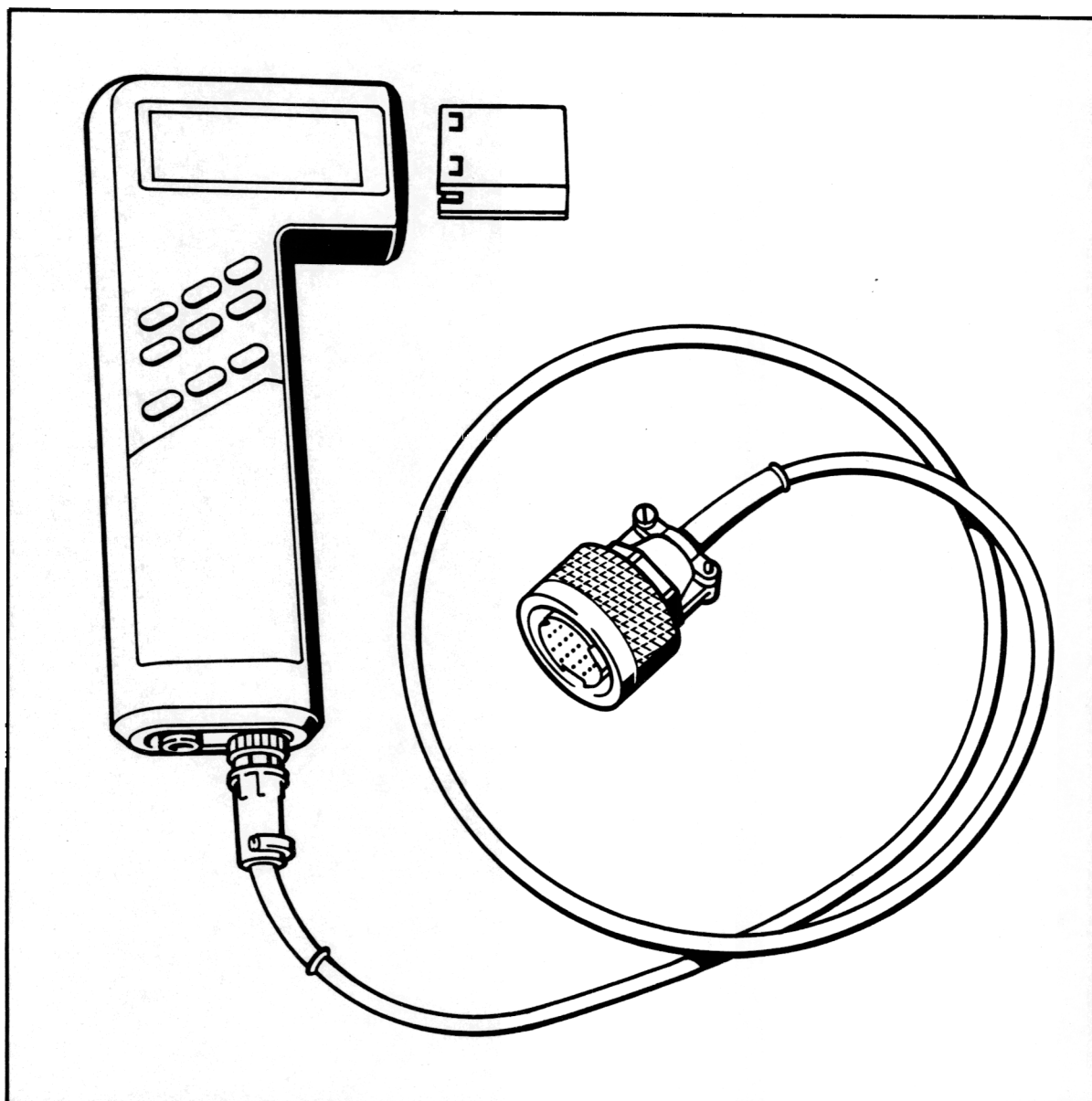


System Tester 9288 Operating Instructions

General information

Usage

The System Tester 9288 is a self-diagnosis tester with microprocessor control.

It allows all systems fitted with a diagnostics interface to ISO standards to be checked.

The following operations may be carried out:

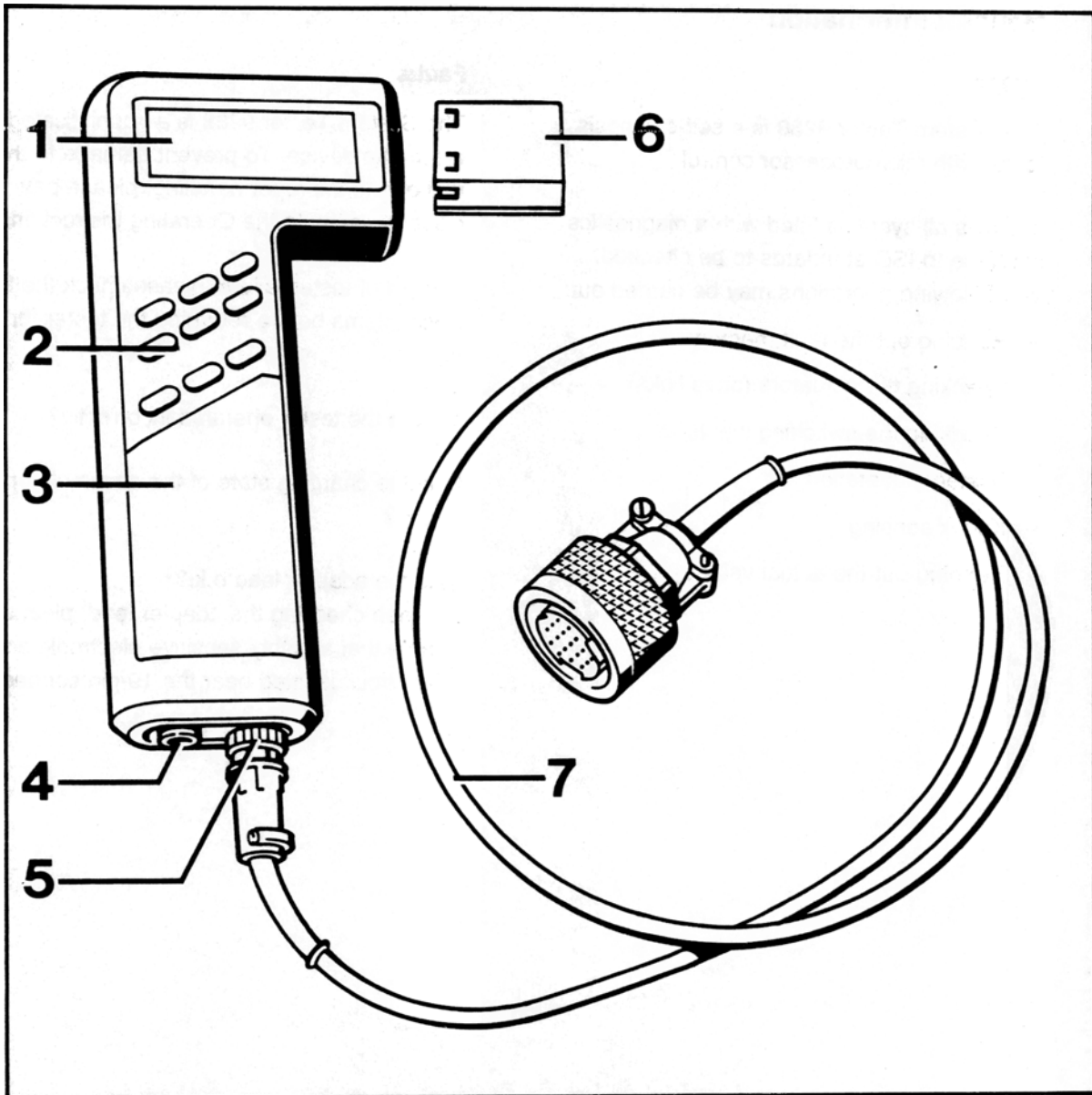
- Reading out the fault memory
- Checking the actuators (drive links)
- Checking the switching inputs
- System adaptation
- Knock sensing
- Reading out the actual values

Faults

The System Tester 9288 is a sophisticated electronic device. To prevent damage to the unit due to improper handling, please pay close attention to the Operating Instructions.

In case of tester failure, please check the following items before returning the tester for repair:

1. Was the tester operated incorrectly?
2. Is the charging state of the accumulator o.k.?
3. Is the adapter lead o.k.?
When checking the adapter lead, please note that a highly sensitive electronic adapter circuit is fitted near the 19-pin connector.



Design of the tester

Item, designation, operation

Remarks

① LCD display

Operation:

Dot matrix 5 x 8

4 lines of 20 characters each

Foreign languages possible

Illumination

If the System Tester 9288 is switched on without the program module, the Tester is switched off after the self-test is run and a note concerning the missing program module is displayed.

② Keyboard

Operation:

Keys

1, 2, 3 Select keys

Key < > Paging up and down

Key H For Help menu, e.g.:
Illumination

Stored displays

Control unit overview

Printer setting

Switch off unit

Key N Return to next higher
program level after
finishing a test run or
return to last display
while a test is run.

Switch on: with any key

Switch off: 180 s after last actuation of any
(automatic) button or if no data stream flows
across the serial interface.

The last field in the right-hand top corner is filled out completely, i.e. this is a stored display, not a current display.

Store display



Output stored display



③ Power supply

If the voltage is insufficient, "Charge accumulator" is displayed. If this warning is not observed, the device is switched off.

Built-in accumulator with NiCd batteries. System Tester 9288 must be off when it is charged for the first time.

Charging time > 8 hours

Connect to vehicle battery via adapter lead (item 7) 9288/1.

Charger (accessory)

Supplied with tester. After charging: Operating time

4 - 8 hours without illumination

1 - 2 hours with illumination

Connection to ISO interface

Charging power supply

For testing operation and to charge the NiCd batteries

④ Socket for input and output devices

Connection feature for printers (e.g. Epson, IBM, Hewlett Packard (HP), program charging station or similar devices.

For interface terminal assignments, refer to manual of the respective device.

Printer cable for Standard D 25

BOSCH No. 1 684 465 193

Printer cable for Epson

BOSCH No. 1 684 465 194

The System Tester 9288 sends data with the following settings: 8 data bits / 1 start bit / 1 stop bit /

No Parity (for printer adaptation)

⑤ Socket for adapter lead 9288/1

Function 1: Reading out the data

Function 2: Connection for power charger

Input for flashing code support.

Charging the fitted accumulator

⑥ Insertable program module**C-MOS!**

Do not touch connector!

Operation:

Operating system

LCD triggering of keyboard

Interface communication

Calculations and data transformations

Plug in module:

Remove rubber protection,

Push in module all the way.

⑦ Adapter lead 9288/1

Connection

Observe the following points:

The vehicle must not be in gear (automatic transmission set to N or P) - risk of accidents!

- Work on the vehicle only with the ignition switched off.

After connecting the tester, the instructions indicated under the Test item are displayed on the System Tester 9288.

Charging via battery charger

Connect the System Tester 9288 to the charger (item 5).

Diagnosis

Connect the System Tester 9288 via the adapter line 9288/1 to the diagnostic connector of the vehicle.

Switch on tester and operate according to the instructions displayed.

No diagnosis possible

(refer to page 03 - 3)

Testing

Module contents:

Tracking the establishment of communication, communication with the control unit, reading out the fault memory and selection of the Help menu, drive link diagnosis, input signals, actual values and system adaptation, knock registration.

Connect System Tester 9288 (see above)

Switch on System Tester
(with any key)

Display:

```
Porsche
Eprom module eng
Module level xx.xx.xx
Version x.x
```

If no special instructions are given on this display, you may always switch on with the > key!

Due to the fact that the System Tester 9288 can store fault displays, the following display appears if faults are stored in the display memory:

```
Stored displays
erased?
1 = Yes
3 = No
```

The stored displays may now be erased or printed. To print, press button 3 (do not erase displays) and use the H key to select the Help menu (for Help menu, refer to p. D - 9).

To proceed in the menu, the stored displays must now be erased. A selection of the vehicle models is then displayed. After a vehicle type has been selected, the following message is displayed:

```
Connect adapter
cable to test plug
Ignition "on"
When completed >
```

The next display is:

```
Wait
for data
xxxxxxxxxxxxxxxxxxxx
Break off test: N
```

After a short waiting interval, the System Tester 9288 reports all systems installed in the respective vehicle. If an # is shown in front of the vehicle, this means that at least 1 fault has been stored in the corresponding system.

```
Installed systems
1 = # DME
2 = # ABS/ABD
3 = Airbag >
```

Help menu

The Help menu may be selected from any display by pressing the H key. Return to the start display with the N key.

```
Help menu
1 = Illumination
2 = Turn tester off
3 = CU chart
```

To continue, press e.g. key 1

Key 1

The display illumination is switched on and the system returns to the previous display.

If e.g. the > key is pressed when the help menu is displayed,

```
Help menu
1 = Illumination
2 = Turn tester off
3 = CU chart >
```

another part of the Help menu is displayed:

```
< Help menu
1 = Printer setting
2 = Baud rate
3 = Stored displays
```

To continue, press e.g. key 1

```
Printer adjustment
1 = IBM
2 = HP Quiet Jet
3 = Epson
```

The printer selection is used to set the tester for the printer model selected.

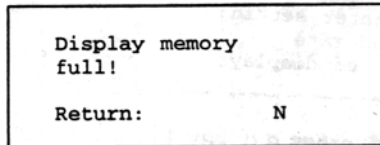
The printer selected and the set baud rate are highlighted by the # character.

Storing measurement displays (Key)

This key allows all displays to be stored manually. The following displays are stored automatically:

- Control unit identification
- Installed systems
- All faults present

The following note is displayed when the storage limit is reached.



Displaying the stored measurement displays

(Key )

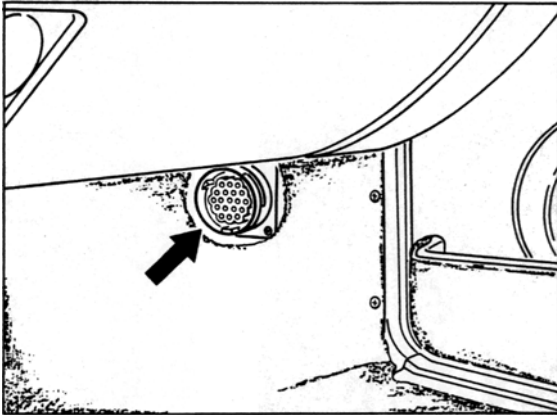
The stored displays can be called up with this key.

The stored displays can be displayed for the selected system by using the < or > key.

The system is selected with the keys 1, 2 or 3.

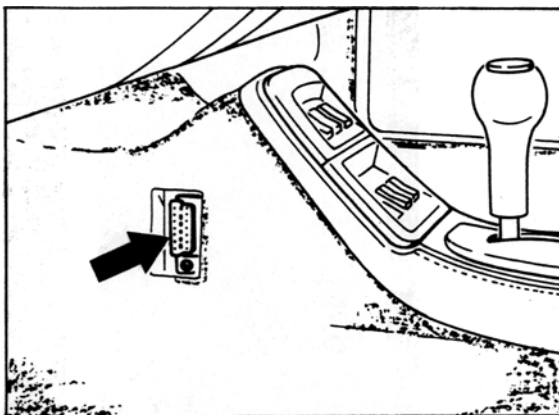
Location of diagnosis socket

The diagnosis socket of the System Tester 9288 is located in the passenger footwell under a separate cover. The cover is held in place with clips.



1903-D

Starting with Model Year '95, the diagnostic socket is located on the left-hand side of the center console and is fitted with a plugged-on cover.

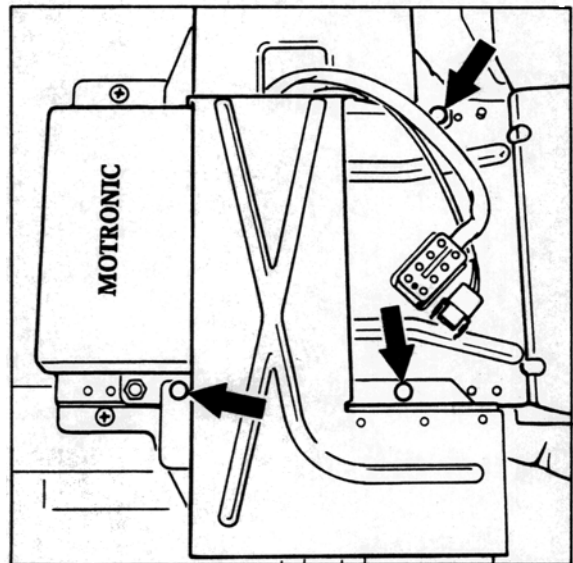


1967-03

Tamper-proofing of control units

As of Model Year '95, the control units located below the driver seat are covered to prevent unauthorized tampering. This cover is protected by shear-off bolts.

If possible, test and/or measure at the component affected or at the connectors during troubleshooting.



03 Self-diagnosis

General notes

When starting and running the diagnosis, the ignition must be on. If the ignition was off during the diagnosis, diagnosis may be resumed after switching on the ignition and pressing the > key, i.e. the tester returns to the position that the diagnosis was interrupted at.

In the same manner, pressing the > key causes the diagnosis to be resumed from the position at which the diagnosis was interrupted, provided that specified criteria from the below table caused the diagnosis to be interrupted.

The diagnosis cannot be resumed, however, if the criteria are still present, e.g.:

Heater: Oil temperature > 105°C.

Criteria causing the diagnosis to be interrupted

DME:

Speed > 2000 rpm

ABS/ABD:

Speed > 15 min/n

Tiptronic:

Speed > 1500 rpm

Airbag:

none

Alarm:

none

Heating:

1. Right-hand mixing chamber temp. > 80° C
2. Left-hand mixing chamber temp. > 80°C
3. Rear fan temperature > 95°C
4. Oil temperature > 105°C

Criteria for starting the diagnosis

DME:

Speed < 1200 rpm

ABS/ABD:

Road speed = 0 kmh

Tiptronic:

Speed < 1500 rpm

Road speed < 10 km/h (6 mph)

Airbag:

None

Alarm system:

None

Heating:

1. Right-hand mixing chamber temp. < 80°C
2. Left-hand mixing chamber temp. < 80°C
3. Rear fan temperature < 95°C
4. Oil temperature < 105°C

One troubleshooting requirement is that the testing person

- is familiar with the location of components, operation and technical relationships among the systems to be tested
- is able to read and analyze Porsche wiring diagrams
- is familiar with functions of circuits and relays
- is able to operate and analyze testers such as oscilloscope, voltmeter, ohmmeter and ammeter

The fault text in the display indicates a fault path, i.e. the fault may be present anywhere along the path, starting from the control unit across all connectors up to the component itself.

Before reading out the fault memory, do not try to locate the fault e.g. by pulling off connectors etc. as this would cause a fault to be stored in the fault memory.

Note for System Tester 9288

If the Tester displays "...not present", this may mean:

- Fault was not present when the test condition existed

In case of an intermittent fault, the + symbol is also displayed.

Example: **"...not present +"**

Remedy: Check path visually

Test conditions under which the fault was tested do not correspond to the ambient conditions when the fault occurred.

Remedy: Meet the ambient conditions displayed on the tester

If the tester displays **"Signal unplausible"**, this may mean that

- the signal of the monitored component is not within the tolerance range

Explanation of the counter displayed on the Tester display

When the fault occurs for the first time, the counter is always set to 50. If a lower figure is displayed, calculate the difference between the 50 and the number indicated. This value is equal to the combination of – Starting procedure, meeting the test requirements and non-presence of the fault –. When the number 0 is reached, the fault path in the control unit is erased.

If the fault status changes from not present to present at a figure below 50, the counter is reset to 50. If a figure above 50 is displayed, the difference corresponds to the number of intermittent contacts that have occurred. Even when the values are above 50, the counter counts back to 0 when the above combination is met.

No diagnosis possible

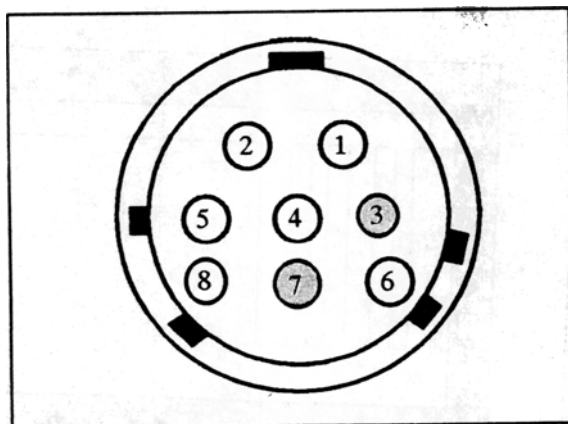
If the System Tester 9288 cannot enter the diagnosis, check the following items:

Check adapter lead 9288/1 for continuity

Check K and L wire on adapter lead 9288/1 for continuity.

Socket 3 (8-pin connector) to pin 7 (19-pin connector)

Socket 7 (8-pin connector) to pin 8 (19-pin connector)



Connector on tester

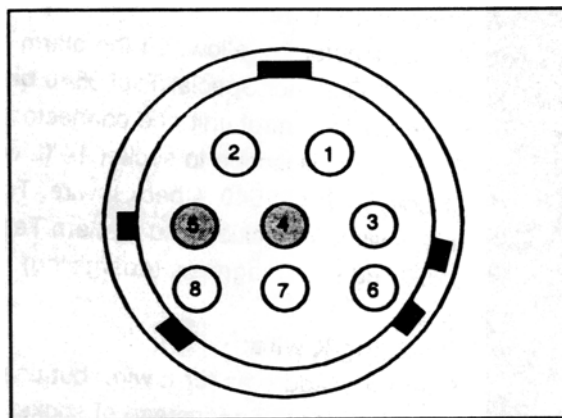
1211-03

Socket 3 = L wire

Socket 7 = K wire

Check voltage supply

Check ground and terminal 15 on adapter lead 9288/1 for voltage supply.



Connector on tester

1203-03

Socket 4 = Ground

Socket 5 = Terminal 15

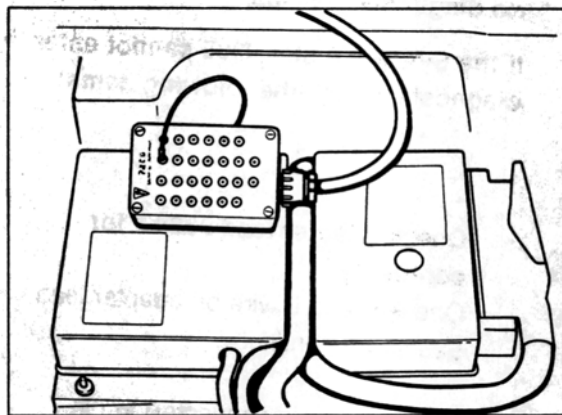
Check K and L wires with oscilloscope and Special Tool 9540

Checking L wire:

Pull connector 2 (yellow) off the alarm control unit. Connect Special Tool 9540 between alarm control unit and connector 2. Connect oscilloscope to socket 14 (L wire) of Special Tool 9540. Check L wire. To do this, switch on ignition and System Tester 9288 and start diagnosis (energizing).

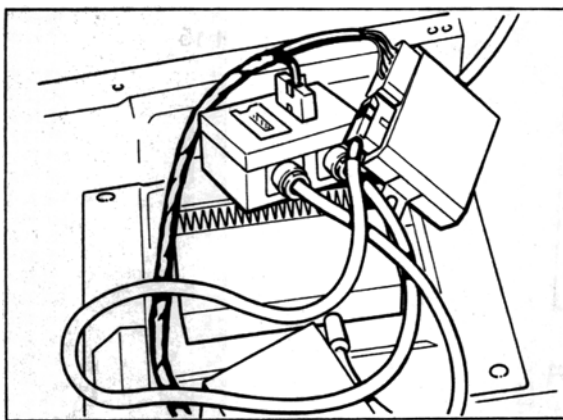
Checking K wire:

Same procedure as for L wire, but use socket 15 for K wire instead of socket 14 for L wire.

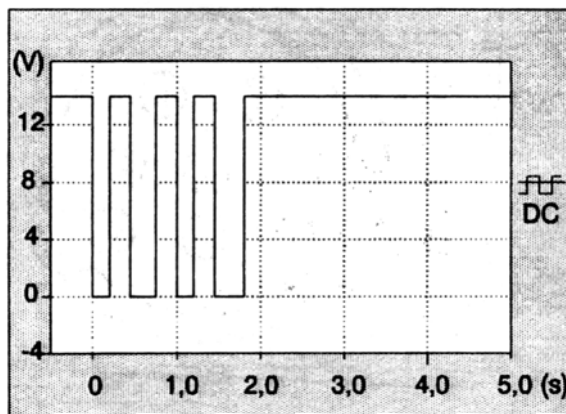


1215 - 03

The following signal must be displayed for the L wire:

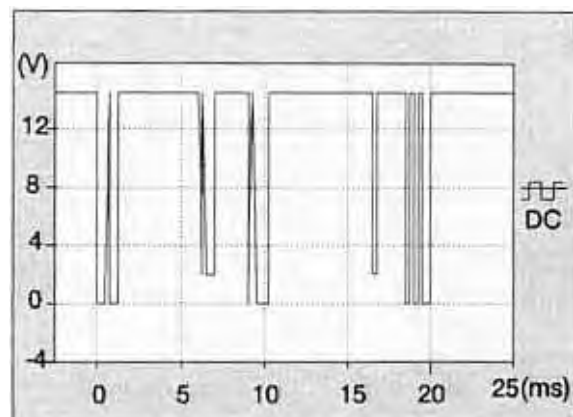


1214 - 03



1212 - 03

The following signal must be displayed for the K wire:

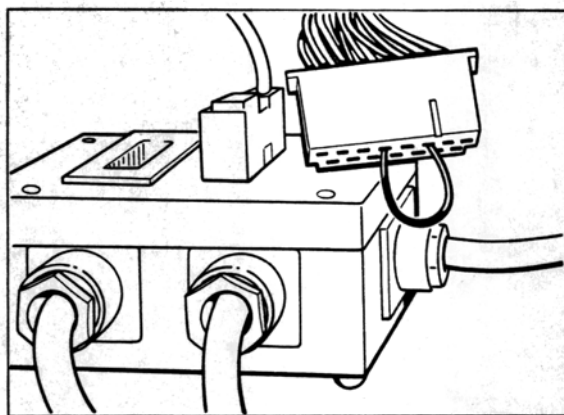


1213 - 03

Note: If the signals displayed deviate from the specifications, this may be due to interference generated by a control unit connected to the K or L wire (for diagnosable systems, refer to wiring diagram). Pull one connector after another off the control units and repeat checking the K and L wires. Start with the alarm control unit as described below. If the last control unit has been disconnected, one of the control units that had been disconnected must be reconnected again. Otherwise no signal can be generated anymore.

Note: The on-board computer (rev counter) is connected to the K and L wires but is not diagnosable. It may cause interferences, however!
If the airbag control unit is disconnected, power supply to term. 15 of the DME control unit is interrupted.

Disconnect alarm control unit and install jumper



1216 - 03

Pull connector 1 (black) off the alarm control unit. Connect jumper to connector 1 of the alarm control unit, pin 4 and pin 6.

Check signals of the K and L wire again as described above

- **Disconnect other control units**
 Disconnect next control unit, switch on ignition, switch tester off and on again and start diagnosis (energize again). Check signals of K and L wire. Repeat procedure until all control units have been disconnected.

Check K and L wires for short to ground

Check all control units for continuity to diagnosis socket