



## **VAS 5051** **Diagnosis tester**

Self-Study Program No. 75





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# VAS 5051

## Diagnosis tester

The present evolution and development of electrical and electronic systems on the automobile imposes the need for a parallel development of fault finding and diagnosis equipment.

SEAT has therefore made the decision to introduce the **VAS 5051**, with advanced performance, covering all the needs of vehicle diagnosis.

All the **autodiagnosis** functions of the VAG 1551, together with a digital **multimeter**, an **oscilloscope** and a **guided fault finding** facility plus technical information from the Service Manual are contained in one single unit.

In order to maintain the system **up to date** and ensure its **utility** in the **future**, SEAT, will continuously supply **CD ROM** disks with new information.

The tester also comes with a printer and a set of cables enabling the different measurements to be made.

The diagnosis tester, the printer and the cables are all located in a mobile trolley, and it is possible to remove the diagnosis tester in order to carry out **dynamic tests** on the vehicle due to its **independent** operational ability.

This makes it possible to simplify the fault finding process and **optimise** the **time** dedicated to component checking.

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# EQUIPMENT COMPOSITION

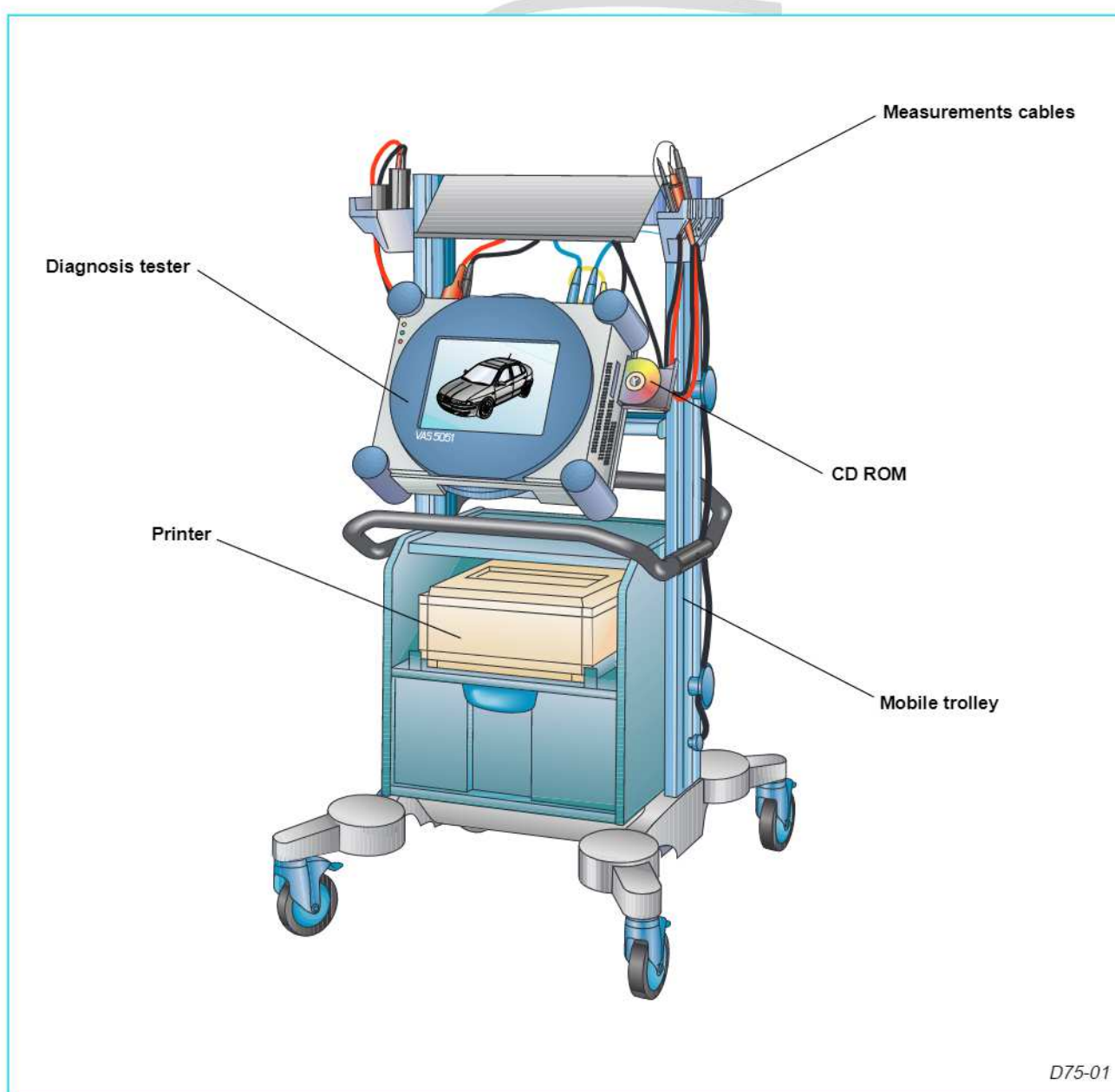
The diagnosis tester VAS 5051 is composed of a **main tester unit**, a **printer** connected to the tester, a set of cables to carry out the different measurements, and a **mobile trolley** containing all the components.

The VAS 5051 combines in one single unit, all the vehicle **autodiagnosis** equipment, a measurement module, a **multimeter**, an **oscilloscope**, and a **guided fault finding** facility backed up by technical information

from the Service Manual plus complementary functions.

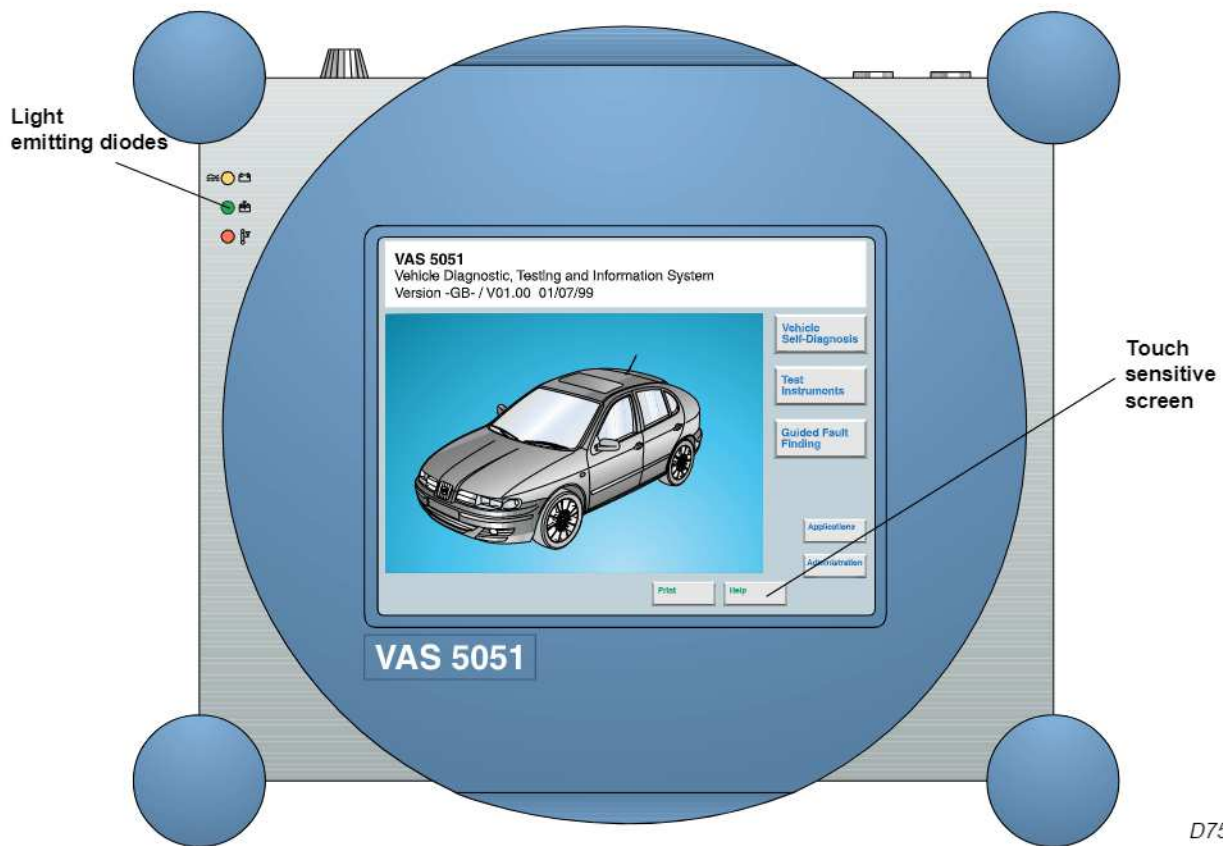
All these facilities greatly simplify fault finding on the vehicle.

The **data base** used by the diagnosis tester needs to be constantly **updated** and this is easily done using a **CD ROM**, enabling the data memorised in the diagnosis tester to be amplified and modified. SEAT will supply new versions of the CD ROM periodically.





# DIAGNOSIS TESTER



D75-02

The diagnosis tester fitted to a rotary support on the mobile trolley is a **computer** which contains all the physical components (hardware) and the programmes (software) needed to carry out the functions of a multimeter, an oscilloscope, and a vehicle autodiagnosis and guided fault finding tool.

The **power supply** for the tester could be supplied by the **mains** (220 V, 50 Hz), by a **rechargeable battery** located in the rear of the tester, or by the **vehicle** through the diagnosis cable similar to the VAG 1551/1552.

## FRONTAL AREA

This is a crystal liquid **touch sensitive screen** with which the functions available for each operation can be selected. This screen is the most vulnerable part of the equipment, therefore care should be taken not to use metallic or sharp objects to press the buttons, since scratches could alter the contact sensitivity. If the screen becomes soiled, it

should be cleaned using windscreen wash fluid not containing ammonia or with alcohol.

There are three **LEDs** on the panel and they provide the following information:

- **Diode 1** indicates the origin of the power supply, and can have different colours depending on the source of power:

- **Green:** Connected to the mains.
- **Yellow:** Powered by the rechargeable battery

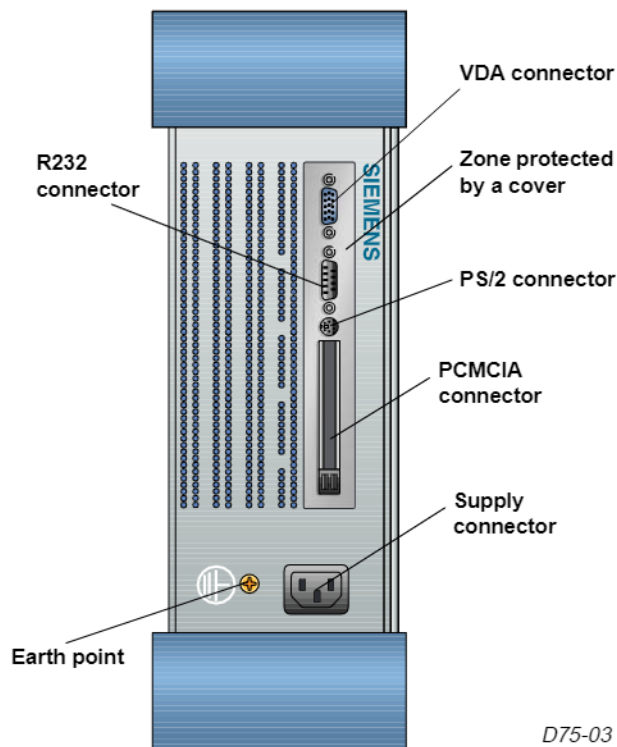
- **Intermittent yellow:** Powered by the rechargeable battery but with low power reserves.

- **Alternative intermittent green and yellow:** external power supply but with the rechargeable battery disconnected or faulty. (This situation should be avoided).

- **Diode 2** will be green when the battery is being charged.

- **Diode 3** will show a red light when the internal working temperature has been exceeded, generally due to a dirty internal cooling air filter.

# DIAGNOSIS TESTER



D75-03

## LEFT SIDE

Here we can find a **power supply connection** for the diagnosis tester together with an **earth screw** which should not be loosened or removed, otherwise there is a risk of electric shock during operation.

A VDA connector can be found beneath a black protection cover (for a screen or a projector...) another RS232 (mouse), a PS/2 connector (for keyboard) and two PCMCIA connectors making it possible to connect new components (modem, CAN-Bus card...) to the diagnosis tester.

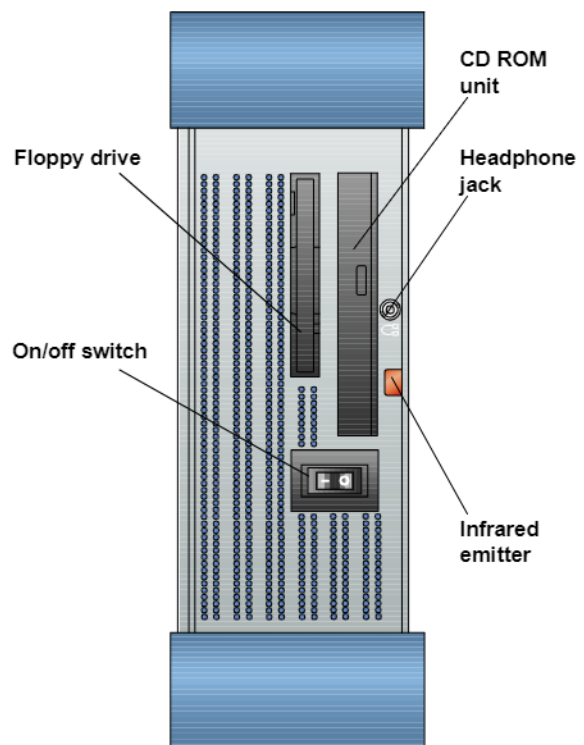
The connectors for the **mouse and keyboard** should **not be used** since any damages caused when working with these will invalidate the warranty.

## RIGHT SIDE

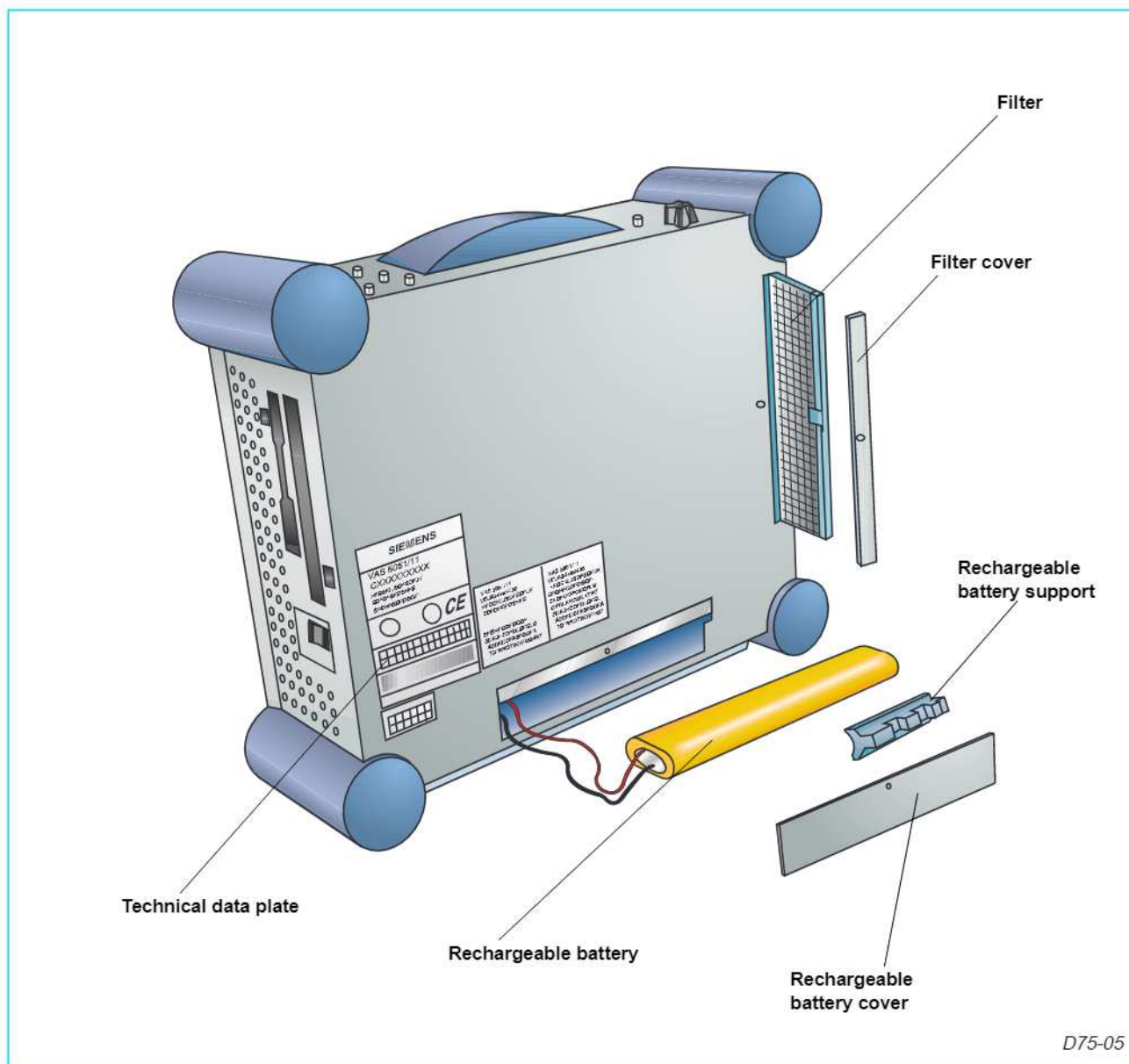
The **on/off switch** for the diagnosis tester is located here, and also a **floppy drive**, a **CD ROM** reader with a headphone jack, and an **infrared emitter** to communicate with the printer.

It is important to keep the infrared emitter clean in order to ensure good communication between the diagnosis tester and the printer.

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D75-04



## REAR AREA

The rear of the tester contains the **rechargeable battery**, the **filter** and the technical data plate.

The battery provides a working autonomy of approx. 30 minutes and it is charged when the tester is connected to the mains.

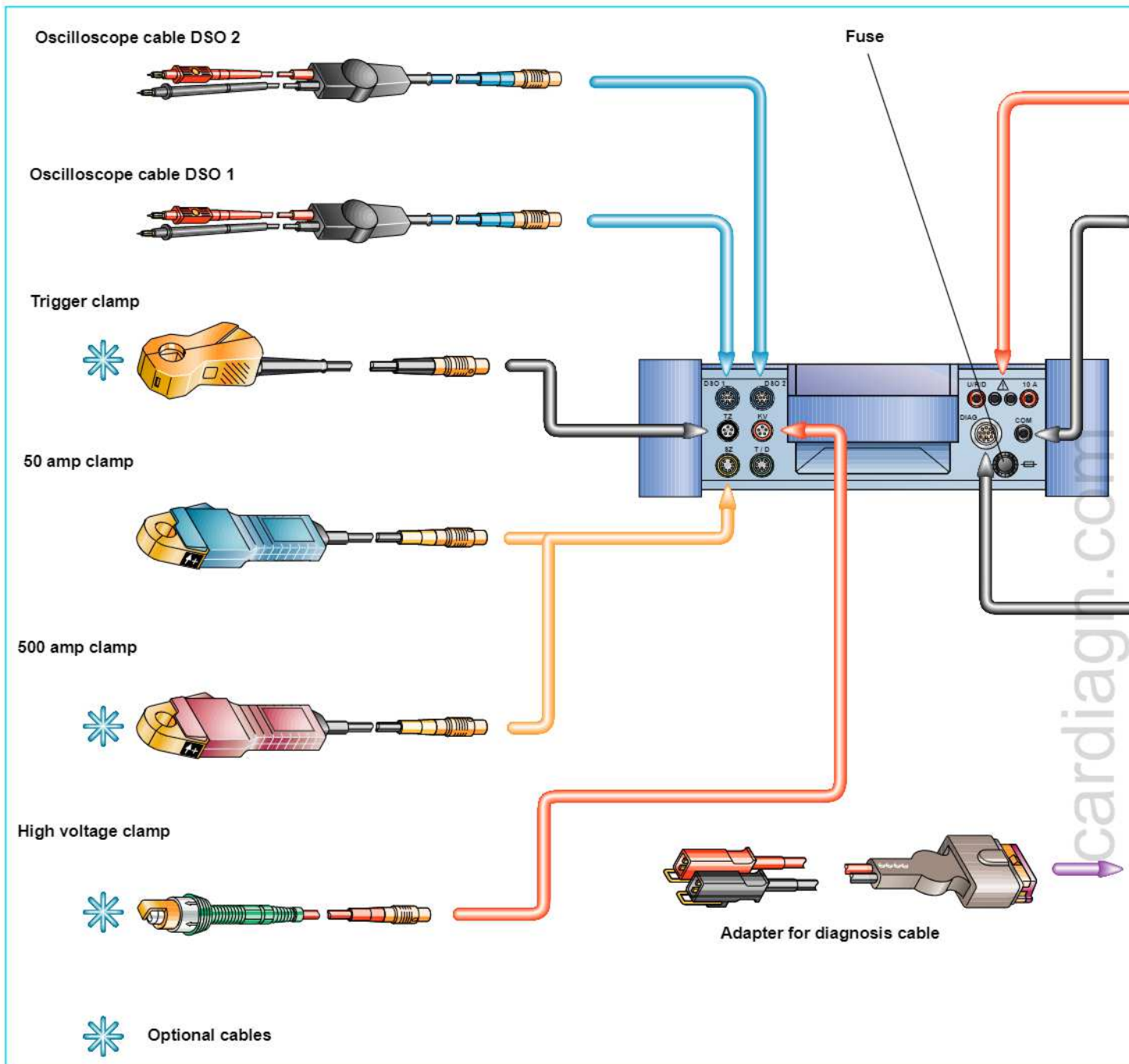
It is not advisable to have the tester connected to the mains without the presence of the rechargeable battery.

Whenever the temperature diode located on the front of tester comes on, the air filter should be replaced or cleaned.

The rechargeable battery and the filter are supplied as spare parts.



# MEASUREMENT CABLES

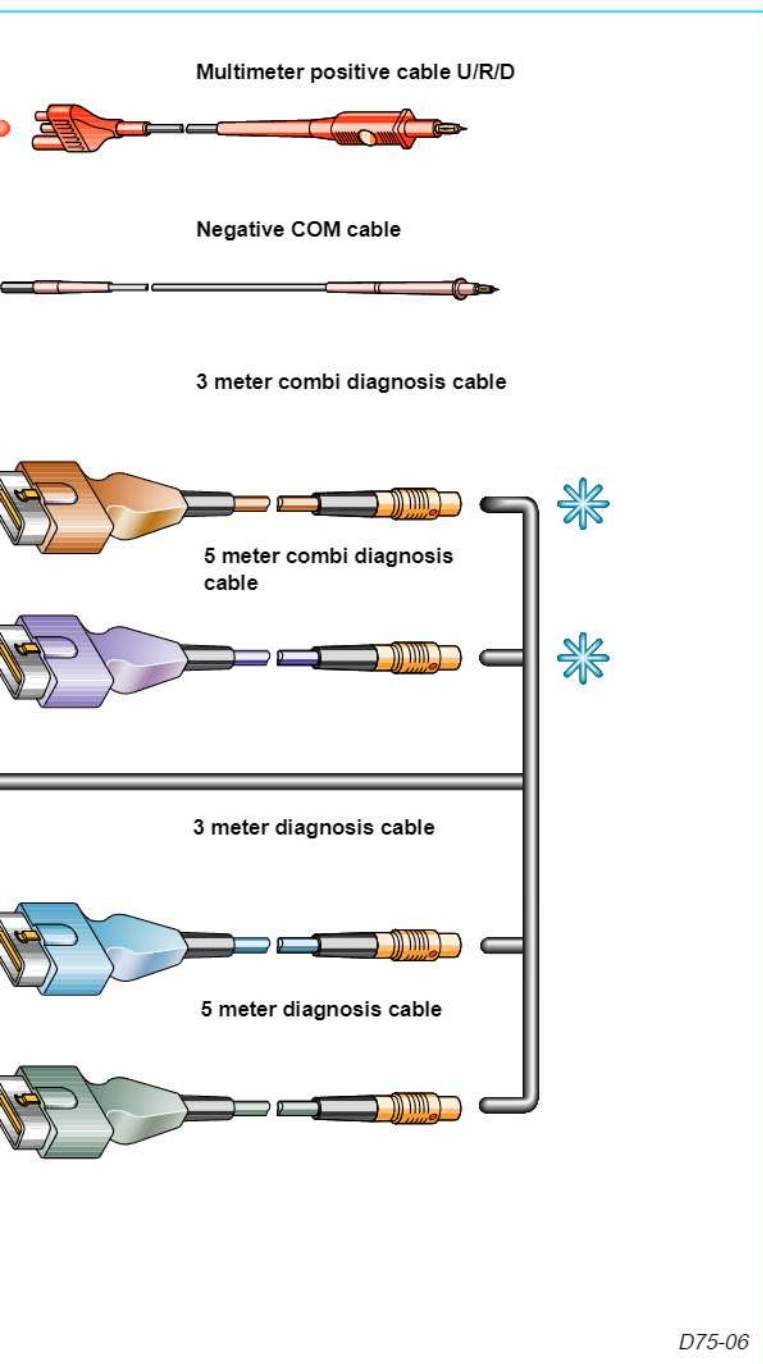


All the measurement cables are connected to the upper part of the diagnosis tester. The cables and connectors are identified using codes and colours, making erroneous connections impossible.

This equipment comes with the following **cables**:

- Two **oscilloscope** cables (DSO 1, DSO 2), with a red terminal for signal pick up and a black earth cable. The red terminal has a black button to permit screen freeze and unfreeze functions.
- A 3 meter **diagnostics** cable with a **connection** for the **power supply** of the diagnosis tester through the connector T16.





- **Multimeter positive cable U/R/D** with a screen freeze and unfreeze button. This cable has two connection points to the diagnosis tester, the 10 A connection used for current readings and the U/R/D connection for voltage, resistance or diode testing
- And a **negative (COM) cable for the multimeter.**

As well as the cables mentioned above, the following cables can also be acquired as optional in order to complete the measurement capabilities of the equipment:

- A 500 amp clamp which can be connected at the same point as the 50 amp clamp.
- A trigger clamp (TZ) which enables the oscilloscope trigger or start of measurement signal to be captured.
- Two combi diagnostic cables, one having a power supply connection and one without, which also incorporate 4 cables for the CAN-Bus.
- And finally a high voltage clamp (KV) enabling the ignition signal used in the oscilloscope to be registered.

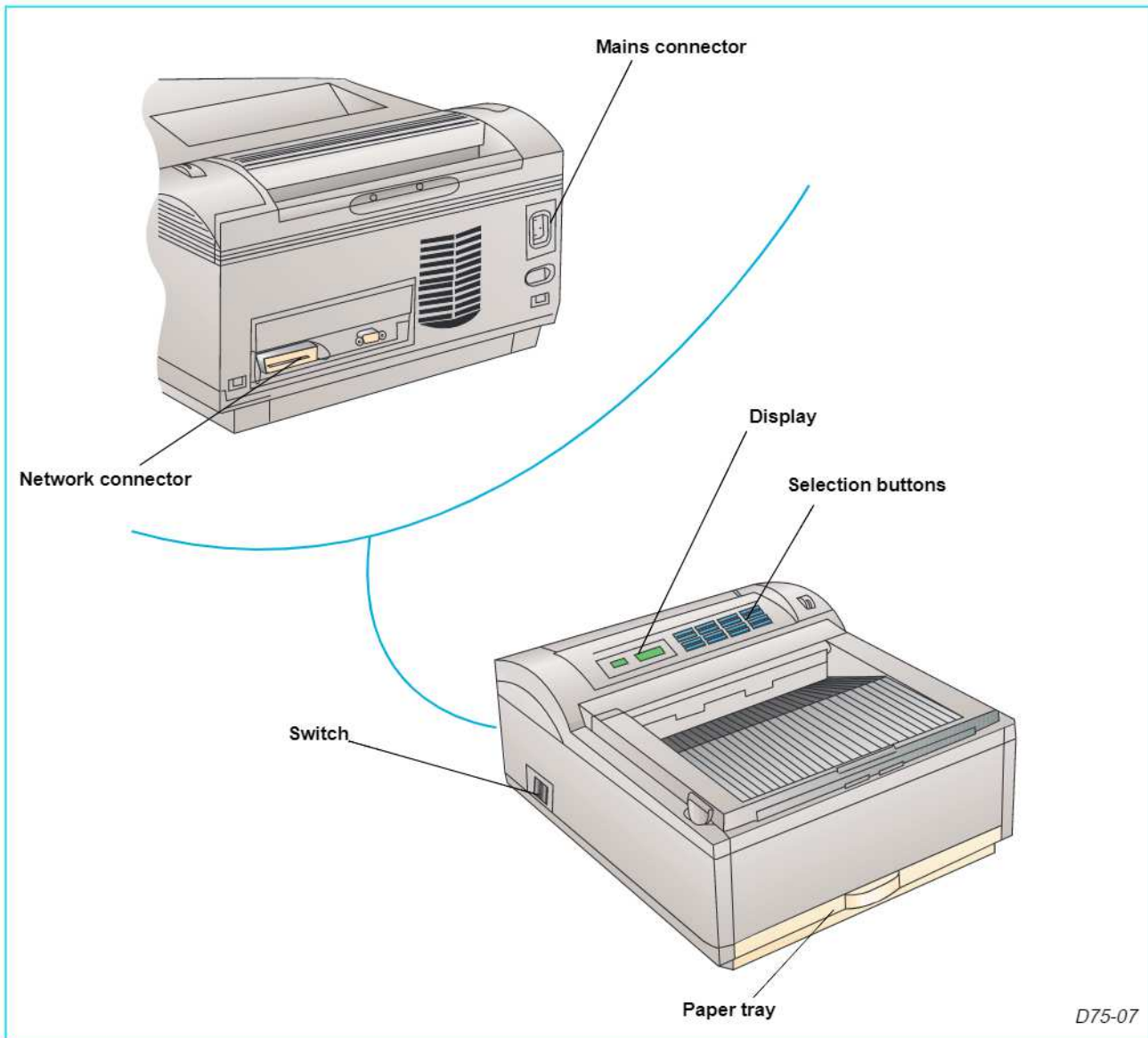
The diagnosis tester is also fitted with an input (T/D) which will enable temperature and pressure readings to be made in the future.

A tester protection **fuse** is located next to the diagnosis cable, and is useful when taking current readings with the U/R/D and (COM) cables.

This is a **12 amp rapid melt fuse**, making it essential to use the same fuse supplied by the parts department with part number **Z405070WE**, if it needs to be replaced.

- A 5 meter **diagnosis** cable without a power supply connection.
- A diagnosis adapter for connectors T2.
- An **50 amp clamp** (SZ).

# PRINTER



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D75-07

The equipment comes with a laser **printer** making it possible to **print** all the **readings, graphs and tests** made on the vehicle.

This printer is powered from the mains and can never be supplied by the rechargeable battery of the diagnosis tester.

The mains connection and the infrared transmitter is located at the rear of the printer.

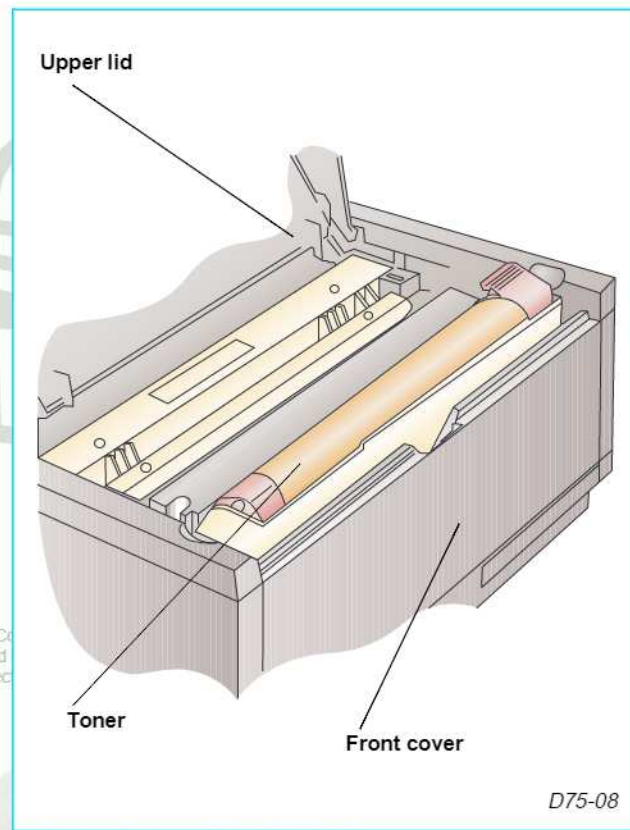
There is a display screen on the front of the laser printer to indicate its situation, such as paper out or toner low warnings.

The buttons located in the front enable different functions to be selected such as (eliminate printing in progress, move paper etc.)

The on/off switch is located on the side.

The lower tray is used to load the paper which can be A4 or paper sheets.

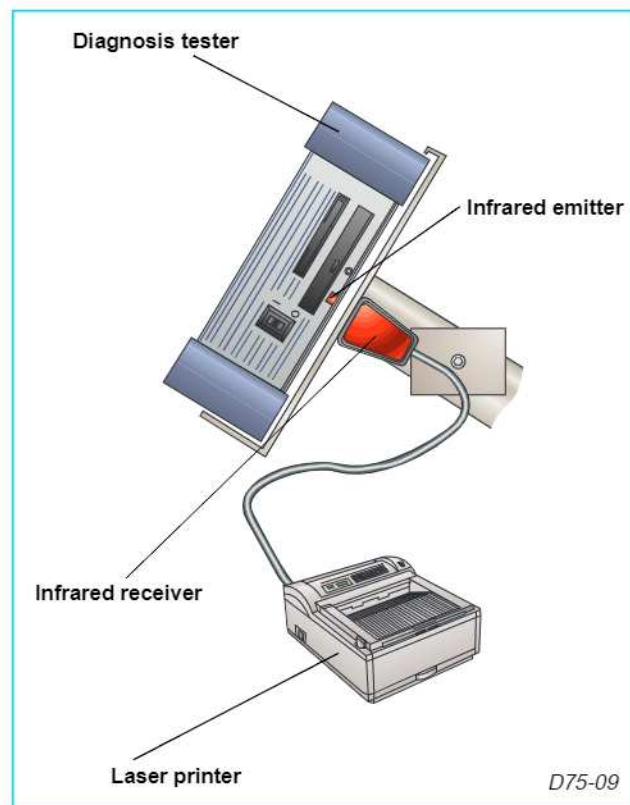
The laser printer requires **no** special **maintenance** other than changing the toner when needed or removing it during transport. When the toner is removed from the printer, it should be stored in its original wrapping or in a black opaque bag to avoid light which deteriorates printing quality.



The **communication** between the **diagnosis tester** and the **laser printer** is through an **infrared** emitter and a receiver on a support attached to the mobile trolley.

The receiver is connected to the laser printer by a cable.

To ensure good data transmission, it is important to keep the emitter and receiver clean and facing each other.





# CD ROM



D75-10

The database stored in the hard disk of the diagnosis tester is updated using a CD ROM. For this purpose, SEAT will periodically supply new versions of the CD ROM.

The **data** in the CD ROM consists of:

- **Programs** (software) for the vehicle autodiagnosis system.
- Data files containing **technical information** from the Service Manual (measurements, values...) used during guided fault finding.
- **Memorised graphs** from the different sensors in order to compare these with the readings obtained on the **oscilloscope**.
- Files with **drawings** (showing connectors, terminal numbers, location of components...) used for guided fault finding.

- Files with **photos** of the **main screen**.
- And finally a **text file** with the novelties included in the latest CD ROM in relation to the previous one.

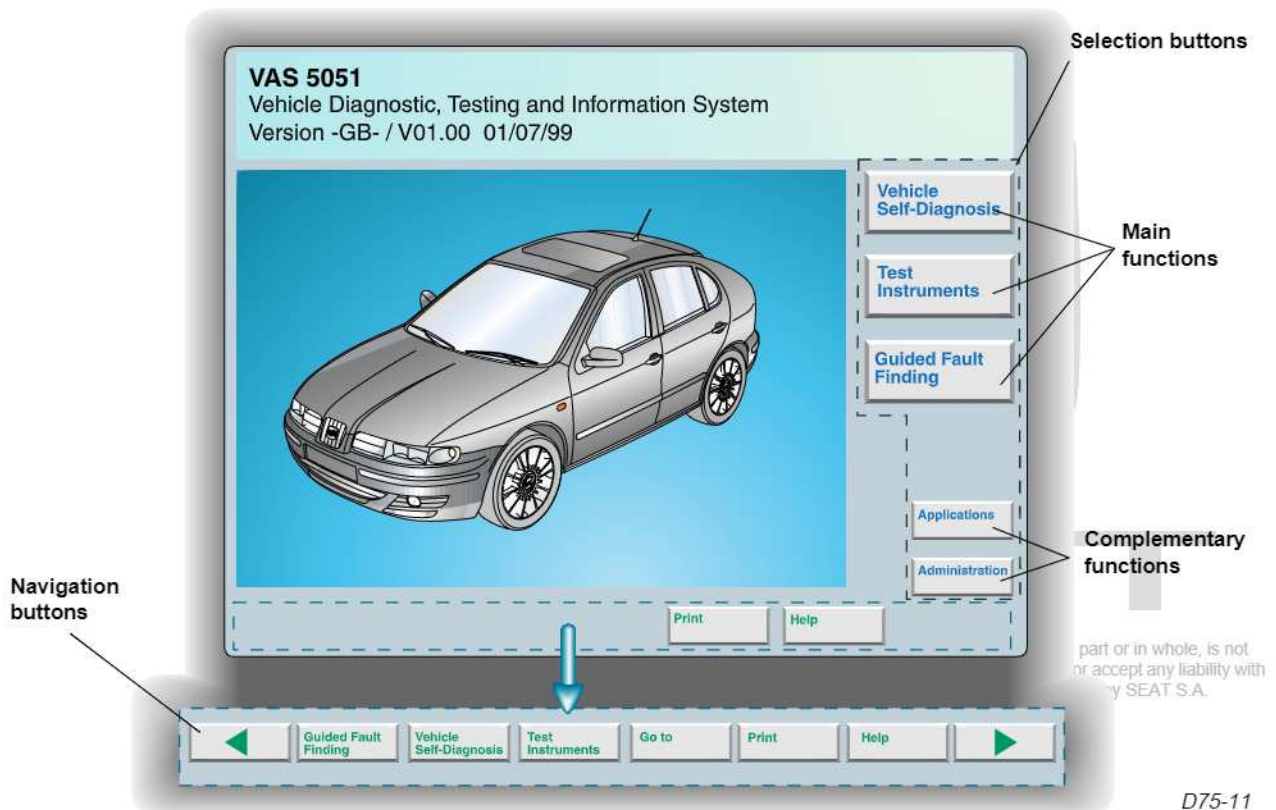
When a new CD ROM is received, this will need to be installed.

The **installation** process consists in the **erasing** of the data base stored in the diagnosis tester memory and **saving** the **new data** contained in the CD ROM.

When the update has been completed, the diagnosis tester will now operate with the new values memorised, making it unnecessary to use the CD ROM for the operation of the tester.



# OPERATION



D75-11

When the equipment is first initialised, the only thing which appears on the screen is the "Administration" button, needed to introduce the **workshop code**.

When this has been completed, the equipment will then be **ready** for use.

The present version of the CD ROM installed will now be indicated on the top of the screen. The different function selection buttons will be shown on the right of the screen in blue, and on the bottom of the screen we can see the navigation buttons in green.

The **selection buttons** are divided into main and complementary functions.

The **navigation buttons** facilitate movement between the different screens, or printing and consultation of the help screen. All the navigation functions are **not always visible**, as this will depend on the function being used. To move forward or back one screen, use the buttons "►" or "◄" respectively. It is possible

to move back to previous screens consulted by pressing the "Go to" button.

Another possibility is the vehicle autodiagnosis navigation buttons, which can be used to access the test instruments and the guided fault finding functions, without completing the present task.

The **print button** can be used to store data for printing later or to print the data on the screen.

And finally, by activating the **help** button, a help screen will appear for any other button which is pressed.

To exit the help function, simply press this button again, to return to the initial mode.

**Note:** If the touch screen is not used, after a certain time, it will go black as the screen protection comes on. This protection is deactivated when any part of the screen is touched again.

# COMPLEMENTARY FUNCTIONS

## ADMINISTRATION

The administration function is not available for vehicle autodiagnosis, since it is only used to set-up the equipment. The options available are as follows:

**Installation of updated data**, enabling the data supplied on a CD ROM to be installed. This can be done by placing the CD ROM in the drive and selecting the installation option. Updating is automatic and could take a few minutes.

**Self-test**, used by the diagnosis tester to check the condition of the test instruments, the diagnostic data bus and the communication between the tester and the T16 connector on the vehicle.

**Change Dealership identification** can be used to introduce or change the name of the workshop. The code cannot be changed.

**Signal generator** enables the frequency and duration of the acoustic signals indicating

discharged rechargeable battery to be modified. For this operation, the diagnosis tester needs to be connected to the mains.

**Date/time**, to introduce the present date and time.

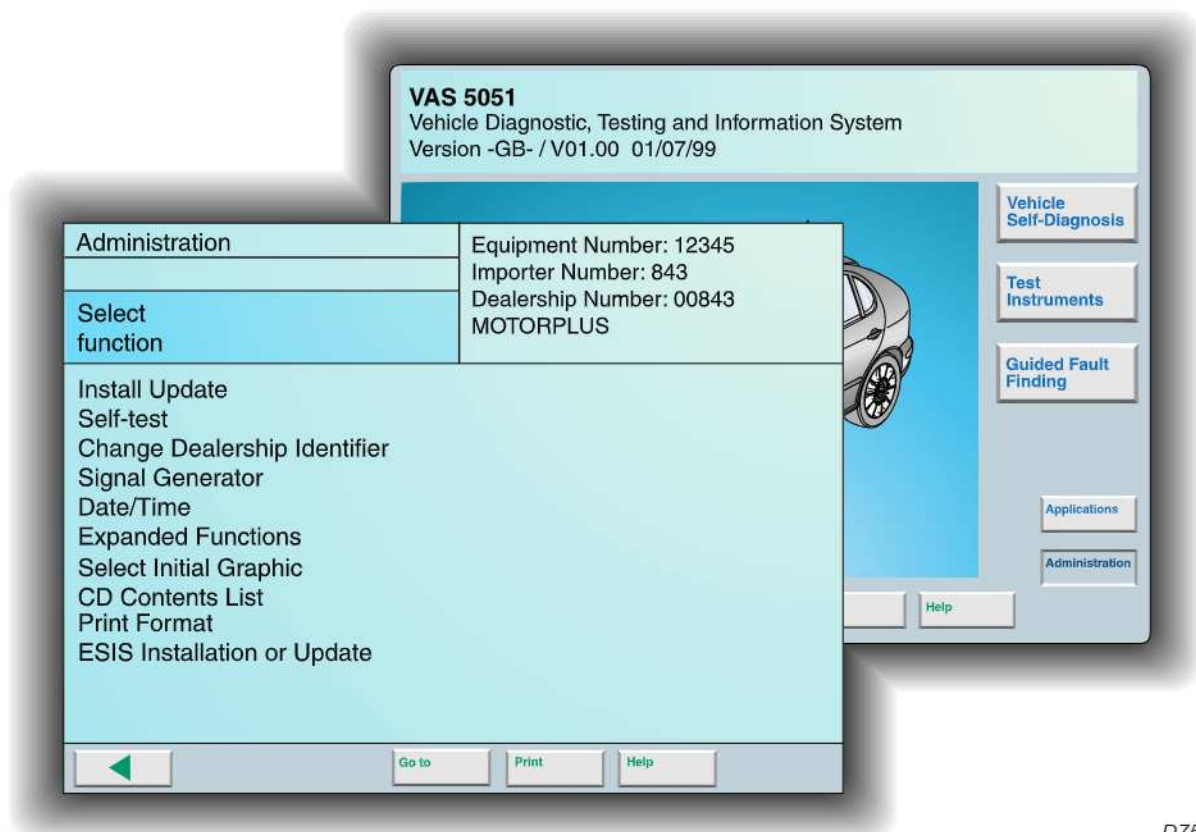
**Expanded functions**, only available with the use of a special programming CD. This is not useful for Service.

**Select initial graphic**, enables the initial screen to be selected from a list of options.

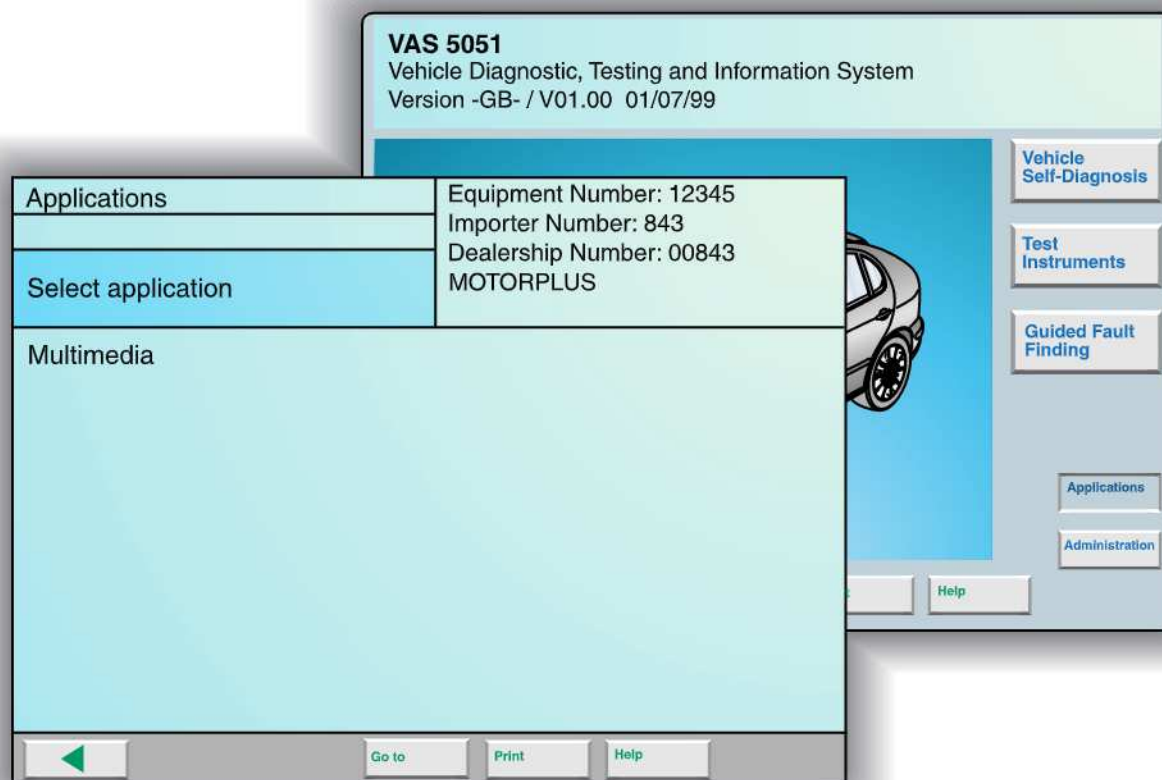
**CD contents list**, shows the text file in the CD ROM, detailing all the systems covered by the version installed, and differentiating the new options from the previous version with a blue colour.

**Print format**, to select the type of paper used by the printer.

**ESIS Installation or update**, is not used in the present version.



D75-12



D75-13

## APPLICATION

The application function could contain different options, although a different CD ROM is required for each one.

**Presently**, the only function available is the **multimedia** option, which can be used to see videos with a soundtrack on the screen.

Later, other functions will be installed such as:

**Dealer catalogue**, containing detailed information on the SEAT dealer network.

**Product information**, relating to the vehicle and accessories.

And in the future other possible functions useful for Service.



# VEHICLE AUTODIAGNOSIS

This function is used for vehicle autodiagnosis being similar in layout to that of the VAG 1551/1552.

One of the diagnosis cables should be connected to the vehicle. Whenever a dynamic test is needed, the 3 meter cable with the supply option should be connected

If the equipment is connected to the mains, it is more practical to use the 5 meter cable without the power connection for the diagnosis tester.

The main novelties of this tester in relation to the VAG 1551/1552 are the following print options provided:

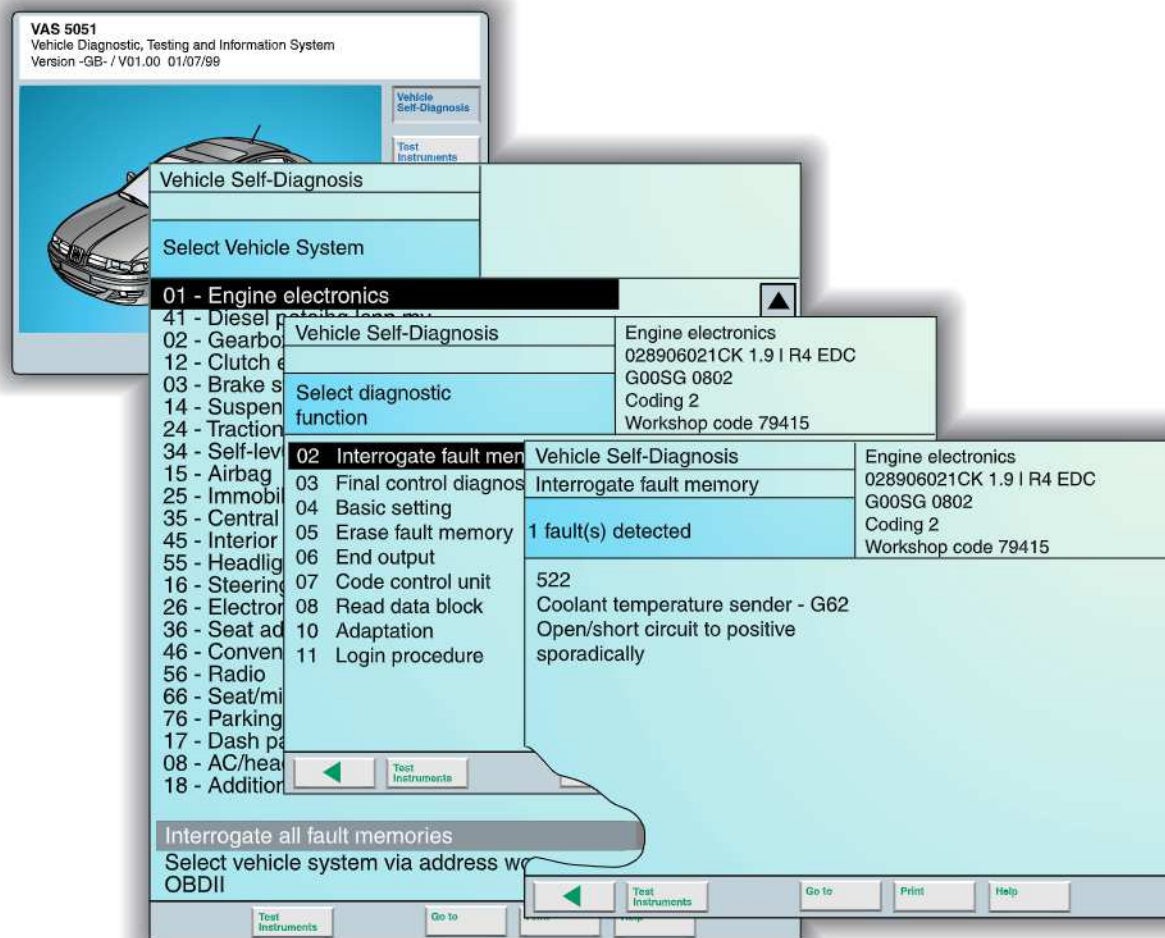
**Screen**, enables the present screen contents to be printed.

**Store**, permits present screen data to be stored.

**Protocol** will print all the memorised screens, whenever this is done, all the memorised screens will be erased.

**Note:** *The vehicle autodiagnosis will be developed to enable the control unit to be programmed in the future.*

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D75-14

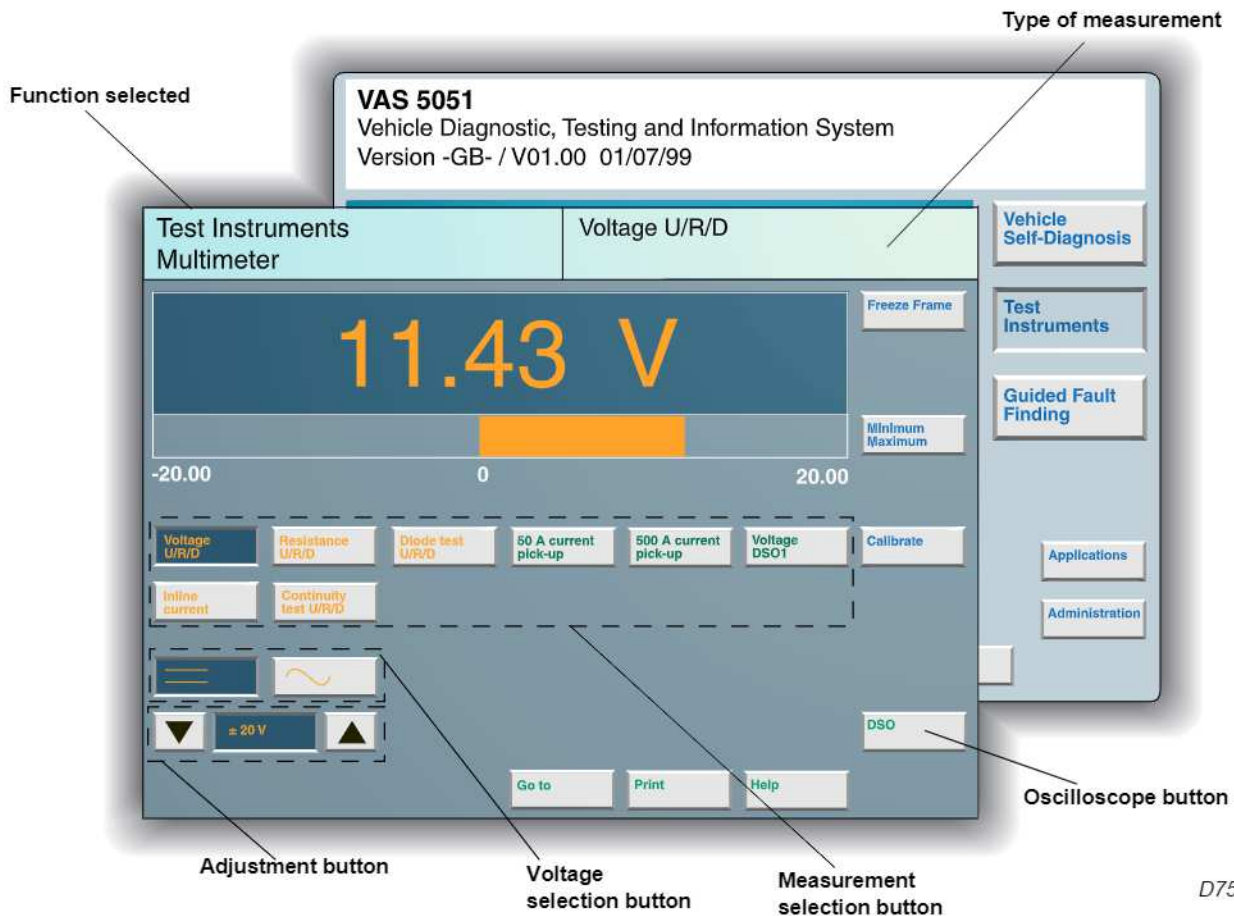


# MEASUREMENT MODULE

The “measurement module” button can be used to access the **multimeter** and then the **oscilloscope** using the button “DSO”.

The multimeter enables voltage, current and resistance readings to be made and diode

testing to be done. The oscilloscope can be used to visualise and memorise the electrical signals of the different vehicle systems.



## MULTIMETER

The multimeter module has three different groups of buttons, measurement selection buttons, voltage selection buttons and measurement value adjustment buttons.

The first group of buttons enables the type of measurement to be selected and the cables to be chosen. When this selection has been made, the tester will automatically adjust the scale and type of voltage, and this can be modified later manually using the voltage selection and adjustment buttons.

The right side of the screen contains the buttons to freeze the measurements, activate the maximum and minimum values obtained, calibrate the multimeter automatically, and commute to the oscilloscope function.

The value measured is shown in the upper central area of the screen and just below this, a horizontal bar is used to graphically display the reading.

The upper right side of the screen will always display the type of measurement selected.

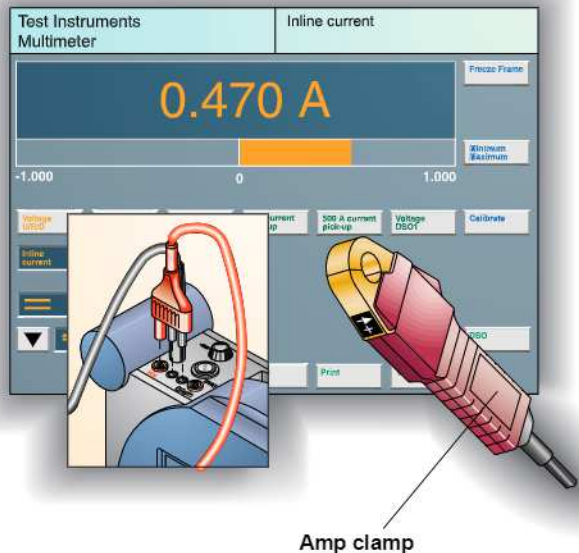
# MEASUREMENT MODULE

## CURRENT MEASUREMENT

Current measurements can be made using the U/R/D & COM cables or with 50 or 500 amp clamp. Select the appropriate button in each case.

If the 50 amp clamp is used, the diameter of the cable should be less than 20 mm, in order to ensure that the clamp closes properly.

If the measurement is made with the U/R/D cable, this should be connected in the 10 A position and the diagnosis tester will then be protected by the fuse located in the upper part of the this unit. In this case, the maximum value that can be measured by the equipment will be 10 amp.



D75-16

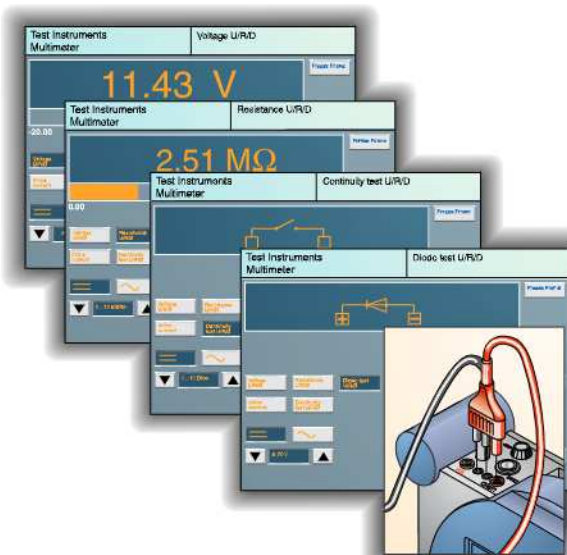
## U/R/D MEASUREMENTS

The voltage measurements (U), open circuit, resistance (R) and diode checks (D) are done using the cables U/R/D & COM. The U/R/D should be connected in the corresponding position on the diagnosis tester.

Voltage measurement can also be done with the oscilloscope cable "DSO1".

The measurement function and cables used should be selected using the appropriate buttons.

**Note:** The maximum voltage value which can be measured by the unit is 50 volts, and if this value is exceeded, the screen will display a "+++++V" symbol.



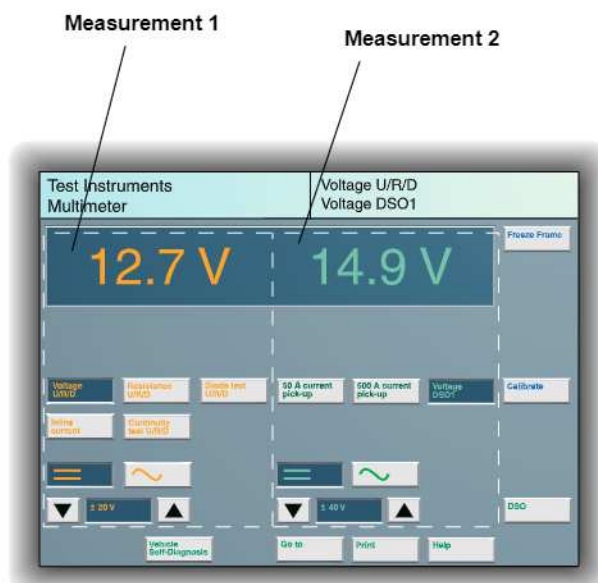
D75-17

## SIMULTANEOUS MEASUREMENTS

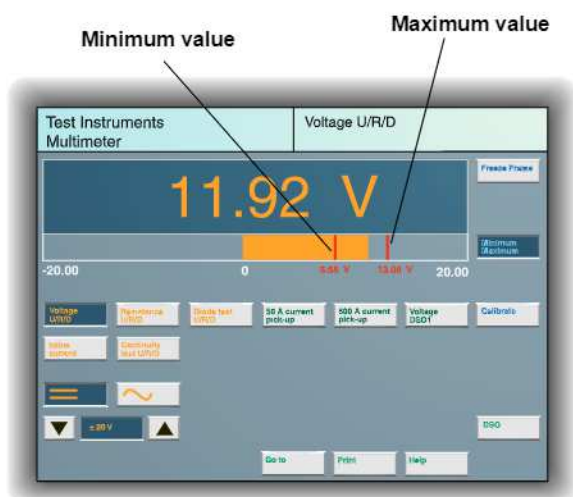
In the multimeter mode, two measurements can be done at the same time, one with the U/R/D & COM cables and another using the amp clamps or the DSO1 cable.

When two measurements are selected, the horizontal bar will disappear and two sets of buttons will appear to permit measurement adjustments.

The 1<sup>st</sup> measurement can be used to check voltage, resistance, open circuits, diodes and current up to a maximum of 10 A, and 2<sup>nd</sup> measurement scale can be used to measure current with the amp clamp or voltage using the oscilloscope.



D75-18



D75-19

## MINIMUM AND MAXIMUM

When this function is activated, the horizontal bar will show the maximum and minimum value obtained during a reading.

Whenever a measurement is redone, these values will be automatically reset.

## SCREEN FREEZE

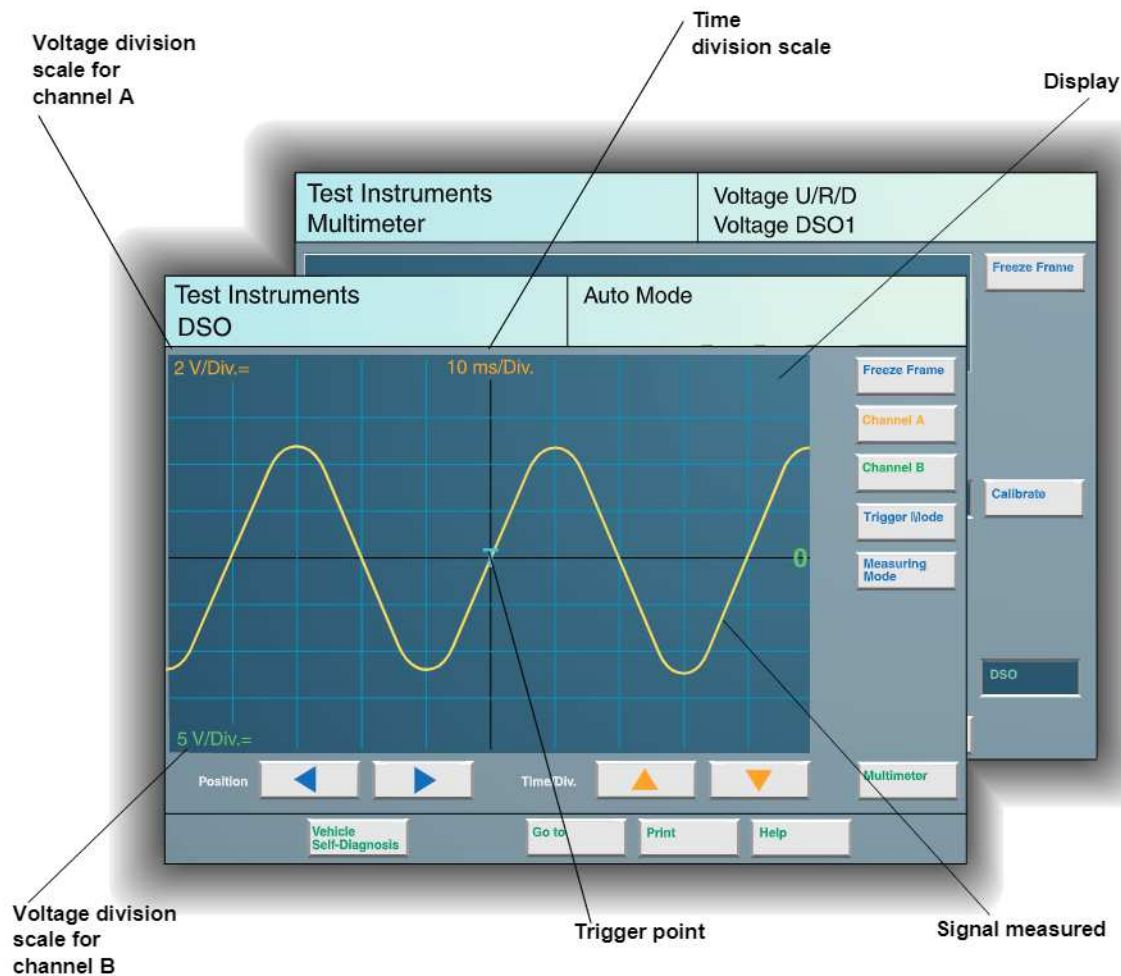
The activation of the screen freeze function, will memorise the value being read and hold it on the screen even when it varies. By pressing this button again, the screen will show the real value being measured.

This function can also be selected by using the black buttons on the measurements cables.

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# MEASUREMENT MODULE



D75-20

## OSCILLOSCOPE

The oscilloscope function can be called up from the measurement module, and then pressing the DSO button in the multimeter function.

This function has two channels, making it possible to display two signals generated by the electrical or electronic equipment on the vehicle.

The initial oscilloscope screen will appear divided in squares showing the signal graphically.

The right and lower side of the screen contains the adjustment buttons required to obtain all the measurements desired.

The buttons on the right of the display enable the trigger signal and measurement mode to be

selected, the screen to be frozen and released as in the multimeter mode and also select the measurement channel. The channel A corresponds to the input of the DSO 1 and B to that of cable DSO 2.

Two sets of buttons are found on the lower part of the screen, one is used to modify the horizontal time scale divisions of the display (frequency) and the other is for the modification of the trigger point, indicated by a "T".

Finally, the lower right side of the screen contains the button to return to the multimeter mode.



## TRIGGER MODE

This is the base value from which the oscilloscope begins to measure.

This value can be defined by the signal itself, for example a voltage peak in the signal, or through an external input, either with the trigger clamp (TZ) or the ignition voltage clamp, meaning that the signal will not be registered until an external impulse is received.

When the trigger mode is selected in the lower part of the screen, the following buttons will appear:

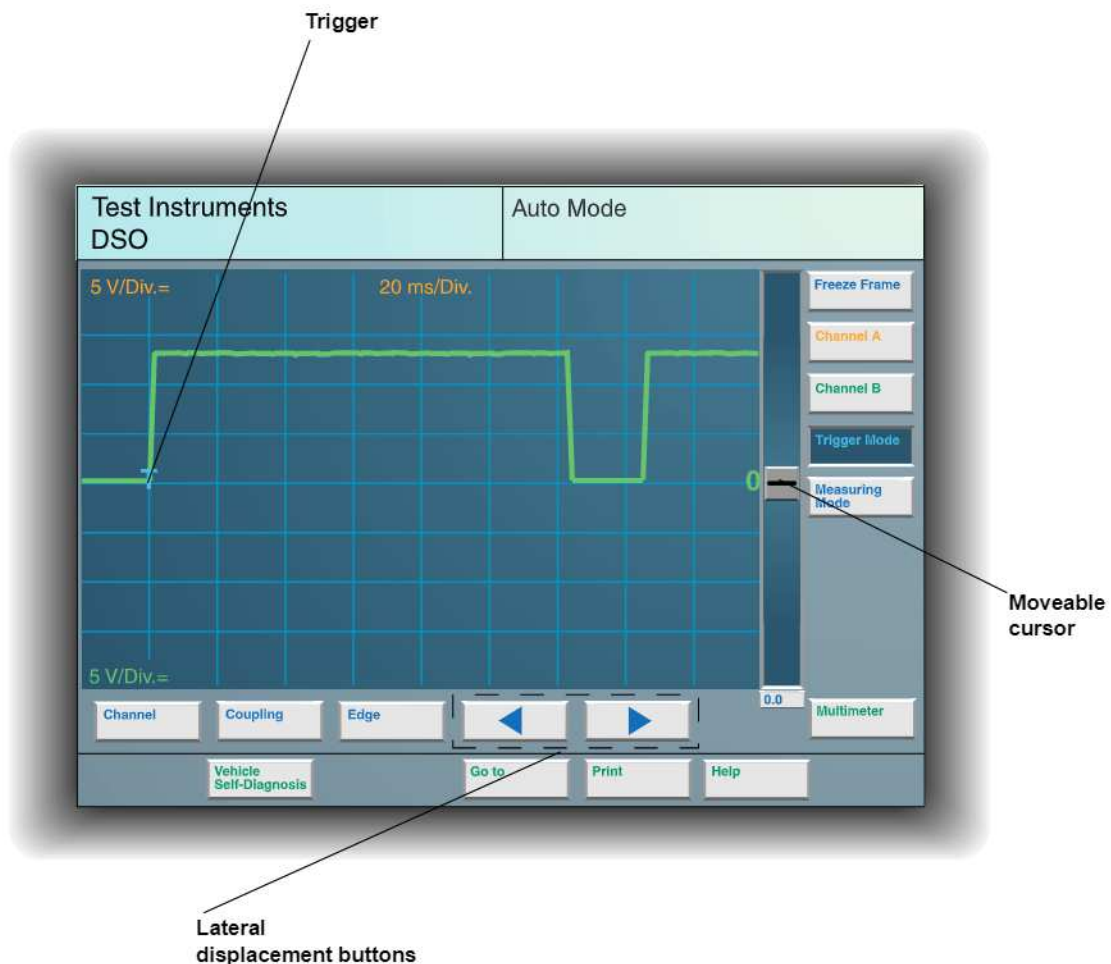
- **Channel**, which can be used to choose the input which provokes the trigger.

- **Selection of the input**, which defines the type of signal which will be measured, as either direct or alternating current. This option is also used to select two filters, the low frequency LF and the high frequency HF filters, which enable better signal definition and clarity to be obtained in certain cases.

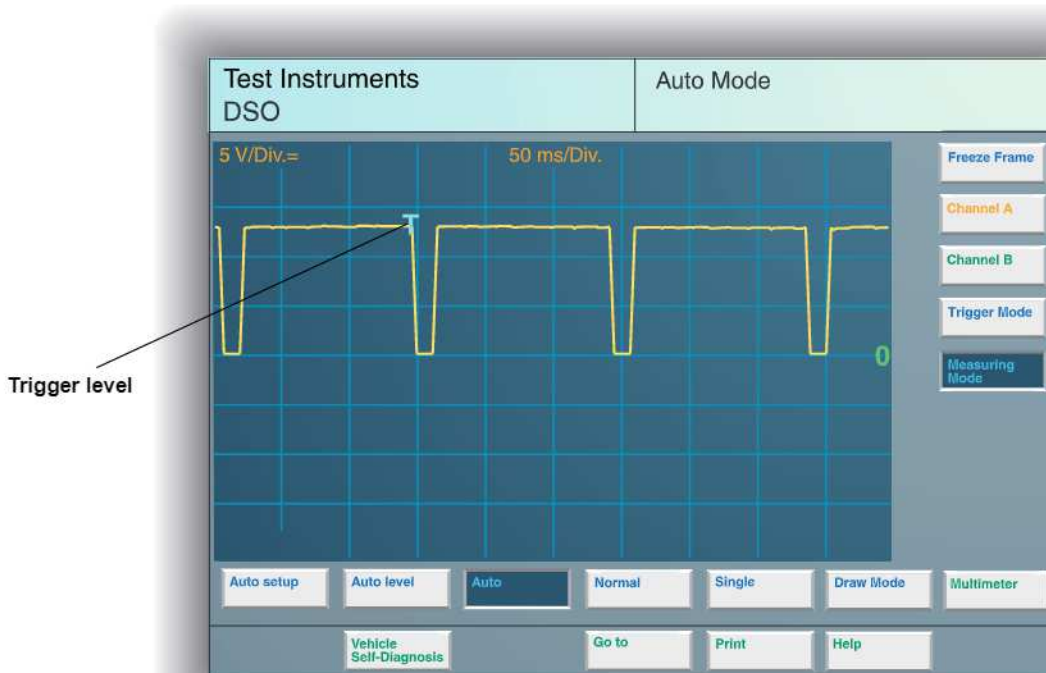
- **Ramp**, indicates if the trigger is activated as the signal voltage increases or decreases.

- And two arrows which allow **lateral displacement** of the trigger point.

The right side of the display contains a moveable sensor enabling the trigger voltage value to be modified.



# MEASUREMENT MODULE



D75-22

## MEASUREMENT MODE

Within this mode it is possible to adjust different measurement parameters by using the buttons located at the bottom of the screen.

The application of each one of the buttons is as follows:

- **Auto set-up.** Depending on the input values, the frequency amplitude and trigger values will be automatically set. The setting will be done once only when the button is pressed, and it will then pass to the auto level mode. Measurement will commence when the trigger level is reached.
- **Auto level.** This will automatically adjust the trigger level while maintaining the amplitude and frequency levels constant. The measurements will only commence when the trigger level is reached.
- **Automatic.** in this mode, the frequency, amplitude and trigger level can be set manually. If the trigger value set is outside the threshold of the signal being measured, the oscilloscope will begin measuring without the trigger.

- **Normal.** In this mode, all the adjustments are manual, and if the trigger value is outside the threshold of the signal, no measurements will be made, and an indication on the top right of the screen will show "Signal missing".
- **Single measurement.** In this mode, one single measurement will be made after trigger action. When the measurement has been made, the signal will remain still on the screen.
- **Continuous measurement.** During this mode, the values are shown without a trigger level requirement.

The display of the values is done in a continuous form and the image moves across the screen from right to left.

The time setting in this mode is limited between 0.2 and 100 s/DIV, making it possible to have a maximum register of the time corresponding to two complete screens.

**Note:** In the automatic and auto level mode, the trigger level signal should come from the measurement shown and not from an additional input.

## CHANNELS A & B

The initial screen of the oscilloscope has a button for channel A and another for channel B, making it possible to modify or deactivate these independently.

The functions available within each of the channels deal with the activation or deactivation of the channel and the selection of the input clamps (DSO1, DSO2 and KV) for these channels. These functions are accessed using the menu appearing when the button "**Channel**" is pressed.

Another possibility available is that of increasing or reducing the voltage value corresponding to the vertical divisions of the display. This can be done using the **voltage scale modification buttons**.

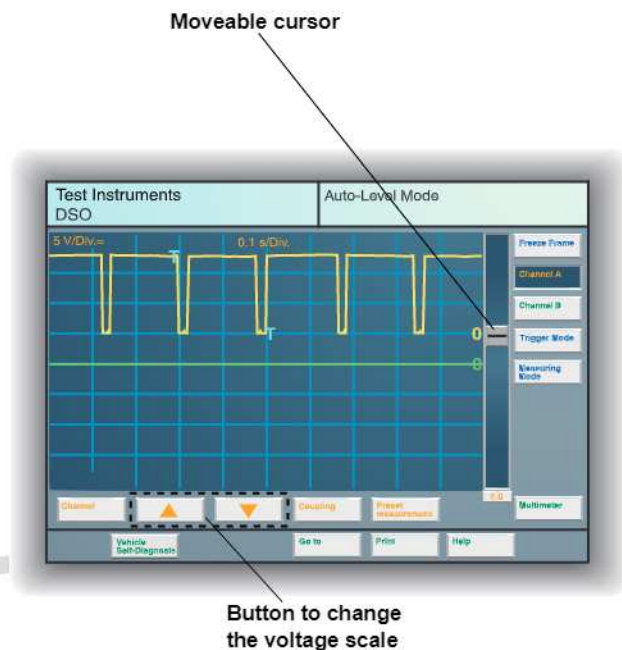
It is also possible to select the **type of input signal**, DC for direct current, AC for alternating current or GND, which is the earth reference cable for signal adjustment.

The **movable cursor** located on the right of the screen can be used to modify the horizontal position of the display for both channels.

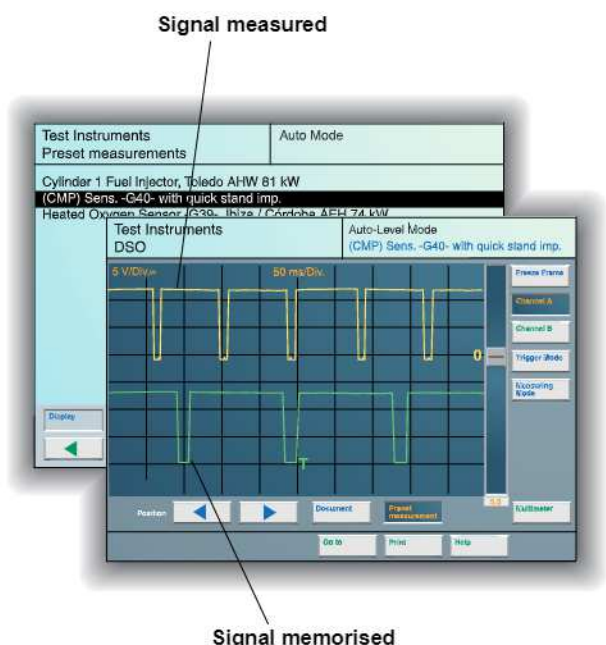
A very useful function during repairs is the visualisation of the memorised signals in order to compare these with the real ones using the button "**Pre-set measurement data**". This can be done by previously selecting the type of vehicle, system and components to be visualised.

When this function is selected, the oscilloscope will automatically modify the measurement scale in order to adjust it to the memorised signal values.

The memorised signal is shown in blue, and this can be compared with channels A (yellow) and B (green).



D75-23



D75-24



# MEASUREMENT MODULE

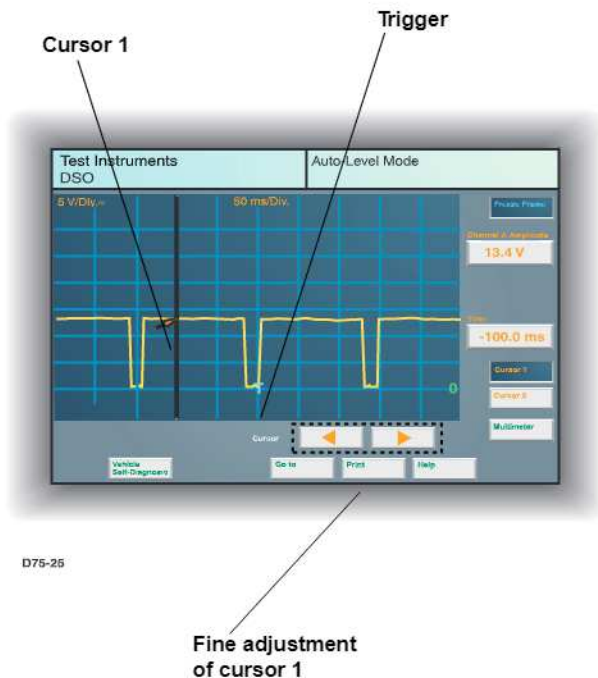
## SCREEN FREEZE

The screen freeze option available with the oscilloscope can be selected using the designated button or it can also be done using the buttons on the red tips of the cables DSO1 or DSO2. This function freezes the screen the moment the button is pressed and permits the signal display present at that moment to be memorised or studied.

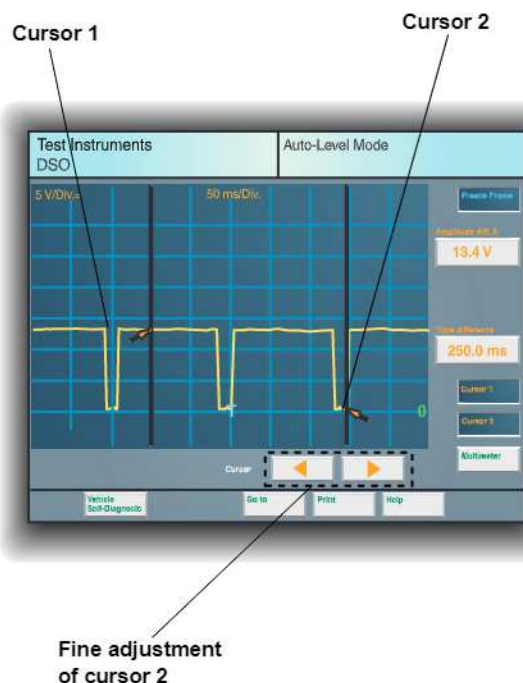
When the screen is frozen, the two cursors can be modified.

If one of the cursors is selected, two arrows will appear which permit fine adjustment of the cursor to the point required.

If only one cursor is activated, it will be possible to obtain the voltage value at a specific point of the signal, as well as the time difference between the instantaneous position of the cursor and the trigger point "T".



D75-25



D75-26

When the two cursors are activated, both the time and voltage values always correspond to the space between the two cursors.

When the two cursors are activated, it will only be possible to move cursor two on the image of the signal shown.

To get a rapid movement of the cursor, press on the point of the screen where the cursor needs to be located and then do the fine adjustment using the arrow keys.

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# GUIDED FAULT FINDING

The major novelty of the VAS 5051 is the guided fault finding facility.

This system **combines** the use of the **autodiagnosis** system, the **measurement module** and the **Service Manual** information all together in order to **locate** the different **faults** in the vehicle electronic systems **quickly and easily**.

The guided fault finding can be accessed from the main screen by pressing the corresponding button.

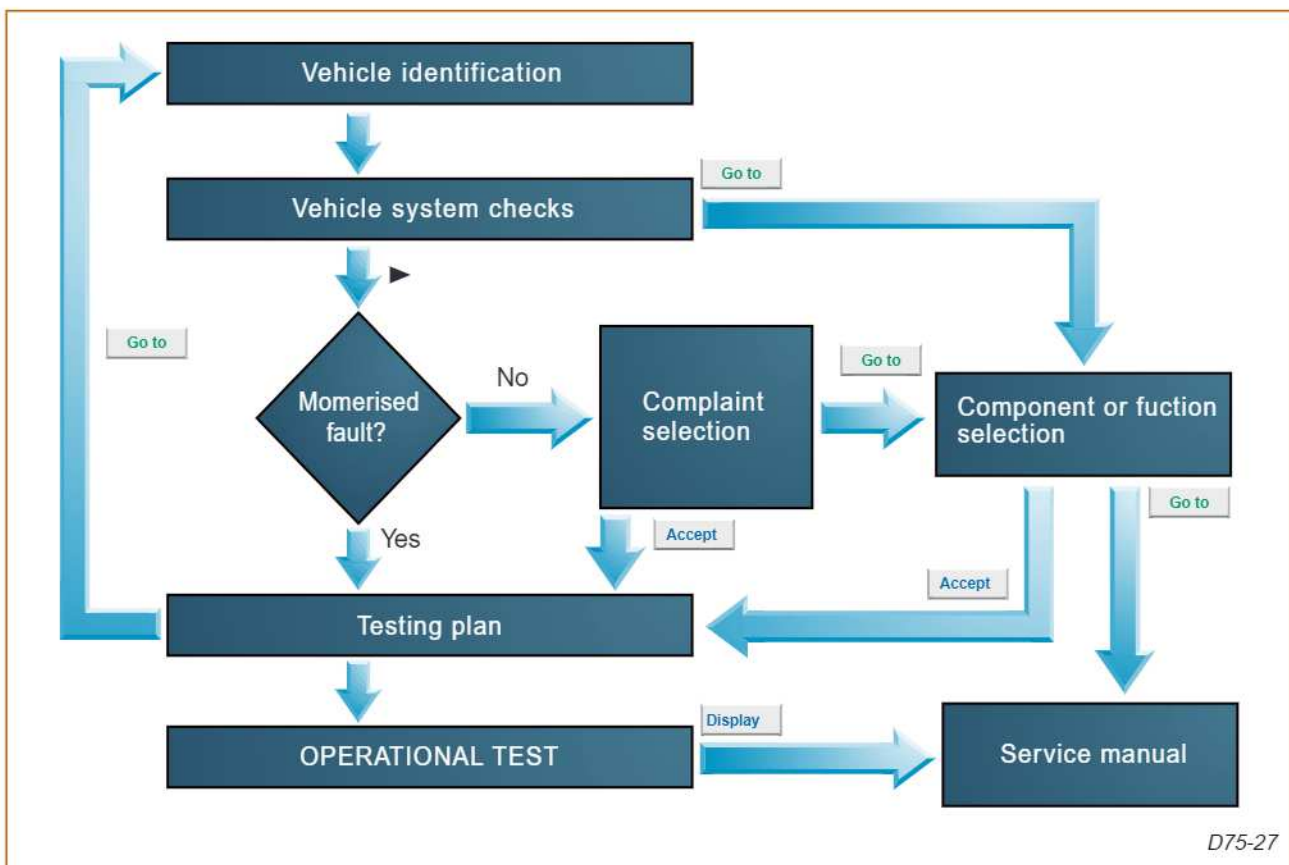
When the function is accessed, it will be necessary to identify the vehicle for diagnosis (model, model year, engine and equipment), since this will permit the VAS 5051 to select the appropriate files from the Service Manual and the test values to be used during the fault finding.

Later the diagnosis tester will make a check

of the vehicle systems and if it detects a fault, an access to the fault finding for this component will be provided. If no fault is found, the testing will be done based on the customer complaint or by selecting a component or function.

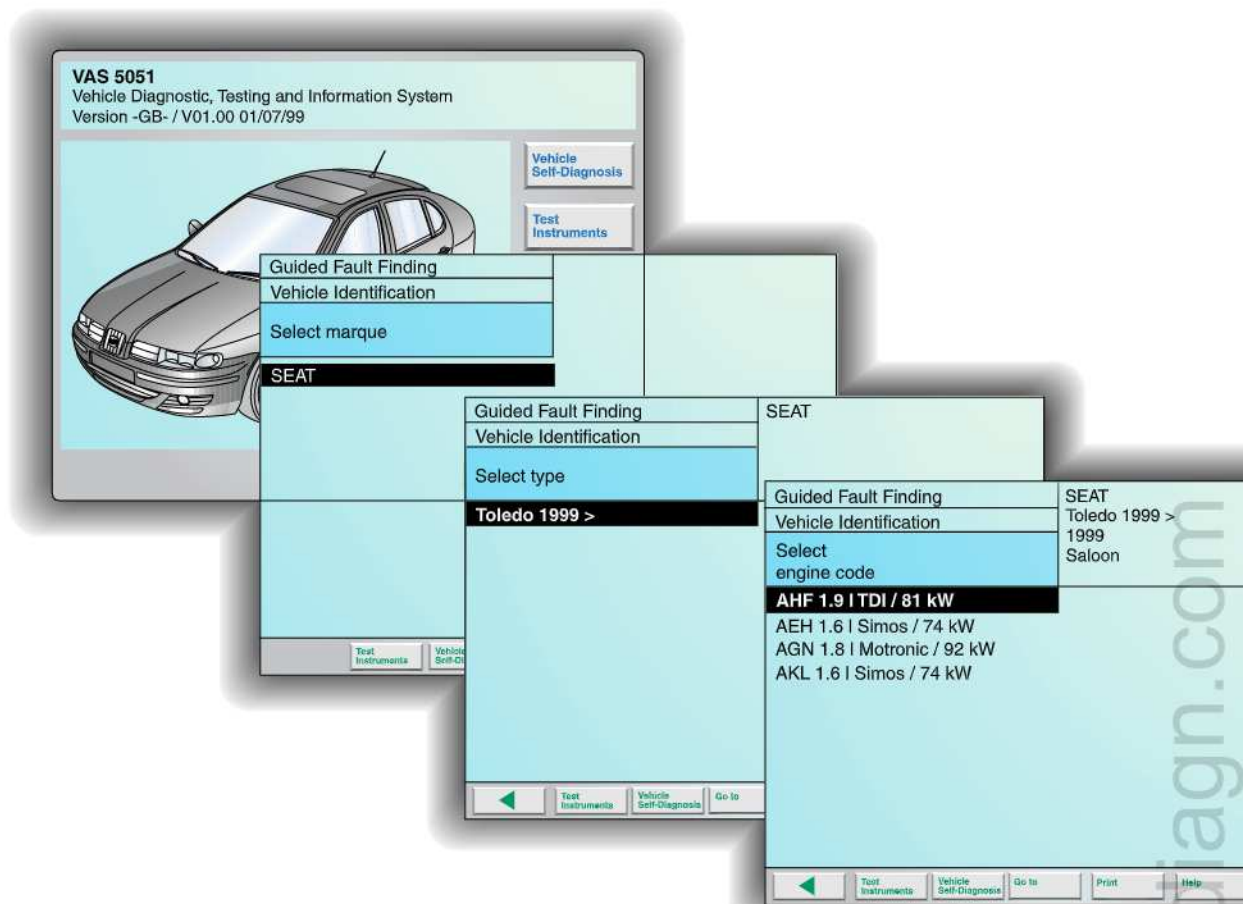
The testing plan contains a list of components having memorised faults or selected according to the customer complaint. The precise operational test of one of these components can only be done manually using the touch screen.

When we are within a specific operational test, all the screen indications for fault finding should be followed. During this process the VAS 5051 will automatically switch over to the oscilloscope and multimeter functions, as well as permitting drawings of component locations or terminal numbers to be consulted.



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# GUIDED FAULT FINDING



## VEHICLE SYSTEM CHECKS

When the type of vehicle has been selected and the diagnosis cable connected, the VAS 5051 will run an automatic vehicle control unit test cycle.

If at this point a control unit is not recognised by the equipment, it can be selected by pressing on this control unit symbol on the touch screen.

It can also be manually unselected by pressing on the same button again.

When all the control units have been checked, including those selected manually, the **faults memorised** for each one can be called up by pressing on the button "►".

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It will now be possible to access the test plan and select the **operational test** for each one of the faulty components.

The following symbols are used to distinguish the different conditions of the control units.

**Symbol      Meaning**

?	Fault memory not recognised
☞	Manual selection of control unit
☜	Manual de-selection of control unit
✓	Fault memory empty
☞☜	The equipment does not communicate with the control unit
Fault	Fault memorised
←	Control unit being checked

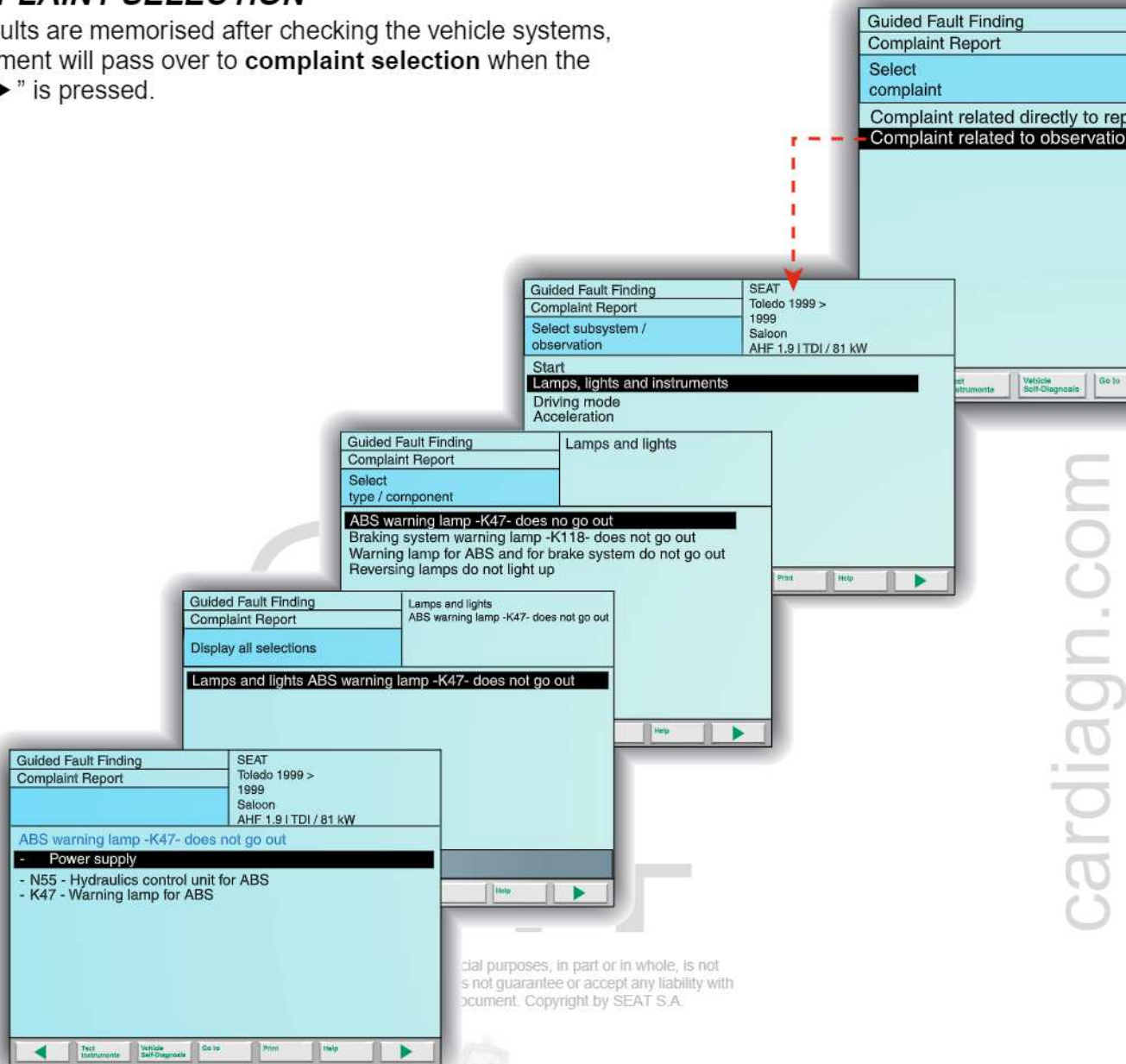
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# GUIDED FAULT FINDING

## COMPLAINT SELECTION

If no faults are memorised after checking the vehicle systems, the equipment will pass over to **complaint selection** when the button “▶” is pressed.



This function has **two ways** of accessing the operational tests; the first is through a complaint relating to a specific **repair group** and the second is through a complaint based on **non specific symptoms** (customer complaint).

Both possibilities imply the choice of a series of selections to concretely define the vehicle symptoms.

SEAT  
Toledo 1999 >  
1999  
Saloon  
AHF 1.9 I TDI / 81 kW

air group

n

Guided Fault Finding  
Complaint Report  
Select subsystem / observation  
Drivetrain type

SEAT  
Toledo 1999 >  
1999  
Saloon  
AHF 1.9 I TDI / 81 kW

Print

Help

Guided Fault Finding  
Complaint Report  
Select type / component  
Engine  
Gearbox

Test Instruments

Vehicle Self-Diagnosis

Guided Fault Finding  
Complaint Report  
Select subcomponent / feature  
Engine pre-heating does not function  
High emission values  
Injection pump  
Charge pressure not within target range  
Exhaust gas recirculation outside of tolerance  
Glow period system out of order  
Glow period system constant  
Glow period system out of order

Guided Fault Finding  
Test Plan

SEAT  
Toledo 1999 >  
1999  
Saloon  
AHF 1.9 I TDI / 81 kW

Engine - Engine pre-heating does not function  
- G62 - Sender for coolant temperature  
- G72 - Intake manifold temperature sender

Test Instruments

Vehicle Self-Diagnosis

Go to

Print

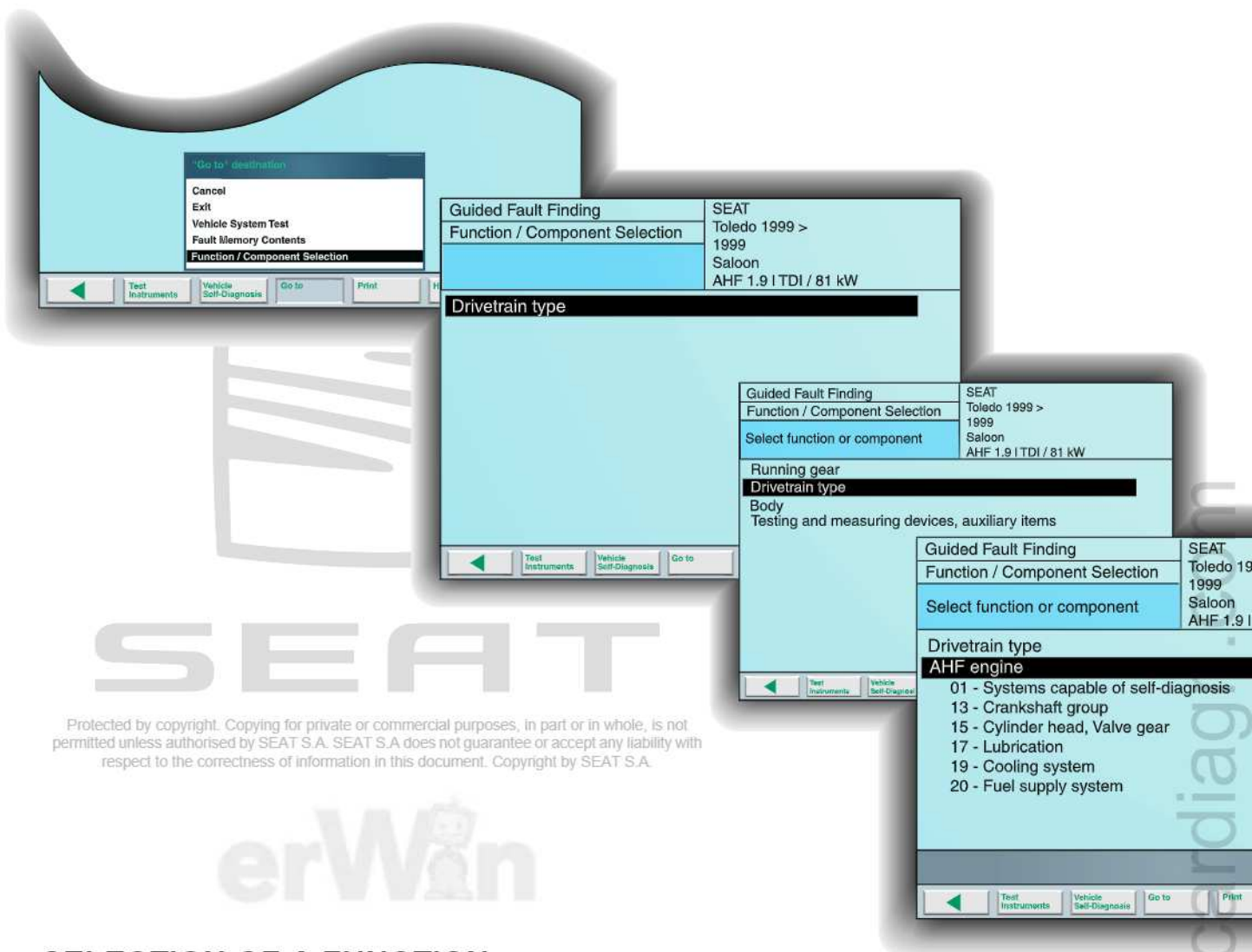
Help

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When all the symptoms have been selected, the equipment will relate this selection to the possible components which could cause the symptoms defined, and display these in the test plan.

At this point the operational test will be run on one of these components.

# GUIDED FAULT FINDING



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## SELECTION OF A FUNCTION OR COMPONENT

Another method of entering the operational test mode when no fault has been memorised, is by **selecting the function or component**. This method directly selects the component on which the guided fault finding is to be carried out.

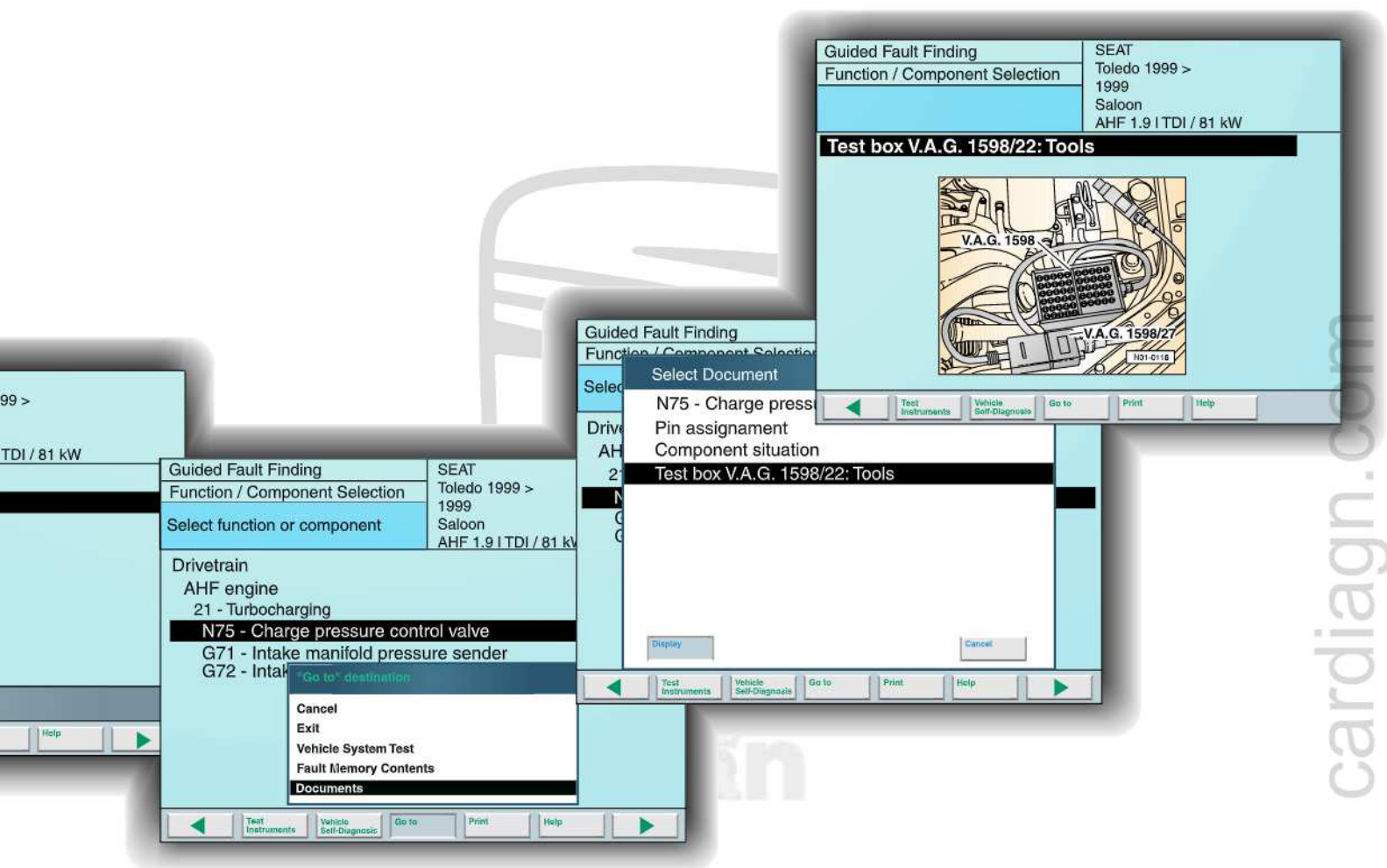
The access to this function is available in the fold down menu of the button "Go to" within the "Complaint selection" screen, or in the "vehicle system checks" screen.

When this function is accessed, the group or system to which the component belongs should be selected on each screen in order to precisely define the part.

When the selection of the component has been finalised, the operational test plan can be accessed, permitting the operational test of the part to be carried out.



The component/function selection mode enables the documentation related to each component to be consulted (location, numbering, view of connectors...). By selecting the option "Documentation" within the "Go to" menu, a list of all the documentation related to the component can be visualised. If the component has no associated documentation, this will be indicated by a message on the screen.



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# GUIDED FAULT FINDING

**Guided Fault Finding**

Function test	SEAT Toledo 1999 > 1999 Saloon AHF 1.9 l TDI / 81 kW
<b>ABS System</b>	
- Supply voltage to ABS control unit	

**Guided Fault Finding**

Function test	SEAT Toledo 1999 > 1999 Saloon AHF 1.9 l TDI / 81 kW
Supply voltage to ABS control unit	

**Test conditions**

Test conditions

- Fuse S20 OK

Are the conditions fulfilled?

**Guided Fault Finding**

Function test	SEAT Toledo 1999 > 1999 Saloon AHF 1.9 l TDI / 81 kW
Supply voltage to ABS control unit	

**Check power supply**

The power supply will now be checked

- Switch off the ignition.
- Disconnect the plug of the ABS control unit -J104-. The control unit is located on the hydraulics unit on the left in the engine compartment.
- Connect the V.A.G. 1598 test box to the wiring harness using the V.A.G. 1598/27 adapter.
- Switch on the ignition.

**Guided Fault Finding**

Function test	SEAT Toledo 1999 > 1999 Saloon AHF 1.9 l TDI / 81 kW
Supply voltage to ABS control unit	

**Check power supply**

Voltage measurement

URD cable (+) to test box socket 15  
COM cable (-) to test box socket 19  
Check power supply!

**Guided Fault Finding**

Function test	SEAT Toledo 1999 > 1999 Saloon AHF 1.9 l TDI / 81 kW
Supply voltage to ABS control unit	

**Check power supply**

Voltage measurement

URD cable (+) to test box socket 15  
COM cable (-) to test box socket 19  
Check power supply!  
Target value OK: 10 ... 15 V

**Guided Fault Finding**

Function test	SEAT Toledo 1999 > 1999 Saloon AHF 1.9 l TDI / 81 kW
Supply voltage to ABS control unit	

**Check power supply**

There is no voltage on the control unit.

- Switch off the ignition!

**Measurement Result:** 4.00 V

## OPERATIONAL TEST

The operational test function is the point at which a test is made on a component, which has been previously selected by the fault memory stored in the diagnosis tester control unit, or by the function "complaint selection" or "component /function" selection.

When this test is started, the screen will be divided into two zones, one with an operation menu, containing the instructions and procedures to be following in order to carry out the test, and another displaying the following buttons.

- **Ready**, confirms that the steps described in the operation menu have been completed.
- **Yes**, in order to reply positively to questions which appear in the operation menu.
- **No**, in order to reply negatively to questions in the menu.
- **Measure**, to start the measurement.

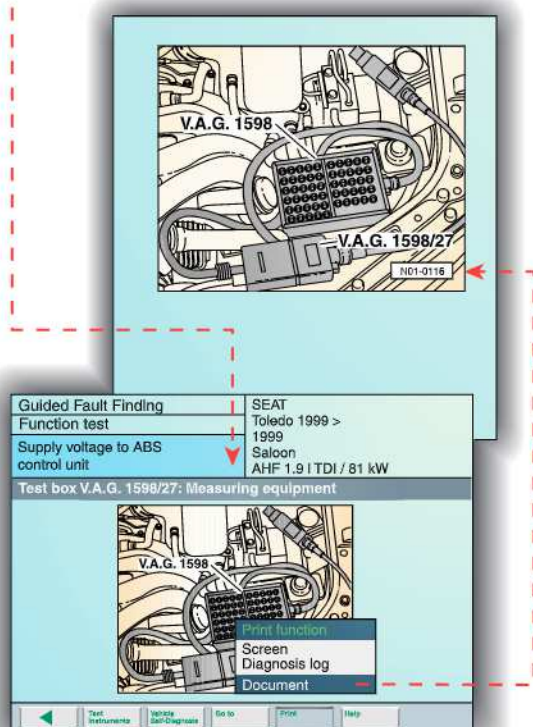
Other buttons which could appear are related to the graphic files which enable mounting positions, location of connectors, tools etc. to be visualised.

During the operational test, the equipment will indicate the tests to be done using the operational menu, and when measurements need to be made, it will automatically switch over to the measurements module, adjusting to the scale and type of measurement required.

Whenever a measurement is made, the nominal value will always be shown next to the real value obtained. This makes it possible to check if the measurement is acceptable or not, although it will be the unit itself that gives information on the condition of the component based on the test results obtained.

During each stage of the test, the equipment will discriminate the different sources of the fault, until it is able to determine the cause with precision, and this will then be shown on the operational menu.

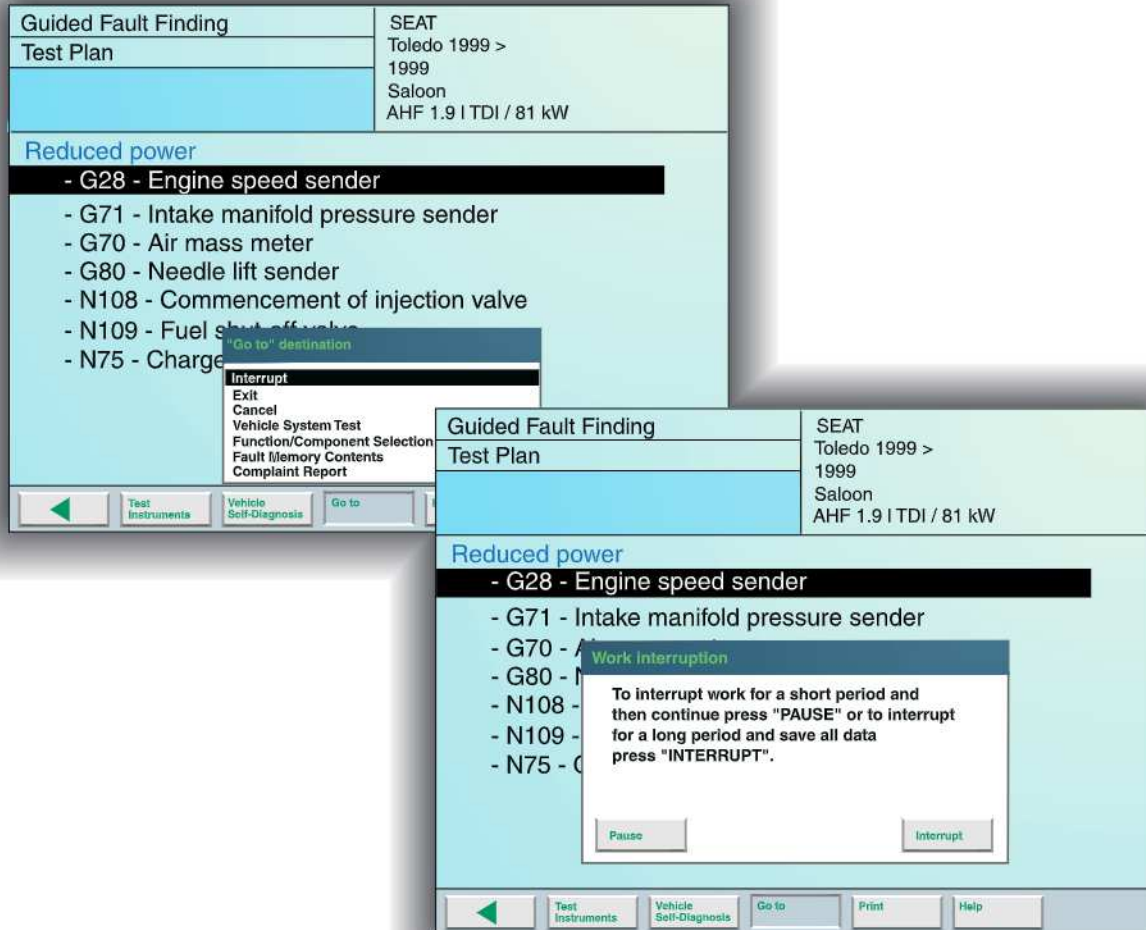
The **printer** function within the operational test function provides two possibilities: a print screen option or a diagnosis protocol which prints all the steps taken and the values obtained during the component test.



D75-31



# GUIDED FAULT FINDING



D75-32

## INTERRUPTION OF TESTING

During the testing procedure, when one or more components have been selected for testing, the procedure can be interrupted, maintaining the selection of the components and these can be accessed again later.

This is done by selecting the function "Interrupt" within the "Go to" menu.

This function offers two possibilities; make a **pause** during a short period of time or select the interruption option for a longer period. The pause option locks the equipment making

it impossible to use, whereas the interrupt option allows the equipment to be used on other functions but without switching it off, since this would cause the test in progress to be lost.

If the **interrupt** option is chosen, a code should be introduced, which can be used to identify and recover the test later.

The recovery of an interrupted test is done through the "Go to" menu by choosing the option, "work pending" within the guided fault finding.



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service