

mega macs 66



User Manual

Original User Manual

HBMM66V5100EN0217S0

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1 About this Manual









1.1 Reading the Manual

Please read the user manual completely. Pay special attention to the first pages containing the safety notes and the conditions of liability. They exclusively deal with your safety during the work with the device.

When working with the device, it is recommended to read the individual work steps in the manual again to prevent hazard of persons and equipment or operating errors.

The device shall be used exclusively by a qualified person. Information and knowledge included this training is not explained in this user manual.


1.2 Marking of Text Parts

	<p>DANGER</p> <p>Text parts marked in this way indicate an imminent dangerous situation which, if not avoided, will lead to death or severe injuries.</p>
	<p>WARNING</p> <p>Text parts marked in this way indicate a potentially dangerous situation which, if not avoided, will lead to death or severe injuries.</p>
	<p>CAUTION</p> <p>Text parts marked in this way indicate a potentially dangerous situation which, if not avoided, will lead to minor or slight injuries if it is not avoided.</p>
	<p>NOTICE</p> <p>All texts labeled NOTICE refer to a hazard in the device or environment. Therefore, it is absolutely necessary to observe the notes or instructions stored here.</p>
	<p>NOTE</p> <p>Texts marked with NOTE contain important and helpful information. It is recommended to observe these texts.</p>
	<p>Struck-through waste bin</p> <p>This label indicates that the product must not be discarded as domestic waste.</p> <p>The bar underneath the waste bin indicates whether the product was "placed on the market" after August 13, 2005.</p>
	<p>Direct current voltage</p> <p>This label indicates a direct current voltage.</p> <p>Direct current voltage means that the electrical voltage does not change over a longer period of time.</p>
	<p>Observe user manual</p> <p>This label indicates that the user manual must always be read and always be available.</p>




2 User Information

2.1 Safety Precautions


2.1.1 General Safety Precautions

	<ul style="list-style-type: none">• The device is intended for use on motor vehicles only. It is a precondition for the use of the device that the user has knowledge of automotive technology and is therefore aware of the sources of danger and risks in the workshop and on motor vehicles.• Please read the entire user manual thoroughly and carefully before using the mega macs 66. You can also find the user manual under ? in the mega macs 66 or on the DVD enclosed.• All notes given in the individual sections of this user manual apply. The following measures and safety precautions must also be followed.• Furthermore, pay attention to all general instructions from labor inspectorates, trade associations and vehicle manufacturers as well as all laws, legal ordinances and instructions which have to be commonly obeyed by a repair shop.
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2.1.2 Safety Precautions for the mega macs 66

  	<p>To prevent incorrect handling and consequent injuries to the user or damage to the device, observe the following:</p> <ul style="list-style-type: none">• Only select functions and menus on the touch screen display with clean fingers. Do not use a tool, e.g. screwdriver.• Only connect original power adapter to the power cord (supply voltage 10-15 V).• Protect the TFT LCD and the device from long periods of exposure to solar radiation.• Protect the device and the connecting cable from hot components.• Protect the device and the connecting cables from rotating parts.• Regularly check the connecting cables/accessory parts for damage (destruction of the device due to short circuit).• Connect the device exclusively according to user manual.• Keep the device away from fluids such as water, oil or gasoline. The mega macs 66 is not waterproof.• Protect the device from strong impacts and do not drop it.• Do not open the device on your own. Only technicians authorized by Hella Gutmann are allowed to open the device. Warranty and guarantee will be rendered void at any case of unauthorized tampering of the device or if the protective seal is damaged.• If the device malfunctions, contact Hella Gutmann or a Hella Gutmann trading partner without delay.
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2.1.3 Safety Precautions for High Voltage/Line Voltage

	<p>Very high voltages occur in electrical systems. Due to voltage flashover on damaged components, such as marten damage or touching live components, the risk of electric shock is likely. High voltage via the vehicle and line voltage via the building's mains supply can cause severe injury or even death if adequate care is not taken. Therefore regard the following:</p> <ul style="list-style-type: none">• Only use power supply cables with grounding contact.• Only use a checked or the attached power cord.• Always use the original cable set.• Regularly check cables and adapters for damage.• Always connect the ground cable from device to vehicle first.• Perform any assembly work such as the connection of the device to the vehicle or the replacement of components only when ignition is switched off.• Do not touch live components when ignition is switched on.
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2.1.4 Safety Precautions – Risk of Injury

  	<p>When working on the vehicle, there is a risk of injury through rotating parts or rolling of the vehicle. Therefore regard the following:</p> <ul style="list-style-type: none">• Prevent the vehicle from rolling.• Additionally, place the gear selector to park position in vehicles with automatic transmission.• Deactivate the start/stop system to avoid an inadvertent engine start.• Connect the device to the vehicle only when engine is shut down.• Do not reach into rotating components when engine is running.• Do not run cables near rotating parts.• Check the high-voltage parts for damage.
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2.1.5 Safety Precautions – Chemical Burns

 	<p>If the TFT display is damaged, there is a danger of chemical burns due to the escape of liquid crystal. Therefore regard the following:</p> <ul style="list-style-type: none">• Immediately rinse affected parts of the body or clothing with water (consult a doctor).• Seek medical attention immediately after inhaling or swallowing.
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2.1.6 Safety Precautions for Hybrid/Electric Vehicles

	<p>Very high tensions occur on hybrid and electric vehicles. Due to voltage flashover on damaged components, such as marten damage or touching live components, the risk of electric shock is likely. High voltage at or in the vehicle can lead to death in case of inattention. Therefore regard the following:</p> <ul style="list-style-type: none"> • Only the following qualified employees are allowed to de-energize the high-voltage system: <ul style="list-style-type: none"> – High-voltage technician – Skilled electrician for predetermined operations – Hybrid or rather electric vehicles – Skilled electrician • Place warning signs and warning tapes. • Check the high-voltage system and the high-voltage lines for damage (visual inspection!). • De-energizing the high-voltage system: <ul style="list-style-type: none"> – Switch off ignition. – Disconnect the service disconnect plug. – Remove the fuse. • Securing the high-voltage system against re-activation: <ul style="list-style-type: none"> – Withdraw the ignition key and keep it safe. – Keep the service disconnect plug safe or secure the battery master switch against re-activation. – Insulate the battery master switch, the plug connections etc. with dummy plugs, covering caps or insulating tape with the corresponding warning notice. • Check the de-energized state with a voltage tester. Even with disconnected high-voltage system, residual voltage can still be present. • Ground and short-circuit the high-voltage system (necessary only if voltage is higher than 1000 V). • Voltage below 1000 V: Cover the parts which are close to the system or which are energized e.g. with insulating cloth, hoses or plastic coverings. Voltage higher than 1000 V: Cover the parts with insulating plates/protective panels specially developed for this purpose so that sufficient protection against contact to adjacent parts is ensured. • Regard the following before re-energizing the high-voltage system: <ul style="list-style-type: none"> – All tools and utilities are removed from the hybrid/electric vehicle. – Remove the grounding and short circuit of the high-voltage system. Do not touch any of the cables now. – Attach the protective paneling that has been removed before. – Remove the protective measures at the switching system.
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2.1.7 Safety Precautions for Testing/Measuring Devices

	<ul style="list-style-type: none"> • Perform measurements only on electric circuits that are <i>not</i> directly connected to the line voltage. • Never exceed the maximum permissible voltage load of 30 V alternating voltage (AC) or 60 V direct current voltage (DC) respectively. • Do not exceed the voltage limits indicated on the connecting cables. • The voltage values to be measured must be shielded extra or even twice from dangerous line voltage. The voltage limits printed on the test leads must not be exceeded. Pay attention that the allowed measuring range of 60 V/DC / 42 V peak is not exceeded when measuring positive and negative voltage at the same time. • Never perform measurements at the ignition systems. • Regularly check the test and measuring devices for damage. • Always connect the test and measuring devices to the measurement module (MT 66) first. • Do not touch the connections/measurement points during the measurement.
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2.2 Non-Liability

2.2.1 Software

2.2.1.1 Safety-Relevant Software Modifications

The present device software provides numerous diagnostic and configuration functions. Some of these functions affect the behavior of electronic components. These components also include components in safety-related vehicle systems e.g. airbag or brakes. The following notes and instructions also apply to future updates and related software extensions.

2.2.1.2 Performing Safety-Relevant Software Modifications

- Work on safety-related areas, e.g., the occupant safety system and the brake systems, may only be performed if the user has read and acknowledged this note.
- The user of the diagnostic device must comply fully with all work steps and conditions given by the device and the vehicle manufacturer, and follow the related instructions without fail.
- Diagnostic programs that make safety-related software modifications in the vehicle may and are only allowed to be used if the related warning notes including the declaration given in the following are accepted without reservation.
- It is imperative that the diagnostic program is used correctly, as programs, configurations, settings, and indicator lamps can be deleted/cleared with it. These changes affect and modify safety-related data and electronic controls, in particular safety systems.

2.2.1.3 Prohibition of Safety-Relevant Software Modifications

Changes or modifications to electronic controls and safety-related systems are not allowed to be made in the following situations:

- The ECU is damaged and it is not possible to read out the data.

- The ECU and its allocation cannot be read out unambiguously.
- Reading out is not possible due to data loss.
- The user does not have the related training and knowledge necessary.

In these cases the user is not allowed to change programs, configurations, or to make other changes in the safety system. To avoid any danger, the user has to contact an authorized dealer instantly. Only an authorized dealer can guarantee the safe function of vehicle electronics together with the factory.

2.2.1.4 Waiver of the Use of Safety-Relevant Software Modifications

The user undertakes not to use any safety-related software functions if one of the following conditions arise:

- There are doubts about the specialized skills of third parties to use these functions.
- The user does not have the prescribed training qualifications.
- There are doubts about the correct function of the safety-related software engagement.
- The device is transferred to a third party. Hella Gutmann Solutions GmbH is unaware of this fact and has not authorized the third party to use the diagnostic program.

2.2.2 Non-Liability

2.2.2.1 Data and Information

The information in the database of the diagnostic program has been compiled based on automotive and importer information. Great care was taken to ensure the correctness of the information. The Hella Gutmann Solutions GmbH accepts no liability for any mistakes and the resulting consequences. This statement also applies to the use of data and information that are found to be incorrect or that were incorrectly displayed, also to errors that occurred inadvertently during compilation of the data.

2.2.2.2 Burden of Proof on the User

The burden of proof is on the user of the device, that he has paid attention to technical explanations, notes on operation, equipment care as well as maintenance and safety without exception.

2.2.3 Data Protection

The Customer agrees that its data may be stored for implementing and executing the contractual relationship and that technical data may be stored for performing data audits relevant to data security, statistical analysis and quality control. The technical data shall be stored separately from personal data and shared only with our contractors. We are obliged to treat all customer data that we receive confidentially. We may only disclose customer data if statutory provisions permit or require such disclosure or if the Customer has agreed.

2.2.4 Documentation

The notes given in the device describe the most common fault reasons. However, there are often further reasons for existing faults, which cannot be listed here, or there are further sources of error, which are unknown yet. The Hella Gutmann Solutions GmbH is not liable for failed or unnecessary repair work.

The Hella Gutmann Solutions GmbH does not accept any liability for the usage of data and information that are found to be incorrect or that were incorrectly displayed, also for errors that occurred inadvertently during the compilation of the data.

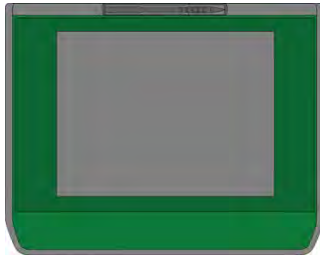
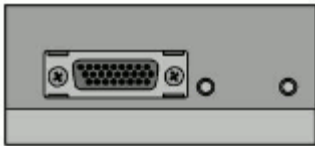



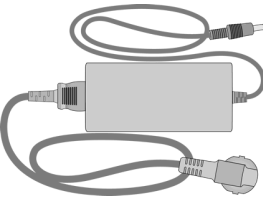



Notwithstanding the above, the Hella Gutmann Solutions GmbH does not accept any liability for any losses in relation to loss of profit, goodwill, or any other loss, including financial loss.

Hella Gutmann Solutions GmbH accepts no liability for damages or operating trouble resulting from failure to observe the "mega macs" user manual and the special safety precautions.

The burden of proof is on the user of the device, that he has paid attention to technical explanations, notes on operation, equipment care as well as maintenance and safety without exception.

3 Device Description

3.1 Delivery Contents

Quantity	Designation	
1	mega macs 66	
1	Diagnostic module DT 66	
1	Bluetooth adapter	
1	OBD and diagnostic plug	
1	USB cable for connection to a PC	
1	Power adapter and cable for the mega macs 66	
1	Stylus	
1	Quick Start Guide	
1	DVD	

3.1.1 Checking Delivery Contents


Please check the delivery contents upon receiving your device so that complaints can be issued immediately regarding any potential damage.

Proceed as follows to check the delivery contents:

1. Open the package supplied and check for completeness based on the delivery slip.

Should you identify any damage to the package, then open the package in the presence of the delivery service and check the device for hidden damage. Any transport damage to the package supplied and damage to the device shall be registered in a damage report by the delivery service.

2. Take the device out of the packaging.

	<p>CAUTION</p> <p>Danger of short circuit due to loose parts in or on the device</p> <p>Danger of destruction of the device and/or the automotive electronics</p> <p>Never put the device into operation if you suspect that there are loose parts inside or on the device. In this case please contact the Hella Gutmann repair service or a Hella Gutmann trading partner immediately.</p>
---	---

3. Check the device for mechanical damage and shake the device slightly to ensure that there are no loose parts inside.

3.2 Intended Use

The mega macs 66 is a mobile device for detecting and rectifying faults in automotive electronic systems.

It enables the access to comprehensive technical data such as wiring diagrams and inspection data, set values and descriptions of vehicle systems. A lot of this data is transferred to the device directly from the Hella Gutmann diagnostic database via online connection. Therefore, the device must be permanently online.

The device is not suitable for repairing electrical machines and equipment or home electrics. Diagnostic devices from other manufacturers will not be supported.

If the device is used in a way not authorized by Hella Gutmann, the safety of the device may be influenced.

The device is intended for industrial use. Outside of industrial environments, e.g. in commercial areas or in the centre of a town, radio interference suppression measures may need to be taken.

3.3 Using the Bluetooth Function

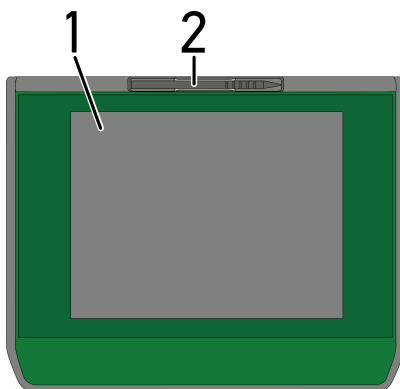
The terms of use of the Bluetooth function may be restricted or prohibited through law or corresponding legal regulations in certain countries.

Observe the provisions in force in the respective country before using the Bluetooth function.

3.4 Range of Functions


The functional scope of the mega macs 66 depends on the country, the licenses acquired, and/or the optionally available hardware. This documentation may therefore describe functions that are not available on the individual device. Missing functions can be enabled by acquiring a corresponding license subject to charge and/or additional hardware.

3.5 Display



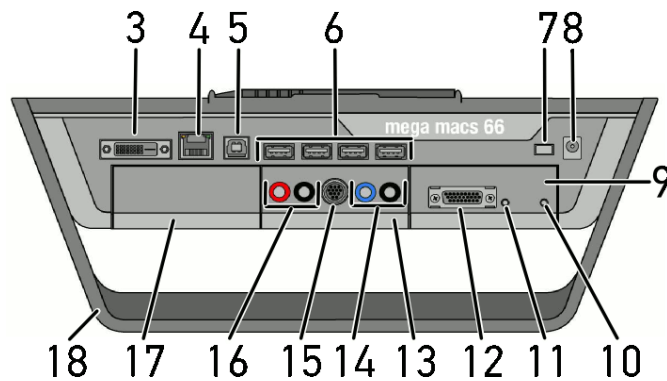
	Designation
1	TFT LCD (touch screen)
2	Stylus

3.5.1 Operating the Device

	<p>NOTICE</p> <p>Damage or destruction of the display</p> <p>Never touch the display using a tool or pointed metal object.</p> <p>Always use the stylus or a finger.</p>
---	---

The device is equipped with a touch screen display. All menus and functions can be selected and/or activated by slightly touching with the stylus or the finger or just by pressing the arrow keys ▼ ▲.

3.6 Connectors



	Designation
3	<p>DVI-D interface</p> <p>Transmit digital signals with the DVI-D interface. These signals can be depicted with the help of a screen or projector.</p>
4	<p>Ethernet interface</p> <p>Use the Ethernet interface to connect the device to the following hardware:</p> <ul style="list-style-type: none"> • PC • Printer • Network
5	<p>USB device interface</p> <p>Use the USB device interface for data exchange between the PC and the device.</p>
6	<p>4x USB host interface</p> <p>The USB host interfaces (USB interfaces for short) can be used to connect external devices such as a printer.</p>
7	<p>Main switch</p> <p>Switch the device off completely.</p>
8	<p>Power supply socket</p> <p>Power supply of the device and internal battery charge connection.</p>
9	<p>Green LED</p> <p>The green LED signals the communication module is switched on and ready.</p>
10	<p>On/Off push-button</p> <p>Switch on or off the diagnostic module if it is not plugged into the module slot.</p>
11	<p>Parallel port</p> <p>Connect the ST2 plug here.</p>
12	<p>Diagnostic module DT 66</p> <p>Use the DT 66 to diagnose the automotive electronics and to forward the data to the device.</p>

	Designation
13	<p>Oscilloscope 1 connectors</p> <p>Connect a test lead to Scope 1.</p> <ul style="list-style-type: none"> • blue = signal • black = ground
14	<p>ST3 connector</p> <p>Connect additional measuring instruments such as a current clamp here.</p>
15	<p>Oscilloscope 2 connectors</p> <p>Connect a test lead to Scope 2.</p> <ul style="list-style-type: none"> • red = signal • black = ground
16	<p>Measurement module MT 66</p> <p>This module contains a 2-channel oscilloscope for measured variables such as the following:</p> <ul style="list-style-type: none"> • Voltage • Current (with amp clamp) • Resistance
17	<p>Additional module slot</p> <p>Insert another module here.</p>
18	<p>Positioning handle</p> <p>Use the handle to set up the device, carry it or fix it to the steering wheel in the vehicle.</p>
	<p>Internal: 1x WLAN, 2x Bluetooth module</p> <p>All wireless connections are integrated in the device and are permanently switched on.</p>

4 Installation of the HGS PassThru Software

4.1 Provision of HGS PassThru

Since 2010, the Euro 5 standard has been applicable for all new vehicles. It regulates, among other things, the type-approval of vehicles with regard to emissions. With the Euro 5 standard, manufacturers are obligated to provide independent repairers with unrestricted Internet access to all information relating to the maintenance and repair of the vehicles.

Only Euro 5-capable devices may be used to program the ECUs. HGS PassThru is an interface used to install the latest software version from the online portal of the manufacturer on the vehicle ECU. The PassThru function is an add-on and does *not* replace the diagnostics. Here, Hella Gutmann establishes a direct communication between the manufacturer's OEM server (Original Equipment Manufacturer) and the vehicle.

Provision of the software varies depending on the manufacturer. The following options are available:

- Download the PC software
- Request the PC software on CD or DVD
- Online solutions

Here charges may accrue depending on the manufacturer e.g. for:

- Registration
- Licenses
- Software

The software content (scope of information and function) varies depending on the manufacturer. Some manufacturers provide the legally required functions and information only, whereas others provide additional data.

4.2 Supported Operating Systems for HGS PassThru

- at least Microsoft Windows 7 (32/64 bit)

4.3 System Requirements for HGS PassThru Driver

Hella Gutmann requires the following for installation of the HGS PassThru driver:

- at least 2 GB free internal memory
- at least 40 GB free hard disc space
- at least 1 free 2.0 USB port on the laptop/tablet
- web-compatible laptop or tablet

4.4 Installing the HGS PassThru Software

An installation wizard guides you through the necessary steps.

Proceed as follows to install the HGS PassThru software:

1. Switch on the laptop/tablet.

2. Call up the website of Hella Gutmann.
 3. Select **WORKSHOP SOLUTIONS > SERVICE > PassThru**.
 4. Select **DOWNLOADS > Software – PassThru**.
The window **HGS PassThru Setup** is displayed.
 5. Save the PassThru setup.exe with **>Save file<**.
A target directory is suggested for the files of the PassThru setup.exe. If you wish to have another target directory then select a suitable directory. At the end of installation, the files will be copied into the selected target directory.
 6. Save the PassThru setup.exe with **>Save<**.
The PassThru setup.exe will be saved in the target directory.
 7. Click the PassThru setup.exe in the target directory.
The window **HGS PassThru Setup** is displayed.
 8. Select the requested language with ▼.
 9. Confirm the selection with **>OK<**.
The selection is saved automatically. The setup wizard of HGS – PassThru is displayed.
 10. Click **>Next<**.
The general terms and conditions (GTCs) appear.
 11. Read the GTCs and confirm them at the end of the text.
 12. Click **>Next<**.
Select a product to be able to install the HGS PassThru Setup software successfully.
 13. Select **>mega macs 66<**.
 14. Install the product with **>Install<**.
Installation is started.
 15. Wait until installation is finished.
 16. Click **>Finish<**.
A link to HGS PassThru will be automatically created on the desktop.
- Installation of the HGS PassThru software is now complete.


5 Initial Start-Up of the HGS PassThru Software

This section describes how the HGS PassThru software is used.

5.1 Preconditions for Initial Start-Up of HGS PassThru


- Voltage supply of device and laptop or tablet through mains supply and mains cable is ensured.
- Laptop or tablet is booted.
- Laptop or tablet available for connecting vehicle to the Internet
- HGS PassThru file correctly installed on laptop or tablet.
- Admin rights available.
- Latest Java version installed.
- Stable Internet connection
- All processes/programs that have been started or are running in the background are closed.

5.2 Running the HGS PassThru Software

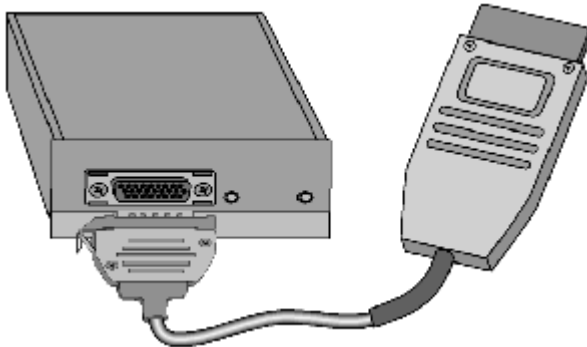
	<p>CAUTION</p> <p>Pay attention that the voltage supply during the entire procedure is no lower than 12 V.</p> <p>A voltage drop may lead to the abortion of the download and the ECU may be damaged.</p> <p>The old software version of the ECU <i>cannot</i> be re-established if an update is intended.</p>
---	---

Proceed as follows to run the HGS Pass Thru software:

1. Insert the USB cable into the USB connection of the laptop/tablet and mega macs 66.

	<p>NOTE</p> <p>The diagnostic module DT 66 must be inserted in the module slot of the mega macs 66.</p>
---	--

2. Insert the ST2 connector into the ST2 socket of the DT 66.

**NOTICE**

Short circuit and voltage peaks when connecting the ST2 and data link connector
 Danger of destruction of automotive electronics
 Switch off the ignition before connecting the ST2 and data link connector.

3. Insert the diagnostic plug into the vehicle's diagnostic port.
4. Switch on the mega macs 66.
5. Select **Applications > PassThru** in the main menu.
The disclaimer is displayed.
6. Read the disclaimer and confirm it at the end of the text.
The PassThru function is active.
7. Switch on the vehicle ignition.
8. Observe the manufacturer's specifications.
9. Select **Start > All Programs > Hella Gutmann Solutions > HGS PassThru Configuration**.
Alternatively you can run the HGS PassThru software as follows.
 - Windows 7: Select the HGS PassThru shortcut in the desktop.
10. Select the requested language.
11. Start the communication test with **>Start test<**.



The communication test is started. Connection between laptop/tablet and HGS PassThru device is tested.

The connection between laptop/tablet and HGS PassThru device is active if the left row of arrows is green.

The connection between HGS PassThru device and vehicle is tested afterwards.

The connection between HGS PassThru device and vehicle is active if the right row of arrows is green.

The connection between laptop/tablet and vehicle via HGS PassThru device is successfully established now.

12. Finish the communication test with **>Finish<**.
13. Call up the requested manufacturer website online with the laptop/tablet.
14. Follow the instructions on the manufacturer portal.

15. Select PassThru (HGS PassThru device) of Hella Gutmann.

6 Initial Start-Up


This section gives a description of how to switch the device on and off as well as all the necessary steps for the first use of the device.

6.1 Charging the Battery



Prior to putting the device into operation, charge the battery for at least 8 to 10 h while device is switched off.


1. Press in main switch until it latches in.
The electric circuit to the rechargeable battery is now closed.
2. Insert the voltage supply plug into the device's socket.
3. Insert the power plug into the plug socket.
The battery is being charged.

6.2 Switching on the Device

	<p>NOTE</p> <p>At the first start-up of the device and after every software update, you need to confirm the general terms and conditions (GTC) of Hella Gutmann Solutions GmbH. Otherwise, certain device functions will be unavailable.</p>
---	---


Proceed as follows to switch on the device:

1. Press in main switch until it latches in.
The device switches to stand-by mode.
2. Slightly touch the display.
The GTCs appear.
3. Read the GTCs and confirm them at the end of the text.
The user selection window is displayed. The respective user name is saved for all data stored in the Car History. This enables quicker identification of the mechanic who performed the repair work if a query is subsequently made.
4. Double-click .
5. Enter the user name.
6. Confirm your entry with .
7. Activate the **Stay logged in** check box if necessary.


If the **Stay logged in** check box is activated, you will not need to select a user name when switching on in the future.
8. Confirm your entry with .

Now you can start working with the device.

6.3 License Release



	<p>NOTE In order to use the full scope of the purchased licenses you need to download them from the HGS license server before taking the device into operation for the first time.</p>
---	---

Proceed as follows to retrieve licenses:




1. Select **Contracts** under **> Settings** in the main menu.
2. Select **>License<**.
3. Call up **My licenses** with .
Data download is in progress. Purchased licenses are displayed.

Now you can start working with the device.

6.4 Switching off the Device

	<p>NOTE Under normal conditions it is sufficient to switch off the device with . For transport and storage the device must be switched off with the main switch so that it cannot be switched on unintentionally.</p>
---	---

Proceed as follows to switch off the device:

1. Switch off the device with .
2. Observe the confirmation prompt.
3. Switch off the device with . Abort the procedure with .
The device is in standby mode after having it switched off.

7 Configuring the Device

Configure all interfaces and functions under **>Settings<** in the main menu.


7.1 Always Online

To obtain all the data about the related vehicle provided by Hella Gutmann, the device requires a permanent online connection. To keep the connection costs down, Hella Gutmann recommends a DSL connection and a flat rate.

1. Install the Gutmann Portal on the office or workshop PC.

The latest software for the Gutmann Portal is on the DVD supplied.

2. Connect the device to a web-compatible PC.

Once the connection symbol  in the top toolbar changes from black to green, the online connection has been set up successfully and is active.



7.2 Setting Company Data

Here you can enter the company data, that shall appear on the hard-copy printout, e.g.:

- Company address
- Fax number
- Homepage

7.2.1 Entering Company Data

Proceed as follows to enter the company data:

1. Select **Company** under **> Settings** in the main menu.
2. Select **>Company data<**.
3. Open the virtual keypad under **Company name** with .
4. Enter the company name.
5. Confirm your entry with .
The input will be saved automatically.
6. Repeat steps 3–5 for further entries.

7.2.2 User name

7.2.2.1 Entering the User Name

Here you can manage the different users.

The respective user name is saved for all data stored in the Car History. This enables quicker identification of the mechanic who performed the repair work if a query is subsequently made.

Proceed as follows to enter the user name:


1. Select **Company** under **> Settings** in the main menu.
2. Select **>User<**.
3. Open the virtual keypad with **+**.
4. Enter the user name.
5. Confirm your entry with **✓**.
The input will be saved automatically.

7.2.2.2 Assigning a Password

Here you have the option to assign passwords to the users.


The assigned password must be entered when selecting the user.

Proceed as follows to assign a password to a user:

1. Select **Company** under **> Settings** in the main menu.
2. Select **>User<**.
3. Select the required user name.
4. Open the virtual keypad under **Password (optional)** with .
5. Enter the requested password.
6. Confirm your entry with **✓**.
The input will be saved automatically.


7.2.2.3 Deleting the Password

Proceed as follows to delete the password:

1. Select **Company** under **> Settings** in the main menu.
2. Select **>User<**.
3. Selected the requested user name with the assigned password.
4. Delete the password under **Password (optional)** with .
5. Observe the confirmation prompt.
6. Confirm the confirmation prompt with **✓**.
Password will be deleted.

7.2.2.4 Deleting the User Name

Proceed as follows to delete the user name:



1. Select **Company** under **> Settings** in the main menu.
2. Select **>User<**.
3. Select the required user name.
4. Delete the user name with .
5. Observe the confirmation prompt.
6. Confirm the confirmation prompt with **✓**.
The user name is deleted.

7.2.3 Creating Cost Estimates

Here you can enter the base values for the cost estimate.

You can enter 3 different hourly rates (net) and one VAT rate. These values are used to calculate the total amount of the work to be done.

Proceed as follows to enter the basic values in the cost estimate:

1. Select **Company** under **> Settings** in the main menu.
2. Select **>Cost estimate<**.
3. Open the virtual keypad under **Hourly rate 1 (Net in EUR)** with .
4. Enter the hourly rate.
5. Confirm your entry with .
The input will be saved automatically.
6. Repeat steps 3–5 for further entries.

7.3 Updating Device and Modules

Here you can perform the updates for the device and the individual modules. Various system parameters are also displayed, e.g.:

- Package version
- Device number
- Software version

Hella Gutmann Solutions supplies customers with regular software updates. The update is subject to charge. These updates contain new vehicle systems as well as technical modifications and improvements. We recommend keeping your device up to date.

7.3.1 Preconditions for an Update

Ensure the following to perform updates:

- Device is connected to a web-compatible PC through USB cable, Ethernet, Bluetooth or WLAN.
- A Bluetooth-compatible PC or Bluetooth adapter is plugged into the PC.
- The corresponding licenses are activated by Hella Gutmann.
- The access software Gutmann Portal is installed on the PC.
- The voltage supply to the device is guaranteed.

7.3.2 Calling Up System Information

Here you will find all information required for the identification of the mega macs 66.

Proceed as follows to call up system information:


1. Select **Update** under **> Settings** in the main menu.
2. Select **>System<**.
An info window appears.

Here you can find information including the software and hardware version and the device number.

7.3.3 Setting the Language

Here you can set the language version if the software is multilingual. After having set the language, the update will be installed in this language.



Proceed as follows to set the language:

1. Select **Update** under **> Settings** in the main menu.
2. Select **>System<**.
3. Open the list under **Language setting** with .
The compilation of languages depends on the prevailing software.
4. Select the requested language.
The selection will be saved automatically.

7.3.4 Starting the Test

Check the present software for incorrect or missing files here.


Proceed as follows to start the test:


1. Select **Update** under **> Settings** in the main menu.
2. Select **>System<**.
3. Open the list under **Step** with .
4. Select **>Check<**.
5. Start the check with .
Installation is being checked.
The delivered list after completion of the installation test must not include an incorrect file.
The message *Device software OK* appears if the present software is OK.
6. Should the list nevertheless include incorrect files, start the update again.

7.3.5 Starting the System Update

Here you can start a system update.

Proceed as follows to start the system update:

1. Select **Update** under **> Settings** in the main menu.
2. Select **>System<**.
3. Open the list under **Step** with .
4. Select **>Update<**.

	<p>NOTICE</p> <p>Insufficient voltage supply System data loss</p> <p>Do not switch off the device during the update and do not disconnect it from voltage supply.</p> <p>Ensure sufficient voltage supply.</p>
---	---

5. Start **Update** with .



The device searches for a new update that will then be downloaded and installed.

The device switches off and on again after the successful system update. The installation will be checked automatically after startup.


7.3.6 Module Update

Update the software for individual modules here.



The mega macs 66 has three module slots. The first one is intended for the DT 66 (diagnostic module), the second one is intended for the MT 66 (measurement module), and the third one is a secondary slot for further modules.

	<p>NOTE</p> <p>The module update for the DT 66 can also be performed wirelessly via Bluetooth. If an obsolete version of the module software is detected at the start of the diagnostics, then a corresponding note appears. Use  to start the update directly.</p>
---	---

7.3.6.1 Starting the Module Update

	<p>NOTICE</p> <p>Insufficient voltage supply System data loss</p> <p>Do not switch off the device during the update and do not disconnect it from voltage supply.</p> <p>Ensure sufficient voltage supply.</p>
--	---

Proceed as follows to start the module update:

1. Select **Update** under **> Settings** in the main menu.
2. Select the tab for the required module.
An info window appears.
Here you can find information on the software and hardware version and the module type.
3. Start the module update with .
4. Regard the window with infos and instructions.
5. Confirm the window with infos and instructions with .
The module update will be started. The device searches for a new update that will then be downloaded and installed.

The message *Module update successfully done* appears if the update was successful.

7.4 Configuring the Interfaces

Set the interfaces for the printer, BPC-Tool, Ethernet, Bluetooth, WLAN and UMTS module here.

Configure all interfaces of the device under **Settings > Interfaces**.

If there are several possible connections to devices or tools, the fastest and most stable connection is always preferred.

The hierarchy for connection is as follows:

1. Ethernet
2. USB
3. Bluetooth
4. WLAN




7.4.1 Setting Up the Printer

7.4.1.1 Printing via USB Port




Here you can set the option to print via a USB port.

It is possible to connect to the USB ports any printer that supports at least the printer language PCL5 or higher and that has a USB port.

Proceed as follows to print out results via USB port:

1. Plug in the USB cable (not included in the contents of delivery) to the device's and the printer's USB port.
2. Select **Interfaces** under **> Settings** in the main menu.
3. Select **>Printer<**.
4. Open a list under **Interface** with .
5. Select **>local<**.
6. Open the list under **Color mode** with .
7. Select either **>Colour<** or **>Black/white<**.
8. Use  to open the virtual keypad under **top (mm)**.

The margins are set ex works to 15 mm.

9. Delete the number set ex works with  or  where necessary.
10. Enter the requested height of the margins in mm.
11. Confirm your entry with .
12. Repeat steps 8 to 11 for further entries.

13. Where necessary, activate the check box **Blank out company logo** to print out results without the company logo of Hella Gutmann.

This function enables hard-copy printouts on printed paper.

It is now possible to print using the printer on the USB port.






7.4.1.2 Printing with Standard PC Printer

Here you can set the print function with the standard printer connected to the PC.

If there is no additional printer connected to the device, it is possible to print with the printer of a PC system. This requires a connection between the diagnostic device and the PC. The connection to the PC can be realized with USB port, Ethernet, Bluetooth, WLAN or UMTS.

Proceed as follows to print out results with the standard printer:



1. Select **Interfaces** under **> Settings** in the main menu.
2. Select **>Printer<**.

3. Open a list under **Interface** with .
4. Select **>Gutmann Portal<**.
The selection will be saved automatically.
5. Use  to open the virtual keypad under **top (mm)**.
The margins are set ex works to 15 mm.
6. Delete the number set ex works with  or  where necessary.
7. Enter the requested height of the margins in mm.
8. Confirm your entry with .
9. Repeat steps 5 to 8 for further entries.
10. Where necessary, activate the check box **Blank out company logo** to print out results without the company logo of Hella Gutmann.
This function enables hard-copy printouts on printed paper.
Now you can start printing via PC.

7.4.2 Configuring the BPC-Tool

7.4.2.1 Searching for a BPC-Tool

Proceed as follows to search for a BPC-Tool:

1. Switch on the BPC-Tool and connect it with the device (see operating instructions of the BPC-Tool).
 2. Select **Interfaces** under **> Settings** in the main menu.
 3. Select **>BPC<**.
 4. Search for a **BPC-Tool** with .
 5. Observe the info window.
 6. Confirm the info window with .
- The connection to the BPC-Tool is established.



Once the connection from the device to the BPC-Tool has been set up successfully, a drop-down list of the BPC-Tools that have been found is then displayed.

7. Select the required BPC-Tool.
The selection will be saved automatically.
The selected BPC-Tool address is displayed in the field **BPC address**.

7.4.2.2 Deactivating the BPC-Tool Connection and Deleting the Assignment

Here you can deactivate the BPC-Tool connection and delete the assignment.


Proceed as follows to deactivate the BPC-Tool connection and delete the assignment:



1. Select **Interfaces** under **> Settings** in the main menu.
 2. Select **>BPC<**.
 3. **Deactivate the connection to the BPC-Tool and delete the assignment** with .
 4. Observe the confirmation prompt.
 5. Confirm the confirmation prompt with .
- The BPC-Tool connection is deactivated and the assignment is deleted.

7.4.2.3 Starting a BPC-Tool Update

Proceed as follows to start the BPC Tool update:

1. Connect the BPC-Tool to the battery.
2. Select **Interfaces** under **> Settings** in the main menu.
3. Select **>BPC<**.

	<p>NOTICE</p> <p>Insufficient voltage supply System data loss</p> <p>Do not switch off the device and the BPC-Tool during the update and do not disconnect them from the voltage supply.</p> <p>Ensure sufficient voltage supply.</p>
---	--


4. **Start BPC-Tool update** with .
 5. Regard the window with infos and instructions.
 6. Confirm the window with infos and instructions with .
- Update of the BPC-Tool will start. The device searches for a new update that will then be downloaded and installed.

The message *BPC-Tool update successful* appears if the update was successful.

7.4.2.4 Calling up System Information for the BPC-Tool

Here you can find all information required for identification of the BPC-Tool.

Proceed as follows to call up system information of the BPC-Tool:


1. Select **Interfaces** under **> Settings** in the main menu.
 2. Select **>BPC<**.
 3. Call up **System information** with .
- An info window appears.

Here you can find information including the product name, the product ID and the firmware.

7.4.3 Configuring the Ethernet

Here you can make your network settings.

Proceed as follows to connect the device to a network (router) via Ethernet interface:

1. Plug in the Ethernet cable (not included in delivery contents) in the ports of the device and the Ethernet remote station.
2. Select **Interfaces** under **> Settings** in the main menu.
3. Select the **>Ethernet<** tab.
4. Open a list under **IP address mode** with .

If **>Determine automatically (DHCP)<** is set, then the device will automatically search for the IP address.

If **>Determine manually<** is set, you need to enter the address of the remote station under **mega macs IP address**, e.g., 192.168.255.255.


5. Select **>Determine automatically (DHCP)<** or **>Determine manually<**.
The selection will be saved automatically.

7.4.4 Configuring the Bluetooth Adapter

Configure the Bluetooth adapter here.

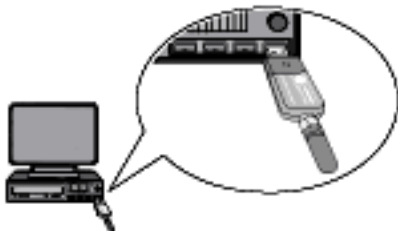
The integrated Bluetooth module enables a wireless connection to a PC on which the Gutmann Portal is installed.

7.4.4.1 Searching for the Bluetooth Adapter

	<p>NOTE</p> <p>If the device has already been delivered with a Bluetooth adapter, both devices are already assigned to each other ex works.</p> <p>The Bluetooth adapter can only be found once the Gutmann Portal is started on the PC.</p>
---	---

Proceed as follows to search for the Bluetooth adapter:

1. Insert the Bluetooth adapter into the USB port of the PC.




2. Select **Interfaces** under **> Settings** in the main menu.
3. Select the **>Bluetooth<** tab.
4. Activate the check box to take settings.
A confirmation prompt appears if WLAN was previously activated in the device.
5. Observe the confirmation prompt.
6. Confirm the confirmation prompt with **✓**.
7. Do this via **🔍 Search for Bluetooth adapter**.
8. Observe the info window.
9. Confirm the info window with **✓**.
Connection is established and the search for a Bluetooth adapter is in progress.
Once the connection from the device to the Bluetooth adapter has been set up successfully, a selection list of the Bluetooth adapters that have been found is then displayed.
10. Select the desired Bluetooth adapter.
The selection will be saved automatically.

The automatically assigned Bluetooth adapter address appears in the field **Bluetooth adapter address**.

7.4.4.2 Disconnecting the Bluetooth Adapter Connection and Deleting the Assignment

Here you can disconnect the Bluetooth adapter connection and delete the assignment.

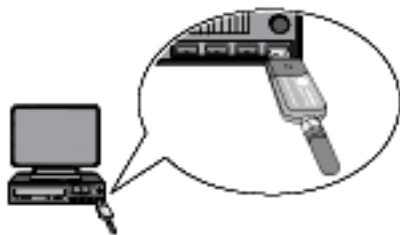
Proceed as follows to disconnect the Bluetooth adapter connection and delete the assignment:



1. Select **Interfaces** under **> Settings** in the main menu.
2. Select the **>Bluetooth<** tab.
3. Activate the check box to take settings.
A confirmation prompt appears if WLAN was previously activated in the device.
4. Observe the confirmation prompt.
5. Confirm the confirmation prompt with ✓.
6. **Disconnect the Bluetooth adapter connection and delete the assignment** with .
7. Observe the confirmation prompt.
8. Confirm the confirmation prompt with ✓.
The Bluetooth adapter connection is disconnected and the assignment is deleted.

7.4.4.3 Performing Bluetooth Diagnostics

Proceed as follows to perform Bluetooth diagnostics:

1. Insert the Bluetooth adapter into the USB port of the PC.



2. Select **Interfaces** under **> Settings** in the main menu.
3. Select the **>Bluetooth<** tab.
4. Activate the check box to take settings.
A confirmation prompt appears if WLAN was previously activated in the device.
5. Observe the confirmation prompt.
6. Confirm the confirmation prompt with ✓.
7. Click  to start **Bluetooth diagnostics**.
An info window appears.
Here you will find information including the status of the connection to the Gutmann Portal.
8. Close the info window with .



7.4.5 Configuring WLAN

Make your WLAN settings here.

WLAN is a wireless local area network. Data is transmitted wirelessly via a router and DSL modem (access point). The respective devices register in the WLAN router.

7.4.5.1 Searching and Installing a WLAN Interface

Proceed as follows to connect the device to a network (router) via a WLAN interface:

1. Select **Interfaces** under **> Settings** in the main menu.
2. Select **>WLAN<**.
3. Activate the check box to take settings.
A confirmation prompt appears if either Bluetooth or UMTS was previously activated on the device.
4. Observe the confirmation prompt.
5. Confirm the confirmation prompt with .
6. Open a list under **IP address mode** with .
A drop-down list appears.



If **>Determine automatically (DHCP)<** is set, then the device will automatically search for the IP address. This option is set ex works.

If **>Determine manually<** is set, you must enter the address of the remote station under **mega macs IP address**, e.g., "192.168.255.255".

7. Select **>Determine automatically (DHCP)<** or **>Determine manually<**.
The selection will be saved automatically.


8. **Create wireless network** with .
The device searches for wireless networks.

Once the device has successfully finished searching for wireless networks, a drop-down list of wireless networks found is then displayed.

9. Select the requested wireless network.
10. Regard the window with infos and instructions.
11. Confirm the window with infos and instructions with .
12. Enter the WLAN password.
13. Confirm the password with .
The input will be saved automatically.

The following message appears if the wireless network has been successfully established:

- the name of the selected network under **Wireless network (SSID)**
- the security system of the selected wireless network under **WLAN security**
- the IP address of the installed Gutmann Portal under **Gutmann Portal IP address**

14. Click the  symbol on the right of the header to check the connection status.

The device is connected to the Internet if *Data server* is displayed under **Connection**.



You can use the WLAN connection now.



7.4.5.2 Performing WLAN Diagnostics

Proceed as follows to perform WLAN diagnostics:

1. Disconnect the USB/Ethernet cable from the device.
2. Select **Interfaces** under **> Settings** in the main menu.
3. Select **>WLAN<**.
4. Activate the check box to take settings.


A confirmation prompt appears if either Bluetooth or UMTS was previously activated on the device.

5. Observe the confirmation prompt.
6. Confirm the confirmation prompt with .
7. Start **WLAN diagnostics** with .
An info window appears.




Here you will find information including the WLAN chip and status, as well as the status of the Gutmann Portal connection.
8. Reset the WLAN settings with  where necessary.
9. Close the info window with .


7.4.6 Configuring the UMTS Module




Make your settings for the optionally available UMTS module here.

	NOTE Charges may be higher near borders due to foreign providers. Therefore, determine the provider manually where required.
---	--


Proceed as follows to connect the device via the UMTS interface:

1. Disconnect the USB/Ethernet cable from the device.
2. Select **Interfaces** under **> Settings** in the main menu.
3. Select **>UMTS<**.
4. Activate the check box to take settings.
A confirmation prompt appears if either the Bluetooth adapter or WLAN was previously activated on the device.
5. Observe the confirmation prompt.
6. Confirm the confirmation prompt with .
7. Open the list under **UMTS module** with .
8. Select the slot in which you have inserted the UMTS module.
9. Open the list under **PIN** with .
10. Select **>Enter PIN<**.
The input window opens.
11. Enter the SIM card PIN.

	NOTE Pay attention to correctly enter the PIN for the SIM card. Should you have entered 3x a wrong PIN, the provider locks the card. Unlock the SIM card with the corresponding PUK.
---	--


12. Confirm your entry with .
13. Observe the confirmation prompt.
14. Select how the PIN is saved.
 - To save the PIN in the device permanently, confirm the confirmation prompt with . The PIN will be saved automatically.
 - To save the PIN until the next time the device is switched off, close the confirmation prompt with . In this case, the PIN must be entered again each time the device is started.

15. Open the list under **Network mode** with .

	<p>NOTE</p> <p>Should you have selected >Automatically< (recommended), the device will automatically search the fastest connection of the available network mode.</p> <p>Should you have selected >GSM (2G)< or >WCDMA (3G)<, the network mode will change and the previously set provider will be cleared.</p>
---	---

16. Select the required network mode.

17. Open the list under **Provider selection** with .


	<p>NOTE</p> <p>If you have selected >Determine manually<, unnecessary additional costs for roaming (e.g., near borders) can be avoided. This option is set ex works.</p> <p>Should you have selected >Automatically (Roaming)<, the device will automatically search for the provider.</p>
---	---

18. Select **>Automatically (Roaming)<** or **>Determine manually<**.


19. Observe the confirmation prompt.

20. Affirm the confirmation prompt with .


21. Open the list under **Access Point Name (APN)** with .

	<p>NOTE</p> <p>The provider offers a certain access point, indicated through the APN, which depends on the applicable data tariff. If the APN is unknown, please contact the mobile provider concerned to obtain the necessary access data.</p>
---	--

22. Select the applicable APN with double-click.


- If the APN applicable is not mentioned in the list, select **>Manual entry<** and enter the corresponding access data of the mobile communication provider. Confirm your entry with .

The APN will be saved automatically.

23. Confirm your entry with .

The UMTS module will now be connected to the Internet.

Once the following conditions have been fulfilled, the online connection has been set up successfully and is active:

- Indicator lamp for the UMTS module flashes approx. every 3 sec.
-  symbol in the top right status line changes from black to green.

24. Click to  to check the connection status.

The connection between UMTS module and access point is established if *connected* is marked under **DT 66 (module slot)**.

You can use the UMTS connection now.

7.5 Setting the Country




Configure the following data here:

- Language setting
- Country setting
- Currency
- Date format
- Time mode
- Date
- Time

7.5.1 Setting the Language Option

Here you can set the language if the software is multilingual (optional).

Proceed as follows to set the language:


1. Select **Country** under **> Settings** in the main menu.
2. Open the list under **Language setting** with .
The compilation of languages depends on the prevailing software.
3. Select the requested language.
4. Regard the window with infos and instructions.
5. Close the window with infos and instructions with .
The device switches off automatically. The language setting will be saved automatically. The device switches on again and automatically switches to standby mode.
6. Slightly touch the display.
7. Confirm the user selection window with .
The main menu appears.

7.5.2 Making Country Settings

Make your country settings here.

The country version contains certain information such as the print format for letters.


Proceed as follows to make the country settings:

1. Select **Country** under **> Settings** in the main menu.
2. Open the list under **County** with .
The compilation of countries depends on the prevailing software.
3. Select the country to the corresponding language.
The selection will be saved automatically.

7.5.3 Setting the Currency

Here you can set the prevailing currency.


Proceed as follows to set the currency:

1. Select **Country** under **> Settings** in the main menu.
2. Open the list under **Currency** with .
The compilation of currencies depends on the prevailing software.
3. Select the requested currency.
The selection will be saved automatically.

7.5.4 Setting the Date Format

Here you can set the date format.


Proceed as follows to set the date format:

1. Select **Country** under **> Settings** in the main menu.
2. Open the list under **Date format** with .
3. Select the required date format.
The selection will be saved automatically.

7.5.5 Setting the Time Format

Here you can set the time format.




Proceed as follows to set the time format:

1. Select **Country** under **> Settings** in the main menu.
2. Open the list under **Time format** with .
3. Select **>24 h<** or **>12 h<**.
The selection will be saved automatically.

7.5.6 Setting the Date

Here you can set the present date.





Proceed as follows to set the date:

1. Select **Country** under **> Settings** in the main menu.
 2. Open the drop-down list under **Date** with .
 3. Open the list under **Day** with .
 4. Select the required day.
 5. Repeat steps 3 and 4 for **Month** and **Year**.
 6. Confirm the selection with .
The selection will be saved automatically.
-

7.5.7 Setting the Time

Here you can set the current time.

Proceed as follows to set the time:


1. Select **Country** under **> Settings** in the main menu.
2. Open the settings window under **Time** with .
3. Set the required hour under **Hour** with  .
4. Repeat step 3 for **Minute** and **Second**.
5. Confirm settings with .
The setting will be saved automatically.

7.6 Setting Units

Adapt physical units to the prevailing regional metric system here.

7.6.1 Assigning Units

Proceed as follows to assign regional units to physical sizes:

1. Select **Units** under **> Settings** in the main menu.
2. Open a list under the requested unit with .
3. Select the requested unit.
The selection will be saved automatically.

7.7 Configuring Miscellaneous

Here you can configure settings such as:


- Display brightness
- Demo mode
- Order management

7.7.1 Configuring the Hardware

Here you can calibrate the display brightness and the touch screen and you can set the status of the rechargeable battery.

7.7.1.1 Setting the Display Brightness



Proceed as follows to set the display brightness:

1. Select **Miscellaneous** under **> Settings** in the main menu.
 2. Select **>Hardware<**.
 3. Open the list under **Brightness** with .
-

4. Select the requested brightness value.
The display brightness is adjusted immediately. The selection will be saved automatically.

7.7.1.2 Calibrating the Touch Screen


Proceed as follows to calibrate the touch screen:

1. Select **Miscellaneous** under **> Settings** in the main menu.
2. Select **>Hardware<**.
3. **Calibrate mega macs 66 touch screen** with .
4. **Calibrate external touch screen** with  if required.
5. Follow the instructions on the screen.
The message *Calibration complete* appears if the calibration has been done successfully.


7.7.1.3 Checking the Battery Status

Here the device provides system parameters of the rechargeable battery.

Proceed as follows to check the battery status:

1. Select **Miscellaneous** under **> Settings** in the main menu.
 2. Select **>Hardware<**.
 3. Execute **Check battery status** with .
- An info window appears.

Here you can view the following information:

- Serial number
 - Battery voltage
 - Number of completed battery charges
4. Close the info window with .

7.7.2 Configuring the Car History


This menu provides the diagnostic results to the present vehicle from the functions **>Trouble codes<**, **>Parameters<**, **>Basic settings<** and **>Codings**. This has the following advantages:

- You can evaluate the diagnostic results later.
- Compare previously performed diagnostics to present diagnostic results.
- You can show the customer the diagnostic results without needing to reconnect the vehicle.

7.7.2.1 Automatic Car History Transfer

If you have selected the option **Automatic Car History Transfer**, the data saved in the Car History will be automatically transferred to Hella Gutmann.

Proceed as follows to transfer the Car History automatically:


1. Select **Miscellaneous** under **> Settings** in the main menu.
2. Select **>Car History<**.
3. Open a list under **Automatic Car History Transfer** with .

4. Select **>on<** or **>off<**.
The selection will be saved automatically.

7.7.2.2 Manual Parameter Management

Here you can select whether the device offers to delete existing parameter records in the Car History if there is not enough memory space.


Proceed as follows to manage the parameters manually:

1. Select **Miscellaneous** under **> Settings** in the main menu.
2. Select **>Car History<**.
3. Open a list under **Administrating parameters manually** with .
If **>on<** is selected, you can determine existing measurements in the Car History to be deleted.
If **>off<** is selected, the device will automatically delete the oldest entries in the Car History.
4. Select **>on<** or **>off<**.
The selection will be saved automatically.

7.7.2.3 Sending the Car History

Here you can send the Car History to Hella Gutmann.

Proceed as follows to send the Car History data:



1. Select **Miscellaneous** under **> Settings** in the main menu.
2. Select **>Car History<**.
3. **Send Car History** with .
The Car History is sent to Hella Gutmann.

7.7.2.4 Parameter Management

	<p>NOTE</p> <p>The menu point Parameter management can be done only if >Manage parameters manually< is set to on.</p>
---	---

With the **Parameter management** function, you can delete parameter records from the Car History. This is useful if more memory space is required for further parameter records.


Proceed as follows to delete parameter records:

1. Select **Miscellaneous** under **> Settings** in the main menu.
2. Select **>Car History<**.
3. Call up **Parameter management** with .
An info and selection window appears.
Deactivate all parameter records with .
Activate all parameter records with .
4. Activate or deactivate the required parameter records.
5. Delete the selected parameter records with .
The parameter records are deleted.


7.7.2.5 Displaying Error Logs

If a fault occurs when sending the Car History data, the error log is stored in the device memory.

Proceed as follows to call up the error log:

1. Select **Miscellaneous** under **> Settings** in the main menu.
2. Select **>Car History<**.
3. Call up **Error logs** with .
4. Select the required error log.
An info window appears.

It displays the troubles that occurred while sending the Car History data.

5. Close the info window with .


7.7.3 Configuring Other Matters

Here you can configure settings such as:


- Demo mode
- Car History
- Order management
- Factory reset

7.7.3.1 Setting the Demo Mode

Here you can set whether the device shall give predetermined values during the vehicle communication. This setting is mainly intended for marketing and sales presentations.

	<p>NOTE</p> <p>In the course of vehicle diagnostics the demo mode must be switched off. Otherwise the device will deliver predetermined diagnostic results and no real values.</p>
---	---


Proceed as follows to set the demo mode:

1. Select **Miscellaneous** under **> Settings** in the main menu.
2. Select **>Miscellaneous<**.
3. Open the list under **Demo mode** with .
4. Select **>on<** or **>off<**.
Demo mode is switched off or on.

7.7.3.2 Setting Tips

Here you can activate or deactivate additional information on different functions.

Proceed as follows to set the indication of tips:


1. Select **Miscellaneous** under **> Settings** in the main menu.
2. Select **>Miscellaneous<**.
3. Open the list under **Tips** with .

4. Select **>on<** or **>off<**.
Tips are switched off or on. The selection will be saved automatically.

7.7.3.3 Automatic E-mail Actualization

Here you can set the time interval in which the emails shall be retrieved automatically.


Proceed as follows to retrieve e-mails automatically:

1. Select **Miscellaneous** under **> Settings** in the main menu.
2. Select **>Miscellaneous<**.
3. Open a list under **Automatic E-mail actualization** with .
4. Select **>off<** or the required time interval.
The selection will be saved automatically.

7.7.3.4 Configuring Order Management

Here you can set the data exchange between device and order management.

Proceed as follows to set the order management:

1. Select **Miscellaneous** under **> Settings** in the main menu.
2. Select **>Miscellaneous<**.
3. Open a list under **Order management** with .
4. Select **>on<** or **>off<**.
Order management is switched off or on. The selection will be saved automatically.

7.7.3.5 Performing a Factory Reset

Here you can reset the device to factory settings.


The following data and files will be reset to the state of delivery if you do the factory reset:


- Data stored in the Car History
- Downloaded files such as wiring diagrams or service schedules
- User data such as company data

The following functions will be also modified or deleted:

- IP address mode
- Telekom HotSpot
- Bluetooth MAC address
- asanetwork
- Display settings
- Confirmation of General terms and conditions
- Printer settings

Proceed as follows to perform a factory reset:

1. Select **Miscellaneous** under **> Settings** in the main menu.
2. Select **>Miscellaneous<**.
3. Select **Start factory reset** with .

4. Observe the confirmation prompt.
5. Confirm the confirmation prompt with .
The device will be automatically reset to the condition at delivery.

7.7.3.6 Screenshot

Use the screenshot function to save the current screen content. The screenshot is saved in the respective device file.

Creating a Screenshot

Proceed as follows to create a screenshot:

- Double-click the  symbol on the left in the header.

The screenshot is created and saved to the device file.


The message *Screenshot created* is displayed if the screenshot has been created successfully.

Sending Screenshots to the Gutmann Portal

Here you can send screenshots from the device file to the Gutmann Portal. They are displayed on the PC as a graphics file.

The screenshots are saved in the Gutmann Portal installation directory in the "Screenshots" subfolder.

Proceed as follows to send screenshots to the Gutmann Portal:

1. Select **Miscellaneous** under **> Settings** in the main menu.
2. Select **>Miscellaneous<**.
3. **Send screenshots** with .

A connection is established. This may take a few minutes.

Screenshots are sent to the Gutmann Portal.

The message *Screenshots successfully sent* appears if screenshots have been sent successfully.


7.8 Contracts

Here you can see the general terms and conditions as well as the licenses and notes of the programs and functions used by the Hella Gutmann Solutions GmbH.

7.8.1 Retrieving the License

Here you can see an overview of the purchased licenses.

Proceed as follows to retrieve licenses:

1. Select **Contracts** under **> Settings** in the main menu.
 2. Select **>License<**.
 3. Call up **My licenses** with .
- Data download is in progress. Purchased licenses are displayed.

7.8.2 Displaying the GTC

Here you will find the general terms and conditions (GTC) of Hella Gutmann Solutions GmbH. The agreement to the terms can only be revoked by doing a factory reset.

Proceed as follows to have the GTCs indicated:

1. Select **Contracts** under **> Settings** in the main menu.
2. Select **>GTC<**.
The GTCs appear.

7.8.3 Displaying Other Licenses

Here you can view a list of the licenses and notes of the programs and functions used by the Hella Gutmann.

Proceed as follows to retrieve licenses:

1. Select **Contracts** under **> Settings** in the main menu.
2. Select **>Miscellaneous<**.
A list with the licenses and notes of the programs and functions used by the Hella Gutmann appears.

7.9 Test Functions

Here you can perform various tests.

7.9.1 Precondition for Test Functions



Regard the following to perform the test functions:

- Voltage supply of the device through mains supply and mains cable is ensured.
- The DT 66 with connected OBD plug is inserted into the module slot.
- The OBD plug is *not* inserted into the vehicle's diagnostic interface.

7.9.2 Performing an OBD Plug Test

This test serves as function check of the OBD plug for defects.

Proceed as follows to perform the test functions:











1. Select **Test functions** under **> Settings** in the main menu.
 2. Call up **OBD plug test** with .
 3. Regard the window with infos and instructions.
 4. Start the test with .
- OBD plug test is in progress.






The message *OBD plug OK, no malfunction detected* appears if the OBD plug has been tested successfully.

8 Working with the Device






8.1 Symbols







8.1.1 General Symbols

Symbols	Designation
	Switch off Switch the device off.
	Enter Call up the selected menu.
	Confirm Perform the following functions: <ul style="list-style-type: none"> • Start the selected function. • Confirm the present entry. • Confirm your menu selection.
	Cancel Cancel the following functions: <ul style="list-style-type: none"> • Active function • Input
	Start Start a function or procedure.
	Delete Delete data or entries.
	Arrow keys Navigate with the cursor in menus or functions.
	Print Print the current window.
	Help Open the user manual and explanations on the individual menus or functions.
	Virtual keypad Open the virtual keypad for text input.







Symbols	Designation
	Selection window Open a selection window.
	Select all Select all available elements.
	Unselect all Unselect all available elements.
	Zoom in Zoom in the present view.
	Zoom out Zoom out of the present view.



8.1.2 Symbols in the Header

Symbols	Designation
	Vehicle data This menu contains the data of the currently selected vehicle.
	User Here you can click the symbol to change the user or double-click  to enter a new user name.
	Help Select the menus >Assistance in selection< and >User Manual< . <ul style="list-style-type: none"> >Assistance in selection< Indication of the active assistance for the different icons and the drop-down menu Black symbol: Help function is inactive Green symbol: Help function is active >User Manual< Calling up the complete manual
	Shopping cart The spare parts booked for order are indicated with the following information: <ul style="list-style-type: none"> Quantity Component name Manufacturer Item number The shopping cart symbol is dark if there are spare parts in the cart.











Symbols	Designation
	<p>Order network</p> <p>This network is used for data exchange between device and order network.</p>
	<p>Mail box</p> <p>The incoming e-mails and help calls are stored here. The symbols indicate an incoming e-mail or help call:</p> <ul style="list-style-type: none"> • Envelope symbol: No new e-mails • Envelope symbol with exclamation mark: At least one new e-mail <p>Call up the corresponding list using the symbol.</p>
	<p>Battery state of charge</p> <p>The battery state of charge is indicated here.</p> <ul style="list-style-type: none"> • Green symbol: Battery is fully charged. • Symbol flashing green-white: Battery is being charged. • Symbol partly red: Battery must be charged.
	<p>Printer</p> <p>Printer is ready for operation</p> <ul style="list-style-type: none"> • Black symbol: Printer is ready • Symbol flashes green-black: Print job is in progress • Red symbol: Connecting error between device and PC.
	<p>Vehicle connection status</p> <p>Here you can view the active and inactive connections between the device and the DT modules. The symbol shows the active connection.</p> <ul style="list-style-type: none"> • Black symbol: Connection to the DT modules is inactive. • Green symbol: At least 1 connection to the DT module is active.
	<p>PC connection status</p> <p>Here you can view the active and inactive interfaces between the device and the PC, e.g.:</p> <ul style="list-style-type: none"> • USB • Ethernet • WLAN <p>The symbol shows the active interface.</p> <ul style="list-style-type: none"> • Black symbol: No interface is active. • Green symbol: At least 1 interface is active.




8.1.3 Symbols in the Main Menu

Symbols	Designation
	<p>Home</p> <p>Return directly to the main menu.</p>
	<p>Vehicle Selection</p> <p>Select a vehicle or access the Car History. First select a vehicle to access the following functions depending on the vehicle:</p> <ul style="list-style-type: none"> • Diagnostics • Vehicle Information
	<p>Diagnostics</p> <p>Here you can find vehicle-specific ECU diagnostics, e.g.:</p> <ul style="list-style-type: none"> • Trouble code readout • Parameter readout • Codings
	<p>Vehicle Information</p> <p>Here you can find information regarding the selected vehicle, e.g.:</p> <ul style="list-style-type: none"> • Assistance in finding the installation location of a component • Timing belt and service data • Technical Data • Wiring diagrams • Recall campaigns of vehicle manufacturers and importers
	<p>Measurements</p> <p>This menu contains the 2-channel oscilloscope and the guided measurements with automatic signal evaluation. The 2-channel oscilloscope supports the following measured variables:</p> <ul style="list-style-type: none"> • Voltage • Resistance • Current • Temperature • Pressure
	<p>Applications</p> <p>Here you can find useful applications such as:</p> <ul style="list-style-type: none"> • Calculation of working time on the vehicle • Glossary with explanation of technical terms • E-mail contact to the Hella Gutmann support









Symbols	Designation
	<p>Optional HGS Tools</p> <p>Functions for linked accessory devices are stored here, e.g. for battery diagnostics.</p>
	<p>Settings</p> <p>Configure the device here.</p>



8.1.4 Symbols in the Vehicle Selection Menu

Symbols	Designation
	<p>Preselect the vehicle type</p> <p>Pre-filter the database according to vehicle type:</p> <ul style="list-style-type: none"> • Passenger car • Motorcycle
	
	<p>Vehicle database</p> <p>Select a vehicle from the database, e.g., according to the following criteria:</p> <ul style="list-style-type: none"> • Manufacturer • Type • Year of manufacture • Engine code
	
	<p>Car History</p> <p>Call up the Car History here.</p>
	<p>Display Car History files</p> <p>Call up a list of saved diagnostic data records on a certain vehicle.</p>
	<p>VIN identification</p> <p>Read out the VIN of the vehicle using the OBD plug.</p>
	<p>OBD diagnostics</p> <p>Here you can only start the OBD diagnostics by selecting the vehicle manufacturer and the fuel type.</p>
	<p>Page forward</p> <p>Go one page forward.</p>
	<p>Page back</p> <p>Go one page back.</p>







Symbols	Designation
	<p>Information</p> <p>Here you can call up information regarding the selected vehicle e.g.:</p> <ul style="list-style-type: none"> • Vehicle type • Engine displacement • Output • Engine code
	<p>Update the Car History</p> <p>Update the list of vehicles in the Car History and the vehicle status here.</p>
	<p>Vehicle search in the vehicle database</p> <p>Search for a vehicle in the vehicle database using its VIN, its manufacturer key no. or its license plate number.</p>













8.1.5 Symbols in the Diagnostics Menu



Symbols	Designation
	<p>System information</p> <p>Here you can find information and help texts on the selected system.</p>
	<p>Expand view</p> <p>Here you can call up a print preview with individual trouble codes after a global check of the trouble codes. More detailed information on the individual trouble codes in the systems appears.</p>
	<p>Reduce view</p> <p>Here you can close a print preview after a global check of the trouble codes.</p>
	<p>Sending a Call for Help</p> <p>Contact the Technical Help Line and request data here.</p>
	<p>Selection to the right</p> <p>Add available individual parameters to the selected parameters here.</p>
	<p>Selection to the left</p> <p>Relocate single parameters back to the list of available parameters here.</p>
	<p>Select all</p> <p>Relocate all parameters selected back to the list of available parameters.</p>
	<p>Parameter information</p> <p>Call up detailed information on the selected parameter.</p>

Symbols	Designation
	<p>Parameter selection</p> <p>Return to the parameter list.</p>
	<p>Save parameters</p> <p>Here you can save the automatic recording of the parameters in the Car History.</p>








8.1.6 Symbols in the Vehicle Information Menu

Symbols	Designation
	<p>Car History</p> <p>This menu contains all the work done on vehicles provided that you have entered a license plate number or a keyword for the vehicle selection.</p> <p>The data is saved under the license plate number or keyword entered previously.</p>
	<p>Component help</p> <p>Call up detailed information on certain components, e.g.:</p> <ul style="list-style-type: none"> • Engine compartment image • Component test values • Repair instruction • Component image
	<p>Service data</p> <p>This menu contains vehicle-specific service schedules and oil change intervals.</p>
	<p>Timing belt data</p> <p>This menu contains the removal and installation instructions for timing belts and timing chains.</p>
	<p>Diagnostic Database</p> <p>This menu contains manufacturer and vehicle-specific solutions for various problematic cases.</p> <p>All suggested solutions are from the practice and are retrieved from the Hella Gutmann diagnostics database.</p>
	<p>Technical Data</p> <p>Here you can find all of the data required for service and repair work, e.g.:</p> <ul style="list-style-type: none"> • Timing marks • Wheel alignment data • Spark plug type




Symbols	Designation
	<p>Wiring diagrams</p> <p>This menu contains the wiring diagrams of various vehicle systems e.g.:</p> <ul style="list-style-type: none"> • Engine • ABS • Airbag • Comfort
	<p>Fuses/relays</p> <p>This menu includes the location and function of fuses and relays.</p>
	<p>Component test values</p> <p>This menu contains measurement and test data for components with electrical cables connected to an ECU plug.</p>
	<p>Component selection</p> <p>Here you can select another component.</p>
	<p>Flat rate units</p> <p>This menu contains the common labor rates and flat rates for diverse work on the vehicle including the service of collecting, bringing and towing assistance.</p>
	<p>Exhaust emission data</p> <p>This menu contains the exhaust emission values determined by the manufacturer and the test steps necessary for a German exhaust-emission check.</p>
	<p>Cabin air filter</p> <p>This menu contains the demounting and installation instructions for the cabin air filter.</p>
	<p>Recall campaigns</p> <p>This menu contains the recall campaigns of manufacturers and importers.</p>
	<p>Battery management</p> <p>Here you can test the battery with the BPC-Tool.</p>
	<p>Diesel systems</p> <p>Here you can find the service work for diesel particulate filters.</p>
	<p>Service information</p> <p>This menu contains all the service information required for certain service work e.g.:</p> <ul style="list-style-type: none"> • Electrics • Suspension • Accessory parts
	<p>Repair instructions</p> <p>Here you can call up instructions for different repair work through the Gutmann Portal.</p>

Symbols	Designation
	<p>Manufacturer campaigns</p> <p>Here you can call up vehicle-specific manufacturer campaigns in the Gutmann Portal.</p>
	<p>Component location</p> <p>Here you can access cabin and engine compartment images for a component. The component location is indicated by a red triangle.</p>








8.1.6.1 Symbols in the Car History Menu

Symbols	Designation
	<p>Sending a Call for Help</p> <p>Contact the Technical Help Line and request data here.</p>
	<p>Next step</p> <p>Call up the next step of the help dialog.</p>
	<p>Next entry</p> <p>Here you can call up the next entry in the Car History.</p>
	<p>Previous step</p> <p>Call up the previous step of the help dialog.</p>
	<p>Previous entry</p> <p>Here you can call up the previous entry in the Car History.</p>
	<p>Add data inquiry or symptom</p> <p>Add another data inquiry or a further symptom to a help call.</p>
	<p>Call for help memory</p> <p>View all the stored helps calls here.</p>


8.1.6.2 Symbols in the Component Help Menu

Symbols	Designation
	<p>Search a component</p> <p>Search a certain component by its name in the component help list.</p>
	<p>Search the next component</p> <p>Here you can search for a related entry that corresponds to the entered search pattern.</p>
	<p>Add components to shopping cart</p> <p>Add selected components to the shopping cart.</p>




8.1.6.3 Symbols in Service Data Menu




Symbols	Designation
	Service interval timing belt data Here you can call up the service interval for the timing belt change.
	Flat rate units for service Here you can find the common flat rate units and times (FRUs) for the vehicle service.
	Change to diagnostic database Change directly to the diagnostic database from the service database.
	Component list Here you can call up a list with context-relevant components.
	Additional information Here you can view additional vehicle information about the manufacturer, model, or type.
	Select service interval Here you can find and select the vehicle-specific service intervals of the vehicle.
	Back to flat rate units Here you can return to the general flat rate units and times for the vehicle service.

8.1.6.4 Symbols in the Timing Belt Data Menu


Symbols	Designation
	Service interval timing belt data Here you can call up the service interval for the timing belt change.

8.1.6.5 Symbols in the Wiring Diagram Menu



Symbols	Designation
	Assembly/system selection Here you can return directly to the wiring diagram selection page.
	Switch interactive wiring diagram on/off Here you can switch the interactive wiring diagram on/off.
	Switch the real value display on/off Switch the display of real values on or off here. When the display is switched on, click on a component in order to view the real value. You can view as many real values as you like at the same time.

Symbols	Designation
	<p>Component selection</p> <p>Here you can see an overview of all the components included in the wiring diagram. These are sorted alphabetically and indicated with a colored border in the wiring diagram depending on the selection.</p>
	<p>Indicating/blanking the general view of the wiring diagram</p> <p>If you zoomed the wiring diagram you can view an overview bottom left. If you move the frame in general view you can view the section in the zoomed view.</p>
	<p>Component help</p> <p>This menu contains additional information on the selected component e.g.:</p> <ul style="list-style-type: none"> • Wiring diagrams • Parts information




8.1.6.6 Symbols in the Fuses/Relays Menu

Symbols	Designation
	<p>Fuses/relays for component</p> <p>Here you can view components with fuses/relays in the selected fuse box. These are sorted alphabetically and are indicated with a colored border in the fuse box depending on the selection.</p>


8.1.6.7 Symbols in the Component Test Values Menu

Symbols	Designation
	<p>Component help</p> <p>Call up detailed information on certain components, e.g.:</p> <ul style="list-style-type: none"> • Engine compartment image • Component test values • Repair instruction • Component image
	<p>Component selection</p> <p>This menu returns you to the component test values selection.</p>


8.1.6.8 Symbols in the Flat Rate Units Menu

Symbols	Designation
	NOTICE Steps that are particularly important when performing work steps are emphasized separately here.
	Information Here you can see additional work steps that can arise during work.
	Additional work If applicable, you can see additional work steps that can arise during work here.












8.1.6.9 Symbols in the Battery Management Menu






Symbols	Designation
	Display explanation Here you can call up explanations for the test result and the specialist terms to be used.

8.1.6.10 Symbols in Diesel Systems









Symbols	Designation
	Call up the calculator for diesel systems Here you can perform diesel-specific conversions: <ul style="list-style-type: none"> • Air-mass sensor • Fuel pressure sensor • Common rail injector • Fuel quantity adjuster

8.1.7 Symbols in the Measurements Menu




Symbols	Designation
	<p>Module slot</p> <p>Here the device indicates the module slots in which the individual measurement modules are located.</p>
	<p>Expand Y axis</p> <p>Expand the Y axis to display a larger value range.</p>
	<p>Shorten Y axis</p> <p>Shorten the Y axis to display a smaller value range.</p>
	<p>Expand X axis</p> <p>Expand the X axis to display a larger time frame.</p>
	<p>Shorten X axis</p> <p>Shorten the X axis to display a smaller time frame.</p>
	<p>Saving the measurement</p> <p>Save the performed measurement here.</p>
	<p>Settings</p> <p>Make various settings for signal acquisition and the output of values.</p>
	<p>Adjust cursor</p> <p>Open functions for the cursor setting here:</p> <ul style="list-style-type: none"> • Cursor position • Measuring Signals • Cursor settings
	<p>Trigger</p> <p>Open the functions for the trigger setting. The trigger fixes a voltage point of the signal and always displays that point at the same position on the monitor. The trigger enables the human eye to see a still image.</p>
	<p>Set measuring ranges</p> <p>Open functions for the measuring range setting here e.g.:</p> <ul style="list-style-type: none"> • Measuring range calibration • Zero line shifting • Automatic setting of measuring range (Auto Set)
	<p>Previous page</p> <p>Return to the previous page.</p>

Symbols	Designation
	Measured data folder View all the measurements stored manually here.
 	Display and stop saved measurements View or stop a saved measurement here. If you restart after a stop, it will continue at the point at which it was stopped.
	Stop a saved measurement Stop the display of a saved measurement here. If you start the measurement again after a stop, it will start over.
	Start the measurement Change from the display of a stored measurement directly to >Oscilloscope< .








8.1.7.1 Symbols in the Cursor Settings Menu



Symbols	Designation
   	Place the cursor Here you can move the cursor.
	Measuring Signals Use these keys to set the current x and y cursor position as start mark to the signal so that a signal range can be measured afterwards.
	Cursor settings Use these keys to set the cursor speed.
	Expand X axis Expand the X axis to display a larger time frame.
	Reduce X axis Shorten the X axis to display a smaller time frame.

8.1.7.2 Symbols in the Trigger Menu






Symbols	Designation
	Place the trigger Move the trigger here.
	Set the trigger level Set the trigger level here.
	Trigger settings Perform the following trigger settings: <ul style="list-style-type: none"> • Trigger channel • Trigger mode • Trigger edge • Trigger level

8.1.7.3 Setting Symbols in the Measurements Menu



Symbols	Designation
	Current value View the currently measured value here.
	Minimum value View the minimum value of the entire measuring process here.
	Maximum value View the maximum value of the entire measuring process here.
	Peak-to-peak value View the maximum distance between the upper and lower signal peak of the entire measuring process.
	Frequency View the signal frequency here.
	Period duration View the duration of a signal period here.
	On/off ratio Here you can view the percentage signal-to-noise relation (duty cycle) of the time the signal is switched on and switched off. One signal period is 100 %. This indication mode is suitable for square wave signals only.







Symbols	Designation
	Top pulse width View the duration of the top signal amplitude here.
	Lower pulse width View the duration of the lower signal amplitude here.

8.1.7.4 Symbols in the Measuring Range Menu




Symbols	Designation
	Zero line up Move the zero line for the measuring range up. This increases the size of the negative measuring range and larger negative voltages can be measured and displayed.
	Zero line down Move the zero line for the measuring range down. This increases the positive measuring range and enables the measurement and indication of higher positive voltage values.
	Measuring range calibration Set the voltage curve on the zero line. In this way, you can compensate for interference voltages and measuring range tolerances.
	Set value windows to zero position Here you can set the following value windows to zero simultaneously so that only future values will be taken into account: <ul style="list-style-type: none"> • Minimum • Maximum • Peak-to-peak
	Auto Set Analyze the incoming signal once and automatically set the ideal measuring range. If the measurement signal changes during the ongoing measurement, the Auto Set function does <i>not</i> correct the measuring range automatically. Start the Auto Set function again to have the measuring range adapted automatically.

8.1.8 Symbols in the Applications Menu



Symbols	Designation
	Calculator Perform general calculations here.
	Emission diagnostics Entering emission values measured with the exhaust-gas analyzer and check for possible faults in the engine system.

Symbols	Designation
	<p>List of alternatives</p> <p>Here you can search for alternatives that are identical in design, including the following components:</p> <ul style="list-style-type: none"> • Oil filter • Air filter • Gasoline filter • Glow plugs • Spark plugs
	<p>Glossary</p> <p>The glossary explains automotive technical terms, abbreviations and components.</p>
	<p>Pass Thru</p> <p>Here you can use PassThru as interface to transmit the latest software updates of the manufacturers to the vehicle's ECUs.</p>
	<p>Calculations</p> <p>Here you can perform the the following conversions:</p> <ul style="list-style-type: none"> • Fuel consumption • Piston speed • Current/power output/resistance • Conversion of technical units
	<p>Cost estimate</p> <p>Prepare vehicle-specific cost estimates for the repair time and the costs to be expected.</p>
	<p>E-mail</p> <p>Here you can send a written request or message of any nature to the Hella Gutmann support.</p>






8.1.8.1 Symbols in the Emission Diagnostics Menu

Symbols	Designation
	<p>Search</p> <p>Search for components and abbreviations via search term.</p>
	<p>Component information</p> <p>Here you can find explanations to the selected component or the selected abbreviation.</p>
	<p>Evaluation received</p> <p>Here you can evaluate the mixture composition.</p>





8.1.8.2 Symbols in the Glossary



Symbols	Designation
	Search Search for components and abbreviations via search term.
	Component information Here you can find explanations to the selected component or the selected abbreviation.

8.1.8.3 Symbols in the Cost Estimate Menu





Symbols	Designation
	Add a cost estimate Add a new cost estimate or another category of an existing cost estimate.
	Save cost estimate Save the present cost estimate with any changes.
	Add works Add necessary working steps of the currently opened cost estimate.
	NOTICE Steps that are particularly important when performing work steps are emphasized separately here.
	Additional work Here you can see additional work steps that can arise during work.

8.1.8.4 Symbols in the E-Mail Menu




Symbols	Designation
	Answer Answer an e-mail directly.
	Write new e-mail Here you can write a new e-mail to the Hella Gutmann Technical Help Line.
	Refreshing messages Refresh the overview of e-mails and help calls.
	Inbox Indication of received e-mails.




Symbols	Designation
	Sent e-mails Indication of sent e-mails.
	Deleting e-mails/Junk mail Delete e-mails or get an overview of deleted e-mails.

8.1.9 Symbols in the Settings Menu



Symbols	Designation
	Add user Here you can add a new user to the list of users. The respective user name is saved for all data stored in the Car History. This enables quicker identification of the mechanic who performed the repair work if a query is subsequently made.
	Start diagnostics Here you can start a connection test of the prevailing interface.
	Find and configure wireless network Search for wireless networks and make the necessary settings here. Searching for the Bluetooth Adapter Here you can search for the Bluetooth adapter. Checking the Battery Status Here you can check the device's internal battery for criteria including: <ul style="list-style-type: none"> • Battery state of charge • Temperature • Battery voltage
	Language management Uses this symbol to set language-specific keypad layouts and to delete installed languages.

8.1.10 Symbols on the Virtual Keypad

Symbols	Designation
	Copy/paste Here you can copy text into the clipboard or paste text from the clipboard.
	Insert special characters Use this symbol to insert special characters into the text.
	Select the keypad Here you can select and manage the country-specific keypads.

Symbols	Designation
	Manage keypad languages Here you can select language-specific and country-specific keypads.
	Add keypad to list Here you can add country-specific keypads from the Available keypads list to the Keypad list.
	Remove keypad from list Here you can remove country-specific keypads from the Keypad list.


8.1.11 Symbols in the Manual

Symbols	Designation
	Search for entries Here you can search for certain words.
	Search for next entry Here you can search for a related entry that corresponds to the entered search pattern.





8.2 Vehicle Selection

Here you can select vehicles according to the following parameters:

- Vehicle type
- Manufacturer
- Model
- Fuel type

	NOTE You require an online connection if you wish to access all available information.
---	--


Proceed as follows to select a vehicle:

1. Select **>Vehicle selection<** in the main menu.
2. Select **>i<**.
3. Activate the check box  for passenger cars or  for motorcycles.
4. Select **Vehicle database** with  or .
5. Select the requested manufacturer.
6. Select the requested fuel type.
7. Select the requested model.


- Double-click to the requested vehicle type.
The **Vehicle data** menu appears.

Here you can enter either the license plate number or the customer name (max. 10 characters).

- Open the virtual keypad with .

	<p>NOTE</p> <p>If you do not enter a license plate number or the customer name, the device does not store any data of the current vehicle in the Car History.</p> <p>One license plate number or customer name can be used for several vehicles.</p>
---	---


- Enter the license plate number or customer name.


- Click  twice to confirm the input.
The input will be saved automatically.

Vehicle selection is now ready for **>Diagnostics<**, **>Vehicle data<**, and **>Optional HGS Tools<**, and the data will be stored in the **>Car History<**.

The device will then automatically switch back to the main menu.

8.2.1 Identifying a Vehicle by VIN

	<p>NOTE</p> <p>The VIN cannot be read out via the OBD for every vehicle.</p>
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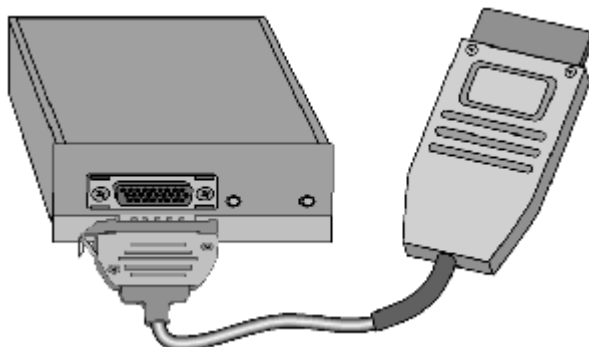
	<p>NOTICE</p> <p>Danger of short circuit and voltage peaks when connecting the diagnostic plug and the OBD plug</p> <p>Danger of destruction of automotive electronics</p> <p>Switch off ignition before connecting the diagnostic plug and the OBD plug to the vehicle.</p>
---	---

Proceed as follows to identify a vehicle by VIN:

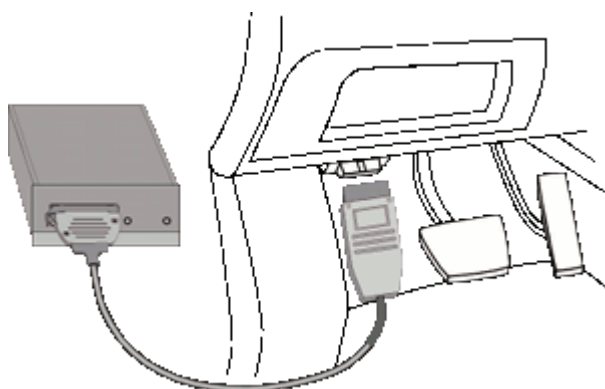
- Take the diagnostic module DT 66 out of the mega macs 66.









2. Insert the ST2 connector into the ST2 socket of the DT 66.



3. Insert the OBD plug into the vehicle's diagnostic connector and place the DT 66 inside the vehicle cabin.



4. Select **>Vehicle selection<** in the main menu.
5. Select **>i<**.
6. Activate the check box  for passenger cars or  for motorcycles.
7. Select **VIN identification** with .
8. Select the requested manufacturer.
9. Confirm the selection with .
Data download is in progress. Communication with the vehicle is established.
10. Regard the window with infos and instructions.
The message *VIN could not be read out* appears if the VIN could not be read out.
11. Confirm the window with infos and instructions with  where necessary.
12. Repeat steps 7 to 9 where necessary.
13. Confirm the window with infos and instructions with .
Communication to vehicle is being established. A drop-down list appears.
The corresponding vehicles are selected from the database.
14. Double-click the required vehicle to select.
15. Perform steps 8 to 11 as described in the section **Vehicle selection (Page 71)**.


8.2.2 Vehicle search

Here you can search for vehicles in the vehicle database using the following parameters:








- Manufacturer key
- VIN
- License plate number

8.2.2.1 Country-Specific Search of Vehicle


The country-specific vehicle search determines the vehicle type depending on the country using various search criteria, such as license plate number or manufacturer key.

	<p>NOTE</p> <p>The country-specific vehicle search is only possible in the following countries:</p> <ul style="list-style-type: none"> • Germany • Denmark • Finland • France • Ireland • Netherlands • Norway • Sweden • Switzerland • Austria
---	--







Proceed as follows to search for a vehicle by country:

1. Select **>Vehicle selection<** in the main menu.
2. Select **>i<**.
3. Activate the check box  for passenger cars or  for motorcycles.
4. Select **Vehicle search** with .
5. Select **>Country-specific<**.
6. Open list under **Country** with .
7. Select the requested country.
The search criteria are adapted on a country-specific basis.
8. Open the virtual keypad on the first search criterion with .
9. Enter the requested value.
10. Confirm your entry with .
11. Repeat steps 8 to 10 for the second search criterion where necessary.
12. Start the country-specific search with .
Data download is in progress. The corresponding vehicles are selected from the database.
A drop-down list appears.
13. Double-click the required vehicle to select.
14. Perform steps 8 to 11 as described in the section **Vehicle selection (Page 71)**.


8.2.2.2 Searching a Vehicle by VIN

	<p>NOTE</p> <p>Searching a vehicle by its VIN is not possible for every manufacturer.</p>
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Proceed as follows to search a vehicle by VIN:

1. Select **>Vehicle selection<** in the main menu.
2. Select **>i<**.
3. Activate the check box  for passenger cars or  for motorcycles.
4. Select **Vehicle search** with .
5. Select **>VIN<**.
6. Open the list under **Manufacturer (VIN)** with .
7. Select the requested manufacturer.
8. Open the virtual keypad under **VIN (at least 1. to 13. digit)** with .
9. Enter the VIN.
10. Click  twice to confirm the input.
Data download is in progress. The corresponding vehicles are selected from the database.
A drop-down list appears.
11. Double-click the required vehicle to select.
12. Perform steps 8 to 11 as described in the section **Vehicle selection (Page 71)**.

8.2.2.3 Searching a Vehicle By License Plate Number

	<p>NOTE</p> <p>Vehicle search by license plate number is possible only for the following countries:</p> <ul style="list-style-type: none"> • Denmark • France (type mine) • Ireland • Netherlands • Norway • Austria (national code) • Sweden • Switzerland (type approval number)
---	---

Proceed as follows to search for a vehicle according to its license plate number:

1. Select **>Vehicle selection<** in the main menu.
2. Select **>i<**.
3. Activate the check box  for passenger cars or  for motorcycles.
4. Select **Vehicle search** with .
5. Select **>Car History<**.
6. Open the virtual keypad under **License plate number** with .



7. Enter the license plate number or customer name.
8. Click ✓ twice to confirm the input.
Data download is in progress. The corresponding vehicles are selected from the database.
A drop-down list appears.
9. Double-click the required vehicle to select.
10. Perform steps 8 to 11 as described in the section **Vehicle selection (Page 71)**.

8.3 OBD diagnostics

Switch to the OBD diagnostics directly only by selecting the vehicle manufacturer and the fuel type.

8.3.1 Performing an OBD Diagnostics Quick Start

Proceed as follows to perform an OBD diagnostics quick start:

1. Select **>Vehicle selection<** in the main menu.
2. Select **>i<**.
3. Select **OBD diagnostics** with .
4. Select the requested manufacturer.
5. Select the requested fuel type.
6. Select the requested system.
7. Confirm the selection with .
8. Observe the info window.
9. Confirm the info window with ✓ if appears.
The diagnostics start.

8.4 Diagnostics

Here you can exchange data between device and the vehicle systems that have to be checked. The respective scope of inspection and variety of functions depend on the "intelligence" of the vehicle system.

The following parameters are available under **>Diagnostics<**:

- **>Trouble codes<**

Here you can read out and delete trouble codes stored in the ECU memory. Information on the fault code are available too.

- **>Measured value<**

Here the device indicates the present flat rate units or states of the ECU graphically and alphanumerically.

- **>Actuators<**

Here you can activate actuators with the help of the ECU.

- **>Service reset<**

Here you can reset the service interval manually or automatically.

- **>Basic settings<**

Here you can assign basic setting values to ECUs and actuators.

- **>Codings<**

Here you can code tasks to actuators and ECUs and you can adapt new components to the vehicle.

- **>Test function<**

Here the device evaluates and depicts the performance of the individual cylinders.


8.4.1 Preparing Vehicle Diagnostics

The selection of the correct vehicle is a basic precondition for trouble-free vehicle diagnostics. The device provides assistance to simplify the selection, e.g. indicating the installation position of the diagnostic connector or vehicle identification by VIN.

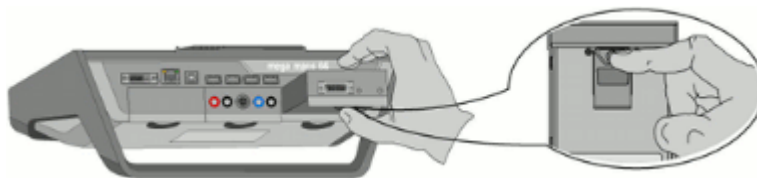
The following ECU functions are possible in the **>Diagnostics<** menu:

- Trouble code readout
- Parameter readout
- Actuator tests
- Service reset
- Basic settings
- Codings
- Test function

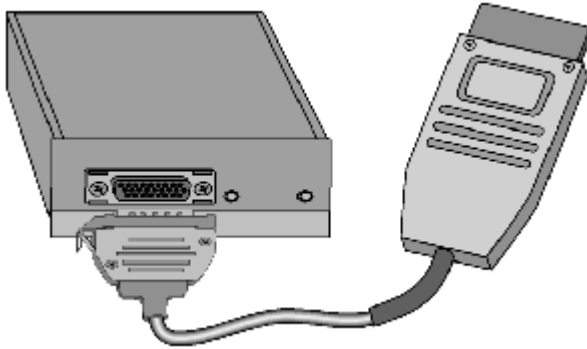
Proceed as follows to prepare vehicle diagnostics:

	<p>NOTICE</p> <p>Danger of short circuit and voltage peaks when connecting the diagnostic plug and the OBD plug</p> <p>Danger of destruction of automotive electronics</p> <p>Switch off ignition before connecting the diagnostic plug and the OBD plug to the vehicle.</p>
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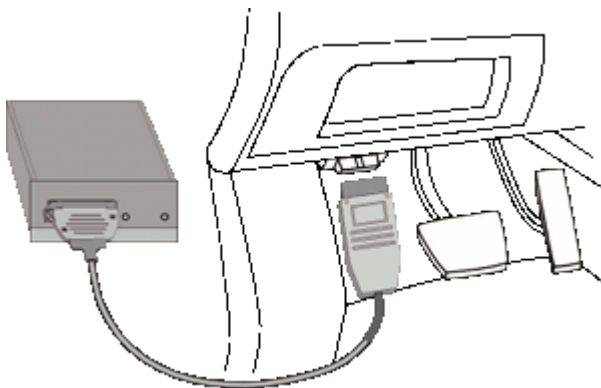
1. Take the diagnostic module (DT 66) out of the mega macs 66.



2. Insert the ST2 connector into the ST2 socket of the DT 66.



3. Insert the OBD plug into the vehicle's diagnostic connector and place the DT 66 inside the vehicle cabin.





4. Perform steps 1 to 11 as described in the section **Vehicle selection (Page 71)**.
5. Select **>Diagnostics<** in the main menu.
Now you can select the type of diagnostics.


8.4.2 Trouble codes

If a component malfunction is detected while ECU carries out an internal test, a trouble code will be set in memory and the corresponding warning lamp will be activated. The device reads out the trouble code and displays it in plain text. It also indicates information about the trouble code, such as possible effects and causes. A link to the measurements is available if measuring is required to detect potential fault reasons.

8.4.2.1 Reading Out Trouble Codes

	<p>CAUTION</p> <p>Pulling off of the OBD plug when operating the clutch Risk of injury or material damage</p> <p>Proceed as follows before starting:</p> <ol style="list-style-type: none"> 1. Apply the parking brake. 2. No gear is engaged. 3. Regard the window with infos and instructions.
	<p>NOTE</p> <p>The selection of the following possibilities depends on the selected manufacturer and vehicle type:</p> <ul style="list-style-type: none"> • Functions • Assemblies • Systems • Data

Proceed as follows to read out the trouble codes:

1. Perform steps 1 to 5 as described in section **Preparing Vehicle Diagnostics (Page 77)**.
2. Select **Trouble codes** under **> Function**.
3. Select the requested assembly.
4. Observe the information and instructions windows.
5. Select the requested system.
When only one system is available for a vehicle, then the device selects this system automatically.
6. Observe the info window.
7. Select further sub-categories where necessary.
8. Call up the **>Information<** tab.
9. Follow the instructions on the screen.
10. Start trouble code reading with 
Communication to vehicle is being established. All trouble codes read out are indicated.

11. Select the requested trouble code.
Corresponding repair tips are indicated.

The repair tips contain the following information:

- Trouble code number, original trouble code number in addition where necessary
- Title of trouble code
- Explanation of the function and task of the component
- Vehicle-specific data e.g. wiring diagrams
- Possible effects
- Possible causes, when, and under which conditions the trouble occurred, and when it was saved.
- General diagnostic information regardless of the vehicle type and which does not always apply to the present problematic case.


12. Repair the vehicle. Then clear the saved trouble codes from the vehicle system.


8.4.2.2 Deleting Trouble Codes in Vehicle System

Here you can delete the read-out trouble codes of a vehicle system.

Proceed as follows to delete the trouble codes of a vehicle system:

1. Perform steps 1 to 12 as described in the section **Reading out trouble codes (Page 79)**.


	<p>NOTE</p> <p>All trouble codes selected will be irrevocably deleted from the ECU memory after the deletion process.</p> <p>Therefore, always save the read-out data read in the Car History.</p>
---	---


2. Clear the saved trouble codes from the vehicle system with .
All trouble codes in the ECU memory will be cleared.


The message *Trouble code deletion done* appears if the trouble codes have been cleared successfully.

8.4.2.3 Global Check, Reading Trouble Codes




The global check scans all ECUs assigned to the vehicle software for stored trouble codes.

	<p>CAUTION</p> <p>Pulling off of the OBD plug when operating the clutch</p> <p>Risk of injury or material damage</p> <p>Proceed as follows before starting:</p> <ol style="list-style-type: none"> 1. Apply the parking brake. 2. No gear is engaged. 3. Regard the window with infos and instructions.
---	---

	<p>NOTE</p> <p>The stored trouble codes cannot be retrieved any more after global check with trouble code deletion. Therefore, it is recommended to perform the global check with trouble code reading first.</p>
---	--


	<p>NOTE</p> <p>The selection of the following possibilities depends on the selected manufacturer and vehicle type:</p> <ul style="list-style-type: none"> • Functions • Assemblies • Systems • Data
---	--

Proceed as follows to perform the global check with trouble code reading:

1. Perform steps 1 to 5 as described in section **Preparing Vehicle Diagnostics (Page 77)**.
2. Select **Trouble codes** under **> Function**.
3. Select **>Global check<**.
4. Call up the **>Information<** tab.
5. Follow the instructions on the screen.
6. Call up the ECU overview with .
7. Select further sub-categories where necessary.
The device indicates all ECUs installed in the vehicle.
The device automatically activates all ECUs.
Deactivate all ECUs with
Activate all ECUs with .
8. Activate/deactivate the requested ECUs.
9. Start the global check with trouble code reading with 
Communication to vehicle is being established.
Activated ECUs are read out. This may take a few minutes.
The number of trouble codes in the prevailing ECU memory is indicated.
You can call up a print preview with a list of the individual trouble codes for the respective ECU with **+**.
You can close the print preview with a list of the individual trouble codes for the respective ECU with **-**.
10. Call up the required trouble codes under **Faults** in the respective ECU memory with 
The device indicates all trouble codes and repair tips.


8.4.2.4 Global Check, Trouble Code Clearing




Here you can clear all the trouble codes stored in the ECUs.

	<p>NOTE</p> <p>The stored trouble codes cannot be retrieved any more after global check with trouble code deletion. Therefore, it is recommended to perform the global check with trouble code reading first.</p>
---	--

Proceed as follows to perform the global check with trouble code deletion:

1. Perform steps 1 to 10 as described in the section **Global check, trouble code reading (Page 80)**.

	<p>NOTE</p> <p>Clearing all trouble codes in all vehicle systems is possible only if all systems can be read out with the same OBD plug.</p>
---	---

2. Delete all trouble codes in the bottom toolbar with .
3. Regard the window with infos and instructions.
4. Confirm the window with infos and instructions with .
5. Observe the info window.
6. Confirm the info window with .
All saved trouble codes will be deleted.

8.4.3 Parameters

Many of the on-board systems supply digital measured values in the form of parameters for fast diagnostics. Parameters indicate the present state or nominal and actual values of the components. The device displays the parameters alphanumerically and graphically.

Example 1

The engine temperature can be within a range of -30 °C to 120 °C.

If the temperature sensor reports 9 °C but the engine actually has a temperature of 80 °C, the ECU calculates an incorrect injection time.

A trouble code is not stored, as this temperature is logical for the ECU.


Example 2


Fault text: *Oxygen sensor signal faulty*


In both cases, diagnostics can be significantly eased if the corresponding parameters are read out.

The mega macs 66 reads the parameters and displays them in plain text. It additionally provides information on the parameters.



8.4.3.1 Reading Out Parameters

	<p>CAUTION</p> <p>Pulling off of the OBD plug when operating the clutch</p> <p>Risk of injury or material damage</p> <p>Proceed as follows before starting:</p> <ol style="list-style-type: none"> 1. Apply the parking brake. 2. No gear is engaged. 3. Regard the window with infos and instructions.
---	---

	<p>NOTE</p> <p>Calling up the ECU parameters for the fault diagnostics after the trouble codes have been read has priority over all other work steps.</p>
---	--


	<p>NOTE</p> <p>The selection of the following possibilities depends on the selected manufacturer and vehicle type:</p> <ul style="list-style-type: none"> • Functions • Assemblies • Systems • Data
---	--

Proceed as follows to read out the parameters:

1. Perform steps 1 to 5 as described in section **Preparing Vehicle Diagnostics (Page 77)**.
2. Select **Parameters** under **> Function**.
3. Regard the warning notice.
4. Select the requested assembly.
5. Regard the warning notice if appears.
6. Select the requested system.
7. Observe the information and instructions windows.
8. Call up the **>Information<** tab.
9. Follow the instructions on the screen.
10. Call up the parameter with .
11. Select the OBD plug and system.
12. Regard the window with infos and instructions.
13. Confirm the window with infos and instructions with .

Communication to vehicle is being established. A drop-down list appears.

The device automatically adds the most important parameters to the list **Selected parameters**.

Use  in the bottom toolbar to call up information on the selected parameters in the parameter selection menu, e.g. component descriptions.

An explanation of the selected parameter appears.

14. Select the requested parameter group under **Groups**.


Diagnose a certain problematic case directly by selecting a parameter group, as only the parameters required for it are stored.



15. Select additionally required parameters in the list **Available parameters** by double-clicking if required.

You can select maximum 16 parameters at the same time.

16. Start the parameter reading with .

During the readout procedure, the recordings are automatically saved in the Car History under the previously entered license plate number.




	<p>NOTE</p> <p>A light blue bar in the top toolbar indicates how much of the memory space reserved for this purpose in the Car History has been used. If the blue bar is complete, the first data of the present measurement will be removed from the memory and the free capacity is filled with new data.</p>
---	--

17. Press  to cache the records of the selected parameters.
The recordings are saved in the Car History.
The parameter readout will start again afterwards.
18. Return to the list of parameter selection with .

8.4.4 Actuators



Use this menu to activate components in electronic systems. You are hence able to check basic functions and cable connections of those components.



8.4.4.1 Activating the Actuator


	<p>DANGER</p> <p>Rotating/moving parts (electric fan, brake calliper piston, etc.) Danger of cutting or pinching fingers or device parts Remove the following things from the danger zone before actuating actuators:</p> <ul style="list-style-type: none"> • Limbs • Persons • Device parts • Cables
	<p>CAUTION</p> <p>Pulling off of the OBD plug when operating the clutch Risk of injury or material damage Proceed as follows before starting:</p> <ol style="list-style-type: none"> 1. Apply the parking brake. 2. No gear is engaged. 3. Regard the window with infos and instructions.
	<p>NOTE</p> <p>The selection of the following possibilities depends on the selected manufacturer and vehicle type:</p> <ul style="list-style-type: none"> • Functions • Assemblies • Systems • Data

Proceed as follows to activate the actuator:

1. Perform steps 1 to 5 as described in section **Preparing Vehicle Diagnostics (Page 77)**.
2. Select **Actuators** under **> Function**.
3. Select the requested assembly.
4. Regard the warning notice if appears.
5. Select the requested system.

6. Observe the info window.
7. Call up the **>Information<** tab.
8. Follow the instructions on the screen.
9. Start the actuator test with .
10. Select the OBD plug and system.
11. Regard the window with infos and instructions.
12. Confirm the window with infos and instructions with .
Communication to vehicle is being established.
13. Activate the check box for the requested component.

	NOTE If the vehicle offers the automatic actuator test, all ECUs and actuators connected to them will be automatically actuated one after the other.
	NOTE The actuator test of a component must be finished completely first before the next test can be started.



14. Observe the info window.
15. Follow the on-screen instructions.
16. Confirm the info window with .
17. Push the button indicated.
The actuator test is performed.

The message *Actuator test successfully done* appears if the actuator test was successful.



8.4.5 Service reset

Use this menu to reset service intervals provided that this function is supported by the vehicle. The device performs the resets either automatically or you find a description for the manual reset procedure.



8.4.5.1 Performing Manual Service Resets

	<p>CAUTION</p> <p>Pulling off of the OBD plug when operating the clutch</p> <p>Risk of injury or material damage</p> <p>Proceed as follows before starting:</p> <ol style="list-style-type: none"> 1. Apply the parking brake. 2. No gear is engaged. 3. Regard the window with infos and instructions.
	<p>NOTE</p> <p>The selection of the following possibilities depends on the selected manufacturer and vehicle type:</p> <ul style="list-style-type: none"> • Functions • Assemblies • Systems • Data




Proceed as follows to perform the manual service reset:

1. Perform steps 1 to 5 as described in section **Preparing Vehicle Diagnostics (Page 77)**.
2. Select **Service resets** under **> Function**.
3. Select the requested system.
4. Observe the info window.
5. Call up the **>Information<** tab.
6. Follow the instructions on the screen.
7. Start the manual service reset with .
8. Select the OBD plug in the subsystem where necessary.
9. Regard the window with infos and instructions.
10. Follow the instructions on the screen.
11. Confirm the performed service reset with .

8.4.5.2 Performing Automatic Service Resets

	<p>CAUTION</p> <p>Pulling off of the OBD plug when operating the clutch</p> <p>Risk of injury or material damage</p> <p>Proceed as follows before starting:</p> <ol style="list-style-type: none"> 1. Apply the parking brake. 2. No gear is engaged. 3. Regard the window with infos and instructions.
	<p>NOTE</p> <p>The selection of the following possibilities depends on the selected manufacturer and vehicle type:</p> <ul style="list-style-type: none"> • Functions • Assemblies • Systems • Data

Proceed as follows to perform the automatic service reset:

1. Perform steps 1 to 5 as described in section **Preparing Vehicle Diagnostics (Page 77)**.
2. Select **Service resets** under **> Function**.
3. Select the requested system.
4. Observe the info window.
5. Call up the **>Information<** tab.
6. Follow the instructions on the screen.
7. Start the automatic service reset with .
8. Select the OBD plug and subsystem where necessary.
9. Regard the window with infos and instructions.
10. Confirm the window with infos and instructions with .
Communication to vehicle is being established. The service reset will be done automatically.
The message *Service interval reset* appears if the service reset was successful.
11. Confirm the info window with .

8.4.6 Basic settings




Here you can adjust or adapt components and ECUs according to manufacturer's specifications.

8.4.6.1 Preconditions for Basic Settings

Regard the following in order to perform basic settings:



- Vehicle system is working properly.
- No trouble codes saved in ECU memory
- Vehicle-specific preparations performed.

8.4.6.2 Performing Manual Basic Settings




	<p>WARNING</p> <p>Wrong or incorrectly performed basic settings Risk of injury or material damage to vehicles</p> <p>Regard the following when performing basic settings:</p> <ul style="list-style-type: none"> • Select the correct vehicle type. • Regard the window with infos and instructions.
	<p>CAUTION</p> <p>Pulling off of the OBD plug when operating the clutch Risk of injury or material damage</p> <p>Proceed as follows before starting:</p> <ol style="list-style-type: none"> 1. Apply the parking brake. 2. No gear is engaged. 3. Regard the window with infos and instructions.
	<p>NOTE</p> <p>The selection of the following possibilities depends on the selected manufacturer and vehicle type:</p> <ul style="list-style-type: none"> • Functions • Assemblies • Systems • Data

Proceed as follows to perform the manual basic setting:


1. Perform steps 1 to 5 as described in section **Preparing Vehicle Diagnostics (Page 77)**.
2. Select **Basic settings** under **> Function**.
3. Select the requested assembly.
4. Select the requested system.
5. Observe the information and instructions windows.
6. Call up the **>Information<** tab.

7. Follow the instructions on the screen.
8. Start the manual basic setting with .
9. Regard the window with infos and instructions.
10. Follow the instructions on the screen.
11. Confirm the performed basic setting with .

8.4.6.3 Performing Automatic Basic Settings

	<p>WARNING</p> <p>Wrong or incorrectly performed basic settings Risk of injury or material damage to vehicles</p> <p>Regard the following when performing basic settings:</p> <ul style="list-style-type: none"> • Select the correct vehicle type. • Regard the window with infos and instructions.
	<p>CAUTION</p> <p>Pulling off of the OBD plug when operating the clutch Risk of injury or material damage</p> <p>Proceed as follows before starting:</p> <ol style="list-style-type: none"> 1. Apply the parking brake. 2. No gear is engaged. 3. Regard the window with infos and instructions.
	<p>NOTE</p> <p>The selection of the following possibilities depends on the selected manufacturer and vehicle type:</p> <ul style="list-style-type: none"> • Functions • Assemblies • Systems • Data

Proceed as follows to perform the automatic basic setting:




1. Perform steps 1 to 5 as described in section **Preparing Vehicle Diagnostics (Page 77)**.
2. Select **Basic settings** under **> Function**.
3. Select the requested assembly.
4. Select the requested system.
5. Observe the information and instructions windows.
6. Call up the **>Information<** tab.
7. Follow the instructions on the screen.
8. Start the automatic basic setting with .
9. Regard the window with infos and instructions.

10. Confirm the window with infos and instructions with ✓.
Communication to vehicle is being established.
 11. Select further sub-categories where necessary.
 12. Confirm the selection with ✓.
 13. Regard the window with infos and instructions.
 14. Confirm the window with infos and instructions with ✓.
Communication to vehicle is being established. Basic settings are made automatically.
- The message *Basic setting successfully done* appears if the basic setting was successful.

8.4.7 Codings



Here you can code components and ECUs. Codings are necessary, if components were replaced or additional functions in an electronic system must be activated.

8.4.7.1 Performing Manual Coding Procedures




	<p>WARNING</p> <p>The ECU is not coded or is incorrectly coded</p> <p>Risk of death or serious injury as a result of the ECU not working or working incorrectly</p> <p>Material damage of the vehicle or the ambient area</p> <p>Regard the following when performing coding procedures:</p> <ul style="list-style-type: none"> • Some working procedures require a specific training e.g. workings on the airbag. • Regard the window with infos and instructions.
	<p>CAUTION</p> <p>Pulling off of the OBD plug when operating the clutch</p> <p>Risk of injury or material damage</p> <p>Proceed as follows before starting:</p> <ol style="list-style-type: none"> 1. Apply the parking brake. 2. No gear is engaged. 3. Regard the window with infos and instructions.
	<p>NOTE</p> <p>The selection of the following possibilities depends on the selected manufacturer and vehicle type:</p> <ul style="list-style-type: none"> • Functions • Assemblies • Systems • Data

Proceed as follows to perform manual coding:

1. Perform steps 1 to 5 as described in section **Preparing Vehicle Diagnostics (Page 77)**.



2. Select **Codings** under **> Function**.
3. Select the requested assembly.
4. Select the requested system.
5. Observe the info window.
6. Call up the **>Information<** tab.
7. Follow the instructions on the screen.
8. Start the manual coding with .
9. Regard the window with infos and instructions.
10. Follow the instructions on the screen.
11. Confirm the coding performed with .

8.4.7.2 Performing Automatic Coding Procedures

	<p>WARNING</p> <p>The ECU is not coded or is incorrectly coded</p> <p>Risk of death or serious injury as a result of the ECU not working or working incorrectly</p> <p>Material damage of the vehicle or the ambient area</p> <p>Regard the following when performing coding procedures:</p> <ul style="list-style-type: none"> • Some working procedures require a specific training e.g. workings on the airbag. • Regard the window with infos and instructions.
	<p>CAUTION</p> <p>Pulling off of the OBD plug when operating the clutch</p> <p>Risk of injury or material damage</p> <p>Proceed as follows before starting:</p> <ol style="list-style-type: none"> 1. Apply the parking brake. 2. No gear is engaged. 3. Regard the window with infos and instructions.
	<p>NOTE</p> <p>The selection of the following possibilities depends on the selected manufacturer and vehicle type:</p> <ul style="list-style-type: none"> • Functions • Assemblies • Systems • Data

Proceed as follows to perform an automatic coding procedure:

1. Perform steps 1 to 5 as described in section **Preparing Vehicle Diagnostics (Page 77)**.
2. Select **Codings** under **> Function**.
3. Select the requested system.

4. Observe the info window.
5. Call up the **>Information<** tab.
6. Follow the instructions on the screen.
7. Start automatic coding with .
Communication to vehicle is being established.
8. Regard the window with infos and instructions.
9. Confirm the window with infos and instructions with .
Coding is performed automatically.

The message *Coding successfully done* appears if the coding process was successful.

8.5 Vehicle Information

Here you have an overview of the following vehicle information:

- Car History

Here you will find the diagnostic results.

- Component help

Here you can find the components that are installed in the selected vehicle. The following are available:


- Components relevant for diagnostics

Here you can find the components that are installed in the selected vehicle and relevant for diagnostic work.

- Parts catalog

Here you can find the components that are installed in the selected vehicle. There are also additional information on the component and you can jump to related data.

- Service data

This menu contains vehicle-specific service schedules. Use  to call up various information about the service-relevant components such as parts information. The **Parts information** menu provides information about the selected component as well as alternatives that are identical in design. In the **Engine compartment image** menu, the component location is indicated with a red arrow. This facilitates the identification of the requested component. The **Fuses/relays** menu indicates the location of the main fuse box, the fuse box and the relay box in the vehicle depending on the selection.

- Timing belt data

Here you can retrieve the tools required for repairing the timing belt, as well as the vehicle-specific removal and installation instructions via the Gutmann Portal.

- Diagnostic Database

Here you can retrieve vehicle-specific online assistance via the Gutmann Portal.

- Technical Data

View all the necessary data for service and repair work on the vehicle here.

- Wiring diagrams

Here you can find the vehicle-specific wiring diagrams such as for engine, ABS and airbag.

- Fuses/relays

Here you can view the installation position of the main fuse box, the fuse box and the relay box as well as the individual fuses.

- Component test values

The following is displayed here:

- ECU plug

- Pin assignment

- Signal graphs

- Nominal values

- Flat rate units

View the common labor rates and times for repair work on different components. The sub-categories supplied within a selection can be filtered with the help of TecDoc criteria.

- Exhaust Emission Data

This menu contains the exhaust emission values determined by the manufacturer and the test steps necessary for a German exhaust-emission check.


- Cabin Air Filter
Here you can find the removal instructions for the cabin air filter.
- Recall campaigns
This menu contains the recall campaigns of manufacturers and importers.
- Battery management
Here you will find removal and installation instructions as well as general information on the battery.
- Diesel systems
This menu contains technical data and additional information about servicing Diesel systems.
- Service information
This menu contains information about servicing various vehicle systems.
- Repair instructions
Here you can call up instructions for different repair work through the Gutmann Portal.
- Manufacturer Campaigns
Here you can call up vehicle-specific manufacturer campaigns through the Gutmann Portal.

8.5.1 Car History


This menu provides the diagnostic results for the current vehicle from the work steps **>Trouble codes<**, **>Parameters<**, **>Basic settings<**, **>Codings<**, and **>Guided measurements<**. This has the following advantages:

- You can evaluate the diagnostic results later.
- Compare previously performed diagnostics to present diagnostic results.
- You can show the customer the diagnostic results without needing to reconnect the vehicle.

8.5.1.1 Selecting Vehicles from the Car History

	<p>NOTE</p> <p>Diagnostic results automatically stored here can be retrieved only if the function Automatic Car History Transfer is set to >on< under Settings > Miscellaneous > Car History.</p>
---	---

Proceed as follows to select a vehicle from the Car History:



1. Select **>Vehicle selection<** in the main menu.
2. Select the  Car History tab.
3. Double-click the required vehicle to select.
The device will then automatically switch back to the main menu.

The vehicle selected appears in the top toolbar.

8.5.1.2 Deleting Entries from the Car History

Proceed as follows to clear one or more entries from the Car History:

1. Select **>Vehicle selection<** in the main menu.



2. Select the  Car History tab.
3. Call up **Delete Car History** with .
A drop-down list appears.

Following functions are available:

- **Delete single entry**
- **Clear entire Car History**
- **All Older Than**





8.5.1.3 Deleting Single Entries and the Entire Car History

Proceed as follows to delete single entries and/or the entire Car History:

1. Activate the requested check box.
 2. Confirm the deletion process with .
 3. Observe the confirmation prompt.
 4. Confirm the confirmation prompt with .
- The selected entries will be deleted.

8.5.1.4 All Older Than







Proceed as follows to delete defined entries from the Car History:

1. Activate the check box **All older than**.
 2. Open the drop-down list with .
 3. Open the list under **Day** with .
 4. Select the required day.
 5. Repeat steps 3 and 4 for **Month** and **Year**.
 6. Confirm the selection twice with .
 7. Observe the confirmation prompt.
 8. Confirm the confirmation prompt with .
- The selected entries will be deleted.

8.5.1.5 Sending a Call for Help

Contact the Technical Help Line and request data here.


Proceed as follows to send a help call to the Hella Gutmann Technical Help Line:

1. Select **>Vehicle information<** in the main menu.
2. Call up **Car History** with .
3. Select the requested Car History file with  .
4. Call up the help call with .
5. If necessary, open a list under **Contact person** with  and select the required contact person.
6. Open the virtual keypad under **Call-back number** with .
7. Enter the required telephone number.

8. Confirm your entry with ✓.
9. Activate the requested check box under **What do you want to do?**

If you have activated **Contact the Technical Help Line**, a Hella Gutmann colleague will call you back as soon as possible.




Technical documents such as repair instructions or wiring diagrams can be requested if you activate **Request data**.

	<p>NOTE</p> <p>You need to enter a telephone number and to tick at least one of the check boxes to be able to continue.</p>
---	--



Contacting the Technical Help Line


Here you can contact the Hella Gutmann Technical Help Line for getting support with diagnostic work. You have also the option to request technical documents, such as repair instructions or wiring diagrams.

Proceed as follows to send a help call to the Hella Gutmann Technical Help Line:

1. Select **>Vehicle information<** in the main menu.
2. Call up **Car History** with .
3. Select the requested Car History file with ▲ ▼.
4. Call up the help call with .
5. If necessary, open a list under **Contact person** with ✓ and select the required contact person.
6. Open the virtual keypad under **Call-back number** with .
7. Enter the required telephone number.
8. Confirm your entry with ✓.
9. Activate the check box **What do you want to do?** Activate the **Contact the Technical Help Line** check box.

If you have activated **Contact the Technical Help Line**, a Hella Gutmann colleague will call you back as soon as possible.


10. Continue with →.
11. Open the virtual keypad under **VIN (Vehicle Identification Number):** with .
12. Enter the VIN.
13. Confirm your entry with ✓.
14. Open the selection window under **First registration:** with .
15. Open the list under **Day** with ✓.
16. Select the day of the first registration.
17. Repeat steps 15 and 16 for **Month** and **Year**.
18. Confirm the selection with ✓.
The selection will be saved automatically.
19. Continue with →.
20. Select the required assembly or the required symptom.
21. If required, select additional sub-functions to provide a better definition of the problematic case.


22. Confirm the selection with .
An info window appears.

Here you have an overview of the information that has already been entered.

Add further symptoms with .


Delete the symptom selection with .

Use  to go back one step and change previous entries.

23. Continue with .

An input window appears.

Here you can enter a written request or message of any nature to the Hella Gutmann Technical Help Line.

	<p>NOTE</p> <p>To proceed, a text containing a minimum of 20 characters must be entered.</p>
---	---

24. Open the virtual keypad under **Problem/question/remark (at least 20 characters):** with .


25. Enter your text here.

26. Confirm your entry with .

27. Continue with .

An info window appears.

Here you have an overview of the information that has already been entered.

Use  to go back one step and change previous entries.









28. Send a help call with .














Car History data will be transferred.

Requesting Data

Here you can request technical documents, such as repair instructions or wiring diagrams.

Proceed as follows to request data:

1. Select **>Vehicle information<** in the main menu.
2. Call up **Car History** with .
3. Select the requested Car History file with  .
4. Call up the help call with .
5. If necessary, open a list under **Contact person** with  and select the required contact person.
6. Open the virtual keypad under **Call-back number** with .
7. Enter the required telephone number.
8. Confirm your entry with .
9. Activate the check box **What do you want to do?**, activate the **Request data** check box.
10. Perform steps 10-19 as described in the section **Contacting the Technical Help Line**.
The window **Data selection** is indicated.
11. Activate the check box for the required data type.
12. Open the list under **Systems** with .
13. Select the requested system.

14. Open the list under **Components** with  where necessary.
15. Select the requested component where necessary.
16. Open the virtual keypad under **Remark** with .
17. Enter your remark.
18. Confirm entries twice with .
An info window appears.
Here you have an overview of the information that has already been entered.
Add further data with .
Delete the data selection with .
Use  to go back one step and change previous entries.
19. Continue with .
A drop-down list appears.
Add further symptoms with .
Delete the symptom selection with .
Use  to go back one step and change previous entries.
20. Continue with .
An info window appears.
Here you have an overview of the information that has already been entered.
Use  to go back one step and change previous entries.
21. Send a help call with .
Car History data will be transferred.




8.5.2 Component help

Here you can find the components that are installed in the selected vehicle. The following are available:

- Components relevant for diagnostics
Here you can find the components that are installed in the selected vehicle and relevant for diagnostic work.
- Parts catalog
Here you can find the components that are installed in the selected vehicle. There are also additional information on the component and you can jump to related data.

8.5.2.1 Calling Up Component Help

Proceed as follows to retrieve the component help:

1. Select **>Vehicle information<** in the main menu.
2. Select **Component help** with .
Data download is in progress.
3. Open the **Parts catalog** with with .
4. Select the requested component with .

5. Select additional subcomponents with **+** if required.
A drop-down list appears.


Depending on the selected component, the following information is available:

- **Parts information**

Here you will find information on spare parts and parts that are identical in design and construction. You can also add spare parts to your shopping cart.

Deactivate all parts with .

Activate all parts with .

Add activated parts to the shopping cart with .

- **Cabin image**


In the cabin image, the component location is indicated by a red triangle. This helps identify the required component.

- **Engine compartment image**

In the engine compartment image, the component location is indicated with a red triangle. This helps identify the required component.


- **Component test values**

This menu contains measurement and test data for components with cables connected to an ECU plug.

You will leave the Component help menu when selecting **Component test values**. Return to the Component help with .


- **Fuses/relays**


Here you can view the installation position of the main fuse box, the fuse box and the relay box as well as the individual fuses.

Leave the component help menu by selecting **>Fuses/relays<**. Return to the Component help with .

- **Service data**

This menu contains vehicle-specific service schedules.

You will leave the Component help menu when selecting **Service data**. Return to the Component help with .


6. Call up the component with .
7. Select the required information.
Data download is in progress.
8. Select additional subitems if required.
Image and/or text information is displayed.





8.5.3 Service data


This menu contains vehicle-specific service schedules and oil change intervals.












8.5.3.1 Calling Up Service Data

Proceed as follows to call up service data:

1. Select **>Vehicle information<** in the main menu.
2. Select **Service data** with .

3. Observe the info window.
4. Close the info window with  where necessary.
5. Select the required service types.
The individual service types differ depending on the manufacturer and vehicle type selected.
You can retrieve additional vehicle information about the manufacturer, model, or type with .
6. Select the another service interval where necessary.
7. Continue with .
Another tab is indicated.
The individual tabs differ depending on the manufacturer and vehicle type selected.
8. Activate the requested check box.
9. Continue with .
The service data with the individual working positions appears.



	<p>NOTE</p> <p>We recommend printing out the service data and processing the single working positions systematically. This is not saved in the Car History.</p>
---	--

10. Activate the check box for the processed working positions.
11. Enter the tire tread depth and the tire pressure under **Further points** after having done all working positions.
12. Open the virtual keypad under **mm** with .
13. Enter the tire tread depth.
14. Confirm your entry with .
15. Repeat steps 11 to 13 for further entries.
16. Open the virtual keypad under **bar** with .
17. Enter the tire pressure.
18. Confirm your entry with .
19. Repeat steps 16 and 17 for further entries.
20. Open the selection window under **Date of next vehicle safety and emissions inspection:** with .
21. Open the list under **Month** with .
22. Selected the required month.
23. Repeat steps 20 and 21 for **Year**.
24. Confirm the selection with .
25. Open the selection window under **First-aid kit expiry date** with .
26. Repeat steps 20 to 23 for further selections.
27. Open the virtual keypad under **Remark** with .
28. Enter your remark.
29. Confirm your entry with .
30. Print the service data using .


8.5.4 Timing belt data

This menu contains the removal and installation instructions for timing belts and timing chains.

8.5.4.1 Calling Up Timing Belt Data


	<p>WARNING</p> <p>Risk of shifting or falling vehicle parts</p> <p>Risk of injury or pinching</p> <p>Remove or secure all loosened mounting parts.</p>
	<p>NOTE</p> <p>You need an online connection to access the timing belt data.</p>

Proceed as follows to retrieve toothed belt data:

1. Select **>Vehicle information<** in the main menu.
2. Select **Timing belt data** with .
3. Select the required information.
Data download is in progress. An info window appears.

The following information is available:

- Tool
This displays text and images for the devices required for removal and installation.
- Removal Instructions
This displays text and images for the individual work steps for the removal process.
- Installation instructions
This displays text and images for the individual work steps for the installation process.

	<p>NOTE</p> <p>If multiple removal and installation instructions appear, these are indicated with numbers, e.g., Removal 1, Removal 2, Installation 1.</p> <p>You need to click on the removal and installation instructions consecutively.</p>
---	--



4. Select the required information.
The selected information is shown.

8.5.5 Diagnostic Database






This menu contains manufacturer and vehicle-specific solutions for various problematic cases.

The Hella Gutmann diagnostic database contains a large number of vehicle-specific problem solutions. The entries in the database consist of data from manufacturers' documentation, as well as feedback from mechanics who have successfully repaired the vehicle.

8.5.5.1 Calling Up the Diagnostic Database

	<p>NOTE</p> <p>You need an online connection to access the Hella Gutmann diagnostic database.</p>
	<p>NOTE</p> <p>The selection of the following possibilities depends on the selected manufacturer and vehicle type:</p> <ol style="list-style-type: none"> 1. Functions 2. Assemblies 3. Systems 4. Data

Proceed as follows to retrieve information from the diagnostics database:

1. Select **>Vehicle information<** in the main menu.
2. Select **Diagnostic database** with .
Data download is in progress.
3. Open the list under **Year of manufacture** with .
4. Select the required year of manufacture.
Data download is in progress.
5. Select the requested assembly.
Data download is in progress.
6. Select further components or symptoms if necessary.
7. Confirm the selection with .
Data download is in progress.
8. Select the required **Item from online diagnostic database** from the left selection window.
9. Select the requested proposal for solution with .
An info window appears.
Here you can view the following information:
 - Cause
 - NOTE
 - Solution
 - Possibly defective component
10. Repeat step 9 if the selected proposal for solution does not apply to the vehicle problem.
Return to symptom selection with .



8.5.6 Technical Data

Here you can view all the necessary data, among other things, for service and repair work on the vehicle e.g.:


- Adjustment values for ignition and exhaust system
- Recommended spark plug types
- Tightening torques
- Capacity of the air conditioning



Where necessary or helpful, the data records are supplemented by illustrative images.

8.5.6.1 Calling Up Technical Data

	<p>NOTE</p> <p>You need an online connection to access the technical data.</p>
	<p>NOTE</p> <p>The selection of the following possibilities depends on the selected manufacturer and vehicle type:</p> <ul style="list-style-type: none"> • Functions • Assemblies • Systems • Data

Proceed as follows to retrieve technical data:



1. Select **>Vehicle information<** in the main menu.
2. Select **Technical data** with .
3. Select the requested data record.
The technical data appear.

If a blue  is displayed at the end of the text, additional image or text information is available. This can be called up by clicking .


8.5.7 Wiring diagrams

View a vast number of vehicle-specific wiring diagrams here.

8.5.7.1 Calling Up Wiring Diagrams

	<p>NOTE</p> <p>You need an online connection to access the wiring diagrams.</p>
	<p>NOTE</p> <p>The selection of the following possibilities depends on the selected manufacturer and vehicle type:</p> <ul style="list-style-type: none"> • Functions • Assemblies • Systems • Data


Proceed as follows to retrieve wiring diagrams:

1. Select **>Vehicle information<** in the main menu.
2. Select **Wiring diagrams** with .
3. Select the requested assembly.
4. Select the requested system.

Several system types can be installed in one vehicle model range. The system type is mostly written on the ECU or can be determined through parameter readout.

The wiring diagram appears.

5. Select the requested component by clicking on it.

If you do not know the position of a component, you can select the component directly with .

The component is indicated by a colored frame and the appropriate designation.

6. Select the requested component.

Call up further component information with .


The component is indicated by a colored frame and the appropriate designation.

8.5.8 Fuses/relays

Here you can view the installation position of the main fuse box, the fuse box and the relay box as well as the individual fuses.

8.5.8.1 Calling Up Fuse and Relay Box Images

Proceed as follows to call up fuse and relay box images:


1. Select **>Vehicle information<** in the main menu.
2. Select **Fuses/relays** with .

3. Select the required fuse/relay box.
The device indicates the fuse box and or the relay box.


The right-hand window displays an overview of the fuse or relay box.

The top left window indicates the installation position of the fuse or relay box in the vehicle with a red circle.

The relays are marked with grey rectangles.
Fuses are marked with colored rectangles.
4. Selected the required fuse or relay by clicking it.

If the position of the fuse or relay is unknown, you can directly select the component that it supplies with .



Information on the component and the designation of the fuse or relay is displayed in the bottom left window.

You can call up additional information on the selected component with .


8.5.9 Component test values

This menu contains measurement and test data for components with cables connected to an ECU plug.

8.5.9.1 Calling Up Component Test Values

	<p>NOTE</p> <p>You need an online connection to access the component test values menu.</p>
	<p>NOTE</p> <p>The selection of the following possibilities depends on the selected manufacturer and vehicle type:</p> <ul style="list-style-type: none"> • Functions • Assemblies • Systems • Data

Proceed as follows to retrieve component test values:

1. Select **>Vehicle information<** in the main menu.
2. Select **Component test values** with .
3. Select the requested assembly.
4. Select the requested system.
All components installed in the vehicle are indicated in red font.

5. Double-click on the required component to select.

Alternatively, you can select the component with ▲ ▼, and ⚙.

A drop-down list appears.


Depending on the selected component, the following information is available:

- Parts information
 - Cabin image
 - Wiring diagrams
6. Select the required information.
Image and/or text information is displayed.

8.5.10 Flat rate units

Here you can view the common labor rates and repair times on different components.

8.5.10.1 Calling Up Flat Rate Units

	<p>NOTE You need an online connection to access the flat rate units.</p>
--	---

Proceed as follows to retrieve flat rate units:

1. Select **>Vehicle information<** in the main menu.
2. Select **Flat rate units** with ⚙.
Data download is in progress.
3. Select the requested category.
Data download is in progress.
4. Select the requested subcategory.
Data download is in progress.

The following information appears:

- Removal works
- Installation works
- Test works
- Flat rate units


The tasks that are indicated in bold letters contain single working steps. These can be displayed by clicking the bold text.


8.5.11 Component location

Here you can access cabin and engine compartment images for a component. The component location is indicated by a red triangle.

8.5.11.1 Calling up the Component Location

Proceed as follows to call up the component location:


1. Select **>Vehicle information<** in the main menu.
 2. Select the component location with .
A drop-down list appears.

The left window indicates single components installed in the vehicle. The right window shows the installation position of the selected component.
 3. Select the requested component.
The location of the selected component is indicated with a red arrow.
- Call up further component information with .


8.5.12 Cabin air filter

Here you can find the removal instructions for the cabin air filter.

8.5.12.1 Calling up the Removal Instructions for the Cabin Air Filter

	<p>NOTE</p> <p>You need an online connection to access removal instructions for the cabin air filter.</p>
---	--

Proceed as follows to call up the removal instructions for the cabin air filter:


1. Select **>Vehicle information<** in the main menu.
2. Select **Cabin air filter** with .
The removal instructions appear.

The removal instructions appear as individual images in the left-hand window.

A large-format version of the selected image appears in the right-hand window.
3. Click the images on the left from top to bottom consecutively.
The image that is currently clicked is indicated with a colored border and is displayed in a large format.


8.5.13 Recall campaigns

This menu contains the recall campaigns of manufacturers and importers.


Recall campaigns aim to protect consumers against unreliable products. Models affected by a recall campaign from within the last 2 years are identified by a .

Hella Gutmann Solutions GmbH is only a supplier of these contents and is therefore not responsible for its exactness, correctness and reliability. Please direct potential questions regarding the scope and handling directly to the authorized repair shops/manufacturers. For reasons of liability, the Hella Gutmann Technical Help Line does not provide information on this matter.

8.5.13.1 Calling Up Recall Campaigns

	<p>NOTE</p> <p>You need an online connection to access recall campaigns.</p>
---	---

Proceed as follows to retrieve recall campaigns:



1. Select **>Vehicle information<** in the main menu.
2. Select **Recall campaigns** with .
Data download is in progress.
3. Select the requested recall campaign in the left drop-down list.
Here you can view the following information:
 - Cause
 - Effect
 - Solution

8.5.14 Battery management

Here you will find removal and installation instructions as well as general information on the battery.

8.5.14.1 Calling Up Battery Diagnostics



Proceed as follows to call up battery diagnostics:

1. Select **>Vehicle information<** in the main menu.
2. Select **Battery management** with .
3. Select **>Battery diagnostics<**.
4. Regard the window with infos and instructions.
5. Select the requested parameter under **Diagnostic type**.
6. Repeat step 5 for another selection.
7. Activate the BPC-Tool connection (see operating instructions of BPC-Tool).
8. Start the battery diagnostics with .
Connection to BPC-Tool is being established. The device will close the info window automatically after a couple of seconds.

From here, the battery diagnostics is controlled using the keys on the BPC-Tool.

8.5.14.2 Calling Up Battery Registration

Proceed as follows to perform battery registration:

1. Select **>Vehicle information<** in the main menu.
2. Select **Battery management** with .
3. Select **>Battery registration<**.
4. Select **>Battery registration<** under **Assembly**.
5. Repeat step 4 for another selection.
6. Start the battery registration with .
Communication to vehicle is being established. This may take a few minutes.



Battery registration is being done.



8.5.15 Diesel systems

Here you can call up vehicle-specific information on the service of Diesel cars.

8.5.15.1 Calling Up Technical Data Under Diesel Systems



Proceed as follows to call up technical data under Diesel systems:


1. Select **>Vehicle information<** in the main menu.
2. Select **Diesel systems** with .
3. Select **>Technical data<**.
4. Confirm the selection with .
The technical data appear.

If a blue  is displayed at the end of the text, additional image or text information is available. This can be called up by clicking .

8.5.15.2 Calling Up Diesel Diagnostics

Proceed as follows to call up the Diesel diagnostics:

1. Select **>Vehicle information<** in the main menu.
2. Select **Diesel systems** with .
3. Select **>Diesel diagnostics<**.
4. Select **>Diesel system<** or **>Diesel particulate filter<**.
5. Confirm the selection with .
The Diesel system is indicated as image information.
6. Select the requested component by clicking on it.



If you do not know the position of a component, you can select the component directly with .




The component is indicated by a colored frame and the appropriate designation.

Call up further component information with .

8.5.15.3 Calling Up The Calculator Under Diesel Systems

Proceed as follows to open the calculator under Diesel systems:

1. Select **>Vehicle information<** in the main menu.
2. Select **Diesel systems** with .
A drop-down list appears.
 - Technical Data
 - Diesel service
Here you can find the service work for diesel particulate filters.
 - Diesel diagnostics
3. Select the required information.
4. Confirm the selection with .



5. Call up the calculator with .
An input window appears.
Here you can perform the the following Diesel-specific calculations:
 - Air-mass sensor
 - Fuel pressure sensor
 - Common rail injector
 - Fuel quantity adjuster
6. Select the requested tab.
7. Open the virtual keypad with .
8. Enter the requested value.
9. Confirm your entry with .
10. Repeat steps 6 to 9 for further entries.
The calculation result is displayed under **Result**.

8.5.16 Service information

This menu contains information about servicing various systems.

8.5.16.1 Calling Up Service Information


Proceed as follows to call up service information:

1. Select **>Vehicle information<** in the main menu.
2. Select **Service information** with .
3. Select the required information.
4. Repeat step 3 for another selection.
5. Confirm the selection with .
Texts and images appear for every information selected.
6. Click the images on the left from top to bottom consecutively.
Available images are indicated in large format.
The image that is currently clicked is marked with a colored frame.

8.5.17 Repair instructions



Here you can call up instructions for different repair work through the Gutmann Portal.

8.5.17.1 Calling Up Repair Instructions

	<p>NOTE</p> <p>You need an online connection to access the repair instructions menu.</p>
---	---

Proceed as follows to retrieve the repair instructions:


1. Select **>Vehicle information<** in the main menu.

2. Select **Repair instructions** with .
Data download is in progress.
3. Select the requested criterion.
4. Repeat step 3 for another selection.
5. Confirm the selection with .
Data download is in progress. The repair instruction appears.



8.5.18 Manufacturer campaigns

This menu contains vehicle-specific service campaigns of manufacturers.

8.5.18.1 Calling Up Manufacturer Campaigns

	<p>NOTE</p> <p>You need an online connection to access the manufacturer campaigns.</p>
---	---


Proceed as follows to retrieve manufacturer campaigns:

1. Select **>Vehicle information<** in the main menu.
2. Select **Manufacturer campaigns** with .
Data download is in progress.
3. Select the requested criterion.
4. Repeat step 3 for another selection.
5. Confirm the selection with .
Data download is in progress. The manufacturer campaigns appear.


8.5.19 Exhaust Emission Data

This menu contains the nominal exhaust emission values determined by the manufacturer and the test steps necessary for a German exhaust-emission check.

8.5.19.1 Calling Up Exhaust Emission Data

	<p>NOTE</p> <p>You need an online connection to access the exhaust emission data.</p>
---	--

Proceed as follows to retrieve exhaust-emission data:

1. Select **>Vehicle information<** in the main menu.
2. Select **Exhaust-emission data** with .
3. Select the correct vehicle type.
The exhaust-emission data appear.


Text marked in blue in the exhaust-emission data menu indicates an extra image or text information. Just click to it to view this information.

8.6 OBD

Indication of the individual OBD modes for petrol and Diesel vehicles as well as the pre-test of the German exhaust-emission check and the VW short trip.

OBD modes and OBD tests	
Pre-test of German exhaust-emission analysis	Quick test of the exhaust-gas relevant parameters of an OBD vehicle. This test should be done before the actual exhaust-gas emission inspection.
Readiness code	Indication of the type of diagnostic connector.
Parameters	Indication of all emission-relevant parameters. The number of the available parameters depends on the vehicle.
Freeze frame data	Indication of ambient data (rpm, coolant temperature) of the stored fault code.
Permanent trouble codes	Indication of all permanent trouble codes that are emission-relevant.
Delete trouble codes	Deletion of all trouble codes from "Mode 2/3/7".
Oxygen sensor test results	Check and evaluation of oxygen sensor function. This mode is not supported at CAN bus protocols.
Result of sporadic system test	Indication of manufacturer-specific parameters.
Sporadic trouble codes	This mode displays all sporadic and emission-relevant trouble codes.
Actuator tests	Here you can actuate the actuators that have been determined by the manufacturer as emission-relevant.
Vehicle Information	Indication of vehicle and system information e.g. the VIN.
Inactive trouble codes	Here you can view freeze frame data as well as permanent and sporadic fault codes.

9 Measurements

	<p>NOTE</p> <p>The use of the measuring technology menu requires the optionally available measurement module (MT 66).</p>
---	--

Here you can select measured variables and channel. Then you can perform various measurements.

Measurement technology is a digital signal acquisition and output. This means that the voltage signal is detected and saved within a few microseconds. Only if there are enough values saved, the signal will be displayed as a curve on the screen.

Perform measurements either independently under **Oscilloscope** or with a step-by-step description under **Guided measurements**.

9.1 Oscilloscope

Use the oscilloscope for measuring and/or depicting the following measured variables:


- Voltage
- Current
- Resistance
- Temperature
- Pressure

Current measurements are allowed exclusively using the amp clamp from Hella Gutmann. Depending on the required measurement, different clamps are to be used.

Only use the Hella Gutmann infrared thermometer for temperature measurements.

For pressure measurements, you must use the Hella Gutmann Low Pressure Diagnostic Kit (LPD kit).

A light blue bar in the top toolbar indicates how much of the memory space reserved for this purpose in the Car History has been used. If the blue bar is complete, the first data of the present measurement will be removed from the memory and the free capacity is filled with new data.

	<p>CAUTION</p> <p>Overvoltage</p> <p>Fire hazard/danger of damage to the device and its surroundings</p> <p>Comply with the max. permitted voltage load of the oscilloscope channels:</p> <ul style="list-style-type: none"> • Direct current voltage (DC): 200 V • Alternating voltage (AC): 160 V
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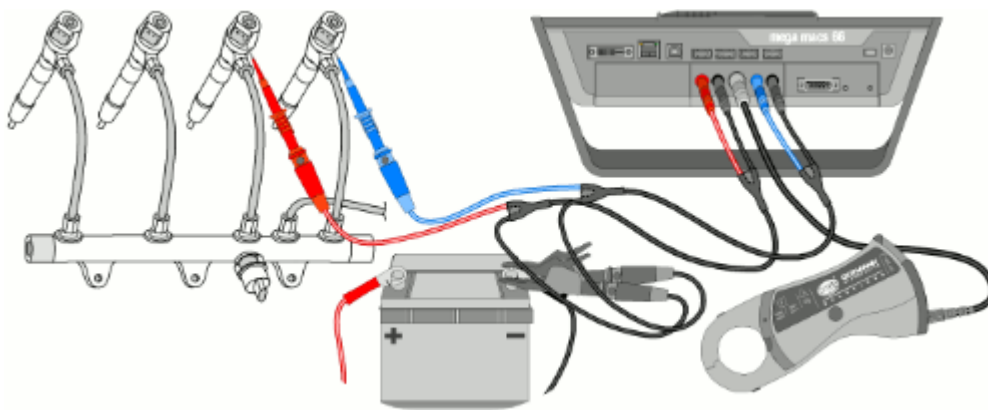
9.1.1 Oscilloscope Channels

Each measurement module (MT 66) has 2 oscilloscope channels. With channel 1 (connections scope 1 and ST3), you can measure each of the measured variables indicated. With channel 2 (connection scope 2), it is only possible to measure voltage. This means you can measure the voltage together with any other measured variable.

The use of a second MT 66 increases the number of available channels to four. Channels 2 and 4 can only be used to measure voltage.

9.1.2 Performing Oscilloscope Measurements

9.1.2.1 Connecting the Test Lead to the MT 66

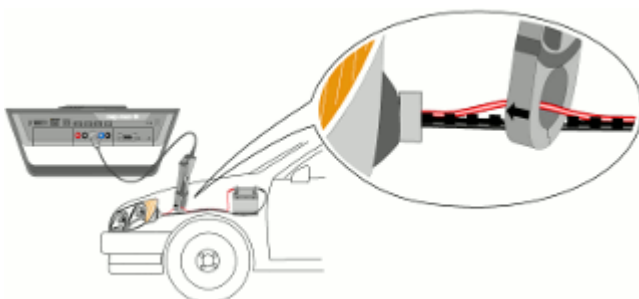


9.1.2.2 Measuring Voltage or Resistance

Proceed as follows to measure voltage or resistance:

1. Insert the test lead into MT 66 and connect it to the relevant component.
2. Select **>Measurements<** in the main menu.
3. Select the **>Oscilloscope<** tab.
4. Activate the check box for the desired measured variable and the oscilloscope channel.
5. Confirm the selection with **✓**.
Measurement will be started.

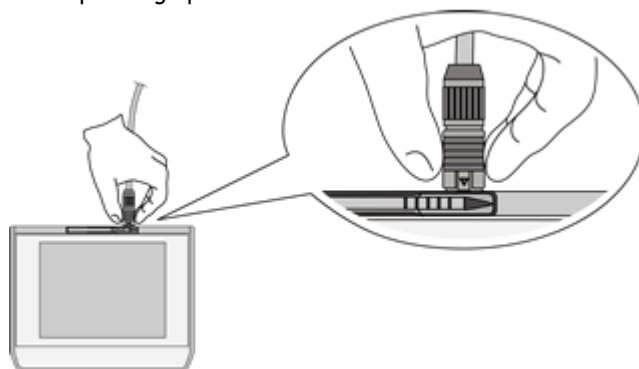
9.1.2.3 Connecting the Current Clamp to the Vehicle and the MT 66



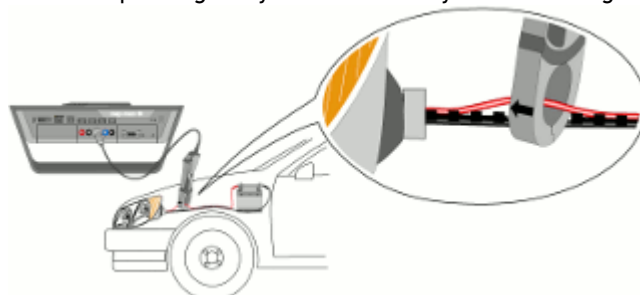
9.1.2.4 Measuring Current

Proceed as follows for current measurements:

1. Insert the electrical plug connection of the amp clamp into the ST3 connector of the device with the arrow pointing up.



2. Select **>Measurements<** in the main menu.
3. Select the **>Oscilloscope<** tab.
4. Activate the check box for **Current** and the oscilloscope channel.
5. Confirm the selection with **✓**.
6. Regard the window with infos and instructions.
7. Close the window with infos and instructions with **✗**.
The amp clamp is calibrated. Measurement will be started.
8. Closely grip the amp clamp jaws around the cable.
9. Should you use the green amp clamp (CP 40), black amp clamp (CP 200), or blue amp clamp (CP 700), then connect it with the arrow pointing towards the battery around all positive cables, or with the arrow pointing away from the battery around all negative cables respectively.



Current will be measured.

9.1.2.5 Measuring the Temperature

Temperature can be measured with the Hella Gutmann infrared thermometer regardless of the device used (see operating instructions for infrared thermometer). However, the Hella Gutmann infrared thermometer must be connected to the device via the signal cable in order to provide a graphical representation or long-term diagnostics.

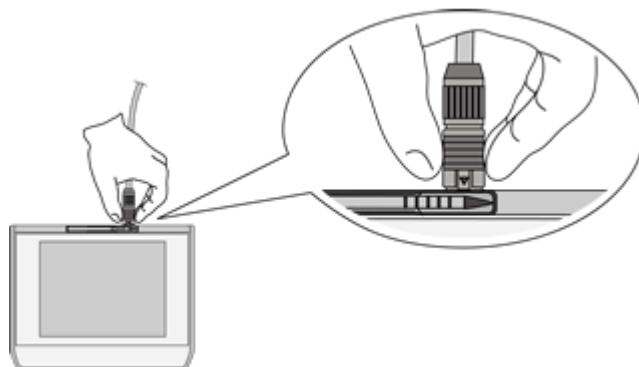
Only the Hella Gutmann thermometer may be used for this. If a product from another manufacturer is connected, the possibility of damage to the measuring device or the device, and of incorrect measurements, cannot be ruled out.

The measuring range of the Hella Gutmann infrared thermometer is -30 to 550 °C.


Proceed as follows for temperature measurements:

1. Select **>Measurements<** in the main menu.
2. Select the **>Oscilloscope<** tab.

3. Insert the electrical plug connection of the signal cable into the ST3 connector of the device with the arrow pointing up.



4. Activate the check box for **Temperature** and the oscilloscope channel.
5. Confirm the selection with .
6. Regard the window with infos and instructions.
7. Close the window with infos and instructions with . Measurement will be started.

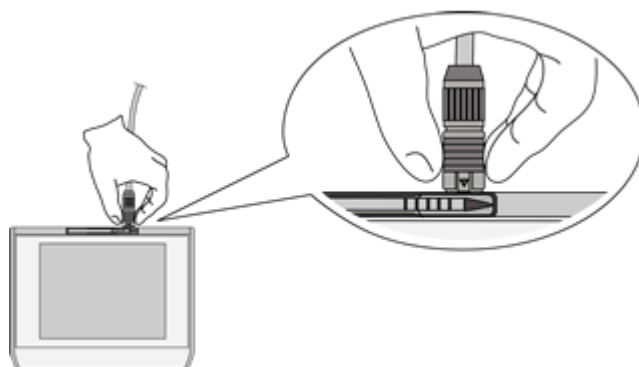
	<p>NOTE In order to perform precise measurements, you must first calibrate the infrared thermometer.</p>
---	---

8. Start the calibration with > . The signal will be calibrated.
9. Go one step back with . Temperature will be measured.


9.1.2.6 Pressure Measurements

Proceed as follows for pressure measurements:

1. Select **>Measurements<** in the main menu.
2. Select the **>Oscilloscope<** tab. The window for measured variables and channels appears.
3. Insert the electrical plug connection of the LPD kit into the ST3 connector of the MT 66 with the arrow pointing up.



4. Connect the LPD kit with the suitable adapter to the relevant component (see Low Pressure Diagnostic Kit operating instructions).
5. Tick the check box for **Pressure** and the oscilloscope channel.

6. Start the measurement with .
Measurement will be started.

9.1.3 Setting Measuring Ranges










The measuring range can be set in three different ways in the device:

- **manual**
The user adjusts the measuring range.
- **automatic**
The measuring range is adjusted automatically once depending on the input signal.
- **continuously automatic**
The measuring range is continuously adjusted to the input signal.

At the beginning of each measurement you need to set the measuring range manually. Resistance measurements are excluded from this rule. Here the measuring range is being adapted automatically and continuously (**Auto Range** function active).

9.1.3.1 Manual Setting of Measuring Ranges

Proceed as follows to set all measuring ranges manually while measurement is in progress:


1. Use   to set the measuring range for voltage, current, resistance, temperature, or pressure (vertical axis).
2. Set the time period (horizontal axis) with  .
3. Shift the zero line of the measuring range up or down, e.g., to measure negative voltage with   oder  .
4. Go one step back with .

9.1.3.2 Automatic Setting of Measuring Ranges

If resistance is measured, then the measuring range cannot be set automatically.

Proceed as follows to set the measuring ranges for voltage, current, temperature, and pressure while measurement is in progress:

1. Start Auto Set with  .

	<p>NOTE</p> <p>If the measurement signal changes during the ongoing measurement, the Auto Set function does <i>not</i> correct the measuring range automatically. Start the Auto Set function to have the measuring range adapted automatically.</p>
---	---




The MT 66 analyzes the incoming signal once. The measuring range will be set automatically.

2. Go one step back with .

9.1.3.3 Deactivating Automatic Measuring Range Adaptation for Resistance Measurement

As a standard feature, the measuring range for resistance measurements is adjusted automatically. This is realized with the **Auto Range** function. Deactivate the **Auto Range** function in order to be able to configure the measuring range manually.

Proceed as follows to deactivate **Auto Range**:

1. Call up Settings with .
2. Select **>Miscellaneous<**.
3. Open the list under **Auto Range** with .
4. Select **>off<**.
Auto Range is deactivated.
5. Confirm the selection with .
The selected measuring range will no longer be continuously adapted automatically. The measuring range can now be set manually.

9.1.4 Configuring the Trigger

The signal pickup is realized in the trigger mode if the time axis in the oscilloscope is set <1.0 s.





The depiction of the signal is only triggered once the signal reaches a certain voltage point. As the device always fixes the voltage point at the same position on the screen, it appears as a still image to the human eye. In most cases, the default trigger settings are sufficient for expressive signal depiction. If the default trigger settings are insufficient, however, the depiction can be influenced by certain trigger parameters:

- Trigger mode
- Trigger edge
- Trigger level

9.1.4.1 Setting the Trigger Position

By adjusting the trigger position, you can shift the signal depiction to the left or to the right.

Proceed as follows to set the trigger position while measurement is in progress:

1. Open the trigger settings with .
The bottom toolbar is adjusted. The trigger position is identified by a blue cross.
2. Set the trigger position with  .
You can also click in the signal depiction to set the trigger position.
3. Go one step back with .

9.1.4.2 Setting the Trigger Mode


With the trigger mode, you can decide when the oscilloscope initiates the triggering. The following trigger modes are available:

- Automatic (standard setting)




The oscilloscope generates a triggering in regular intervals and depicts the signal on the screen, even if the recorded signal delivers no trigger conditions.

- Normal

The signal will be only displayed and actualized if it passes the manually prescribed trigger level. The former depiction remains on the screen until the signal passes the trigger level again.


	<p>NOTE</p> <p>To configure trigger mode, expert mode must be set to >on<.</p>
---	--

Proceed as follows to set the trigger mode while measurement is in progress:




1. Call up Settings with .
2. Select the **>Trigger<** tab.
3. Open the list under **Trigger mode** with .
4. Select **>normal<**.
5. Confirm the selection with .
The selection will be saved automatically.

9.1.4.3 Setting the Trigger Edge

Use the trigger edge setting to decide whether the triggering will be done with a positive edge (increasing voltage signal) or negative edge (decreasing voltage signal). The trigger edge is set to **positive** as a standard feature ex works. Therefore, a signal with an initially negative edge might not be displayed completely on the screen. Changing the trigger edge can improve signal depiction.


	<p>NOTE</p> <p>To modify the trigger edge, expert mode must be set to >on<.</p>
---	---

Proceed as follows to set the trigger edge while measurement is in progress:


1. Call up Settings with .
2. Select the **>Trigger<** tab.
3. Open the list under **Trigger edge** with .
4. Select **>positive<** or **>negative<**.
5. Confirm the selection with .
The selection will be saved automatically.





9.1.4.4 Setting the Trigger Level

The trigger level controls the voltage point at which triggering takes place. The trigger level is set to **>automatic<** by default ex works.

	<p>NOTE</p> <p>To modify the trigger level, expert mode must be set to >on<.</p>
---	--

Proceed as follows to set the trigger level manually while measurement is in progress:

1. Call up Settings with .
2. Select the **>Trigger<** tab.

3. Open the list under **>Trigger level<** with .
4. Select **>Manually<**.
5. Confirm the selection with .
The selection will be saved automatically.
6. Set the trigger level with  .



You can also click in the signal depiction to set the trigger level.

9.1.5 Other Functions

9.1.5.1 Calibrating Signals

Here you can set the signal line on the zero line. In this way, you can compensate for interference voltages and measuring range tolerances.

Proceed as follows to calibrate the signal while measurement is in progress:












1. Start the calibration with .
The signal will be calibrated.
2. Go one step back with .

9.1.5.2 Measuring Signals

Measurement must be completed to be able to measure the signal in the **Guided measurement** function.

Here you can measure the signal. For this, the device defines two measuring points and determines their differential values.

Proceed as follows to measure the signal while measurement is in progress:




1. Open cursor settings with .
2. Use     to shift the cursor to the 1st measuring point.
3. Start the signal measurement with .
The first measuring point will be fixed. The left value windows are now indicating the differential values of both measuring points. Before that, they indicated the position values of the first measuring point.
4. Use     to shift the cursor to the second measuring point.
5. Read the differential values of both measuring points in the left value windows.
6. Repeat steps 2 to 5 for further entries where necessary.
7. Go one step back with .

9.1.5.3 Zero Reset of Values

Here you can set the following value windows to zero simultaneously:

- Minimum
- Maximum
- Peak-to-peak

Proceed as follows to set the value window to zero while measurement is in progress:



1. Reset the values to zero with  > .
The selected value windows are set to zero simultaneously.
2. Go one step back with .

9.1.6 Other Configurations

9.1.6.1 Configuring Indications

Here you can switch on or off the indication of 9 measured variables for describing a signal.

Proceed as follows to set the indication while measurement is in progress:

1. Call up Settings with .
2. Select **>Indication<**.
3. Activate the check box for the requested measured variables.
A maximum of 8 measured variables can be displayed at the same time.
4. Confirm the selection with .
The corresponding measured values appear in the left part of the screen.




9.1.6.2 Activating the Expert Mode

Here you can activate expert mode, which is used to enable functions such as the following:

- Inversion
- Trigger mode
- Trigger edge
- Trigger level

Expert mode is set to **>off<** by default ex works.



Proceed as follows to activate the expert mode while measurement is in progress:


1. Call up Settings with .
2. Select **>Miscellaneous<**.
3. Open the list under **Expert mode** with .
4. Select **>on<**.
The expert mode is active.
5. Confirm the selection with .

9.1.6.3 Configuring the Coupling

The coupling is used to set which shares of the input signal shall be indicated. If signals with direct-current voltage and alternating voltage interfere, the DC voltage signal can be filtered out by setting the coupling, e.g., when checking the alternator.


Proceed as follows to set the coupling while measurement is in progress:

1. Call up Settings with .
2. Select **>Miscellaneous<**.
3. Open the list under **Coupling** with .




4. Select **>Alternating voltage (AC)<** or **>Direct-current voltage (DC)<**.
If you select **>Alternating voltage<**, the DC voltage share of the input signal is filtered out.
If you select **>Direct-current voltage<**, the device indicates the complete input signal.
5. Confirm the selection with .
The signal indication will be adapted.

9.1.6.4 Inverting the Signal

Here you can invert the signal indication so that all positive signals are indicated negative and all negative signals are indicated positive. This can make sense if a signal is displayed incompletely.

	<p>NOTE</p> <p>To modify Inversion, expert mode must be set to >on<.</p>
---	---

Proceed as follows to invert a signal:




1. Call up Settings with .
2. Select **>Miscellaneous<**.
3. Open the list under **Inversion** with .
4. Select **>on<**.
5. Confirm the selection with .
The device indicates an inverted signal.

9.1.7 Recording Measurements

Every measurement taken will be recorded and can be saved if requested. A light blue bar in the top toolbar indicates how much of the memory space reserved for measurements has been used up. When the blue bar is full, measurements are overwritten with the latest data.


9.1.7.1 Saving the Measurement in Oscilloscope






Proceed as follows to save the ongoing measurement in the oscilloscope:

1. Start saving with .
2. Double-click .
3. Enter the requested name for the measurement.
4. Click  twice to confirm the input.
The measurement will be saved automatically.

9.1.8 Displaying Recorded Measurements

Proceed as follows to display a recorded measurement:

1. Select **>Measurements<** in the main menu.
2. Open Measured data folder with .
3. Select the requested measurement.


4. Confirm the selected measurement with . The measurement is displayed.
5. Select the requested function:
 - Start the measurement display with .
 - Interrupt the measurement with .
 - Stop the measurement with .
 - Return to **Oscilloscope** with . The oscilloscope is opened with the settings made in the previous measurement.

9.2 Guided Measurements

Here you can diagnose signals emitted by electric components and their actuation by the ECU. Furthermore, you can perform various checks of the vehicle electrics and pressure measurements.

In addition to the actual measurement, the **Guided measurements** menu contains the following help functions depending on the selected measurement:


- Connection help
- Pre-defined measuring range settings
- Automatic good/bad evaluation of the signals
- Useful dialogues for signal evaluation and troubleshooting.
- Nominal signal values for repair

	<p>CAUTION</p> <p>Mobile and Energized Parts</p> <p>Risk of injury or material damage</p> <p>Observe the following before starting the diagnostic work:</p> <ul style="list-style-type: none"> • Apply the parking brake. • Protect all connected cables from heat and rotating parts. • Regard the window with infos and instructions. • Do not cause short circuits.
---	--

9.2.1 Performing Guided Measurements

Proceed as follows to perform guided measurements:

1. Select **>Measurements<** in the main menu.
2. Select **>Guided measurements<**.
3. Select the requested fuel type.
4. Select the requested system.
5. Select the requested assembly.
6. Select the required component and or required diagnostic type from the left selection window.
7. Select the requested parameter from the right drop-down window.
8. Regard the window with infos and instructions.

9. Confirm the window with infos and instructions with .
10. Repeat steps 8 and 9 for more information and instruction windows as necessary. Measurement will be started.


Notes and instructions on the running measurement appear in the left window. The following information can appear:

- *Searching the signal*

In **>Communication<** and **>Sensors<** diagnostics, you can search for the signal to be measured for as long as you like prior to the actual diagnostics. The device provides hints and tips for finding the signal.


- *Evaluation*

The signal is evaluated using the nominal values stored in the device, which are based on manufacturers' data and empirical values. In some cases, however, the signals can deviate from the standard due to a different construction of the component or the system. Therefore, check these signals under **>Oscilloscope<** again and compare the read out actual values to the nominal values given by the manufacturer before replacing the component.



	<p>NOTE</p> <p>Several adapters, e.g. terminals and needles, are enclosed to the device in order to pick off the signal. For reasons of corrosion protection, it is advisable to seal the perforation of cables or sealing rings tapped beforehand with silicone or another sealing agent.</p>
---	---

11. Follow the instructions on the screen.
The message *Test finished* appears if the measurement has been done successfully.
The individual measurements are evaluated afterwards.

9.2.2 Saving the Guided Measurement


	<p>NOTE</p> <p>If you do not enter a license plate number or the customer name, the device does not store any data of the current vehicle in the Car History.</p>
---	---


Proceed as follows to save the guided measurement:

1. Finish the guided measurement.
The message *Test finished. Evaluation* appears if the measurement has been done successfully.
 2. Start saving with .
 3. Observe the confirmation prompt.
 4. Affirm the confirmation message with .
- The measurement will be saved automatically.

9.2.3 Retrieving a Stored Guided Measurement

Proceed as follows to retrieve stored guided measurements:

1. Select **>Vehicle selection<** in the main menu.
2. Select the  Car History tab.
3. Double-click the required vehicle to select.
The device will then automatically switch back to the main menu.

4. Select **>Vehicle information<** in the main menu.
5. Open **Car History** with .
6. Select the required guided measurement.
The guided measurement is displayed.

10 Applications


An overview of the available applications is shown here.

10.1 Calculator

Perform general calculations here.

10.1.1 Activating the Calculator

Proceed as follows to make calculations:





1. Select **>Applications<** in the main menu.
2. Select **Calculator** with .
3. Perform the requested calculations.

10.2 Emission diagnostics

Here you can evaluate the mixture composition using the measured exhaust emission levels.

10.2.1 Calling Up Emission Diagnostics

Proceed as follows to call up the emission diagnostics:

1. Select **>Applications<** in the main menu.
2. Select **Emission diagnostics** with .
3. Open the virtual keypad under **CO** with .
4. Enter the measured value.
5. Confirm your entry with .
6. Repeat steps 3 to 5 for further entries.
7. Call up the evaluation with .
The current mixture composition is displayed.


10.3 List of alternatives

Here you can search for alternatives that are identical in design, including the following components:


- Filters for oil, air, and gasoline
- Glow plugs and spark plugs

10.3.1 Calling Up the List of Alternatives

Proceed as follows to call up the list of alternatives:

1. Select **>Applications<** in the main menu.
2. Select **List of alternatives** with .
3. Select the requested component.
4. Select the requested manufacturer.
5. Enter the required model.

You can also select a model directly from the drop-down list by double-clicking on it.


6. Confirm the selection with .
- All comparable models are shown in alphabetical order.

10.4 Glossary

The glossary explains automotive technical terms, abbreviations and components.

10.4.1 Calling Up the Glossary

Proceed as follows to call up the glossary:

1. Select **>Applications<** in the main menu.
2. Select **Glossary** with .
3. Select the required tab with the initial letter of the word you are looking for.

You can also enter the search term directly with .

4. Double-click to the requested term.
An explanatory text is displayed.

10.5 Pass Thru

Here you can transmit data from the shop PC to the vehicle in the shop.

10.5.1 Calling Up PassThru

Perform the steps as described in section **Running the HGS PassThru Software (Page 25)** to call up PassThru.




10.6 Calculations

Here you can perform the the following conversions:

- Fuel consumption
- Piston speed
- Current/power output/resistance
- Conversion of technical units

10.6.1 Calling Up Calculations


Proceed as follows to call up calculations:

1. Select **>Applications<** in the main menu.
2. Select **Calculations** with .
3. Select the required calculation type.
4. Select the required size.
5. Open the virtual keypad with .
6. Enter the requested value.
7. Confirm your entry with .
8. Repeat steps 5 to 7 for further entries where necessary.
The calculation result is displayed under **Result**.






10.7 Cost estimate





Prepare vehicle-specific cost estimates for the repair time and the costs to be expected.

10.7.1 Performing Cost Estimates

	<p>NOTE</p> <p>To perform cost estimates, you have to enter at least 1 hourly rate and the VAT rate under Settings > Company > Cost estimate (see section Entering Cost Estimates (Page 32)).</p>
---	--

Proceed as follows to perform a cost estimate:

1. Select **>Applications<** in the main menu.
2. Select **Cost estimates** with .
3. Add a new cost estimate with .
4. Observe the info window.
5. Close the info window with .
6. Open the selection window under **First registration** with .
7. Open the list under **Day** with .
8. Select the day of the first registration.





9. Repeat steps 5 and 6 for **Month** and **Year**.
10. Confirm the selection with ✓.
11. Open the virtual keypad under **Kilometer/mileage reading** with .
12. Enter the kilometer/mileage reading.
13. Confirm your entry with ✓.
14. Repeat steps 5 to 8 for the **Vehicle safety and emissions inspection date**.
15. Confirm the selection with ✓.
16. Add a new cost estimate with +.
- Data download is in progress.
17. Select the requested category.
- Data download is in progress.
18. Select the required subcategory.
- Data download is in progress. A list with working steps appears.
- The tasks that are indicated in bold letters contain single working steps. These can be displayed by clicking the bold text.
19. Activate the check box for the required work.
20. Confirm the selection with ✓.
- A cost estimate is displayed.
21. Open the list under **Hourly rate unit price** with .
22. Select the required hourly rate.
23. Perform steps 19 and 20 for each additional working position.
- The calculated cost estimate is displayed.
- Add further working steps with +.
- Delete working steps from the cost estimate with .
24. Save the cost estimate with .
- The cost estimate is saved to the vehicle currently selected in the Car History.




10.8 E-mail

Here you can send a written request or message of any nature to the Hella Gutmann support.


10.8.1 Sending an E-Mail to Hella Gutmann Support

Proceed as follows to send an e-mail to Hella Gutmann Support:

1. Select **>Applications<** in the main menu.
2. Select **E-mail** with .
3. Open input window with .
4. Open the virtual keypad under **Subject** with .
5. Enter the required subject.
6. Confirm your entry with ✓.
7. Open the list under **Contact person** with .

8. Select the requested contact person.
 9. Open the virtual keypad in the e-mail window with .
 10. Enter your text here.
 11. Confirm your entry with .
 12. Send the e-mail with .
- The e-mail will be sent to the Hella Gutmann Technical Help Line.

11 Optional HGS Tools

	NOTE The optional accessory devices (BPC-Tool) are required to use the >Optional HGS tools< .
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Here you can find an overview of the available HGS Tools.

The **>Optional HGS Tools<** menu contains functions with which additional hardware can be used. These are displayed only if the additional hardware is connected to the device.

11.1 Battery Diagnostics with Repair Plus License

By default, you can find the battery diagnostic functions under **Optional HGS Tools > Battery diagnostics**. A Repair Plus license extends the range of functions by battery management and other matters. To prevent the need for a laborious switch from battery diagnostics to battery management, the battery diagnostics are integrated into the battery management for devices with a Repair Plus license. The battery diagnostic functions can be found under **Vehicle information > Battery management**.

11.2 Battery Diagnostics

Here you can test a battery using the BPC-Tool or import a test result from the BPC-Tool into the Car History.

You are given an overview of the following functions:

- **System test**

Here you can perform a system test using the BPC-Tool. The following is displayed during the system test:

- Battery test with battery state of charge and state of health
- Starter test with voltage and current intensity when starting the internal combustion engine
- Alternator test with voltage and current intensity when the power consumer is switched on and switched off
- Drain Current

- **Import result (system test)**

Here you can import the most recent system test into the Car History.

- **Battery test**

Here you can perform a battery test using the BPC-Tool. The battery state of charge and state of health are tested.


- **Import result (battery test)**

Here you can import the most recent battery test into the Car History.






11.2.1 Performing a System Test

The following tests are performed consecutively by the BPC-Tool during the system test:

- Battery test
- Starter test
- Alternator test
- Drain Current

	<p>NOTE</p> <p>A blue amp clamp (CP 700) is required for the complete system test. Without an amp clamp, the current intensity is not measured during the starter and alternator tests. The resistor test is not applicable at all.</p>
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Proceed as follows to perform the system test:



1. Connect the BPC-Tool to the battery (see operating instructions for the BPC-Tool).
2. If required, insert the electrical plug connection of the amp clamp into the ST3 connector of the BPC-Tool with the arrow pointing up.
3. Select **>Optional HGS Tools<** in the main menu.
4. Select **Battery diagnostics** with .
5. Select **>System test<**.
6. Open the list under **Temperature measurement** with .
7. Select the required type of temperature measurement.
8. Repeat steps 6 to 7 for another selection.
9. Open the virtual keypad under **Cold cranking amps [A]** with .
10. Enter a value.
11. Confirm your entry with .
12. Start the **System test** with .
The connection to the BPC-Tool is established.




The system test is started.

From here, the system test is controlled using the keys on the BPC-Tool (see operating instructions of the BPC-Tool). A summary of the system test is displayed on the BPC-Tool and is automatically imported into the device.

11.2.2 Performing a Battery Test

Proceed as follows to perform the battery test:

1. Connect the BPC-Tool to the battery (see operating instructions for the BPC-Tool).
2. If required, insert the electrical plug connection of the amp clamp into the ST3 connector of the BPC-Tool with the arrow pointing up.
3. Select **>Optional HGS Tools<** in the main menu.
4. Select **Battery diagnostics** with .
5. Select **>Battery test<**.
6. Open the list under **Battery position** with .
7. Select **>In the vehicle<** or **>Outside the vehicle<**.

8. Repeat steps 6 to 7 for another selection.
 9. Open the virtual keypad under **Cold cranking amps [A]** with .
 10. Enter a value.
 11. Confirm your entry with .
 12. Start the **Battery diagnostics** with .
- The connection is established and the device searches for the BPC-Tool.

The battery test is started.

From here, the system test is controlled using the keys on the BPC-Tool (see operating instructions of the BPC-Tool).




11.2.3 Preconditions for Saving Test Results in the Car History

Ensure the following to save the most recent test results of the system and battery test in the Car History:

- Required vehicle selected in device.
- BPC-Tool on.
- BPC-Tool connected to the device.

11.2.4 Saving Test Results in the Car History

Proceed as follows to save the most recent test result from the battery test or system test in Car History:

1. Select **>Optional HGS Tools<** in the main menu.
 2. Select **Battery diagnostics** with .
 3. Select **>Import result (system test)<** or **>Import result (battery test)<**.
 4. Start the import with .
 5. Observe the confirmation prompt.
 6. Confirm the confirmation prompt with .
- The connection to the BPC-Tool is established.

The test results are saved in the Car History.

12 General Information

12.1 PassThru Troubleshooting

The following list will help you to solve minor problems yourself. Select the relevant problem description and check and perform the steps listed under **Solution** in sequence until the problem is solved.

Problem	Solution
The left row of arrows between the laptop/tablet and the HGS PassThru device is red. The second test does not start.	<ul style="list-style-type: none"> • Check the connections of the USB cable and plug connections to the laptop/tablet, to the HGS PassThru device and the mega macs 66. • Check USB cable and plug connectors for damage. • Insert the USB cable and plug connectors correctly. • Configure the USB connection correctly. Select Start > System management > Device manager. A BDMAKO tool must be displayed under USB controller. • Activate the PassThru function of the mega macs 66. • Switch mega macs 66 off and on again. • Reactivate the PassThru function and repeat the communication test.
The left row of arrows between the laptop/tablet and the HGS PassThru device is green. The right row of arrows between the HGS PassThru device and the vehicle remains red.	<ul style="list-style-type: none"> • Switch on the vehicle ignition. • Check if there is a 12 V voltage supply through vehicle on pin 16 of the OBD plug (OBD plug possibly defective). • Perform an OBD plug test. • DT 66 module is correctly inserted in the module slot. • ST2 connector is correctly inserted in the ST2 socket of the DT 66. • Diagnostic plug is inserted correctly into the vehicle's diagnostic connector.

12.2 Troubleshooting

The following list shall help you to repair smaller problems yourself. Select the relevant problem description and check and perform the steps listed under **Solution** in sequence until the problem is solved.

Problem	Solution
The device does not boot.	<ul style="list-style-type: none"> • Check the connections of the power adapter and cable to the device and plug socket. • Ensure voltage supply.
The program hangs up or is without function.	<ul style="list-style-type: none"> • Briefly interrupt the voltage supply. Restart the device. • Check the present software for incorrect or missing files. • Perform a software update.


Problem	Solution
The device does not print.	<ul style="list-style-type: none"> • Switch on the printer. • Ensure that the printer is online. • Ensure the paper feed. • Exactly adjust the paper feed mode (continuous or rather single sheet). • Check the printer configuration. • Correctly connect the printer cable. • Exchange the printer cable for testing purpose. • Select another printer for testing purpose.
The oscilloscope indicates wrong values.	<ul style="list-style-type: none"> • Plug the test lead correctly into the MT 66. • Remove all cables except the test lead. • Attach the test lead correctly to the affected components of the vehicle. • Replace the test lead for testing purposes. • Connect the measuring channel (-) to the vehicle ground.
Communication to vehicle cannot be established.	<ul style="list-style-type: none"> • Select the correct vehicle by engine code. • Strictly follow the notes in the window with infos and instructions. • Check if there is a 12 V voltage supply through vehicle on pin 16 of the OBD plug (OBD plug possibly defective). • Perform an OBD plug test.

12.3 Care and Maintenance

Like any device, the mega macs 66 must be handled with care. Therefore regard the following:

- Clean the device regularly with mild cleaning detergents.
- Use commercial household cleaning detergents and a moistened, soft cleaning cloth.
- Replace damaged cables/accessories immediately.
- Always use original spare parts.

12.4 Disposal

	<p>NOTE</p> <p>The guidelines listed here is exclusively valid in Europe.</p>
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In compliance with Directive 2012/19/EU of the European Parliament and Council of 4 July 2012 relating to Waste Electrical and Electronic Equipment (WEEE), and the German national statute governing the distribution, return and environmental disposal of electrical and electronic equipment (Electrical and Electronic Equipment Act – ElektroG) of 16 March 2005, we are obliged to take back this device, distributed by us after 13 August 2005, at the end of its service life free of charge and to dispose of it in accordance with the above-mentioned directives.

Because this device is equipment that is used exclusively commercially (B2B), it must not be handed over to a public disposal facility.

The device can be disposed of at the following address (specifying the date of purchase and the device number):

Hella Gutmann Solutions GmbH

Am Krebsbach 2

79241 Ihringen

GERMANY

WEEE reg. no. DE 25419042

Phone: +49 7668 9900-0

Fax: +49 7668 9900-3999

Mail: info@hella-gutmann.com

12.5 Technical Data of the mega macs 66

12.5.1 General Data


Supply voltage	10 - 15 V (+/- 10%)
Current consumption	4 A
Battery charging voltage	min. 12.5 V
Battery	Lithium polymer battery, 7.4 V, 950 mAh, rechargeable
Battery capacity	4x 950 mAh = 28.12 Wh/3800 mAh
Display	Design: TFT Resolution: SVGA Size: 12.1"
Input	Touch screen
Ambient temperature	Recommended: 10 - 35 °C Working range: 0 - 45 °C
Compatibility	asanetwork
Weight	3800 g incl. battery (without modules)
Dimensions	135 x 362 x 302 mm (H x W x D)
Type of protection	IP20
Interfaces	<ul style="list-style-type: none"> • 1x DVI-D • 1x LAN (max. 100 Mbit/s) • 1x USB device 2.0 (max. 480 Mbit/s) • 4x USB host 2.0 (max. 480 Mbit/s) • Bluetooth class 1 (max. 3 Mbit/s) • WLAN • 3 module slots
Range	inside: 3 - 10 m outside: max. 50 m

12.5.2 Diagnostic Module


Supply voltage	10 - 15 V (through diagnostic interface of the vehicle or through module interface)
Battery charging voltage	10 - 15 V
Current consumption	max. 600 mA, standard 150 mA
Supply	Li-Polymer battery, min. 950 mAh
Ambient temperature	Recommended: 10 - 35 °C Working range: 0 - 45 °C

Weight	250 g (incl. battery)
Dimensions	37 x 82 x 160 mm (H x W x D)
Type of protection	IP20
Data transfer rate	max. 3 Mbit/s
Frequency band	2.4 GHz
Interfaces	<ul style="list-style-type: none"> • 1x ST2 • 1x module interface (M-LVDS) • Bluetooth class 1 <u>ST2 connections</u> <ul style="list-style-type: none"> • 4x communication • 1x Voltage outlet +17 V • 1x Hardware registration (coding)
Range	inside: 3 - 10 m outside: max. 50 m

12.5.3 Measurement Module

Supply voltage	10 - 15 V  (through module interface)
Current consumption	max. 500 mA, standard 400 mA
Ambient temperature	Recommended: 10 - 35 °C Working range: 0 - 45 °C
Weight	Approx. 250 g
Dimensions	37 x 82 x 160 mm (H x W x D)
Type of protection	IP20
Bandwidth	max. 10 MHz
Sampling rate	64 MSa/s
Memory depth	64 kB
Amplitude resolution	12 bit
Overload protection	max. 200 V
Measuring channels	2 (galvanically isolated)

Measured variables	<ul style="list-style-type: none"> • Voltage • Current (external clamp meter) • Resistance • Temperature (external HGS infrared thermometer) • Pressure (external LPD kit)
Interfaces	<ul style="list-style-type: none"> • 4x safety socket 4 mm (2 per measuring channel) • 1x ST3 (12-pin) • 1x module interface (M-LVDS) <p><u>ST3 connections</u></p> <ul style="list-style-type: none"> • 6x communication • 1x voltage inlet 10 to 15 V • 1x Voltage outlet +17 V • 2x scope (+/-) • 1x Hardware registration (coding) • 1x Ground

Vertical deflection factor	
Operating mode	Channel 1 or channel 2 single, channel 1 and channel 2 parallel
Tolerance	5% from the end of range
Input impedance	0.5 MOhm
Input coupling	DC, AC
Input voltage	60 V  / 42 V peak

Range	
Voltage	<ul style="list-style-type: none"> • Range 10 positions, 0.01 - 20 V/Div • Measurable voltage max. 200 V
Current	<ul style="list-style-type: none"> • Blue clamp (CP 700) <ul style="list-style-type: none"> – Measuring range: ± 700 A – Current load: max. 25 mA • Green clamp (CP 40) <ul style="list-style-type: none"> – Measurable current: -10 - 40 A – Current load: max. 25 mA
Resistance	<ul style="list-style-type: none"> • Range: 6 positions, 1 Ohm/Div - 100 kOhm/Div • Current output: 1 - 10 Ohm/250 µA, 10 - 100 Ohm/2.5 mA, 100 kOhm/25 µA, 1 MOhm/2.5 µA • Measurable resistance: approx. 1 MOhm

Temperature	<ul style="list-style-type: none"> • Range: 3 positions, 10 - 50 °C/Div • Measurable temperature: max. 500 °C
Pressure (with LPD kit)	<ul style="list-style-type: none"> • Range: 4 positions, 0.2 - 2 bar/Div • Measurable pressure: max. 60 bar
Horizontal deflection factor	
Time coefficient	23 positions, 1 µs/Div - 20 s/Div
Tolerance	30 ppm
Trigger	
Trigger mode	automatic (standard), normal
Trigger level	automatically: The trigger level is adapted to the input signal. manually: The trigger level can be selected individually.
Trigger channel	Scope 1: Standard Scope 2: Individually
Trigger edge	positive negative

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Made in Germany