PORSCHE

PIDT
PORSCHE Interactive Diagnostic Tester

Operating Manual

Sales mode v14.0.0

PAG_Diagnoseapplikation_V-Modus_v14_0_0_ BD_D340324

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Contents

1 Foreword

1.1 About this manual

This manual describes how to operate the diagnostic application of the Porsche Interactive Diagnostic Tester (PIDT) for Sales mode (V-mode).
It is intended for operating personnel at the testing station.

The menu guidance and operating concept details shown in this operating manual are examples. The actual displays depend on the parameters set using the PTTD (Porsche Terminology and Text Database) and may differ from the examples shown.

1.2 References to other documentation

Instructions for installing and setting up the diagnostic software can be found in the Installation Guide.

1.3 Terms and conditions of use

PAG authorized workshops:

The program is the property of Porsche AG. Unauthorized duplication or forwarding of the program or any part thereof is prohibited and punishable by law and can result in claims for damages.

The software may only be used for Porsche vehicles or components.

Independent workshops:

The program is the property of Porsche AG. Unauthorized duplication or forwarding of the program or any part thereof is prohibited and punishable by law and can result in claims for damages.

This operating manual contains all user-specific information about the Porsche Interactive Diagnostic Tester (PIDT) for Sales mode.
Please note however that only the functions of the drive and exhaust gas-relevant systems (see section 9) are available to you.

1.4 Syntax used

`Monospaced text`	Commands, command additions, parameter entries, screen displays
Italics	Names of directories, files, equipment, programs
Function group	Function group button to be pressed, e.g. Overview.
<Button>	Button or key combination to be pressed, e.g. <F1>.
"Text"	Text to be entered

1.5 Pictograms

This pictogram is used to refer to related points that have a significant influence on the smooth operation of the system.

Information:

This pictogram is used to refer to important related information. It provides additional information over and above that contained in the instructions.

2 General safety notes

2.1 Intended use

Diagnostic application:

The diagnostic application is used for communicating with control units. It is used as a sales tester and as a tool during development and allows the operator to find, identify, code and program control units, read the event memory, execute services directly via PDU input, run complex processes, change drive links and execute routines.

Content:

This document provides an overview of how to operate the diagnostic application. The functions and menus on the user interface are described in detail.

Target group:

It is intended for diagnostic software users.

3 Basic components

3.1 Graphical user interface

The diagnostic application has a graphical user interface. Its various elements are shown in Figure 1. The function or meaning of each element on this interface is explained in Table 1.

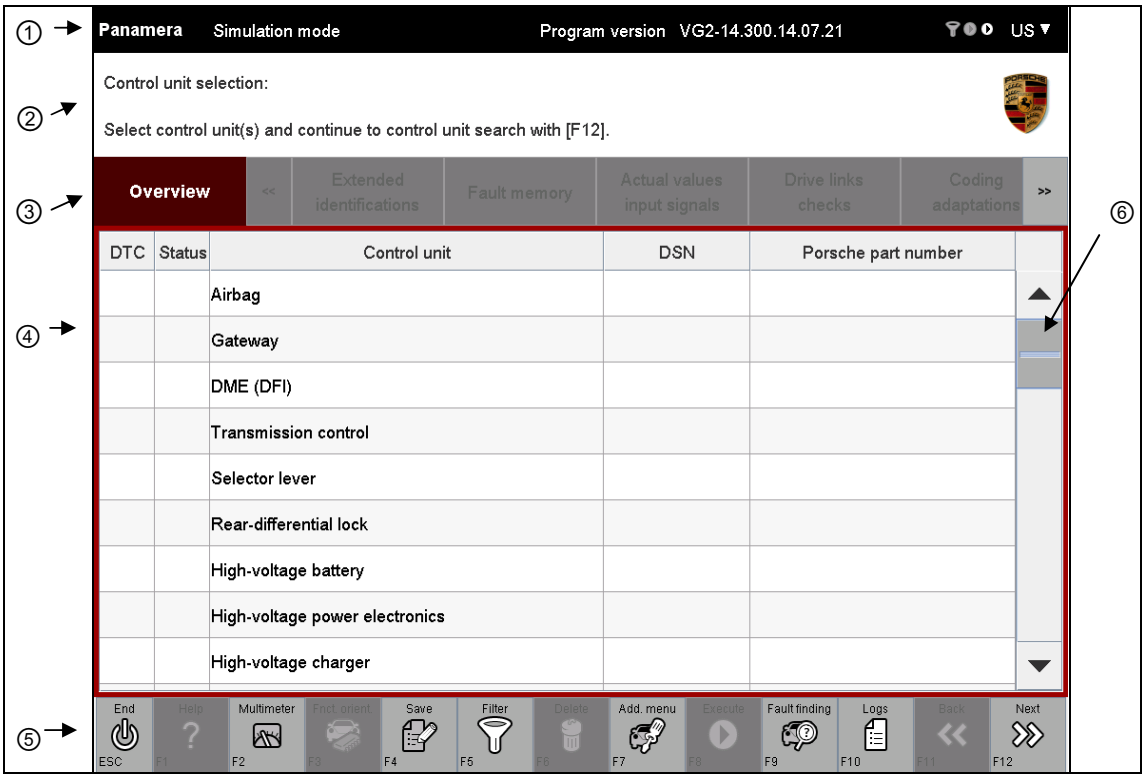


Figure 1: Elements of the graphical user interface (GUI) of the diagnostic application

Element	Description
① **Title bar**	 1 | 2 | 3 | 4a | 4b | 4c | 5 Sequence of the information displayed in the **title bar** (from left to right): 1. The ODX project name or vehicle type used is displayed first (e.g. **Panamera**). If the ODX data was modified following installation, this is indicated by a ⚠ icon in front of the project name. 2. The application mode in text form is displayed directly to the right of the project name. The following application modes can be displayed: - No display in standard mode or - Display mode or - Simulation mode Note: Display mode and Simulation mode can never be active at the same time. 3. The version number (release info) of the diagnostic application is displayed to the immediate right. 4. Three status icons are then displayed (from left to right): 4a) Filter active/inactive. If a filter is active, this is indicated by a icon. If no filter is active, the icon is grayed out. 4b) Background processing (data logger) active/inactive. If the data logger is active, this is indicated by a icon. If the data logger is not active, the icon is grayed out. 4c) Simulation started/stopped/recording. If simulation was started, this is indicated by a icon. If simulation data is being recorded, this is indicated by a icon. If simulation is stopped, the icon is grayed out. 5. The language selection icon is displayed at the far right: The current language is displayed as a language code, followed by a triangle icon, which shows the various languages that are available for selection.
② **Info area**	The **Info area** contains tips for using the elements displayed in the screen. The content of the **Info area** depends on the current status of the diagnostic application. Informative text as well as warnings alerting you about any operating errors are displayed here.

Element	Description
③ **Menu bar**	The available function groups of the current diagnostic application are displayed on the **menu bar**. The function groups are also the possible actions that can be selected. The activated function group is highlighted. The following function groups are available: 1. Overview 2. Extended identifications 3. Fault memory 4. Actual values/input signals 5. Drive links/checks 6. Codings/adaptations 7. Maintenance/repairs 8. Programming The function groups are shown in this manual with a box around the respective function group name.
④ **Work area**	The content of the individual screens is shown in the **work area**. This information is displayed either as text (e.g. in the form of a list) or graphically (e.g. in the form of an illustration). The content that is displayed depends on the selected action and the current status of the diagnostic application. The current **work area** is highlighted by a colored box all around it, just like the current function group in the menu bar.
⑤ **Control bar**	The **control bar** shows the actions that can be carried out, based on the possible courses of action within the current context. The possible actions that can be carried out are displayed as icons and depend on the current status of the diagnostic application. However, some of the possible actions that can be carried out are standard actions that are relevant for all screens. The buttons or keys on the control bar are shown in this manual using greater than/less than signs (<>). Example: The F1 button is indicated by the character combination <F1>.
⑥ **Scroll bar**	You can use the scroll bar to scroll if the available display area on the screen is not large enough to show all the data to be displayed.

Table 1: Description of the elements of the user interface

3.2 Function groups

A number of function groups are available on the menu bar (see also Figure 1 and Table 1). The function of each function group is described briefly here. A detailed description of how to use each function group can be found in section 8.

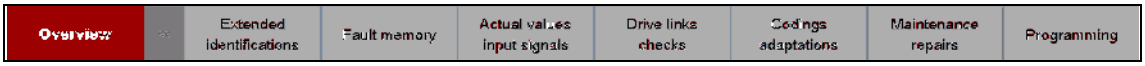


Figure 2: Function groups on the menu bar

Function group	Description
Overview	When you select the Overview function group, the result of the last control unit search is displayed in a table.
Extended identifications	When you select the Extended identifications function group, the extended identifications of previously selected control units are displayed.
Fault memory	You can use the Fault memory function group to display the fault memory entries and the environmental data of the relevant fault memory for a selection of control units. You can also delete all or individual fault memory entries for the control units here.
Actual values/ input signals	In the Actual values/input signals function group, you can display the actual values and input signals of control units.
Drive links/ checks	In the Drive links/checks function group, you can change parameters for drive links or run test routines. The results of this change are also logged and displayed.
Codings/ adaptations	In the Codings/adaptations function group, you can read the coding of control units and change it if you have the required user rights.
Maintenance/ repairs	In the Maintenance/repairs function group, you can execute processes that are needed for commissioning certain control units and functions.
Programming	In the Programming function group, you can program a control unit using flash jobs. The Programming function group is available only if you were granted suitable user rights.

Table 2: Description of the function groups

3.3 Control bar

The control bar displays various actions that you can carry out, depending on the currently displayed screen content. These actions are displayed as icons. If an action can be selected, the icon is light gray in color. You can then execute the desired action by pressing the button. If an action cannot be selected, the icon is shown in dark shades of gray and you cannot press the button. A distinction is made between generally valid icons and action-specific icons. Action-specific icons are displayed in the control bar instead of the generally valid icons for some functions.

3.3.1 Control bar: Generally valid icons

The function of the generally valid icons is described in Table 3. These icons identify actions that can be carried out for all function groups.

Button	Label	Icon	Description
ESC	**End**		The application is ended by pressing the <ESC> button. A system query makes sure that you do not want to exit the application unintentionally. The query appears in a pop-up window over the work area. When you exit the application, you are returned to the point from which you started the application.
F1	**Help**		Pressing the <F1> button displays context-sensitive help for the currently selected element. The help text is displayed in a pop-up window. The <F1> button is only active for some elements at present.
F2	**Multimeter**		Pressing the <F2> button sets up a connection to analog measuring equipment. The analog measuring equipment application is started and takes priority over the diagnostic application during its runtime.
F3	**Data logger**		Pressing the <F3> button starts the data logger of the diagnostic application. This function continuously reads measured values from a selected control unit and displays these in a time-over-values diagram. The values are displayed in the work area of the application.
F4	**Save**		Pressing the <F4> button allows you to save a communication log or working log.

Button	Label	Icon	Description
F5	**Filter**		Pressing the <F5> button opens a menu in which you can define and apply your own search filters. For example, you can restrict the number and type of elements displayed (measured values, identifications, routines, drive links, etc.).
F6	**Delete**		Pressing the <F6> button deletes the current selection of elements listed in the work area. Previously selected elements are no longer selected after pressing the <F6> button. In addition, any activated function groups and buttons on the control bar are deactivated again.
F7	**Additional menu**		Pressing the <F7> button displays a list of general vehicle functions, e.g. closed-circuit current measurement.
F8	**Execute**		Pressing the <F8> button executes a context-sensitive action. For a more detailed list of the possible actions, see section 3.3.2.
F9	**Fault finding**		Pressing the <F9> button starts Guided Fault Finding (GFF).
F10	**Logs**		Pressing the <F10> button displays a selection window over the button. The following selection options are available: • Log types • Communication log: When you select the `Communication log` option, the communication log overview screen is displayed. The requests sent and the responses received from the control units since logging was started are displayed in a list here.
F11	**Back**		Pressing the <F11> button brings you back to the previous screen.
F12	**Next**		Pressing the <F12> button brings you to the next screen.

Table 3: Generally valid icons

3.3.2 Control bar: Action-specific icons

If an action, which is not sufficiently described by one of the generally valid icons, can be carried out in a function group, an action-specific icon is displayed. You can then carry out the action in the usual way by pressing the corresponding button.

The specific buttons for the respective function groups are described at the start of the corresponding sections.

3.4 System messages

The diagnostic application informs you about possible operations, queries decision-relevant actions and issues warnings in abnormal situations or if you are about to carry out an action that could pose a safety risk for the control unit.

3.4.1 Message texts

Helpful texts and tips are generally displayed in the Info area of the screen. Instructions and short informative messages to help you use the diagnostic application are displayed here.

3.4.2 Icons

Messages or warnings can also appear as icons. The function and meaning of the icons are summarized in Table 4.

Status displays	
Icon	**Description**
	This icon appears in the work area of various functions and function groups: • Extended identifications: The icon indicates a write error and appears in the `Changed` column. • Codings/adaptations: The icon indicates a write error and appears in the `Changed` column. • Maintenance/repairs: The icon indicates an unacceptable value for a start condition and appears in the `Status` column. • General vehicle functions: The icon indicates that a fault has occurred during control unit communication or that the control unit could not be addressed. • Communication log: The icon indicates that a fault has occurred during control unit communication or that the control unit could not be addressed.
	This icon appears in the work area of various functions and function groups: • Codings/adaptations • Extended identifications • General vehicle functions (e.g. Maintenance of vehicle data) The icon indicates that the user has changed a value by entering his own value. The icon appears in the `Changed` column in the work area of the screen.

Status displays	
Icon	**Description**
	This icon appears in the work area of various functions and function groups: • Codings/adaptations • Extended identifications • General vehicle functions (e.g. Maintenance of vehicle data) The icon indicates that a value that was entered does not meet the required specifications (e.g. format, length, etc.). The icon appears in the `Changed` column in the work area of the screen.
	This icon appears in the work area of various functions and function groups: • Extended identifications: The icon indicates that an identification has been written successfully. • Codings/adaptations: The icon indicates that coding has been written successfully. • Fault memory: The icon indicates an active fault memory entry. • General vehicle functions (e.g. Maintenance of vehicle data).
	This icon appears in the work area in the Overview function group: The icon indicates that no variant has been found for a control unit during the control unit search. For this reason, the system displays the basic variant.
	This icon appears in the work area in the Overview function group: The icon indicates that a fault memory entry exists for the relevant control unit.
	This icon appears in the work area in the Overview function group: The icon indicates that the control unit in question is not programmed.
	This icon appears in the work area in the Overview function group: The icon indicates that the control unit is a flash-programmable LIN slave.

Status displays	
Icon	**Description**
	This icon appears in the work area of the communication logging function. The icon indicates that the listed entry is a system request to a control unit.
	This icon appears in the work area of the communication logging function. The icon indicates that the listed entry is a control unit response to the system.

Table 4: System messages

Language version	
Icon	**Description**
	This icon appears in the title bar of the working window of the diagnostic application. When you click on this icon, a drop-down menu appears in which you can select the desired language version. The currently set language is grayed out and cannot be selected.

Table 5: Language version

4 Hierarchical display structure

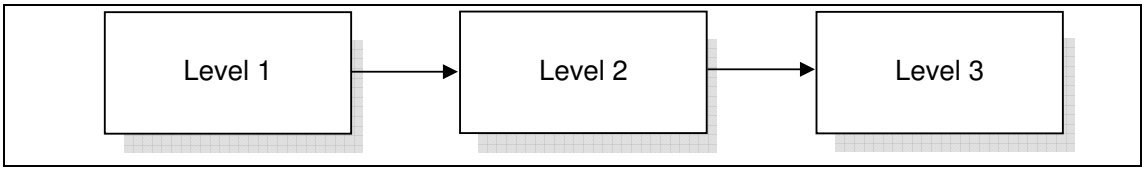


Figure 3: Function groups on the menu bar

The menu structure of the diagnostic application is hierarchical and has three levels. This is shown schematically in Figure 3. The individual processes are described in detail in sections 4.1ff and 8.

Level 1: The first level allows users to start using the diagnostic application. This level is displayed in the form of a control unit overview containing a list of all the control units of the ODX project.

Level 2: The second level contains the overview screens of the respective function groups.

Level 3: The third level generally shows the details and possible actions for the elements that were selected in the overview screens on the second level.

The following sub-sections show the possible interaction paths that you can select as a user of the diagnostic application. The navigation buttons <F11> and <F12> can be used to navigate within a branch of the menu tree.

You can also switch to a screen on the second level from any other screen using the function groups on the menu bar. This is indicated by a wide gray arrow on the screen.

The individual navigation branches are described in more detail below.

4.1 Control unit list, control unit overview

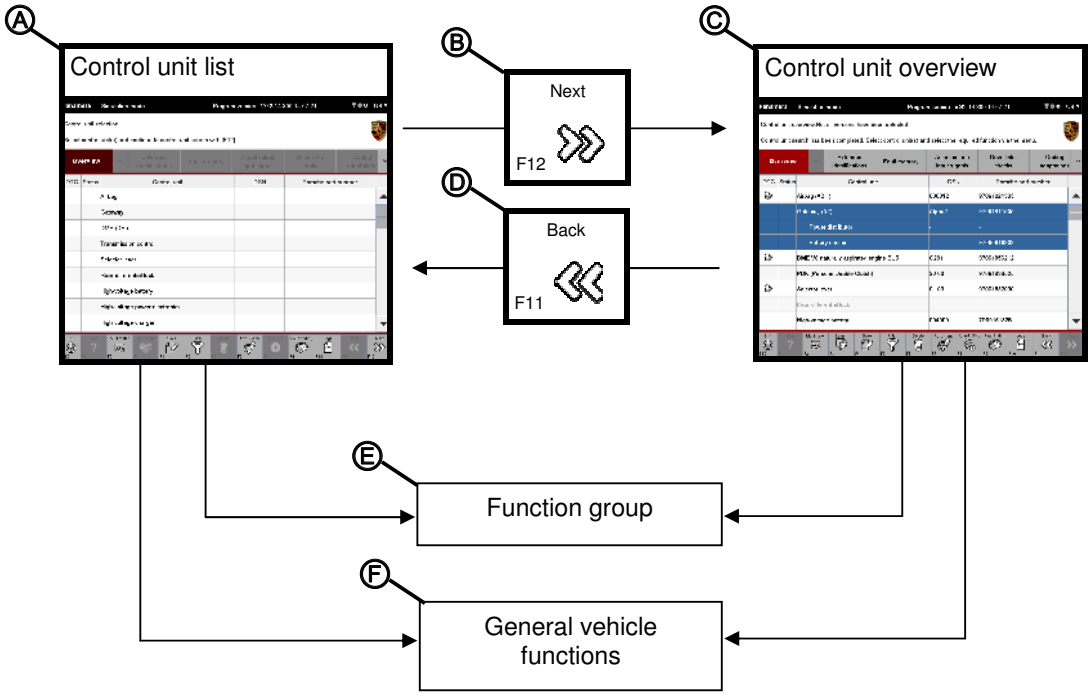


Figure 4: Screen navigation in the control unit list/control unit overview

When you start the application, the control units of the ODX project are displayed in the control unit list (**A**). A control unit search is started by pressing the <F12> button (**B**). The control units that could be addressed during the search are then highlighted in the control unit overview (**C**). Control units that could not be addressed are grayed out.
When you press the <F11> button (**D**) in the control unit overview, you return to the control unit list.

When you select at least one control unit in the control unit list or control unit overview, you can select a function group from the menu bar (**E**).

Pressing <F7> (**F**) on the control bar gives you selection-independent access to general vehicle functions.

4.2 Extended identifications

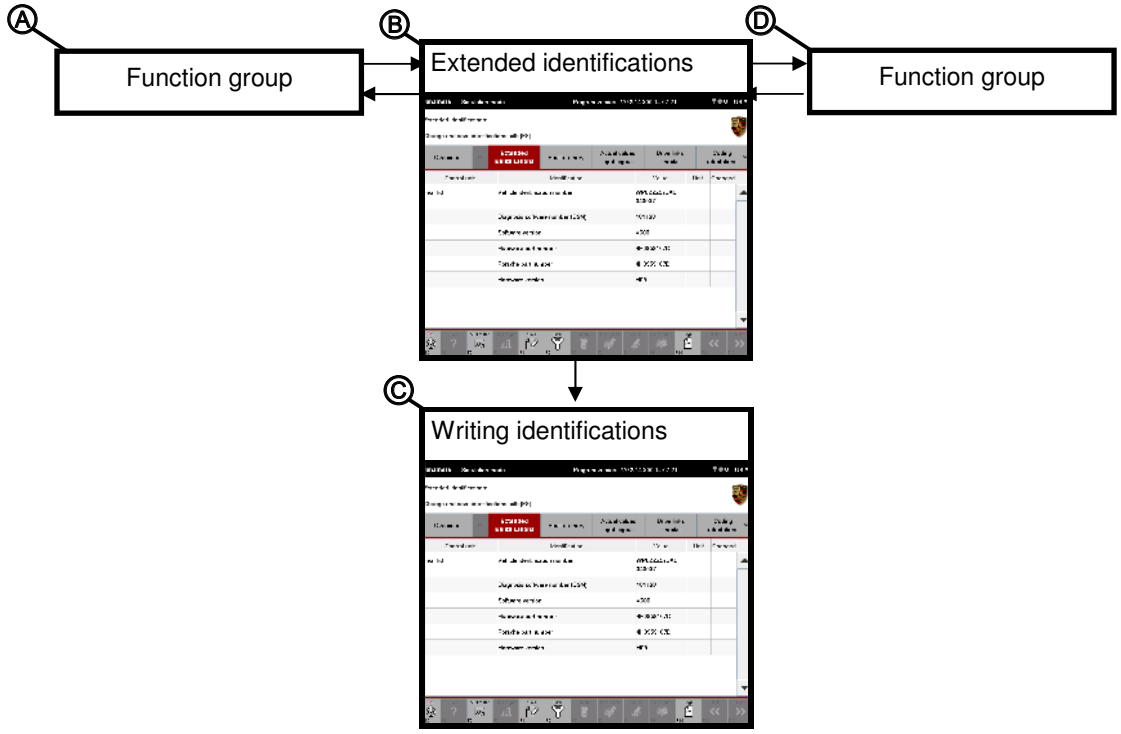


Figure 5: Screen navigation for Extended identifications

If you have selected at least one control unit in another function group (**A**), you can display the identifications for the selected control unit by selecting the Extended identifications function group (**B**).
You can write identifications there (**C**).
You can also call up a different function group by pressing a function group button on the menu bar (**D**).

4.3 Fault memory

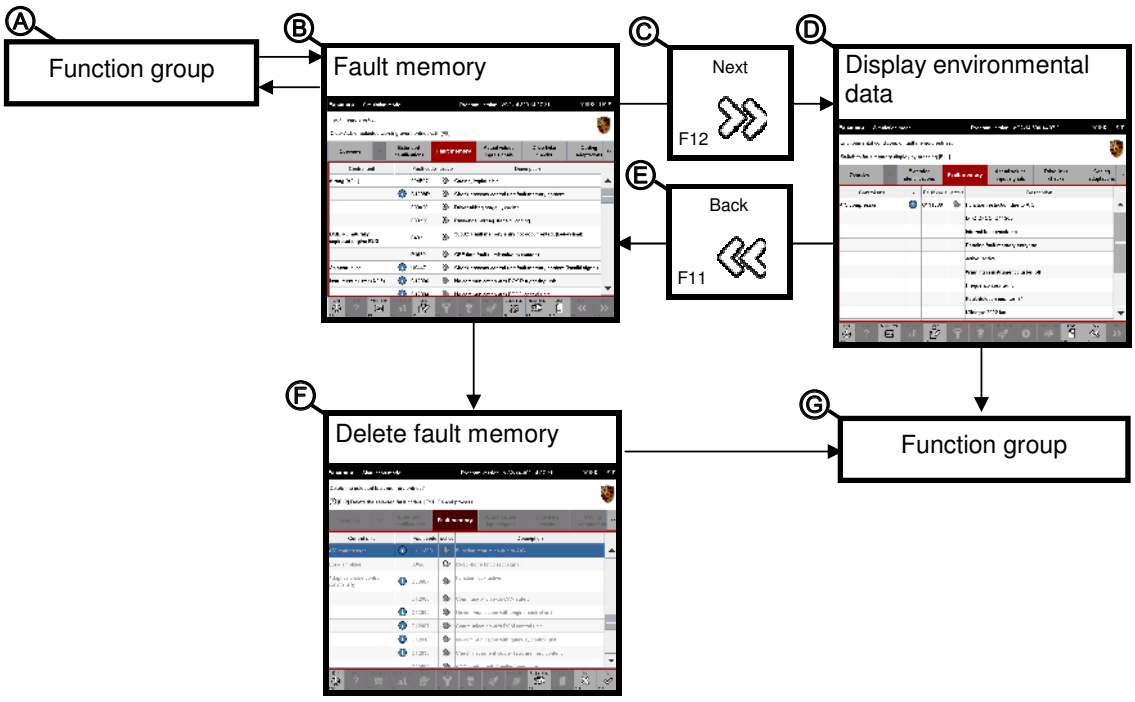


Figure 6: Screen navigation for Fault memory

If you have selected at least one control unit in another function group (**A**), you can display an overview of the fault memory entries (**B**) by selecting the Fault memory function group. You can select an entry there and then press the <F12> button (**C**) to display the environmental data (**D**) for a fault memory.
When you press the <F11> button (**E**) in the environmental data screen, you return to the fault memory entries screen (**B**).
You can delete fault memories (**F**) and switch to a different function group by selecting a function group button on the menu bar (**G**).

4.4 Actual values/input signals

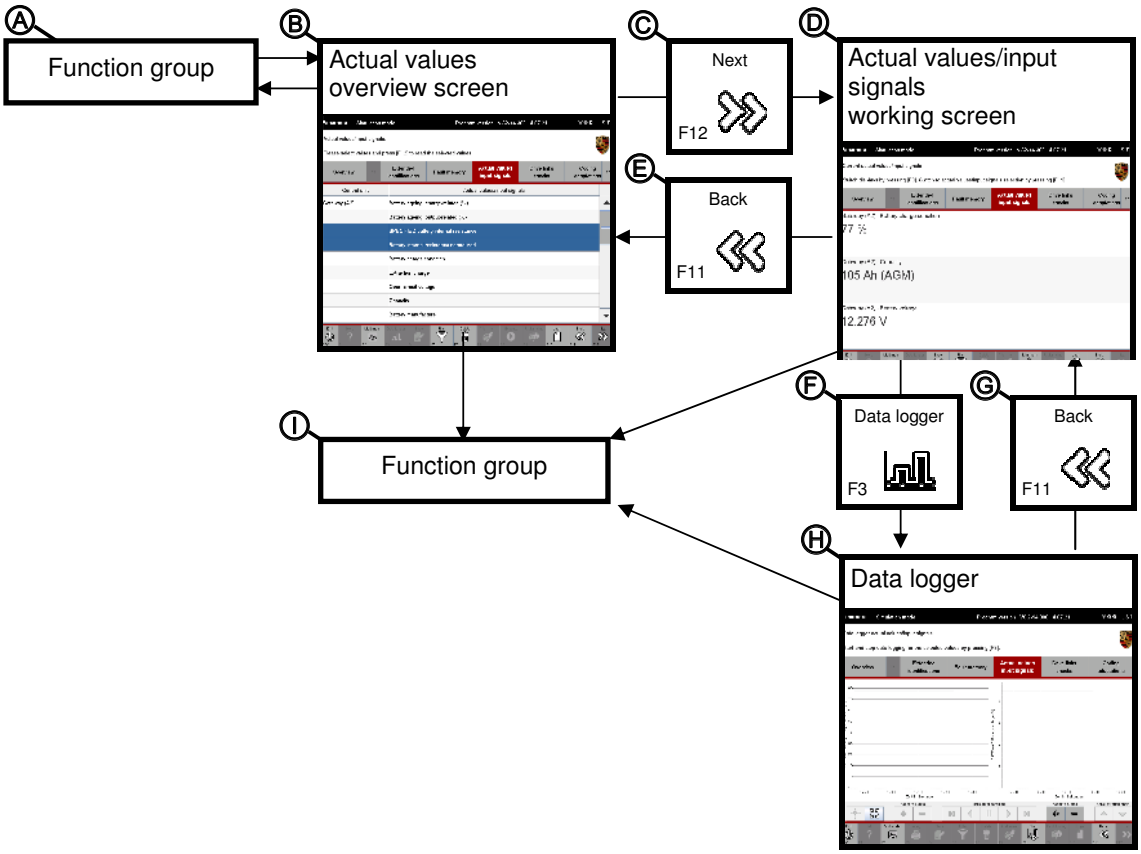


Figure 7: Screen navigation for Actual values/input signals including data logger

If you have selected at least one control unit in another function group (**A**), you can display an overview of the actual values or input signals (**B**) by selecting the Actual values/input signals function group.
If you have selected at least one actual value/input signal, you can press the <F12> button (**C**) here to display a detailed view of the respective actual values and input signals (**D**).
When you press the <F11> button (**E**) in the Actual values/input signals detailed view, you return to the list of actual values/input signals (**B**).
In the working screen of the Actual values/input signals function group, you can press <F3> (**F**) to call up the data logger (**H**) after you have selected at least one value.
When you press the <F11> button (**G**) in the data logger, you return to the Actual values/input signals working screen (**D**).
You can also call up a different function group by selecting one of the function group buttons on the menu bar (**I**).

4.5 Drive links/checks

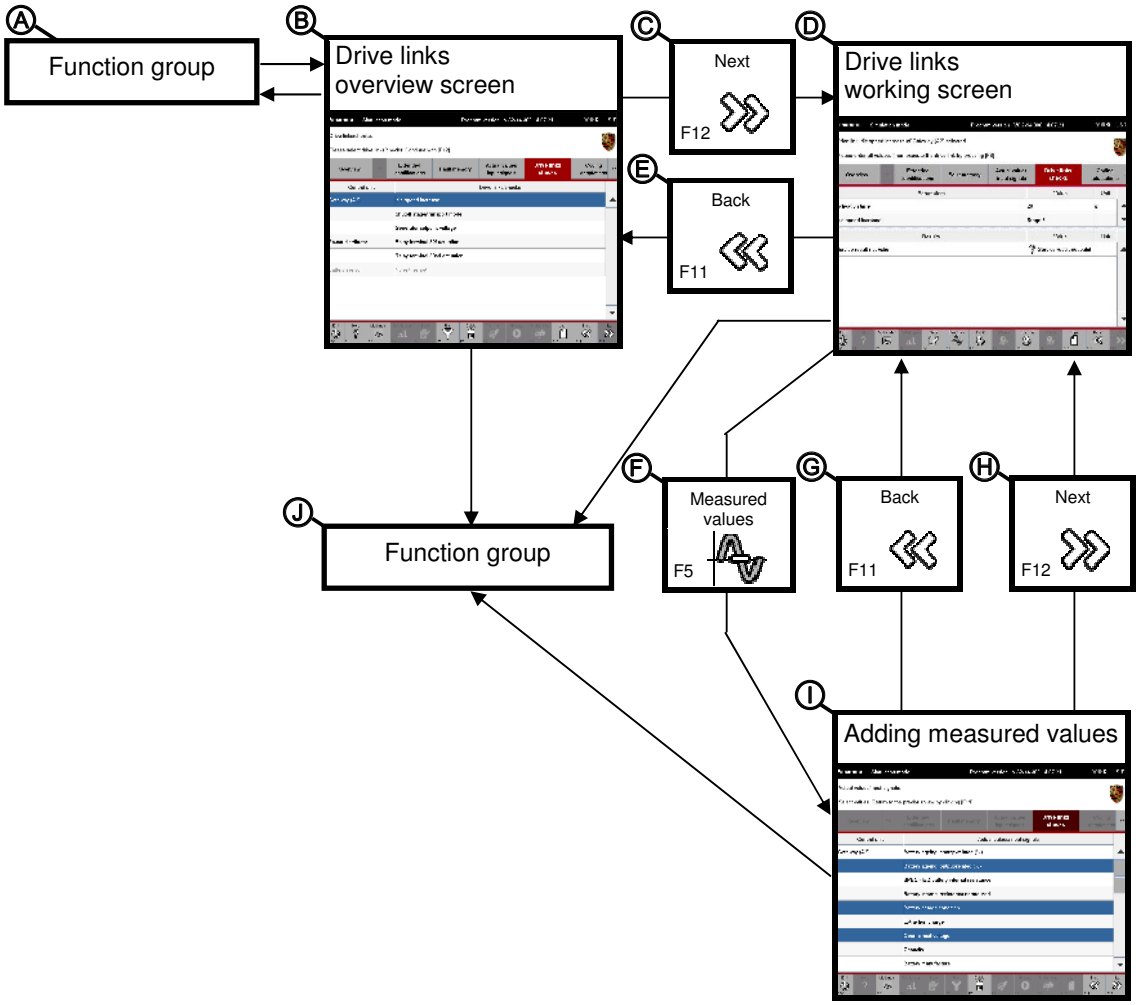


Figure 8: Screen navigation for Drive links/checks

If you have selected at least one control unit in another function group (**A**), you can display an overview of the available drive links and routines (**B**) by selecting the Drive links/checks function group.
If you have selected at least one drive link, you can press the <F12> button (**C**) to display a detailed view - the working screen for the function group - in which you can change the parameters of a drive link.
When you press the <F11> button (**E**) in the detailed view, you return to the overview of the drive links and routines (**B**).
In the detailed view (**D**), you can press the <F5> button (**F**) to display another selection screen in which you can add new measured variables to the result area of the detailed view (**I**).
When you press the <F12> button (**H**) in this selection screen, you accept the selected

values and return to the detailed view.
When you press the <F11> button (**G**) in this selection screen, you reject the selected values and return to the detailed view.
You can also call up a different function group by selecting one of the function group buttons on the menu bar (**J**).

4.6 Codings/adaptations

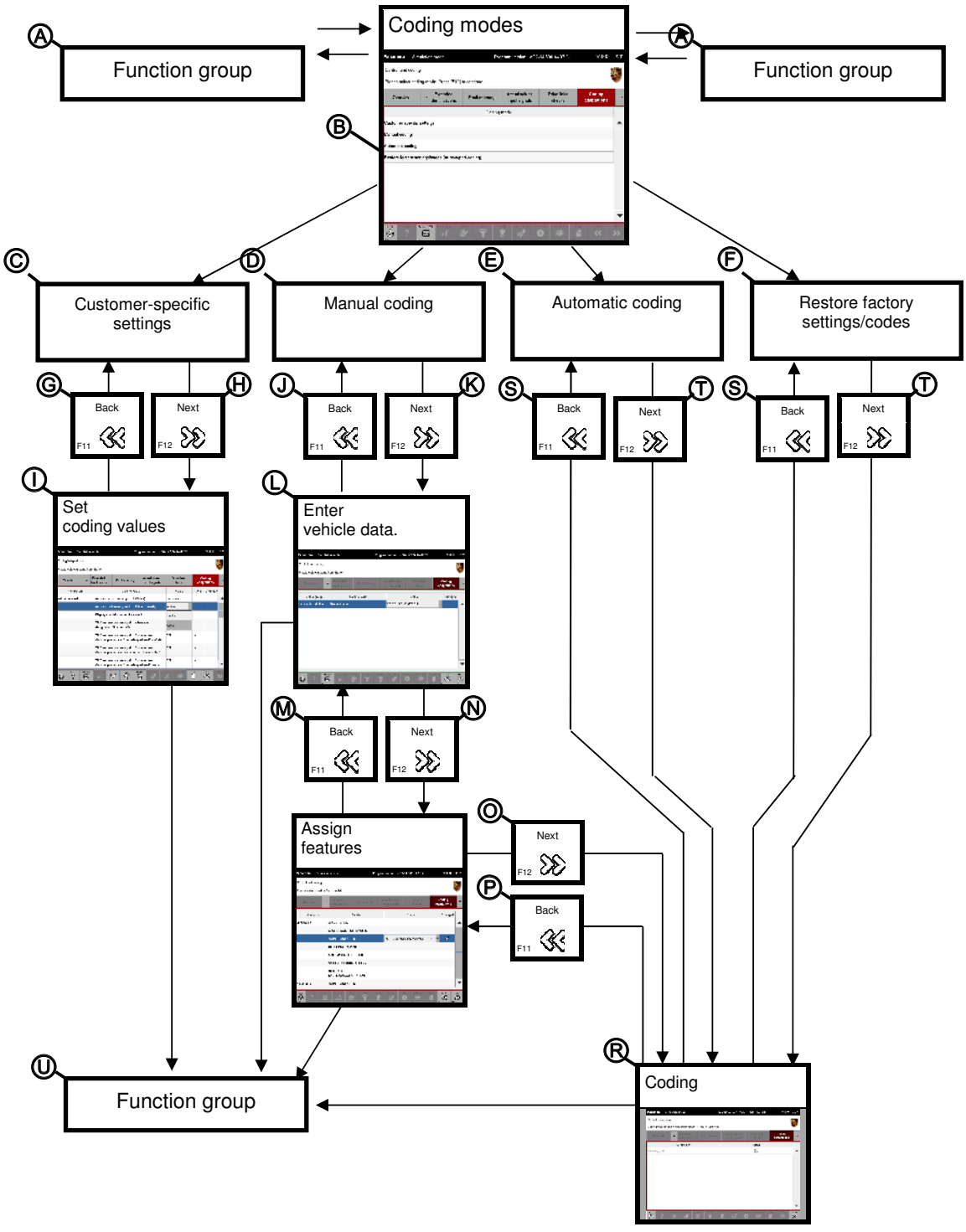


Figure 9: Screen navigation for Codings/adaptations

If you have selected at least one control unit in another function group (**A**), you can display the list of coding modes (**B**) by selecting the Codings/adaptations function group.
The various working screens are displayed when you select a coding mode:

- If you have selected the coding mode `Customer-specific settings` (**C**) and confirmed your selection by pressing <F12> (**H**), you can now set and write coding values (**I**). Pressing <F11> (**G**) brings you back to the list of coding modes.

- If you have selected the coding mode `Manual coding` (**D**) and confirmed your selection by pressing <F12> (**K**), you must enter the vehicle data in the next screen that appears (**L**). Pressing <F11> (**J**) brings you back from there to the list of coding modes.
  When you have entered the vehicle data, press <F12> (**N**) to display a number of screens in which you must assign the relevant equipment features (**Z**, e.g. color and materials, X, M, Z, PR numbers). When you press the <F11> button (**M**) in this screen, you return to the vehicle data input screen or to the previous screen.
  When you have finished assigning the equipment features, press <F12> (**O**) to start the coding process (**R**).

- If you have selected one of the automatic coding modes (`Automatic coding` or `Restore factory settings/codes`) and confirmed your selection by pressing <F12> (**T**), the coding process starts immediately (**R**).

You can also call up a different function group by selecting one of the function group buttons on the menu bar (**U**).

4.7 Maintenance/repairs

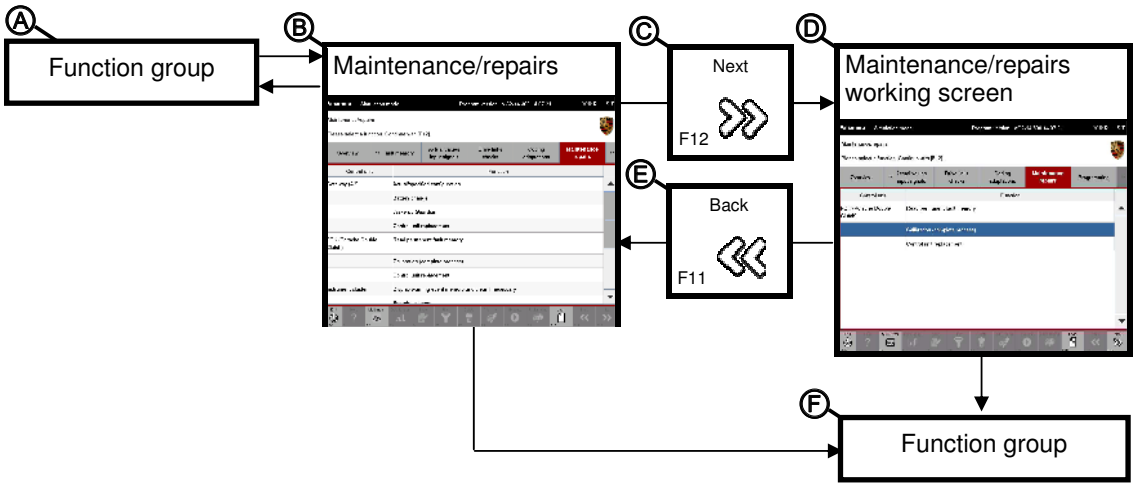


Figure 10: Screen navigation for Maintenance/repairs

If you have selected at least one control unit in another function group (**A**), you can display the list of control unit-specific processes (**B**) by selecting the Maintenance/repairs function group.
When you have selected a process in the list of control unit-specific processes, you can press the <F12> button (**C**) to display a detailed view (**D**) containing information that guides you through the respective process.
Pressing the <F11> button (**E**) in the detailed view brings you back to the list of control unit-specific processes (**B**).
You can also call up a different function group by selecting one of the function group buttons on the menu bar (**F**).

4.8 Programming

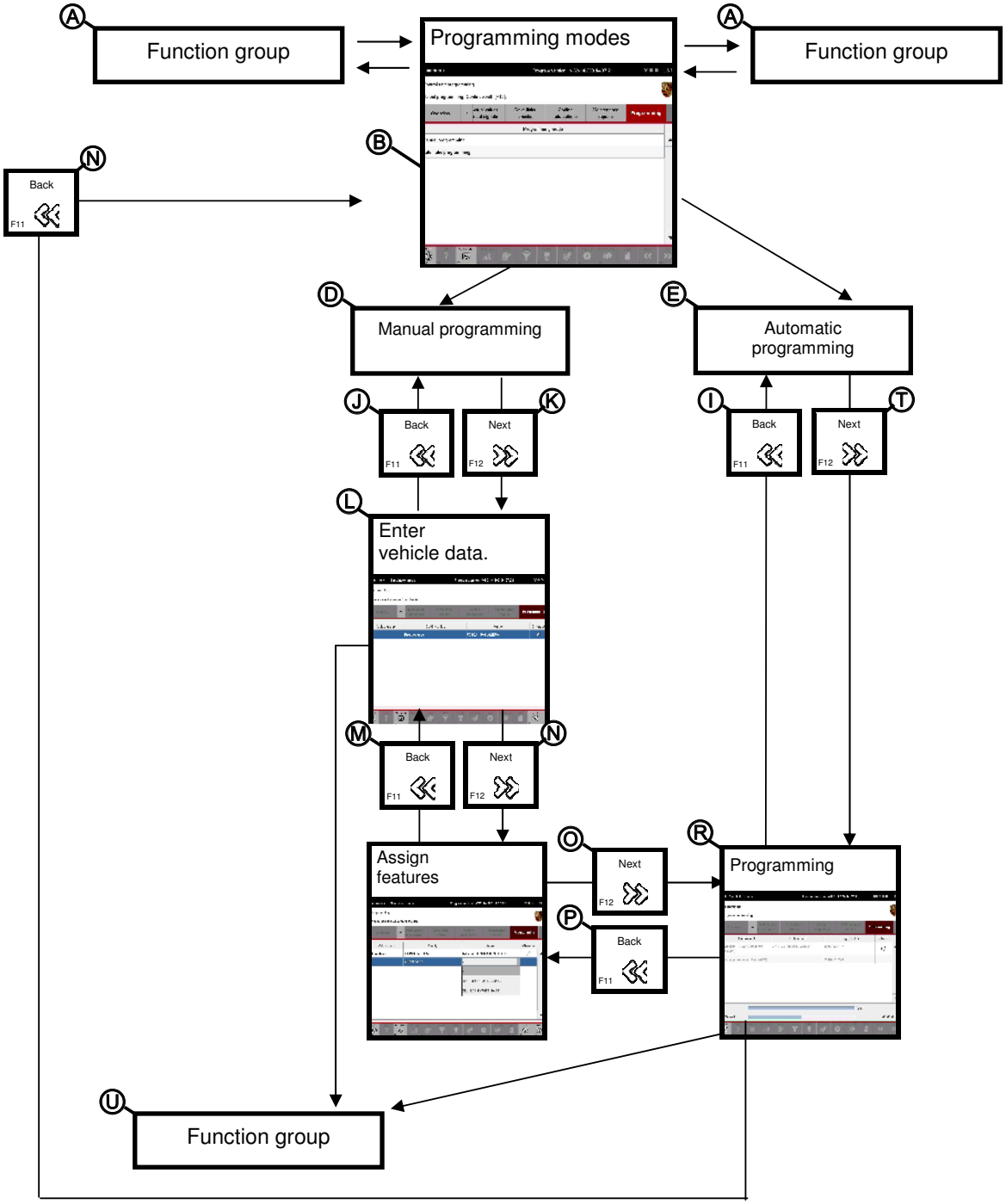


Figure 11: Screen navigation for Programming

If you have selected at least one control unit in another function group (**A**), you can display the list of programming modes (**B**) by selecting the Programming function group.
The various working screens are displayed when you select a programming mode:

- If you have selected `Manual programming` (**D**) and confirmed your selection by pressing <F12> (**K**), you must enter the vehicle data in the next screen (**L**). Pressing <F11> (**J**) brings you back from there to the list of programming modes.
  When you have entered the vehicle data, press <F12> (**N**) to display a number of screens in which you must assign equipment features (X, M, Z, PR numbers). When you press the <F11> button (**M**) in these screens, you return to the vehicle data input screen or to the previous screen.
  When you have assigned all equipment features, press <F12> (**O**) to display the programming screen (**R**).

- If you have selected `Automatic programming` (**E**) and confirmed your selection by pressing <F12> (**T**), the programming screen (**R**) appears.

You can also call up a different function group by selecting one of the function group buttons on the menu bar (**U**).

Special procedures after programming:

If control unit programming was not successful, you can press <F11> (**X**) to return to the overview of programming modes. If programming was successful, the <F11> button is deactivated and you must press one of the function buttons in order to use other functions of the diagnostic application.

5 Application modes

Before the individual setting options are described in section 6, this section first provides an overview of the different application modes and display parameters.

Three basic application modes are available in which you can run the diagnostic application. These are:

- Standard mode:
  In this mode, communication with the vehicle takes place over a connected VCI (Vehicle Communication Interface). The control units, values, parameters and responses to requests displayed in the diagnostic application are based on communication with the control units installed in the vehicle. All values and responses are read directly from the vehicle on request, i.e. during runtime.

  When should I select this mode?
  You should select this mode if you want to test a real vehicle or implement software settings on the vehicle.

- Simulation mode:
  In this mode, control unit communication is simulated using previously recorded data. The limiting factor here is the database of recorded control unit communication, since only previously recorded control unit responses are reproduced. It is not possible to generate control unit responses that are not included in the previously recorded simulation data!

  If you perform the same steps in simulation mode as you did when recording the data, you will get the same responses you received when recording the data. The simulation data is therefore a representation of a real control unit for these steps you performed.

  When should I select this mode?
  You should select this mode if you need simulation data instead of control unit communication during runtime. This is necessary, for example, if you want to test the diagnostic application using updated ODX data.

  If no VCI is detected when starting the application, simulation mode is available as a fallback mode.

- Display mode:
  There is no communication with the vehicle over a VCI in this mode. Unlike simulation mode, no previously recorded control unit responses are displayed. Instead, the menus, sub-structures and labels are displayed in accordance with the ODX data input model. The following restrictions therefore apply:

  - All fault memories are displayed in the Fault memory function group.
  - Default values are displayed instead of real actual values in the Actual values/input signals function group.

- In function groups for which service requests can be sent by entering data, no control unit response is displayed in the response field.

When should I select this mode?
You should select this mode if you would like to view different data input for different control unit variants.

For information on activating the relevant application mode using the control application:

►See section 6.3.2.

6 Control application

The control application allows you to influence the behavior of the diagnostic application. In the control application, the possible setting options are shown in a graphical user interface. You can make changes here simply by clicking on the required options.

All settings, except for the version information, can be saved. The diagnostic application is then started using the settings configured in the control application.

Permanently storing settings:

If you have changed and saved the settings, the diagnostic application will be run using these settings from this point on.

The settings configured in the control application will not be deleted or changed during setup or re-installation.

This section first describes how to launch the control application. It then describes the various elements of the control application and how to configure settings in the control application.

6.1 Starting the control application

Start the control application from the basic system. For information on how to use the PORSCHE basic system, please refer to the relevant documentation.

6.2 Elements of the control application

The graphical user interface of the control application is similar to that of the diagnostic application.

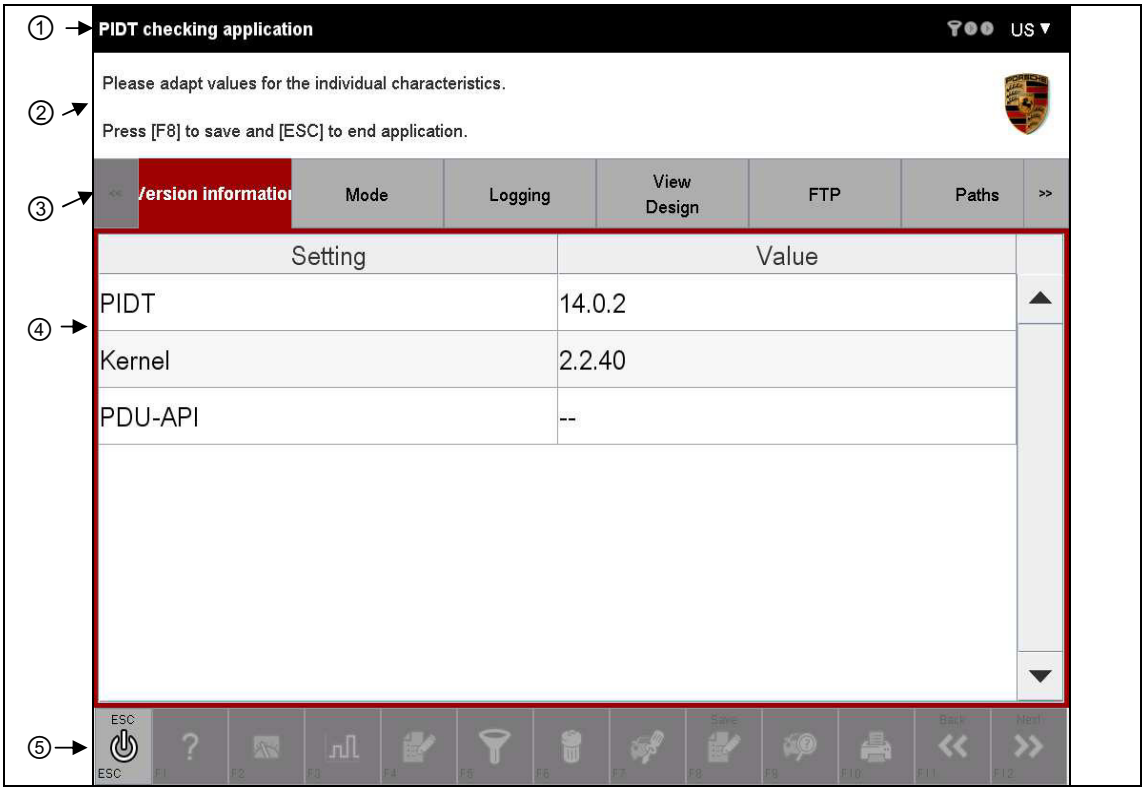


Figure 12: Elements of the graphical user interface (GUI) of the control application

Element	Description
① **Title bar**	The title bar shows you that you are in the control application. The drop-down menu for language selection is available on the right-hand side, just like in the diagnostic application.
② **Info area**	The information area displays information on operation and the various setting options.

Element	Description
③ **Menu bar**	Unlike the menu bar in the diagnostic application, this menu bar does not display function groups (see section 3.2), but shows categories of setting options instead. The following categories are available: 1. Version information 2. Mode 3. Logging 4. View/Design 5. FTP 6. Paths 7. Miscellaneous
④ **Work area**	You can implement the required settings in the work area. The elements are listed in a table. Example: The first column contains the permitted displayable setting options. In the second column, you can enter values or change settings using a drop-down menu, provided these can be changed. You cannot change the values displayed for the version information.
⑤ **Control bar**	The following buttons are active on the control bar: • <ESC> (ESC): Exits the control application. • <F8> (Save): If values can be changed, any changes made to the settings can be saved using this button.

6.3 Categories

6.3.1 Version information

The Version information category displays information about the most important installed components of the diagnostic application. These values cannot be edited or changed.

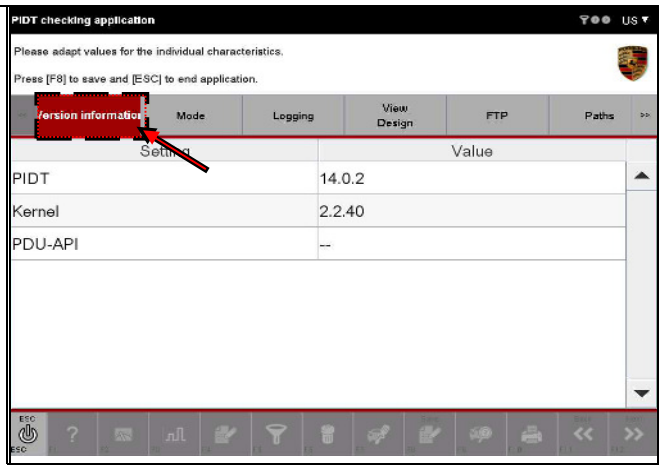
The following data is displayed:

- Version number of the currently installed diagnostic application
- Version number of the MCD kernel used
- Version number of the PDU API
- Version numbers of the installed model lines and processes.

1. Start the control application.
   ►See section 6.1

2. The content of the Version information category is displayed by default when you start the control application.

   If you have already selected a different category, select the Version information category on the menu bar.



6.3.2 Mode

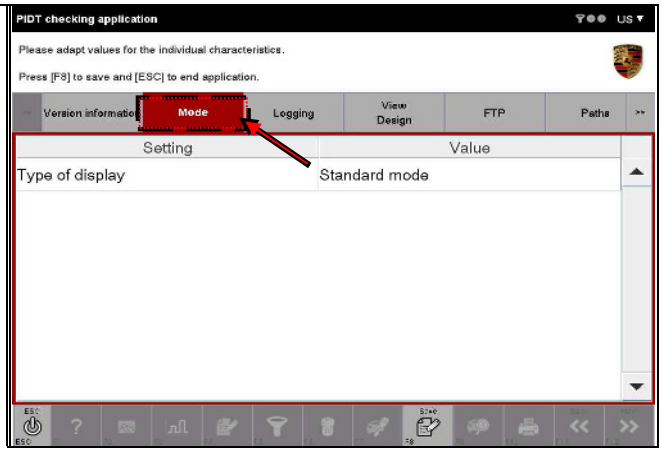
You can set the basic application modes (Type of display) in the Mode category.

6.3.2.1 Calling up the Mode category

For an overview of the individual modes and their meaning:
►See section 5.

1. Start the control application.
   ►See section 6.1

2. Select the Mode category on the menu bar by clicking on the category.



6.3.2.2 Type of display

You can set the basic application mode using this parameter. For further information on the basic application mode: See section 5.

If you have saved the corresponding setting, the diagnostic application will be started with this default setting from this point on.

Restriction for simulation mode:

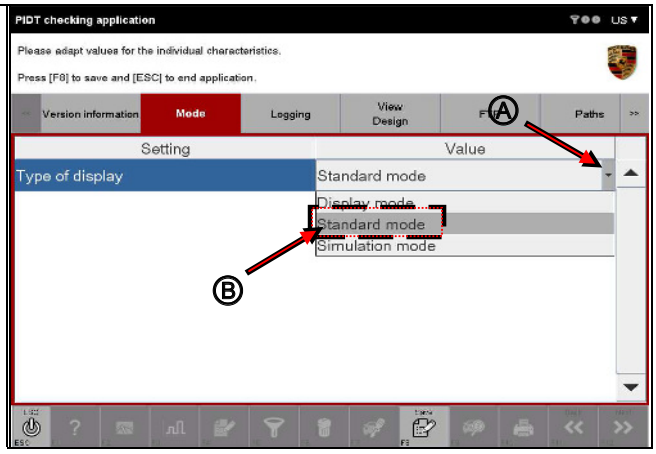
If you want to start the diagnostic application in simulation mode, a simulation file must already have been created in the diagnostic application.

Default setting:

Type of display: ► `Standard mode`.

1. Start the control application and select the Mode category on the menu bar:
   ►See section 6.3.2.1

2. Click in the `Value` field (A) next to the entry `Type of display` and select the required entry in the drop-down menu that opens by clicking once (B).
   The following modes are available:
   - `Standard mode`
   - `Display mode`
     Application is used without VCI
   - `Simulation mode`



3. Press the <F8> button to save the setting.

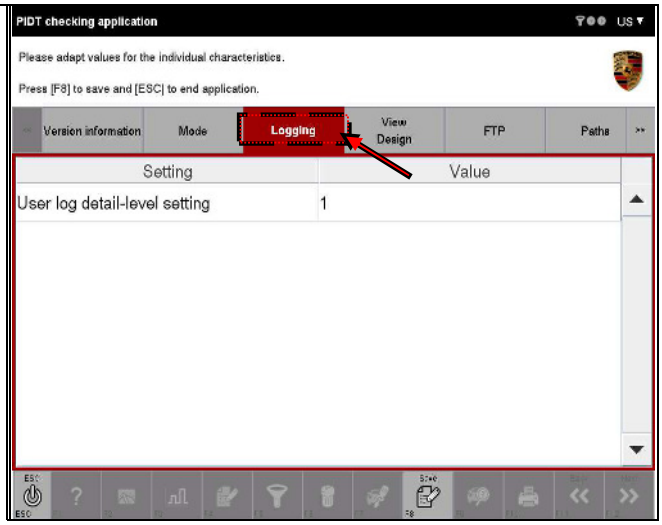
6.3.3 Logging

You can implement settings for the communication log and user log in the Logging category.

6.3.3.1 Calling up the Logging category

1. Start the control application.
   ►See section 6.1

2. Select the Logging category on the menu bar by clicking on the category.



6.3.3.2 User log detail-level setting

This setting allows you to change the log level of the user log. The basic log level is defined when the diagnostic application is installed. It is not possible to select a lower setting in the control application than was preset during installation.
The log level defines the scope of data that is recorded during user logging. A higher level corresponds to a larger scope.
You can set the log level in the control application. The log levels 1=normal or 2=full are normally available.
If the log level 0=off was set during installation, no entry is displayed in the control application. In other words, if the level defined during installation means that no user log is to be created, it is not possible to activate the logging function via the control application.

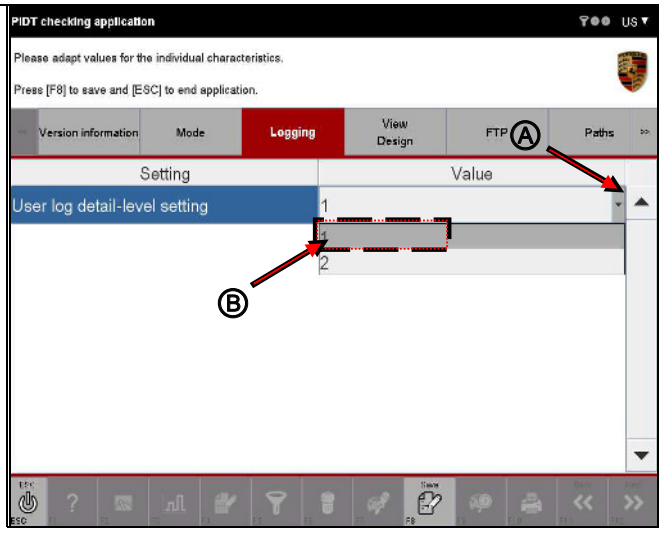
If you have saved the corresponding setting, the diagnostic application will be started with this default setting from this point on.

Availability:

This option is only available if the user log was activated during installation.

1. Start the control application and select the Logging category on the menu bar:
►See section 6.3.3.1

2. Click in the `Value` field (A) next to the entry `User log detail-level setting` and select the required entry in the drop-down menu by clicking once (B).
The following options are available:
   - 1
   - 2



3. Press the <F8> button to save the setting.

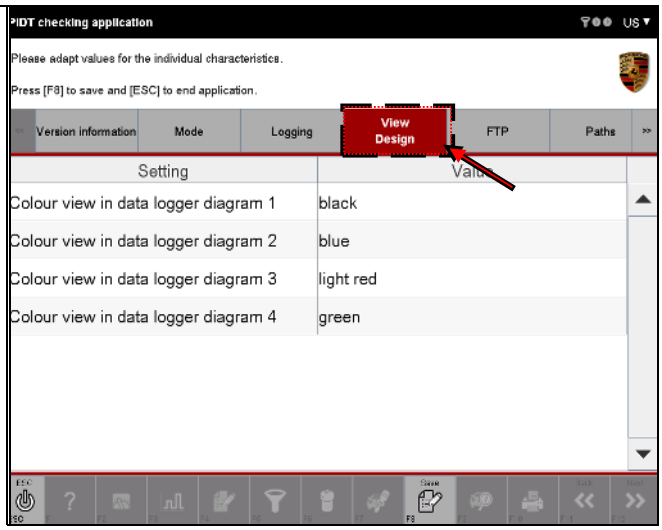
6.3.4 View/Design

You can define settings that affect the "look" of the application in the View/Design category.

6.3.4.1 Calling up the View/Design category

1. Start the control application.
   ►See section 6.1

2. Select the View/Design category on the menu bar by clicking on the category.



6.3.4.2 Color view in the data logger

This setting allows you to change the color of the curves that are displayed in the data logger of the diagnostic application. For further information on the data logger: See section 8.4.4. You can display up to four curves in a diagram in the data logger. You can define a color for each of the four curves that can be displayed in a diagram so that they are easier to identify.

If you have saved the corresponding setting, the diagnostic application will be started with this default setting from this point on.

Default settings:

Color view in data logger diagram 1: ► `Black`

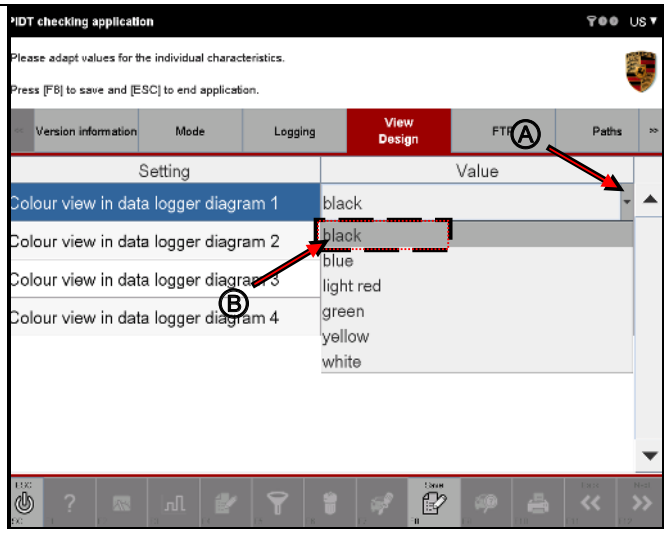
Color view in data logger diagram 2: ► `Blue`

Color view in data logger diagram 3: ► `Light Red`

Color view in data logger diagram 4: ► `Green`

1. Start the control application and select the View/Design category on the menu bar: ►See section 6.3.4

2. Click in the `Value` field (A) next to the entry `Color view in data logger diagram 1` and select the required entry in the drop-down menu by clicking once (B). The following options are available:
   - `black`
   - `blue`
   - `light red`
   - `green`
   - `yellow`
   - `white`



3. Repeat this step for the following entries:
   `Color view in data logger diagram 2`
   `Color view in data logger diagram 3`
   `Color view in data logger diagram 4`

4. Press the <F8> button to save the setting.

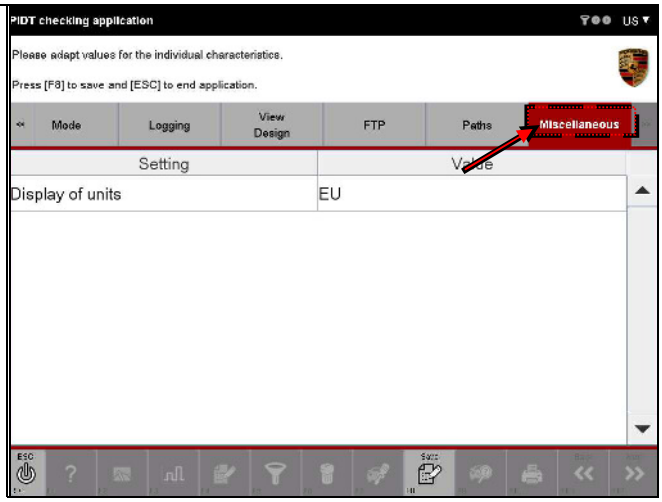
6.3.5 Miscellaneous

Settings that cannot be assigned to the other categories are summarized in the Miscellaneous category.

6.3.5.1 Calling up the Miscellaneous category

1. Start the control application.
   ►See section 6.1

2. Select the Miscellaneous category on the menu bar by clicking on the category.



6.3.5.2 Display of units

This setting allows you to change the units that are displayed by selecting a units family in the diagnostic application.

Example:
If you want to display "km/h" values as "mph", change the display of units to `US`. The values are then converted accordingly.

This setting can be changed irrespective of the selected language, which you can set using the ▼ icon (see section 10.9).

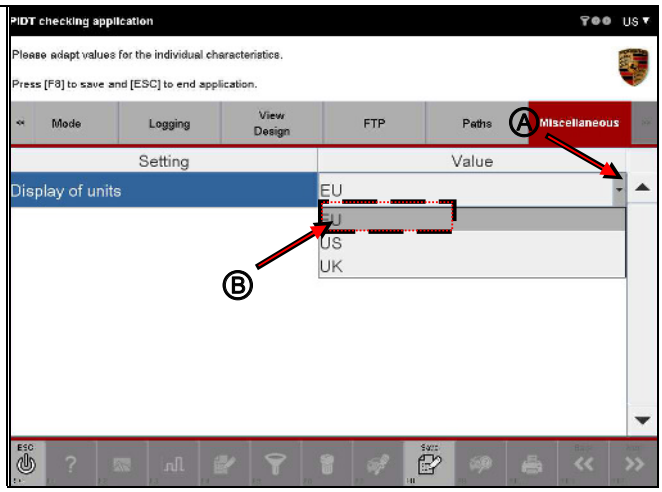
If you have saved the corresponding setting, the diagnostic application will be started with this default setting from this point on.

Default setting:

Display of units: ► `EU`

1. Call up the Miscellaneous category.
   ►See section 6.3.5.1

2. Click in the `Value` field (A) next to the entry `Display of units` and select the required entry in the drop-down menu by clicking once (B).
   The following options are available:
   - EU
   - US
   - UK



3. Press the <F8> button to save the setting.

7 Starting the diagnostic application

Selecting the basic application mode and defining other settings

1. First select the required basic application mode (Standard mode, Display mode, Simulation mode) as well as all other default settings using the control application.
►See section 6

Selecting the model line

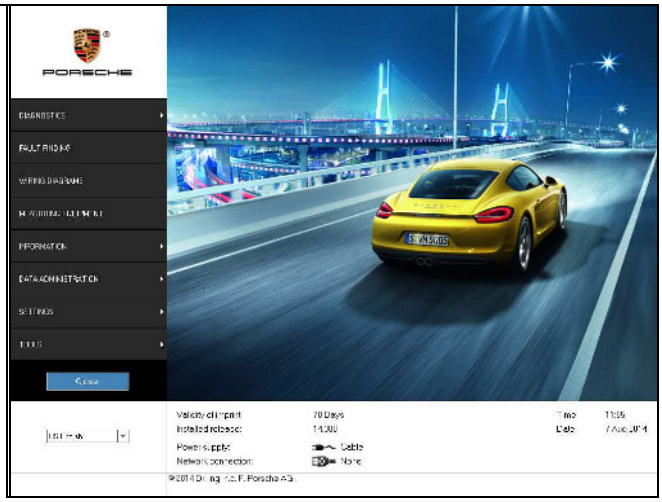
You must then select a valid model line. This is selected in the PORSCHE basic system before starting the diagnostic application.

After starting the basic system, you can select the required vehicle model lines under the `Diagnostics` menu item. The diagnostic application is then started with the data for the selected model line.

For information on how to use the PORSCHE basic system, please refer to the relevant documentation.

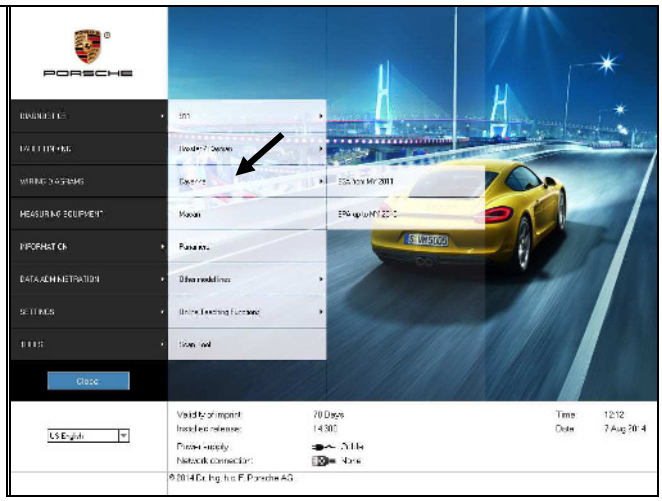
The following steps describe the basic procedure.

2. Start the basic system. The general user interface appears in which you can configure basic settings.



3. Select the required model line under the Diagnostics menu item.

   The `Cayenne` model line was selected here as an example.



4. Once you have selected the model line, the application is started with the data relating to this model line.

Possible error message:

If you have selected a model line/ODX project that includes data relating to several vehicle models, an error message will appear and the diagnostic application start-up process will be cancelled. If this happens, contact your system administrator.

8 Operation

General operation of the diagnostic application is described below. Each sub-section covers one function group of the diagnostic application. The various sections describe how to use the individual function groups and which actions you can perform within a function group.

Note on Display mode:

A description of the special procedure for the Display mode can be found in section 8.1.6. Restrictions apply to this mode that affect the operation as described in section 8. These are listed in a table and must be taken into consideration when using the application.

Note on operation:

Section 9 describes how to adapt the interface to suit your needs and the restrictions/differences that apply when using the application if groupings are displayed.

8.1 Control unit list/Control unit overview

This section describes how to display the control units installed in the vehicle in a control unit overview using a control unit search.

The basis for this is an existing ODX project in which the control unit-specific data is stored. The system must check whether a control unit from the project is installed in the vehicle and which variant it is.

In response to a user action, the diagnostic application first carries out a control unit search. The list of all or selected control units and their status is then displayed in the control unit overview.

8.1.1 Control unit variants and alternative installation

Basic variant, control unit variant:

Control unit variants are designed, maintained and installed in the vehicle as a variation of a basic variant and are displayed as such in the diagnostic application. The basic variant is therefore the "archetype" of a control unit, which - as the smallest common unit - contains the functions that are common to all control unit variants belonging to this basic variant.

In other words:
Control unit variants are simply variations of this basic variant, are functionally subordinate to it and differ from this basic variant in terms of size and scope. But they have the same basic functions as the basic variant.

When carrying out a vehicle-wide search for control units, variants are detected automatically and the control unit variant installed in the vehicle is detected and displayed. If a variant could not be determined, the basic variant is displayed, i.e. the variant that offers the standard functions at the very least.

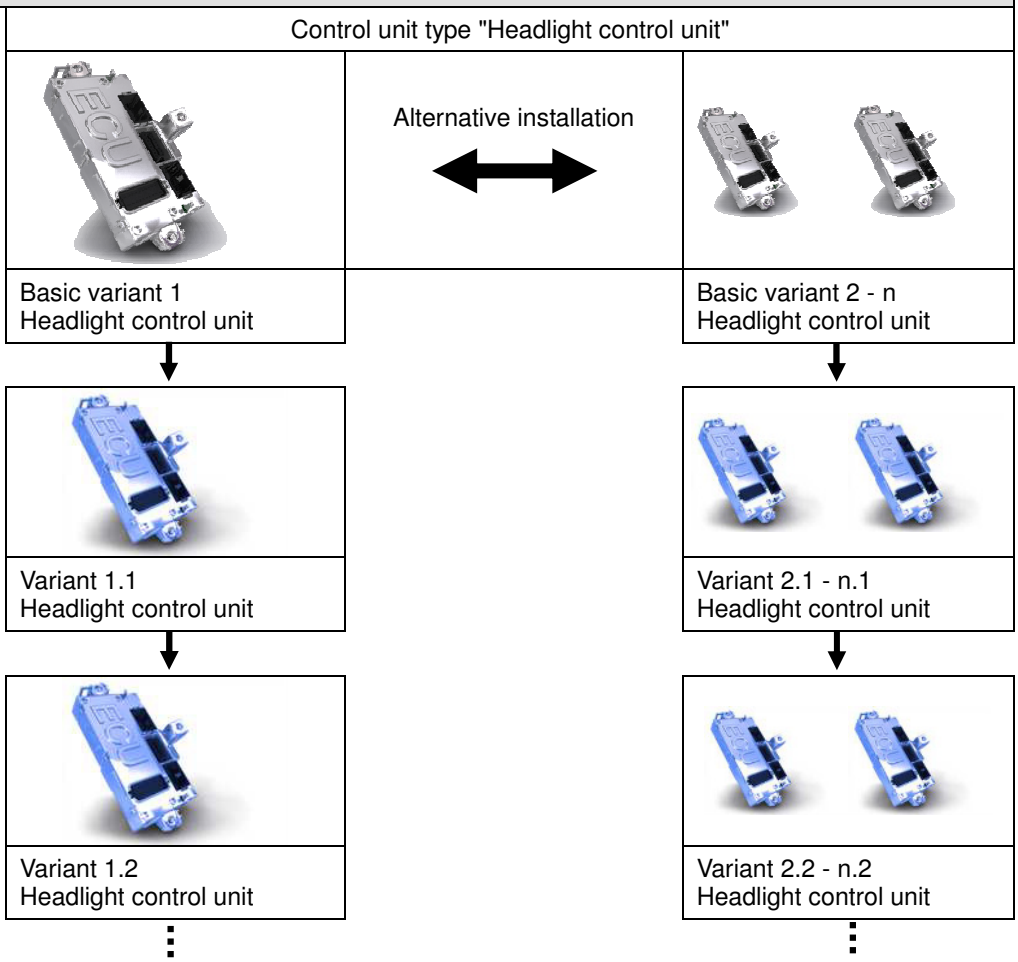
Basic variant and control unit variant display: ► See section 8.1.3

↓ Next, see next page

Alternative installation of control units:

Alternative installation of control units refers to the installation of control unit variants that are different even on the basic variant level. Example:
Headlight control units that control headlights, which can be designed as normal Halogen headlights, headlights with range adjustment or as LED headlights, are installed in one model line.
All the control units are basically headlight control units, but the type of control unit is so different that totally different control units are used. This is done by using an alternative installation of the control unit in the vehicle. The TYPE of control unit is "headlight control unit", but the control unit can actually belong to different basic variants of this type. In addition to headlights, even engine control units will most probably belong to this set of control units in the future. Of course, alternatively installed control units can have their own variants.

Alternative installation: Example



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Installation methods and detection in the diagnostic application:

It may happen that several control units are installed as an alternative installation in the vehicle, not just one (see also the table above).
The illustration below shows this using the headlight control system. In this example, the headlights can be activated by 1, 2 or 3 control units, depending on the vehicle.

The diagnostic application automatically detects whether several control units are installed instead of the standard control unit.

For further information, refer to the special case described for the vehicle-wide search:

►See section 8.1.5, page 62

Alternative installation methods

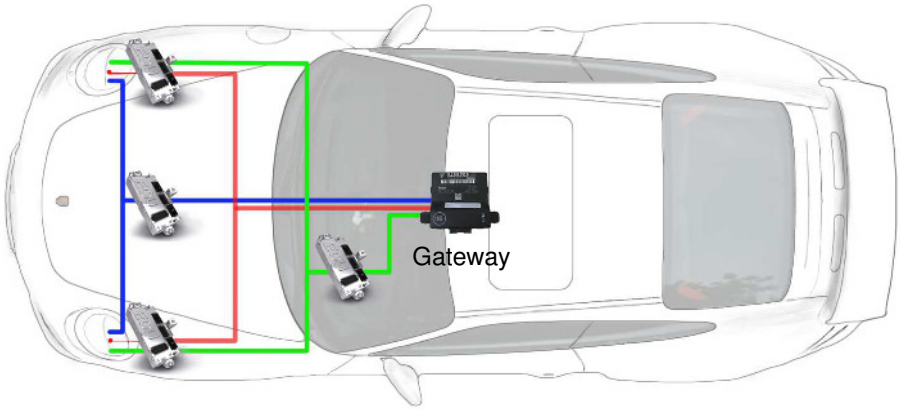


Figure 13: Example of alternative installation

8.1.2 Action-specific buttons for this function group

Control unit overview			
Button	**Label**	**Icon**	**Description**
F8	**All with FML**		Pressing the <F8> button selects all control units that have a fault memory entry.

8.1.3 Icons

Column	Icon	Description
Status		This icon indicates that no variant was found for the control unit. Data stored for the basic variant is displayed for these control units.
Status		This icon indicates that the control unit is not programmed. In this case, there are only a few function groups available to you for this control unit and some even have a reduced number of functions: • Limited functionality in Extended identifications function group • Limited functionality in Maintenance/repairs function group • Programming All other functions are deactivated. **What should you do in this case?** ►We suggest that you first program the unprogrammed control unit using the programming mode `Automatic programming` in the Programming function group (see section 8.8.4) in order to create a valid control unit variant. When programming is completed successfully, all the functions of the diagnostic application will be available again for this control unit.
Status		This icon indicates that the control unit is a flash-programmable LIN slave. In this case, only the following function groups are available to you for this control unit: • Extended identifications • Programming All other functions are deactivated.
DTC		This icon indicates that the control unit has a fault memory entry. Other possible actions for fault memory entries: ►See section 8.3

8.1.4 Battery voltage display using an icon

Restriction:

This method is only available in DLS 3 or later versions. The voltage check is not supported in DLS 2.

Why is the battery voltage displayed?

Faults can occur during vehicle diagnosis if the vehicle electrical system voltage is too low.

To eliminate this as a possible fault source…

►after the diagnostic application is started and
►at the very latest, when creating the control unit list

the vehicle electrical system voltage as well as the active diagnosis is read out and monitored cyclically.

The application evaluates the measured vehicle electrical system voltage and displays the result of this evaluation in the form of an icon on the title bar.

Display using an icon:

The icon indicates how the measured vehicle electrical system voltage can be rated in relation to default values.

The default values are:

►Min: 13.0 V

►Max: 16.8 V

The icon display is updated by default every 30 seconds.

The following icons can be displayed:

Icon	Description
	The vehicle electrical system voltage could not be measured.
	The measured vehicle electrical system voltage is OK.
	The measured vehicle electrical system voltage is not OK and is not within the range defined by the default values (Min and Max).

↓ Next, see next page

Warning message display:

If the vehicle electrical system voltage is not within the defined limits, a warning message is displayed, which you must acknowledge in order to continue using the application. The vehicle electrical system voltage is measured every second while the warning message is displayed.

What can I do when a warning message is displayed?

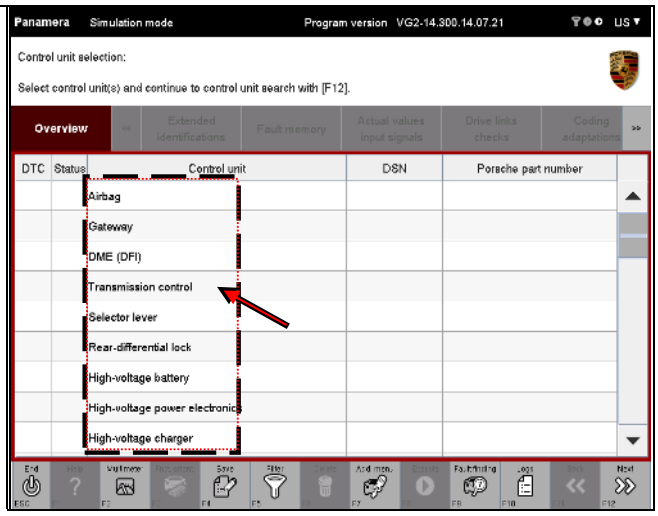
We recommend that you take further steps. You then have the following options:

►You can connect a charger (if the vehicle electrical system voltage is too low) or you can adjust the charging current of a charger that is already connected (if the vehicle electrical system voltage is too high) so that the measured voltage is then within the permitted range. The warning message disappears automatically and you can continue to work normally.

►You can simply confirm the message without carrying out either of the suggested steps. You can continue to use the diagnostic application normally. In this case, however, there is no guarantee that the results of the diagnosis will be valid given that the measured vehicle electrical system voltage is not within the defined range.

8.1.5 Process with vehicle communication

1. As soon as the application has started successfully, the list of control units for the respective ODX project is displayed in a control unit list.

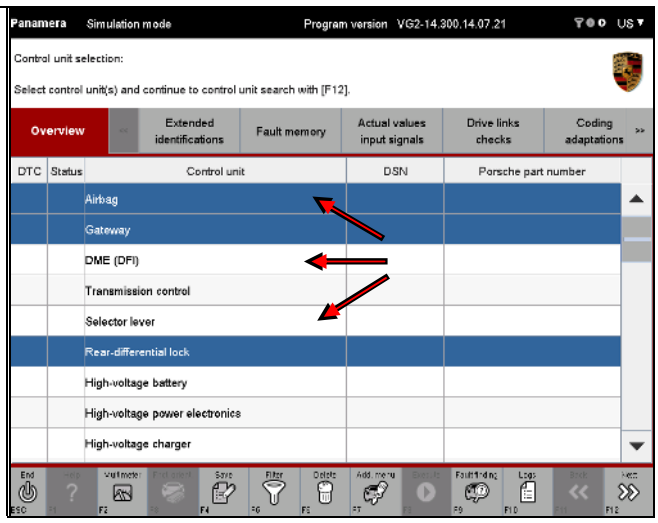


You can select control units in two different ways:

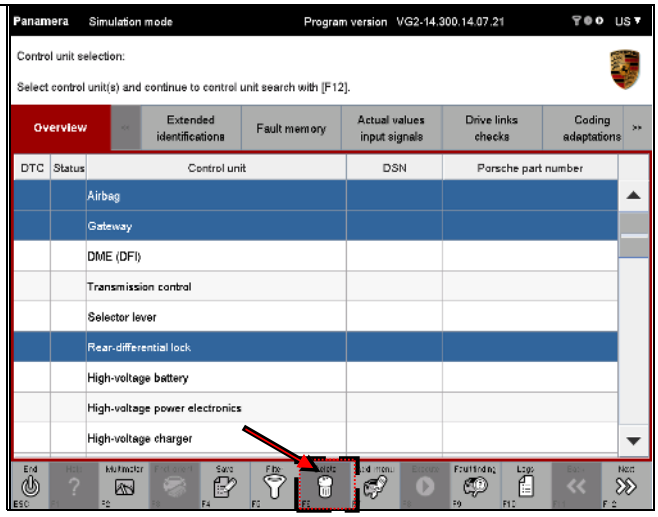
Option 1: Select a number of control units

2. Select the required control units by highlighting them.

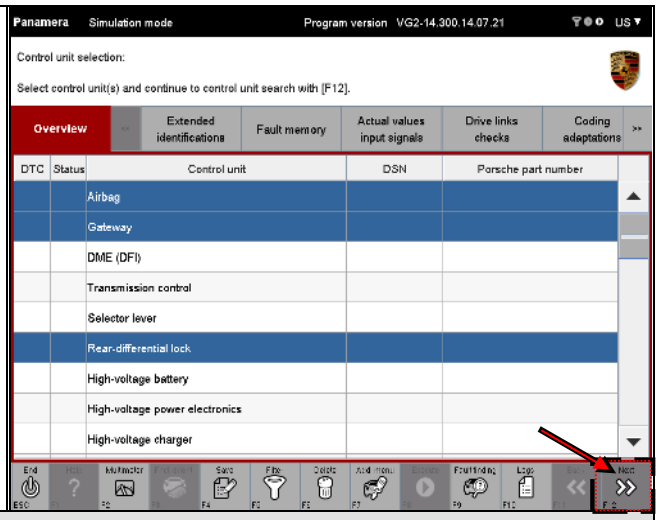
   If you want to deselect a selected control unit, click again in the corresponding line.



3. You can cancel the complete selection by pressing the <F6> button.



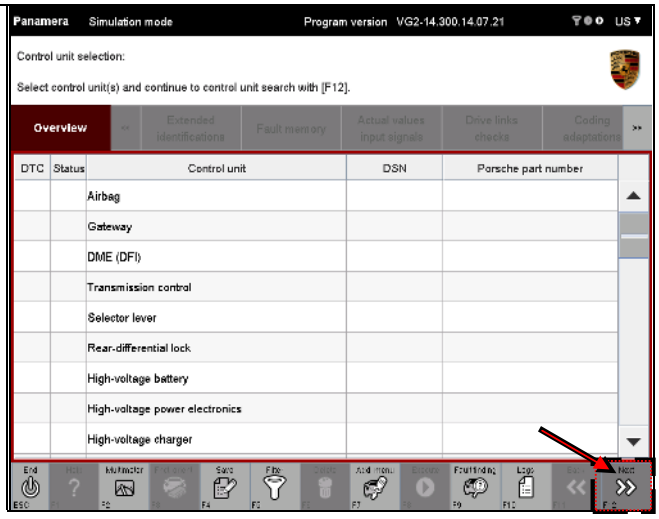
4. Then press the <F12> button.



Option 2: Select all control units

5. If you want to carry out a control unit search for <u>all</u> control units, press the <F12> button without selecting a control unit.

   The system then checks which control units or selected control units of the project can be addressed.



Query as to whether you want to create a vehicle analysis log (VAL)

6. If the diagnostic application was previously restarted, a query as to whether you want to create a vehicle analysis log (VAL) may be displayed initially. You can select one of the following options:
   * <F12> Yes: A VAL is created first.
   * <F11> No: You carry out a control unit search without creating a VAL.

   Note 1: Always read the information displayed in the information area!
   Note 2: You can create the VAL at a later time
   ►See section 8.9.2

   Assumption: For the purpose of this description, we will assume that you do not want to create a VAL and have confirmed this by pressing <F11>.

Control unit search

7. The system now checks which control units or selected control units of the project can be addressed.

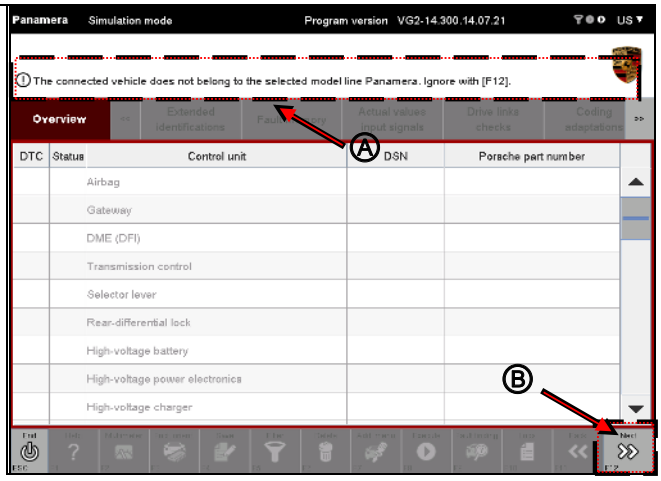
Optional display of a warning message

When you leave the control unit list or re-connect to the VCI, the previously selected model line (►see section 7) is compared with the type of vehicle connected.

If the result of this check is negative (i.e. the connected vehicle is not a vehicle from the selected model line) or if the connected vehicle could not be identified, a warning message is displayed.

8. Example of an optional message (A).

   Read the message and acknowledge it by pressing <F12> (B).



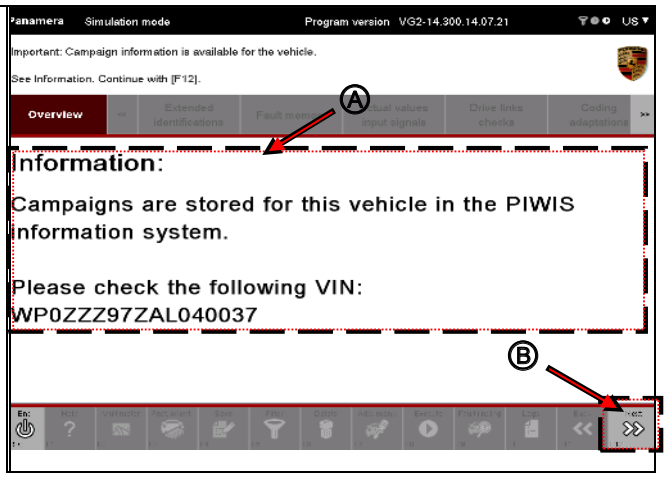
Optional display of a message

Display of campaigns:

After the control unit search, a message may be displayed, depending on the data stored for the vehicle to be tested/serviced. This informs you about other campaigns or provides you with more detailed information for the current vehicle.

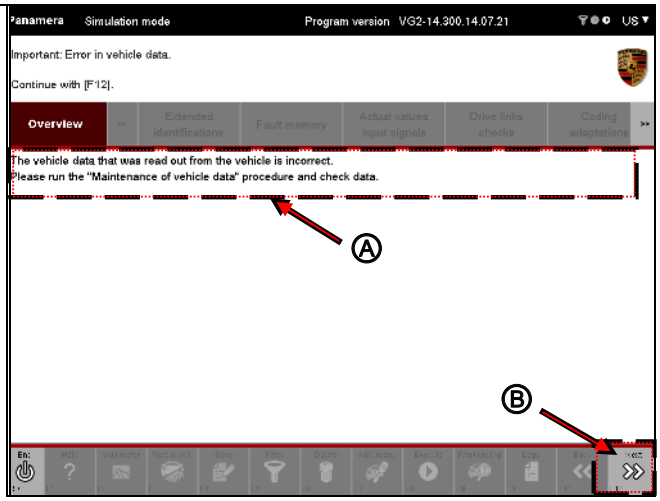
9. Example of an optional message (A).

   Read the message and acknowledge it by pressing <F12> (B).



10. If the vehicle data is inconsistent, you are prompted to run the "Maintenance of vehicle data" process and check the information (A).

    Read the message and acknowledge it by pressing <F12> (B).

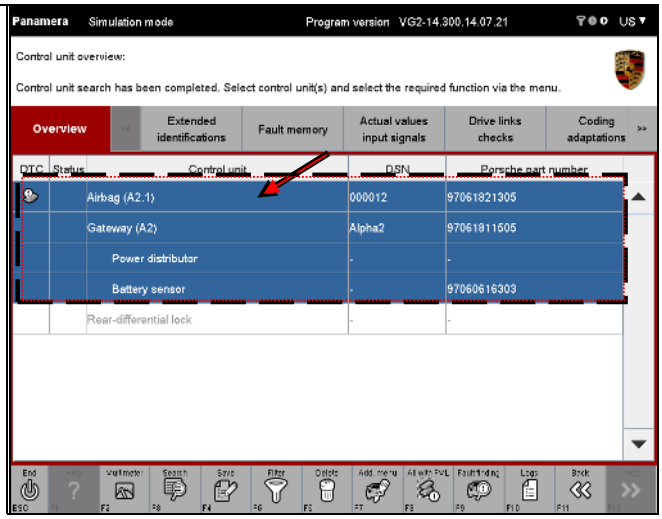


Display of search results

The list of addressable control units is then displayed in the control unit overview. Depending on which selection variant you have selected, the display format will be similar to that shown in Step 11 or Step 12.

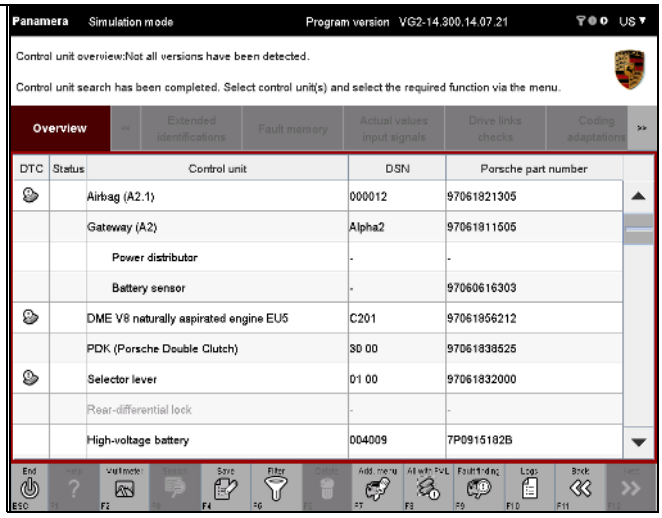
11. Display with previous selection (variant 1):

    Control units, which were previously selected in the control unit list and which can be addressed, are already preselected in the control unit overview.



12. Display without previous selection (variant 2):

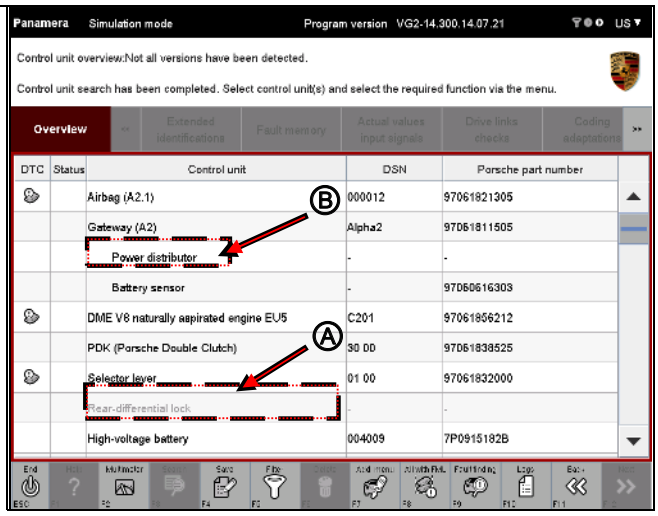
    All addressable control units are displayed. The control units are not highlighted.



Note on display

13. If it was not possible to establish communication with a control unit, this will be indicated by dashes after the control unit name in the list (A). These control units are grayed out and cannot be selected.

    Control unit subcomponents (so-called ECU subcomponents) are shown indented below the respective control unit (B). You can work with these subcomponents in the same way as regular control units (see also additional information below). Subcomponents that are not installed are grayed out and cannot be selected.



Display of subcomponents:

If a higher-level control unit has subcomponents and you select the higher-level control unit and then switch to a different function group or function, all subcomponents are implicitly selected as well.

However, if you select a subcomponent or several subcomponents and then switch to another function group or function, any further action you take will be performed only for this selection.

Example:

You select the control unit `Gateway` and switch to another function group. In addition to the main control unit `Gateway`, the following subcomponents will also be displayed in this function group:

```
Battery condition,
Main fuse box,
Intelligent battery sensor,
Electric energy management (eEM)
```

However, if you have only selected the subcomponent `Intelligent battery sensor` and then switch to another function group, only this element will be available for further action in this function group.

Alternative installation:

If the control unit you have selected in the control unit list was installed using an alternative installation, the name of the alternative installation will be displayed.

If several control units were installed in the vehicle instead of one control unit variant (i.e. both control unit_2 and control unit_3 are installed instead of control unit_1), several control unit variants will be displayed.

This affects how control units are displayed within the diagnostic application.

Example:
If the control unit you select in the control unit list has an alternative installation that includes several control units and if you call up the Fault memory function group directly without carrying out a control unit search, not just one control unit, but several will be displayed although only one control unit was previously selected.

This is perfectly normal behavior.

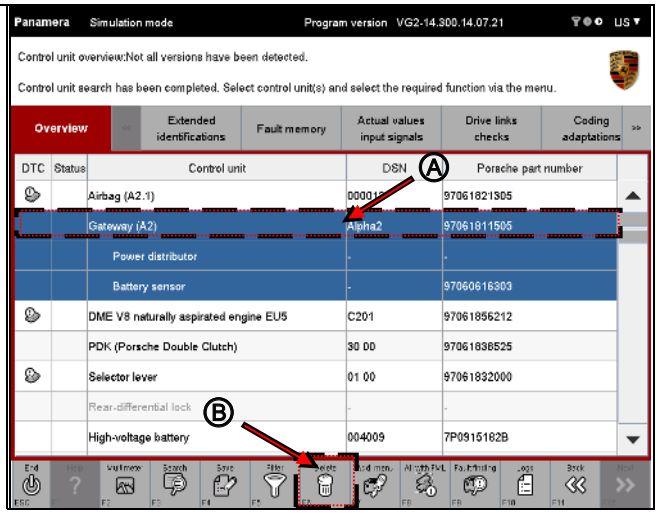
↓ Next, see next page

Next steps

14. Now select the control units for which you would like further information from the list.

    If you want to deselect a selected control unit, click again in the corresponding line (A).

    You can cancel the complete selection by pressing the <F6> button (B).



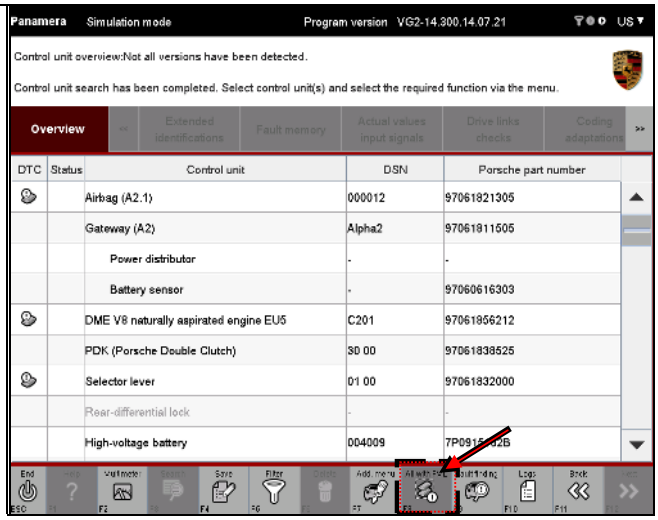
Note on the selectability of function groups

Selectability of function groups:

- All function groups are available for selection if you have selected at least one control unit or one subcomponent.
- No function group can be selected if you have not explicitly selected a control unit or subcomponent.

Information on the selectability of all control units with fault memories

15. If you want to select all control units that have a fault memory entry, press the <F8> button.



8.1.6 Process without vehicle communication (special procedure for Display mode)

If diagnosis is performed in Display mode, there is no communication with the vehicle via a VCI. The variant detection process that normally takes place during the control unit search is omitted as there is no vehicle communication.

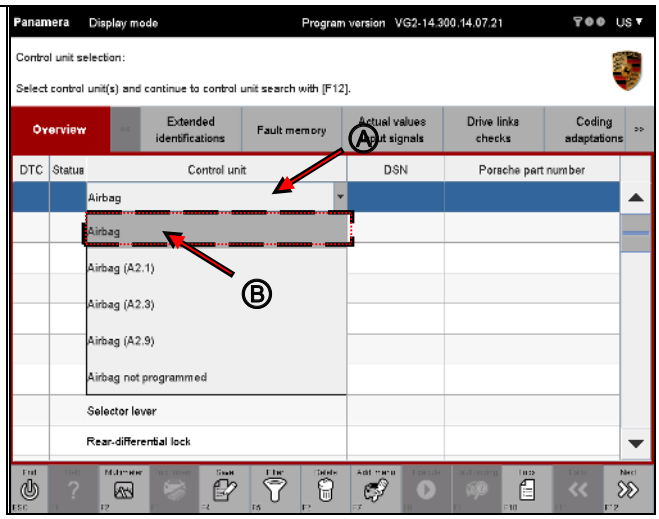
If you still want to access the data for the relevant control unit variant, you must select this variant in the control unit list. Proceed as follows.

Option 1: Selecting a number of control units

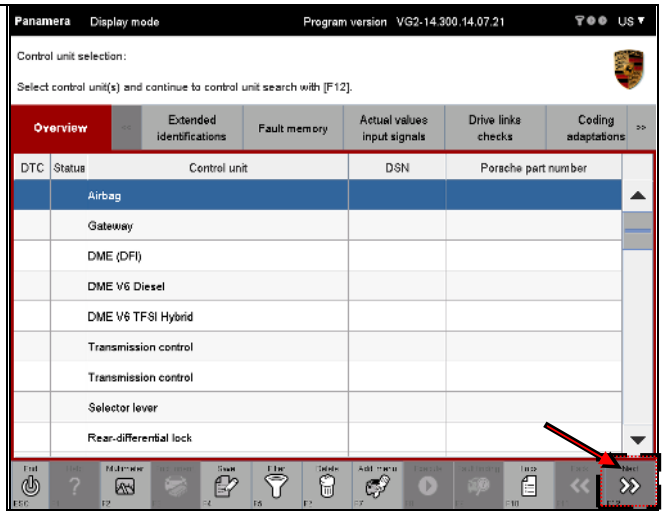
1. Click in the `Control unit` column (A) for the respective control unit and select a control unit variant for each control unit using a drop-down menu (B).

   To display the basic variant for the respective control unit, select the first/top entry in the drop-down menu.

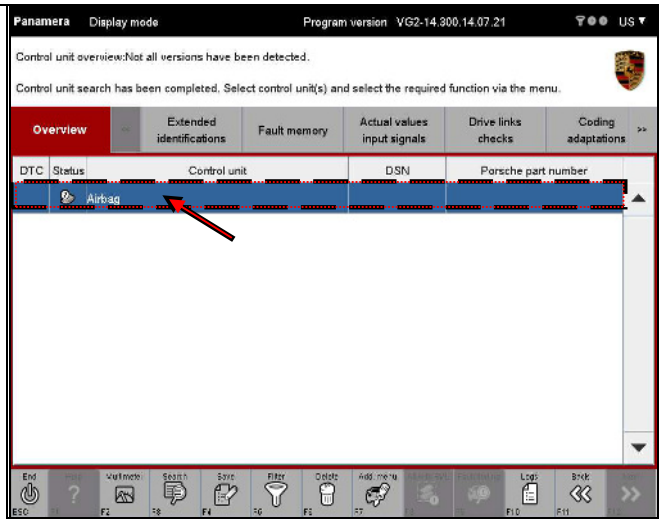
   You can cancel the complete selection by pressing the <F6> button.



2. Then press the <F12> button.



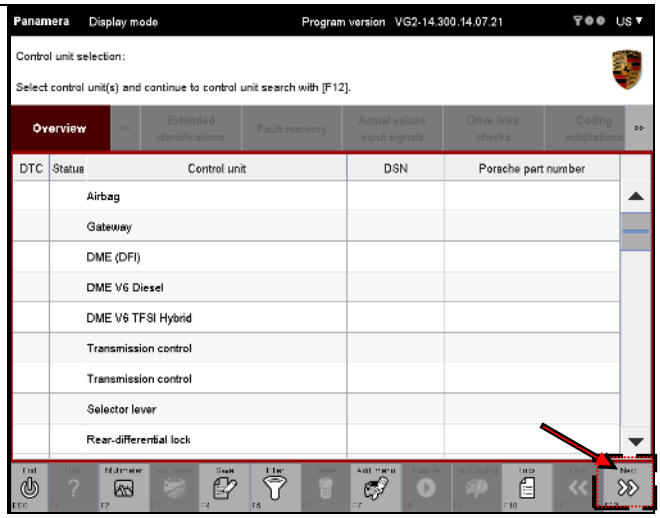
3. All selected control unit variants or control unit basic variants are displayed.



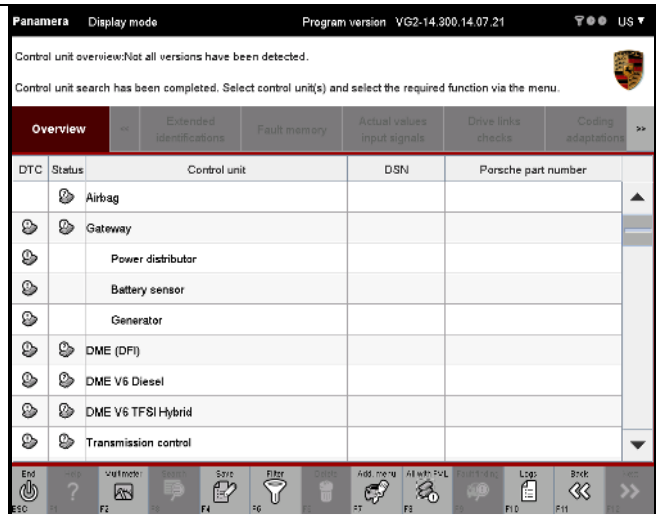
Option 2: Selecting all control units

4. If you want to display the basic variant for all control units, do not select a control unit.

   Then press the <F12> button.



5. The control unit basic variants are displayed.



6. The functions described in section 8.2 ff are then available, with the following restrictions:

Restrictions:

No control unit communication is established because there is no VCI connected. The following restrictions will therefore apply when using the application:

- All fault memories are displayed in the Fault memory function group. Since each control unit has a fault memory entry, all control units are selected in the control unit overview by pressing the <F8> button.
- Default values are displayed instead of real actual values in the Actual values/input signals function group.
- In function groups for which requests can be sent by entering data, no control unit response is displayed in the response field.

8.2 Extended identifications

You can display further identifications for a control unit or several control units in the Extended identifications function group. This section describes how to display the extended identifications and change the values of the extended identifications.

8.2.1 Action-specific buttons

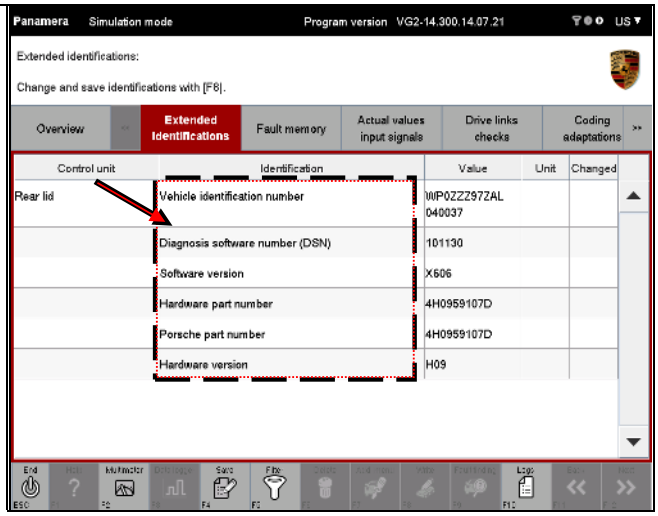
Extended identifications			
Button	**Label**	**Icon**	**Description**
F8	**Write**		The identifications for selected control units can be written by pressing the <F8> button.

8.2.2 Display of extended identifications

1. Display the list of installed control units and select the desired control units:
   ►See section 8.1

2. Select the Extended identifications function group.

   The extended identifications for the selected control units are displayed in a list.



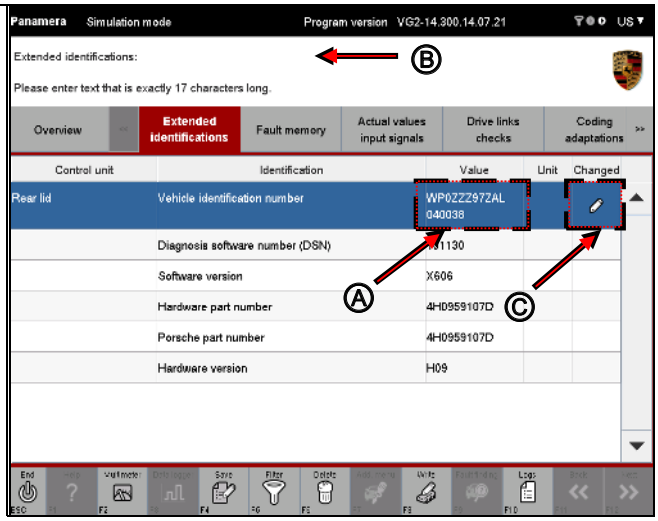
8.2.3 Changing and writing the extended identifications

1. Display the extended identifications.
   ►See section 8.2.2.

2. If you want to change the values of the identifications, first enter the new value of the relevant identification in the Value field (A).

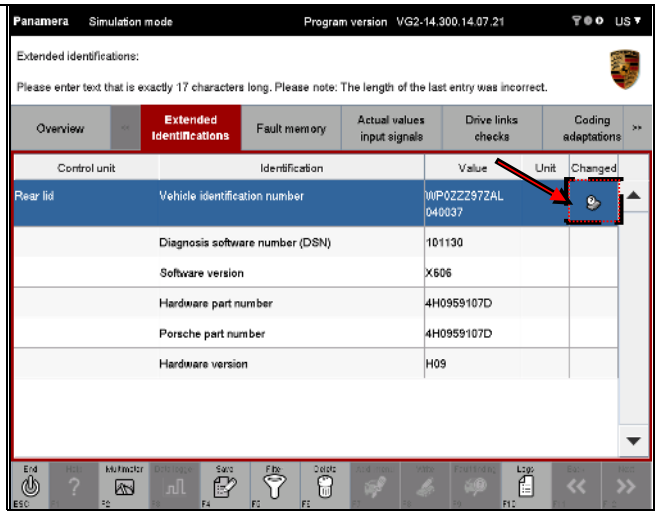
   Tips for entering values are provided in the Info area (B).

   If you have changed a value, this is indicated by the icon in the "Changed" column (C).



Note and tip

3. If the value you have entered is not correct because the format of the value is wrong, for example, this is indicated by the icon in the `Changed` column and the original value will be entered in the Value field again.



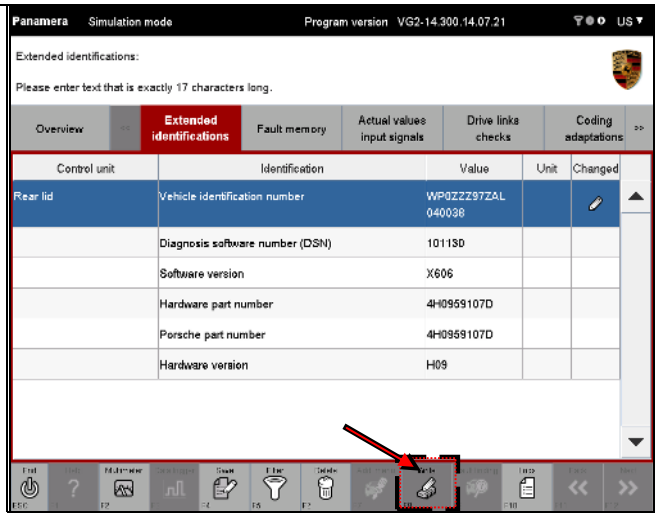
Restoring the original value:

If you want to cancel your entry, you can do this in two different ways:

- Enter the original value of the identification in the Value field again. The icon next to the Value field remains in this case.
- Select the Overview function group, select the desired control unit again and then select the Extended identifications function group to display the list of extended identifications again. All changes you have made to the values will then be rejected.

Next steps

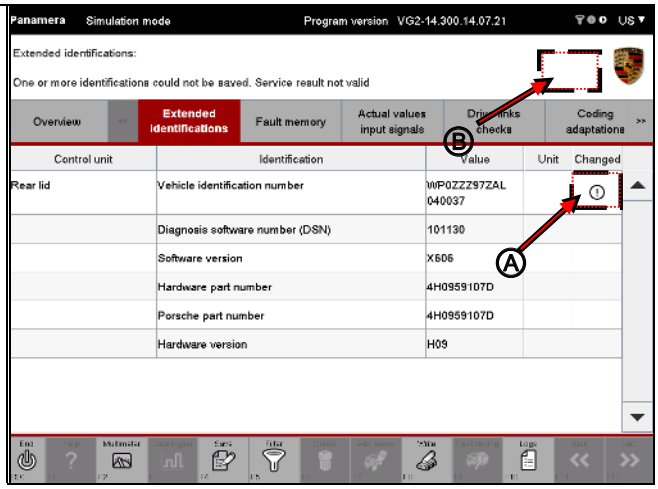
4. Once you have changed the values of the identifications, press the <F8> button to write the changed values.



After writing

5. If a value for an identification was not written successfully, this is indicated by the ⓘ icon in the `Changed` (A) column.

   If it is not possible to read the full message text in the information area due to lack of space, you can display it by clicking on `Details` (B).



Details of error description:

In some cases, e.g. if the texts are too long, the values are only checked when the identifications are written. Information about why the data could not be written is displayed after the display of the permitted input value in the information area.

The information area is updated only after you change the selection of the identification value indicated by an error icon.

Example: If an identification value with an error is already selected, the error description is not displayed immediately. The reason for the error is only displayed in the Info area after you have deselected this line (e.g. by selecting a different entry) and then select it again.

Some values of the extended identifications are not written in the current status of the control unit display even though no problems are indicated. The reason for this is that the control unit has responded positively to a value request, but has not written the value. This may be due to a flash memory problem in the control unit, for example.

There are also identifications for which the value is defined by the runtime system. This is the case for some dates, for example. The date can be changed, but a different value (e.g. the current date) is written.

8.3 Fault memory

This section describes how to display the fault memories of a number of control units. It also describes how to delete individual fault memory contents of a control unit and how to display the environmental data for a fault memory entry or several fault memory entries.

8.3.1 Action-specific buttons

Fault memory			
Button	**Label**	**Icon**	**Description**
F8	**Delete FML**		This button is displayed if fault memory entries are present and you have not selected any entry in the working screen of the function group. All fault memory entries are deleted by pressing the <F8> button. The system then prompts the user to confirm the action.
F8	**Delete FML**		This button is displayed if fault memory entries are present and you have selected at least one entry in the working screen of the function group. A previously selected fault memory is deleted by pressing the <F8> button. The system then prompts the user to confirm the action.
Decision question			
Button	**Label**	**Icon**	**Description**
F11	**No**		Press the <F11> button to cancel an action that requires confirmation (e.g. if you decide not to delete a fault memory as originally specified). The <F11> button shown here is only displayed in combination with the form of the <F12> button shown in the next line.
F12	**Yes**		Press the <F12> button to confirm an action that requires confirmation (e.g. you want to delete a fault memory). The <F12> button shown here is only displayed in combination with the form of the <F11> button shown in the previous line.

8.3.2 Icons

Display of a fault memory entry	
Icon	**Description**
	There is no icon to indicate the following faults: Priority 1: A fault is present that has significant influence on vehicle availability. As a result, the vehicle can no longer be driven. Priority 2: A fault is present that requires an immediate workshop visit. Priority 3: A fault is present that does not require an immediate workshop visit, but can instead be combined with a service appointment. Priority 4: A fault is present that results in recommendation for action before starting to drive. Vehicle availability may be restricted. Priority 5: A fault is present that does not affect vehicle availability or a fault is present that has no relevance for system repairs for the After Sales Service. The fault is indicated in order to assist you during fault correction or during fault analysis in the After Sales Service.
	Task: Display for information purposes: This icon indicates faults caused by wear. Priority 6: A fault is present that affects the wear condition of the vehicle or individual components and is therefore relevant for the After Sales Service.
	Task: This icon indicates general information. Priority 7: This information affects the comfort function, but does not affect vehicle availability and is not relevant for system repairs in the After Sales Service.
	Task: This icon indicates general information. Priority 8: General information.

8.3.3 Unknown fault codes

If a fault memory entry for which no data is stored in ODX is set in the control unit, this will still be displayed by the diagnostic application and is identified as an "unknown fault code".

8.3.4 Displaying the fault memory

Options for displaying the fault memory:

You can display the fault memory in a number of different ways.

If you want to display all control units with fault memory entries, proceed as follows:

►In the control unit list or control unit overview:

- Press the <F7> button (icon). This calls up the screen containing general vehicle functions (F7).
- In the list of general vehicle functions (F7), select the entry `Read all fault memories and erase if required.`

►In the control unit overview:

- Press the <F8> button (icon). This selects all control units with fault memory entries.
- Call up the Fault memory function group.

If you only want to display the fault memory entry of individual control units, proceed as follows.

- Switch to the control unit overview.
- Select the desired control units. Control units that have a fault memory entry are indicated by a icon in the DTC column.
- Call up the Fault memory function group.

This option is described below.

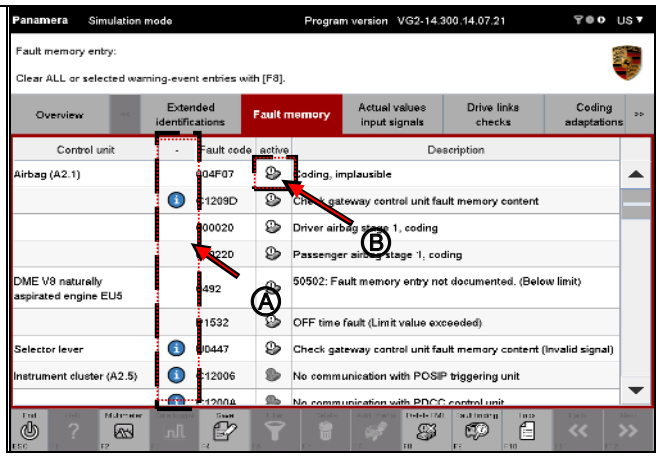
1. Display the list of installed control units and select the desired control units:
   ►See section 8.1.

2. Select the Fault memory function group on the menu bar. A list of fault memories for the control unit will be displayed.

   The severity or priority of the fault is indicated by different traffic light symbols (A, see section 8.3.2).

   If a fault memory is active, this is indicated by the icon.

   If a fault memory entry is present but inactive, this is indicated by the icon.



Note:

The fault memory list is updated cyclically. This means that individual fault memories can change the activity status.

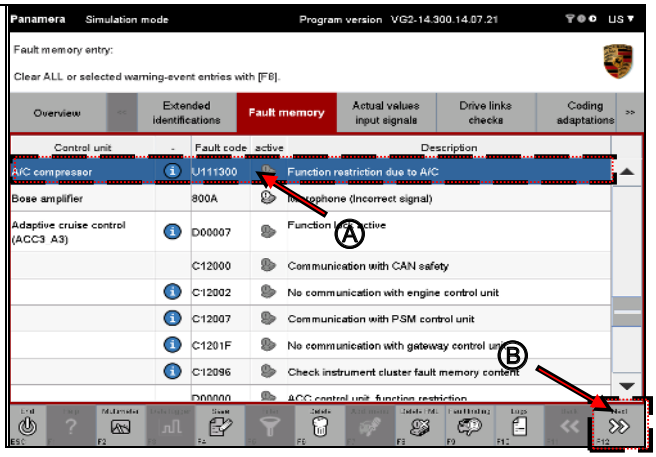
8.3.5 Displaying environmental data

1. Select the Fault memory function group and display the fault memory content:
   ►See section 8.3.4.

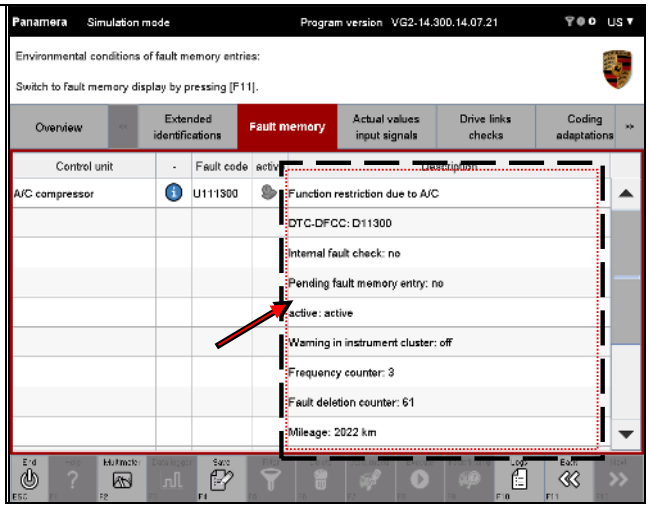
2. Select the relevant fault code for which you want to display the environmental data (A).

   If you want to deselect a selected fault code, click again in the corresponding line.
   You can cancel the complete selection by pressing the <F6> button.

   Then press the <F12> button (B).



3. The environmental data for the fault memory entry is then displayed.



4. Pressing the <F11> button brings you back to the fault memory list.

8.3.6 Deleting fault memory entries

Different ways of deleting fault memory entries:

- Delete all fault memories:
  If fault memory entries are present and you have not selected an entry, you can press the <F8> button to delete all fault memory entries.
- Delete individual fault memories:
  If fault memory entries are present and if you have selected at least one entry, the label and function of the <F8> button changes. You now have the option of deleting only the selected entries.

Restrictions:

Individual fault memory entries are only deleted if data is stored for the corresponding service. In other words:

- If fault memory entries are selected for control unit variants for which data is stored for the corresponding service, each individual fault memory together with the specified service is deleted when you press the <F8> button and then click Yes in response to the confirmation prompt that appears.
- If only fault memory entries are selected for control unit variants for which this service is not available and if the delete process is confirmed by pressing the <F8> button, a corresponding confirmation dialog appears and no service for deleting fault memories is executed.
- If fault memory entries are selected for control unit variants for which this service is available only for one control unit and if the delete process is confirmed by pressing the <F8> button, a corresponding confirmation dialog appears. If this is confirmed, the service for deleting individual fault memories is only executed for the control unit that has this service.

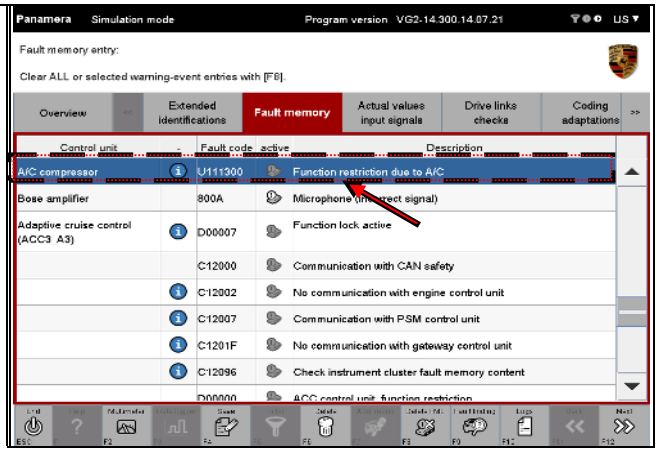
1. Select the Fault memory function group and display the fault memory content:
   ►See section 8.3.4.

2. To delete an entry, first select the corresponding fault code.

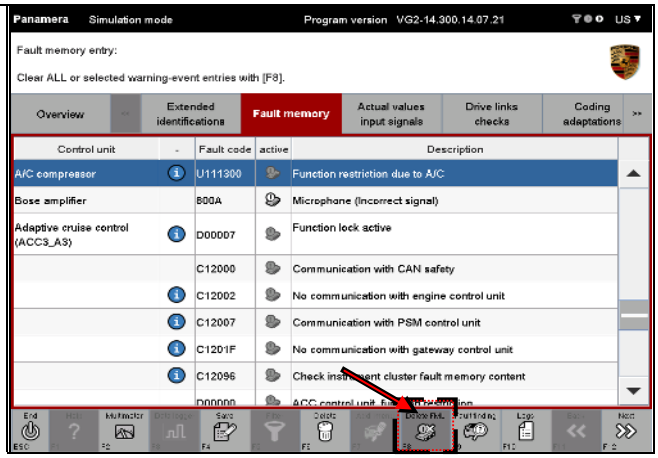
   If you want to deselect a selected fault code, click again in the corresponding line.

   You can cancel the complete selection by pressing the <F6> button.

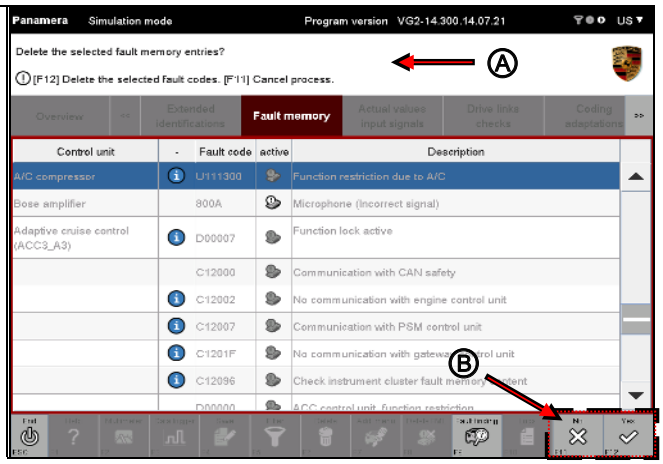
   If you want to delete all fault memory entries for the displayed control units, do not select a fault code.



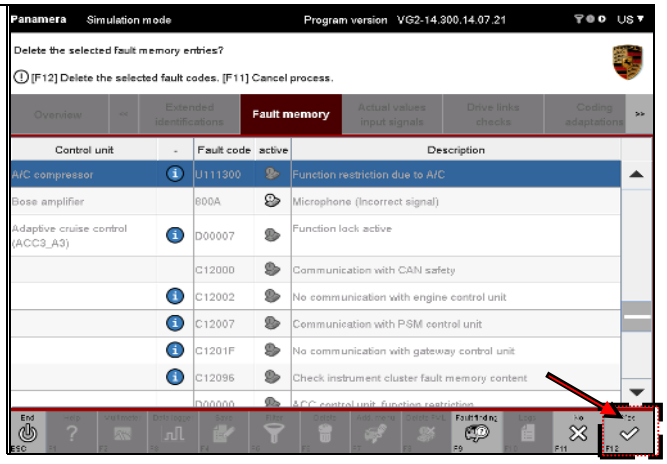
3. Then press the <F8> button.



4. A query appears prompting you to confirm the deletion of the selected fault memory entries (A). You can select one of the following options (B):
   - Press <F11> to cancel the process. You return to the list of fault codes.
   - Press <F12> to confirm that you want to delete the fault code.



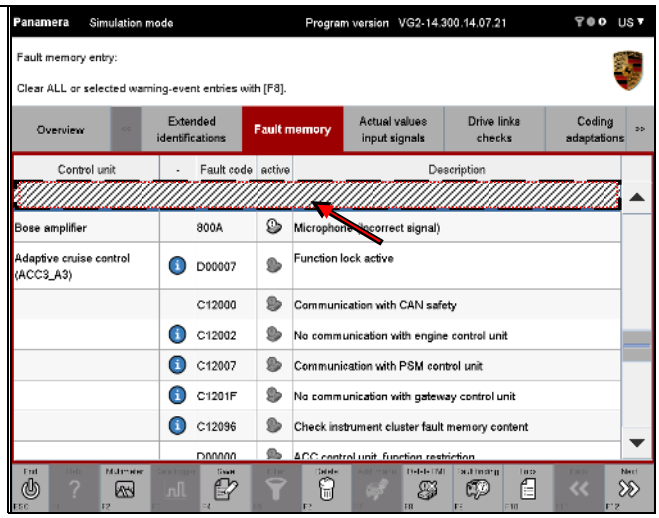
5. If you want to delete the fault code, confirm the query by pressing the <F12> button.
   The selected fault memory is then cleared. Fault memory entries that could not be deleted are listed in the Info area.



After deleting fault codes

After you have deleted the fault code, an updated list of fault codes is displayed automatically (see next screenshot).
Please note:
If the conditions for displaying a fault still exist, the fault may be displayed again after deleting it due to the fact that the fault memory is read out cyclically.

6. Updated list of fault memories.



If an error occurs while deleting a fault memory, the application will inform you about this in the information area.

8.4 Actual values/input signals

This section describes how to display the actual values and input signals of control units. It describes how to change the display form of the displayed values (current value, minimum, maximum). It also describes how to display the measured values graphically using the data logger.

8.4.1 Action-specific buttons for this function group

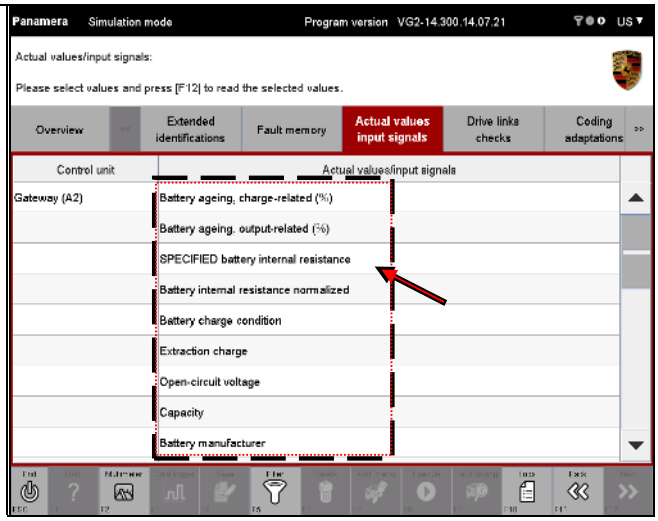
Actual values/input signals/data logger			
Button	**Label**	**Icon**	**Description**
F3	**Data logger**		Pressing the <F3> button calls up the data logger screen.
F3	**Print**		Pressing the <F3> button prints the data logger diagrams.
F8	**Start**		Pressing the <F8> button starts the data logger's data logging function.
F8	**Stop**		Pressing the <F8> button stops the data logger's data logging function.
F8	**Value**		Pressing the <F8> button changes the value display to the current actual value.
F8	**Minimum**		Pressing the <F8> button changes the value display to the current minimum value.
F8	**Maximum**		Pressing the <F8> button changes the value display to the current maximum value.

8.4.2 Displaying measured values

1. Display the list of installed control units and select the desired control units:
   ►See section 8.1.

2. Select the Actual values/input signals function group on the menu bar.

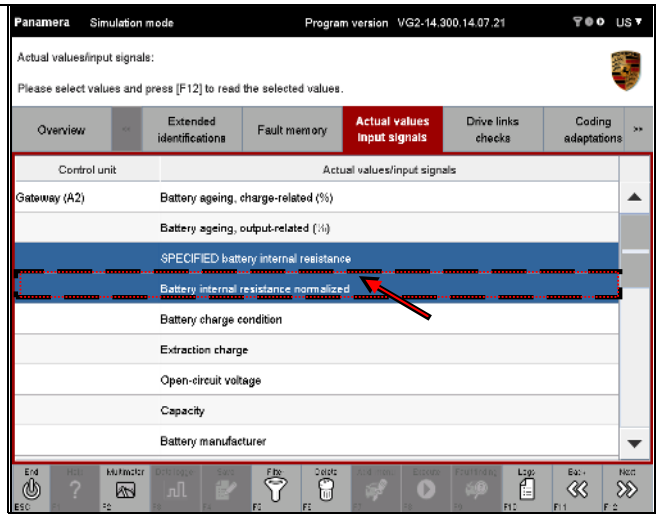
   A list of measured values and input signals for the selected control units is displayed.



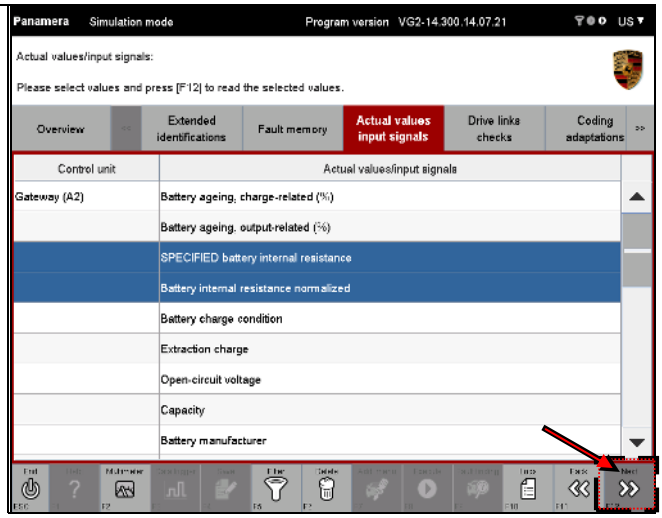
3. In the list, select the measured values and input signals for which you want to display values.

   If you want to deselect a selected input signal, click again in the corresponding line.

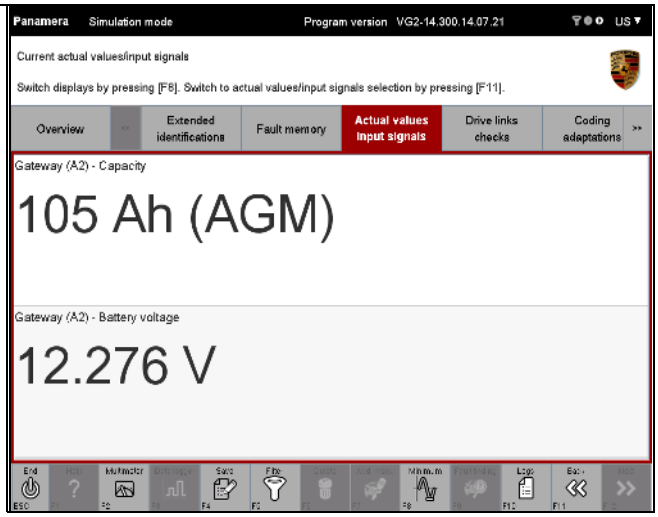
   You can cancel the complete selection by pressing the <F6> button.



4. Then press the <F12> button.

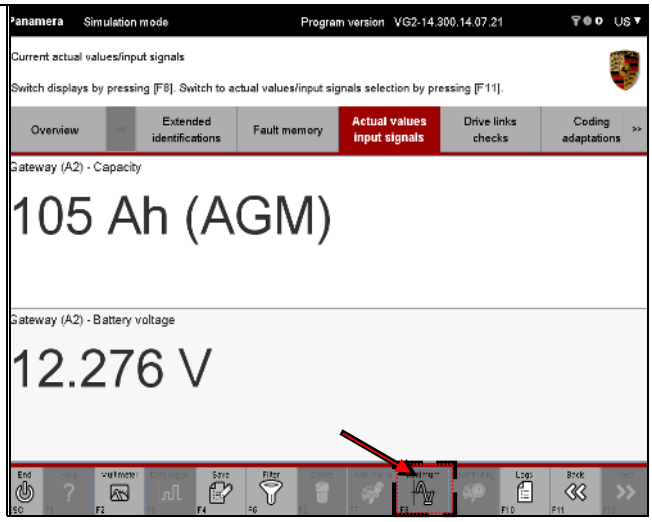


5. A list of the current measured values is displayed.
The values are read continuously.



6. You can choose one of the following display modes for the measured value by pressing the <F8> button:

- Value
This option displays the currently read actual value.
- Minimum
This option displays the minimum value of the values that were read out.
- Maximum
This option displays the maximum value of the values that were read out.



What does "Minimum" or "Maximum" mean in this case?

The following relationship applies based on the physically supplied values of the respective addressed control unit:

- Minimum is either the smallest lexical value (in a character string), the smallest number (for a number) or FALSE (for Boolean values). The validity range and reference variable is the duration of the initiated measurement.
- Maximum is either the largest lexical value (in a character string), the largest number (for a number) or TRUE (for Boolean values). The validity range and reference variable is the duration of the initiated measurement.
- The value is the current lexical value (in a character string), the current number (for a number) or TRUE or FALSE (for Boolean values).

Value updates:

The value display for the elements "Value", "Minimum" and "Maximum" is updated cyclically every 250 milliseconds.

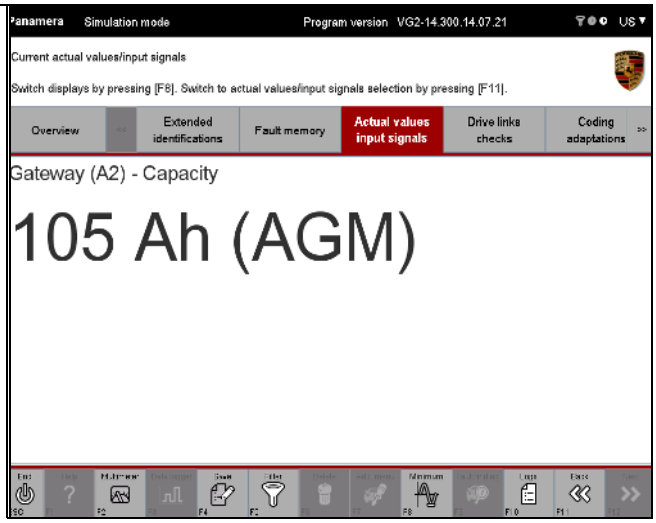
Depending on the selected display mode, the heading for the Value column also changes to `Value`, `Minimum` or `Maximum`.

8.4.3 Different display modes (display of 1, 2, 3, 4 and more values)

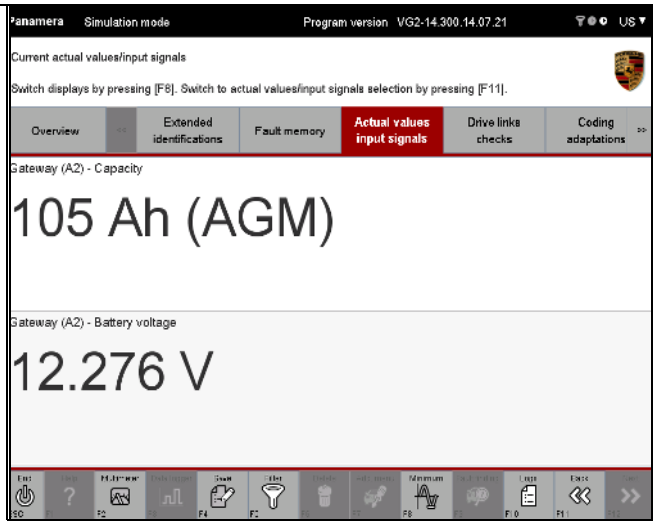
Depending on the number of parameters to be displayed, the display automatically changes to an enlarged display mode.

The following figures show how the display changes.

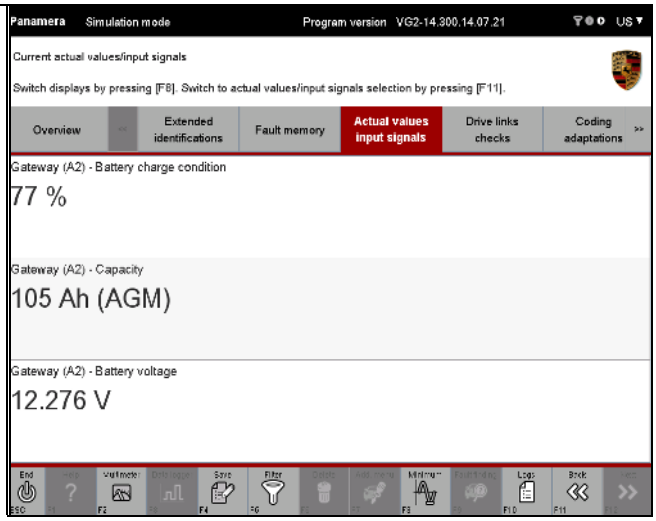
1. Display of **one** parameter.



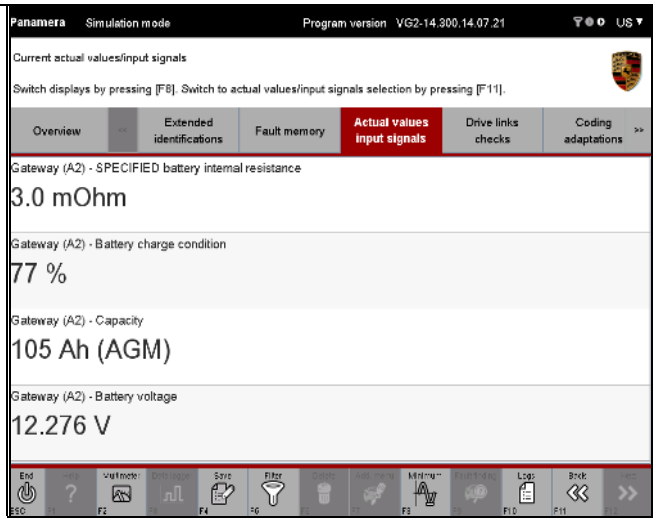
2. Display of **two** parameters.



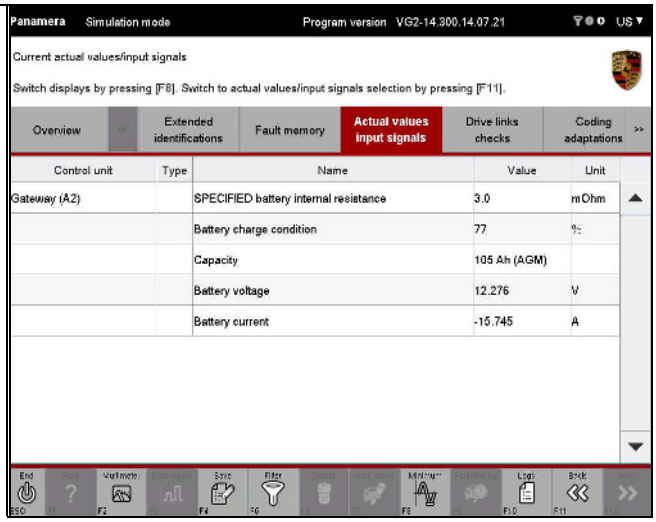
3. Display of **three** parameters.



4. Display of **four** parameters.



5. Display of **more than four** parameters.



8.4.4 Data logger

The graphical view of the data logger is an additional view containing only numbers (see section 8.4.3) for measured values in the Actual values/input signals function group. The data logger can display several measured values in one or more measured curves at the same time. The display mode is selected when starting the data logger. Detailed values can be read off at the cursor position using a marking cursor (marker). The time and value axes are scaled automatically. They can also be scaled manually. Measured values logged by the data logger can be saved and displayed again graphically at a later time using the log option `Measured value log`.

This section describes how to display measured data for input signals using a data logger. It also describes how to change the display mode for measured values, thereby changing the viewing area. This section also describes how to save the data logged by the data logger in a measured value log.

8.4.4.1 Calling up the data logger and starting data logging

Maximum number of measured curves:

The following conditions apply for the maximum number of measured curves that can be displayed depending on the display mode:

- `All measured values in one diagram`: 4 curves
- `Between individual diagrams`: 8 curves, with 4 curves displayed at the same time on one page.
- `Two adjacent diagrams`: 8 curves, with 4 curves displayed at the same time on one page.

Note on color display:

If you have selected the display mode `All measured values in one diagram`, each measured curve will be displayed in a different color in order to differentiate between the measured values. You can assign a specific color to each curve in the control application:

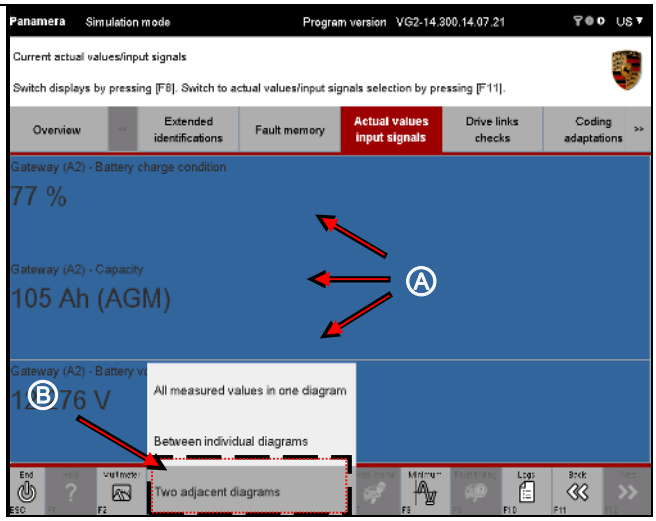
►See section 6.3.4.2

1. Select the Actual values/input signals function group on the menu bar and select the measured variables you would like to display graphically:
   ►See sections 8.4.2 and 8.4.3.

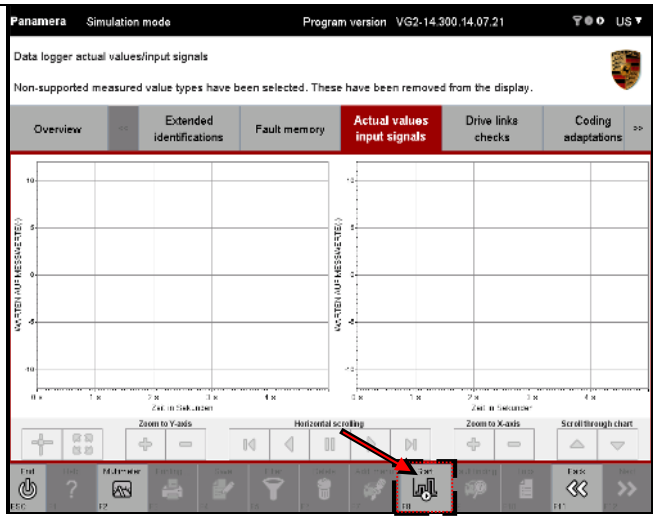
2. The working screen then shows the parameters for which you have selected measured values. Now select the parameters that you want to display graphically (A).

   Press the <F3> button (B).
   A selection window appears above the <F3> button in which you can select the type of diagram display. The following options are available:
   - `All measured values in one diagram`
   - `Between individual diagrams`
   - `Two adjacent diagrams`

   The option `Two adjacent diagrams` was selected in the example shown.



3. Press the <F8> button to start the data logger's logging function.



4. The data for the selected parameters is now read out of the control units and displayed graphically. If the right edge of the diagram is reached when inserting a measured value, the graph is shifted to the left by a certain percentage of the visible screen width. If the value "Infinity" is measured, this is not displayed in the data logger and is saved as ZERO in the measured value log.

Note on axis labeling/units:

- The X-axis label is always the time. The time values are the seconds since the start of measurement.
- The Y-axis label depends on the selected measured variable.

Display on the title bar:

The ⏵ icon is displayed at the right on the title bar for as long as data logging is running in the data logger.

You now have the following options:

Option 1: Exit the data logger while data logging is running

5. You can exit the data logger while data logging is running in order to perform actions in other function groups. The <F3> button is active and has the label `Data logger`.
   To call up the data logger again from another function group, press the <F3> button (Data logger).
   Read the information about adding new measured values for measured value logging in the data logger:
   ►See section 8.4.4.2

Option 2: Stop data logging

6. You can stop measured value logging in the data logger:
   ►See section 8.4.4.3

8.4.4.2 Adding new measured values for measured value logging

If you exit the data logger while measured value logging is running, the <F3> button (Data logger) will be active.

If you want to add new measured values for measured value logging, the following restrictions apply:

If the selection is not changed:

If you have not changed the measured value selection, i.e.

- if you have not selected any additional measured values for measured value logging or
- if you have not deselected any existing measured values

and you call up the data logger again by pressing the <F3> button, the data logger that is currently running will be displayed again.

If the selection is changed:

If, on the other hand, you have changed the selection, i.e. by

- adding new measured values to the current selection
- selecting a different set of measured values for a different actual value

and you call up the data logger again by pressing the <F3> button, measured value logging for the old data logger will be stopped and discarded.
Instead, a new data logger with the new measured values for the current selection will be displayed.

You must start measured value logging explicitly again by pressing <F8> (Start).

For information on starting data logging in the data logger:

►See section 8.4.4.1

8.4.4.3 Stopping data logging

There is a possibility that measured value logging will be stopped as a result of an action performed within another function group, e.g. in the Programming function group.

You can tell that the data logger has stopped by the fact that ...

- ... measured value logging is not running
- ... the START/STOP button <F8> shows START.

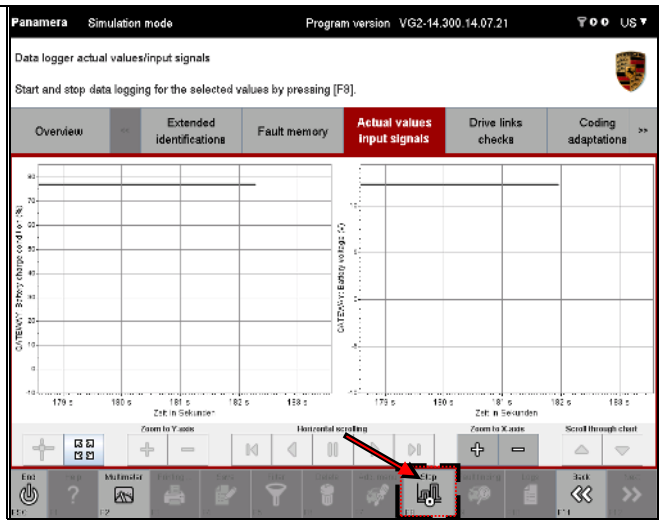
The next steps describe the situation in which the data logger's measured value logging function is running and has not already been stopped automatically as a result of an action performed within another function group.

1. Call up the data logger in the usual way:
   ►See section 8.4.4.1

   Or:

   If you have previously exited the data logger while measured value logging was running and did not change the selection, press <F3> (Data logger). See also the information in section 8.4.4.2.

2. Press the <F8> button to stop measured value logging.



8.4.4.4 Possible actions/Icons

Various options are available for changing how the diagrams are displayed. You can call up these options by pressing the relevant button:

Icon	Description
	Set marker (see section 8.4.4.5). Setting the marker in the diagram marks the x- and y-intercepts of the measured curve and displays the values of the curve at the marked point.
	Delete marker (see section 8.4.4.6).
	Auto-scaling: The display area of the coordinate system is adapted to the value range of the curve.
	Scaling the x- or y-axis: The display area of the coordinate system is enlarged.
	Scaling the x- or y-axis: The display area of the coordinate system is reduced.
	Horizontal scrolling: The display area jumps to the value x=0.
	Horizontal scrolling: The display area scrolls to the left.
	Horizontal scrolling: The display area scrolls quickly to the left.
	Horizontal scrolling: Stop scrolling.
	Horizontal scrolling: The display area scrolls to the right.
	Horizontal scrolling: The display area scrolls quickly to the right.

Icon	Description
	Horizontal scrolling: The display area jumps to the last recorded value.
	Scroll through chart: Scroll forward in a diagram.
	Scroll through chart: Scroll back in a diagram.

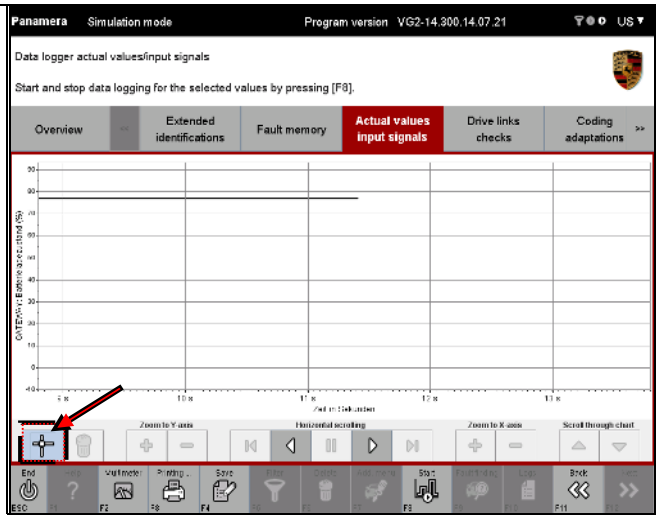
Table 6: Data logger functions

8.4.4.5 Setting a marker

You can set a marker and use this to display the x and y values of a point on the curve.

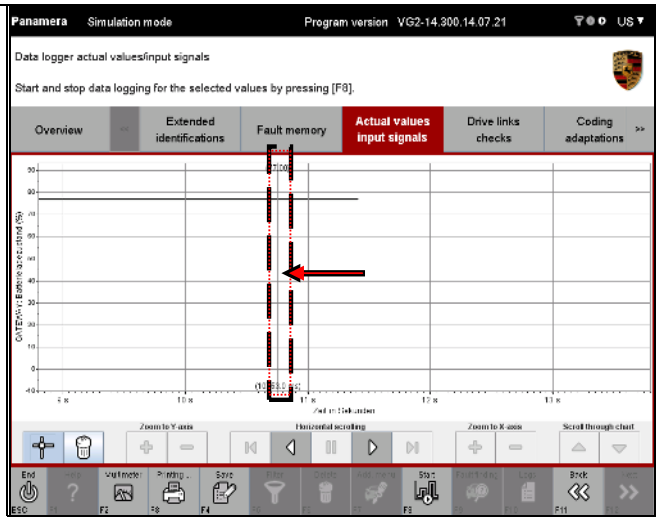
If you have selected a display mode that allows you to display several diagrams, when you set the marker in one diagram, this will automatically be applied at the same point (x-intercept) in all other diagrams.

1. Click on the marker button (represented by the  icon).



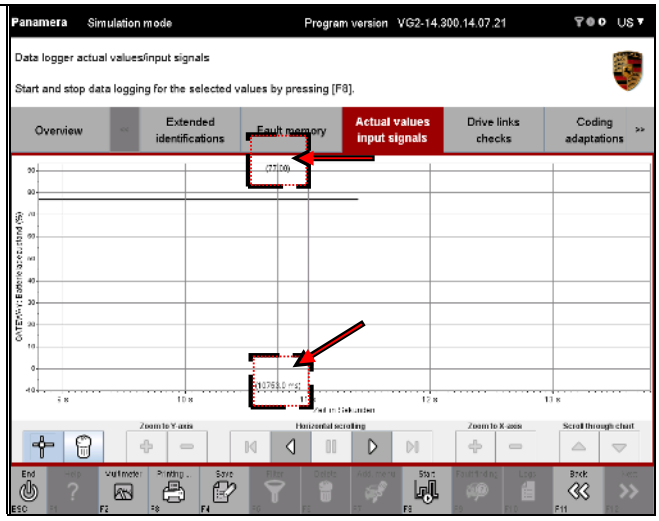
2. Then mark a point on the curve (the x-intercept is decisive here).

   A marker can only be set in the visible x-intercept (i.e. inside the recorded curve).



3. The x and y values of the intersection point between the marker axis and the recorded curve are shown as a numerical value on the marker.

   The x value (time) is shown on the time axis at the bottom, while the y value is shown at the top.



Moving the marker

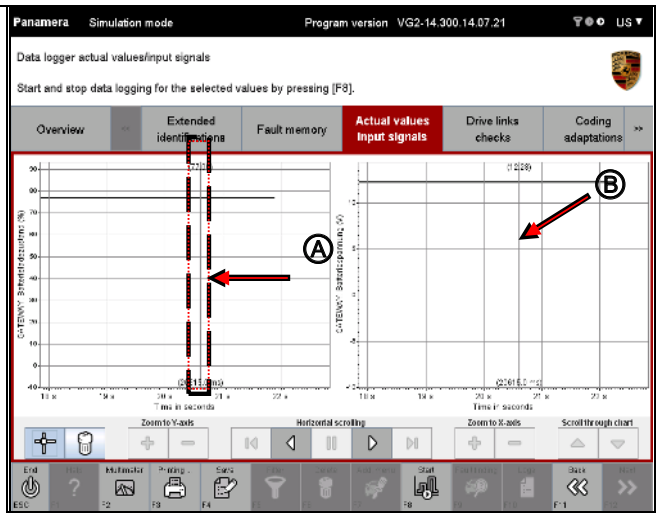
You can use the scroll buttons to move the marker horizontally. You have the following navigation options:

◁	Marker is moved to the left (-x).
▷	Marker is moved to the right (+x).

Setting and moving the marker in several diagrams:

4. If you set the marker in one diagram (A), the x position will be applied to the other diagrams (B).

   If you then move the marker, it will be moved by the same amount in all other diagrams.



Next steps

5. To exit the marker function, press the marker button (represented by the ✣ icon) again. The marker remains visible in the measured curve. You can then use the data logger in the usual way.

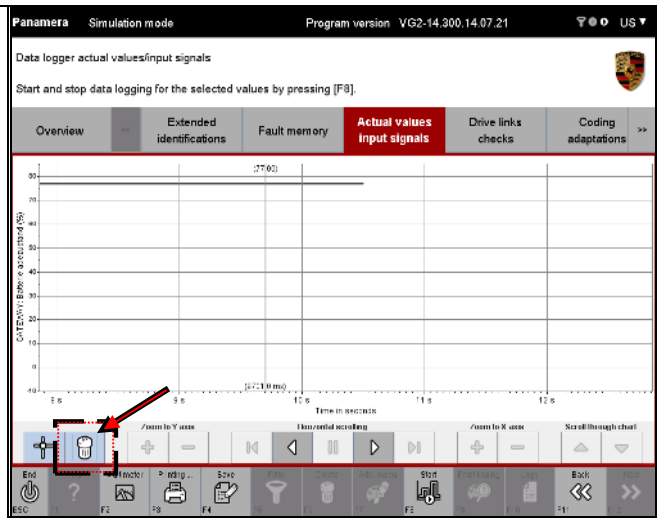
8.4.4.6 Deleting a marker

You can delete a set marker again - including all copies of the marker in other diagrams. Proceed as follows.

1. Call up the data logger and press the marker button:
   ►See previous section 8.4.4.5

2. Press the Delete marker button (represented by the icon).

   All set markers are deleted.



8.4.4.7 Saving measured values temporarily

You can save the measured values logged by the data logger temporarily for subsequent evaluation.

Precondition:

If measured value logging is running, it must be stopped before saving data temporarily. Only then will the relevant `Save` button be activated.

Note on saving data:

If you want to store the temporarily saved measured value log permanently on the PC/Tester, you must save it using a defined name in the log type `Measured value log` of the General Report Management function:

►See section 8.4.4.8

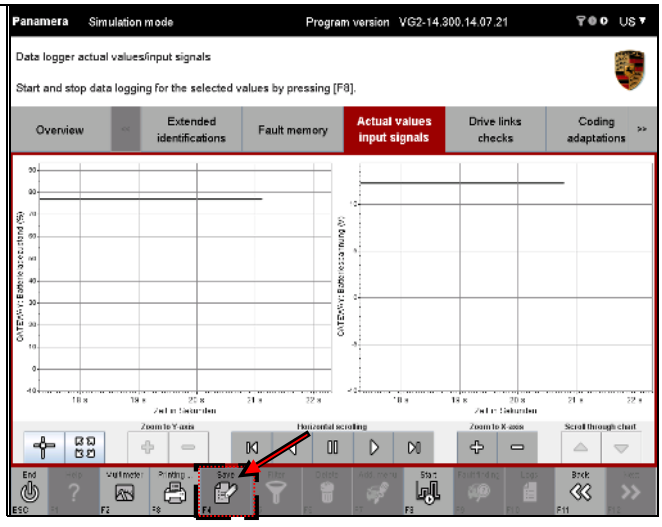
Note on view:

You can call up stored and temporarily saved measured value logs again by selecting the log type `Measured value log` in the General Report Management function. The logs are then displayed in the data logger:

►See section 8.4.4.9

1. Call up the data logger and start measured value display by pressing the <F8> button: ►See section 8.4.4.1.

2. To save the results of the current measured value logging temporarily, press the <F4> button.



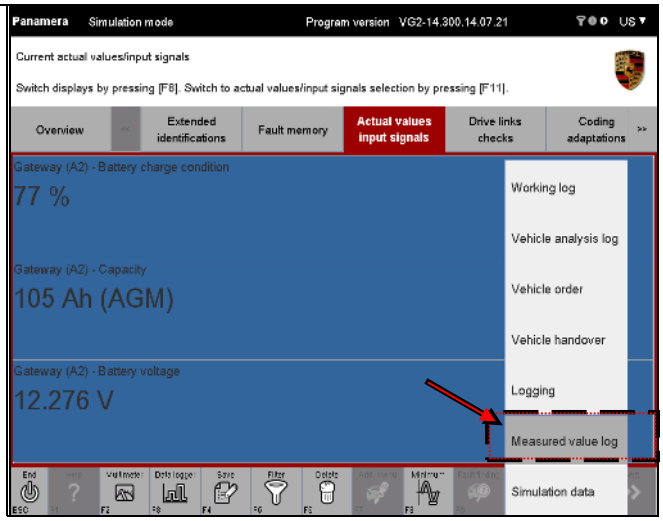
8.4.4.8 Saving the current measured value log permanently

You can save the temporarily stored measured value log permanently (see section 8.4.4.7) in the General Report Management function. The measured value log is zipped when you save it.

1. Press the <F10> button.
   If the button cannot be selected, first switch to one of the function groups (e.g. Overview) and then press <F10>.

2. A button menu appears in which several entries are listed.

   Select the log type `Measured value log`.

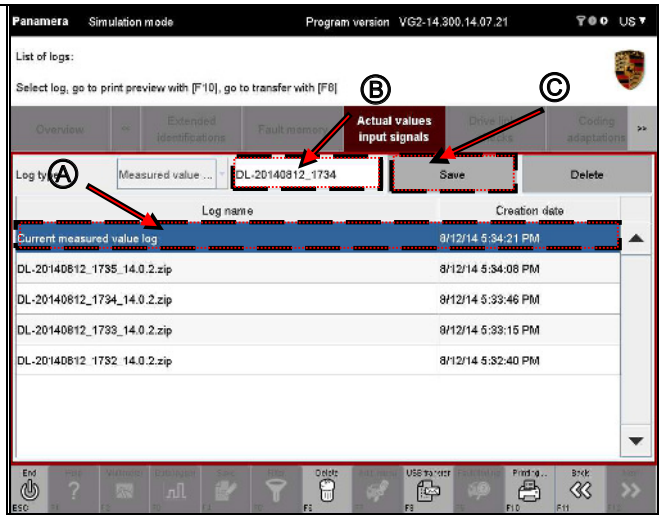


3. The list of measured value logs is displayed. The current or most recently created measured value log is shown at the top.

   Select the current measured value log, for example, by clicking in the corresponding line. If the current measured value log is already selected, this step is not necessary (A).

   Enter a name. A name is already suggested in the name field. You can use a different name (B).

   To save the temporarily stored measured value log under the name you have chosen, press the `Save` button (C).



8.4.4.9 Calling up and displaying stored measured value logs

In the General Report Management function, you can call up measured value logs that were created using the data logger in the Actual values/input signals function group (see section 8.4).

Reduced function:

When displaying the stored measured value data, the data logger is used purely as a display unit. It is not possible to start logging new measured values from within the measured value data display. The <F8> button is therefore grayed out.

To log a new measured value curve:
►See section 8.4.4.1

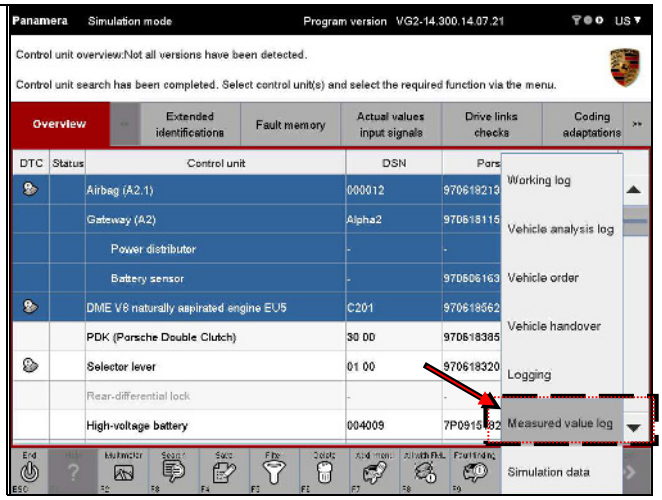
Other possible actions:

You can return to the General Report Management function by pressing <F11>.
You can also jump directly to one of the other function groups using the menu bar. The data for the control units that are currently in the selection is then displayed.

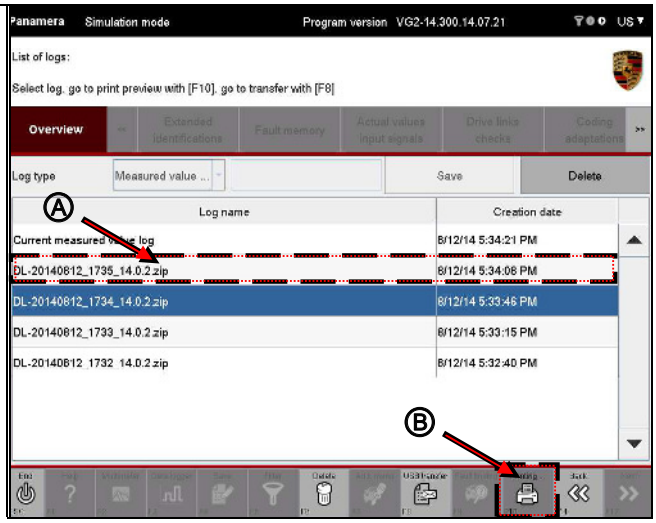
You can print the measured value log by pressing <F3>:
►See section 8.4.4.11

1. Press the <F10> button.
   If the button cannot be selected, first switch to one of the function groups (e.g. Overview) and then press <F10>.

2. A button menu appears in which several entries are listed.
   Select the log type `Measured value log`.



3. Select a measured value log from the list (A) and then press the <F10> button (B).



4. The measured value curve(s) will be displayed in a function-reduced data logger (see introductory note for this section).

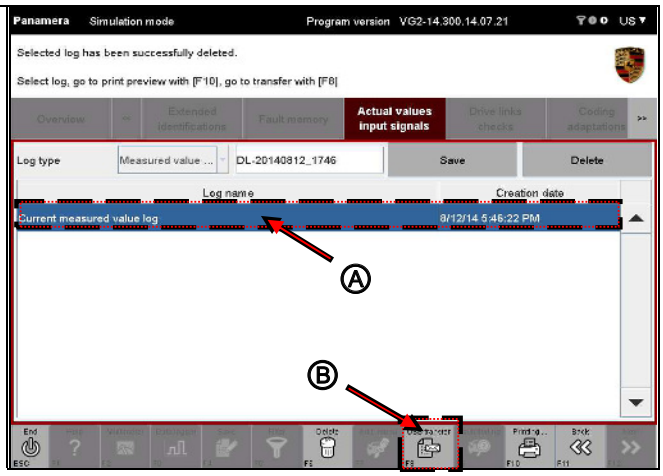
   In the logged data, you can now ...
   - ... use the scroll and marking functions of the data logger or
   - ... print the log by pressing <F3> (further information can be found in section 8.4.4.11).

8.4.4.10 Copying a measured value log to a USB data storage medium

You can copy a measured value log to a USB data storage medium. A special Transfer button is displayed for this purpose in the General Report Management function.

1. Display the list of measured value logs:
   ►See section 8.4.4.9

2. Select the log you want to transfer (A) and press the <F8> button (B).



3. Copy the measured value log to a USB data storage medium using the File management function of the basic software.

8.4.4.11 Printing diagrams

Note on the print dialog:

The diagram is printed immediately on the default printer set in the operating system.

Information on the print format:

The format of the printout is DIN A4 landscape.

The number of diagrams displayed on the screen determines how many diagrams will be printed on each page, i.e.:

- If you have selected the display mode `All measured values in one diagram`, only one printout will be created.
- If you have selected a display mode in which measured values are logged in several diagrams, the number of diagrams printed on one page will correspond to the number of diagrams shown on each screen page. The diagrams that are currently displayed on the screen are always printed. If you want to print diagrams that are shown on a different screen page, you must first scroll to this page (or) before pressing the Print button.

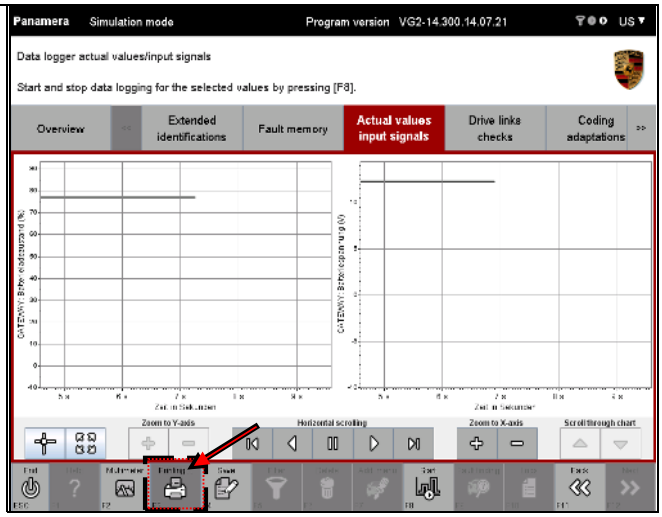
Only the diagram (consisting of the marker - if set -, axis labels, units and the measured curve) is printed.

Precondition:

You can ...:

- ... print the current measured value log directly. Measured value logging must have been stopped beforehand (see section 8.4.4.3). Only then is the Print button activated.
- ... retrieve a temporarily saved or stored measured value log using the General Report Management function and then display (see section 8.4.4.9) and print it on the data logger interface.

1. Press the <F3> button to print the diagrams.



8.5 Drive links/checks

This section describes how to display the drive links of a number of control units. It also describes how to change the parameters of these drive links and how to run test routines for individual control units.

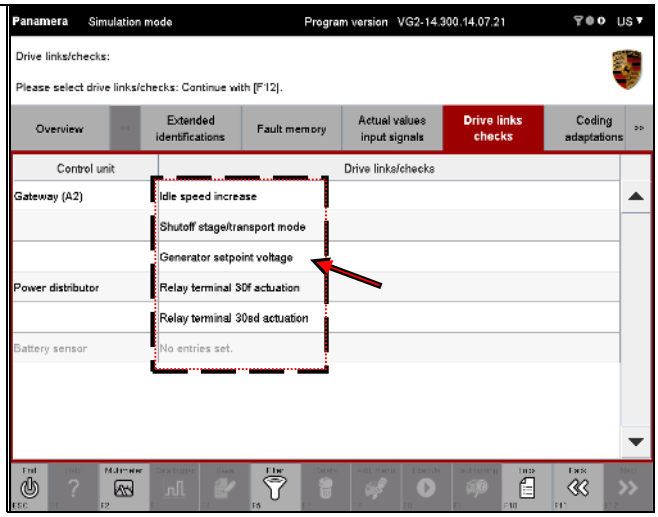
8.5.1 Action-specific buttons for this function group

Drive links/checks			
Button	**Label**	**Icon**	**Description**
F5	**Measured values**		Pressing the <F5> button allows you to select measured values in an additional screen. These values are then also displayed in the result area of the drive links/routines.
F6	**Back**		Pressing the <F6> button returns control over a selected drive link to the corresponding control unit. The parameter of the drive link is then determined by the control unit.
F7	**Stop**		Pressing the <F7> button stops the current routine. Pressing the <F7> button again starts the routine again.
F8	**Start**		Pressing the <F8> button starts a previously selected **test routine**.
F8	**Execute**		Pressing the <F8> button sets a previously selected **drive link**.
F8	**Stop**		Pressing the <F8> button stops a previously selected test routine.
F9	**Reset**		Pressing the <F9> button resets the current values to a default value.

8.5.2 Displaying drive links/checks

1. Display the list of installed control units and select the desired control units:
   ►See section 8.1.

2. Select the Drive links/checks function group on the menu bar. A list of the drive links for the control units is displayed.



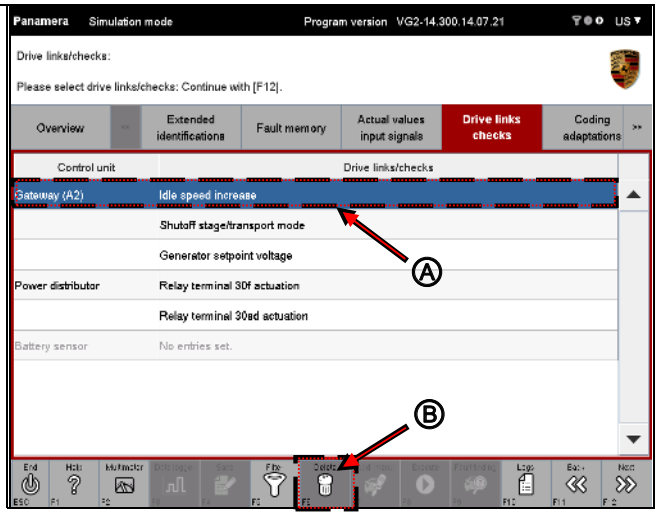
8.5.3 Changing parameters/calling up test routines

1. Display the list of drive links and routines:
   ►See section 8.5.2.

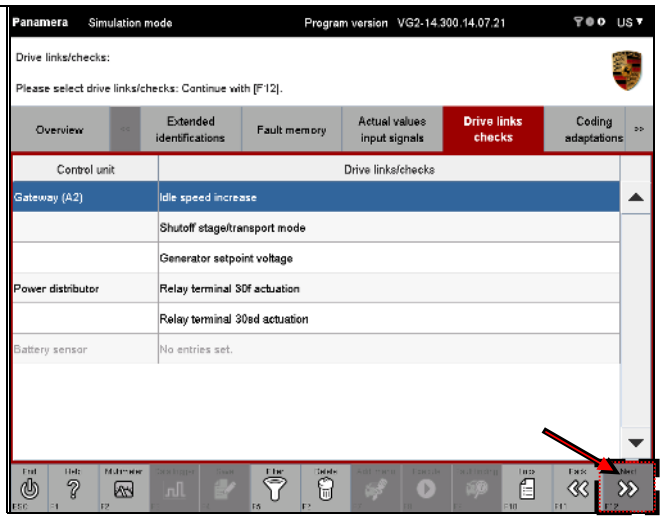
2. In the list, highlight the drive link whose value you want to change or for which you want to call up a test routine (A).

   If you want to deselect a selected drive link, click again in the corresponding line.

   You can cancel the complete selection by pressing the <F6> button (B).

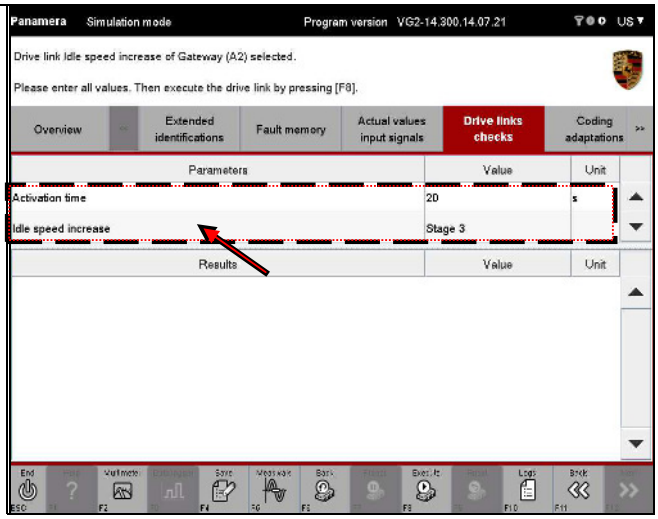


3. Then press the <F12> button.



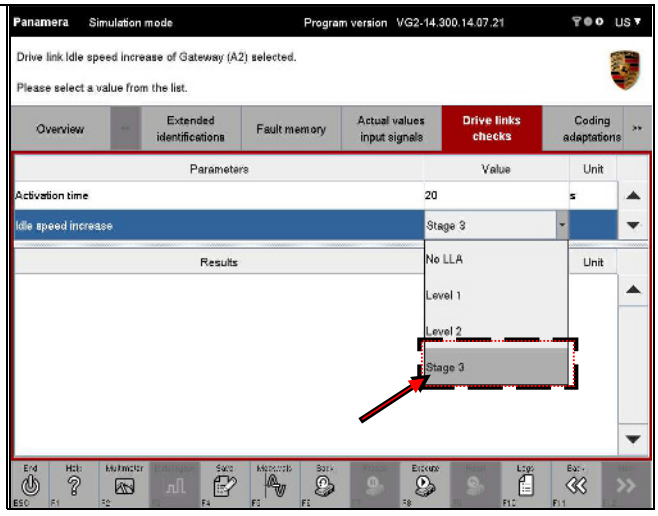
4. The available editable values or test routines for the selected drive link are displayed in the upper part of the current screen.

   Note:
   The status of the executed routine may already be displayed in the result area when the working screen is called up. Likewise, measured values that have already been defined may also be displayed in the result area.

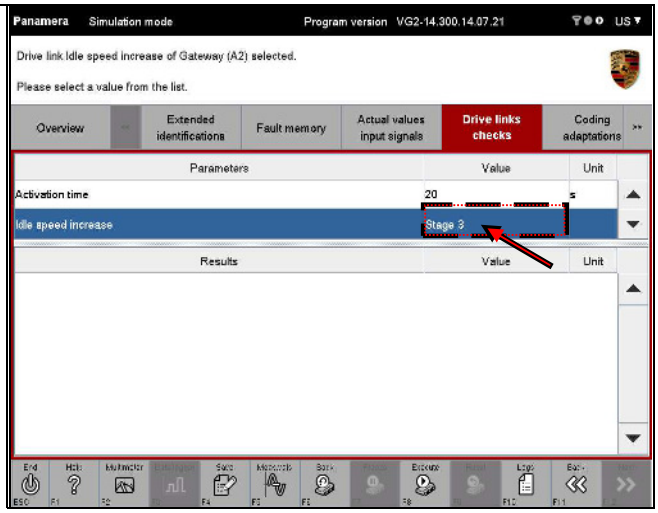


Option 1: Changing the parameter using a drop-down menu

5. If the test routine has certain fixed configurable values, you can select the desired value from a menu by clicking in the relevant Value field.



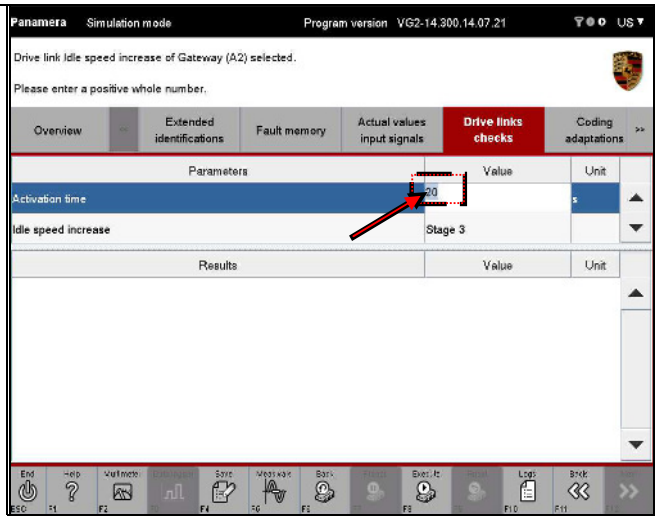
6. The value is then transferred into the Value field of the test routine.



Option 2: Changing the parameter by entering a value manually

7. If the value does not have certain fixed configurable values, you can change the value by entering a parameter manually.

   To do this, click in the Value field of the test routine and enter the desired value.



Note:

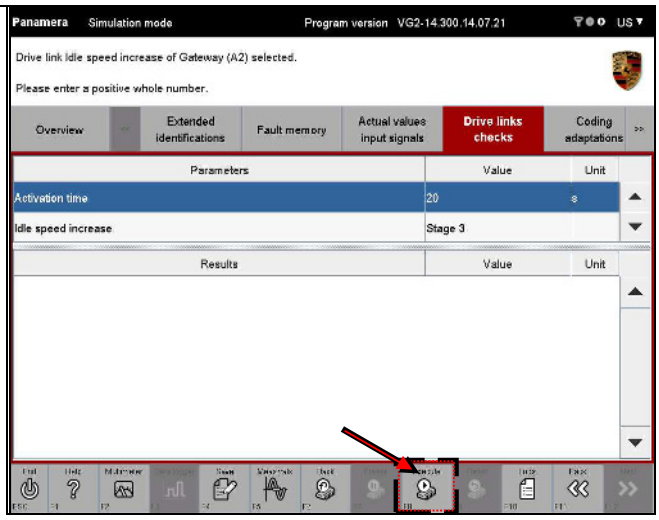
If a drive link does not have any parameters, the Value field cannot be selected.

Next steps

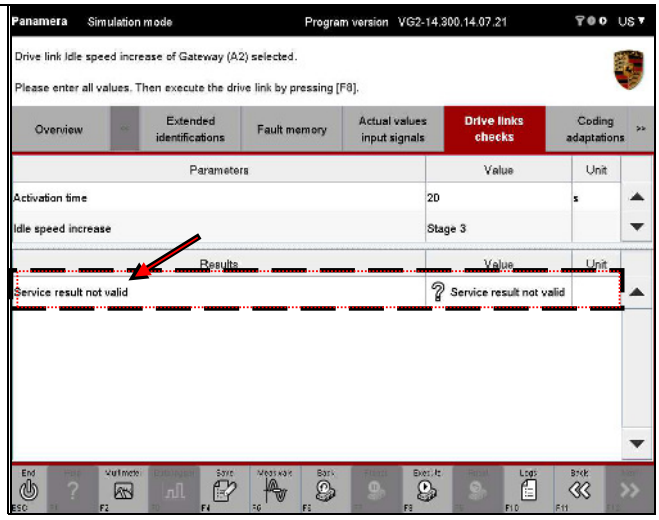
8. Press the <F8> button to start the test routine or to set the parameter value.

   Press the <F8> button again to stop the process.

   Note:
   It may happen that the routine has already been started when you call it up. In this case, of course, there is no need to start the routine. Furthermore, the routine can sometimes stop by itself. In this case, there is no need to stop the routine.
   It is important, therefore, to check the status of the test routine. To do this, check the label on the <F8> button as this varies according to the status.



9. The result of the action is shown in the lower part of the current screen.



8.5.4 Setting drive links

The procedure for entering values for drive links and test routines is basically the same. The only difference is that different buttons on the control bar are activated for drive links.

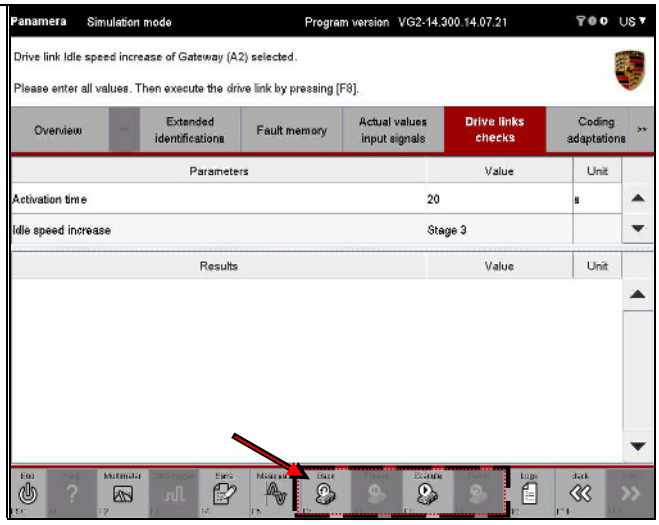
1. Enter the relevant values for the respective parameters. For information on the various options for entering values, see section 8.5.3.

2. Set the drive link by pressing the <F8> button. The action-specific buttons are only activated after you have set the drive link.

3. The additional possible actions are displayed on the control bar.

   The following additional buttons are available:

   - Back:
     When you press the <F6> button, control over the drive link is returned to the control unit.
   - Stop:
     When you press the <F7>button, the current position of the drive link is saved.
   - Reset:
     When you press the <F9> button, the drive link is reset to a default value.



4. The result of setting the drive link is displayed in the lower part of the screen. The information in the information area also tells you which action (Stop, Reset, Back, Execute) the current result value relates to.

Note:

The <F8> button also remains active so that you can set the drive link again if you have changed an input parameter.

8.5.5 KWP2000LP functionality

If the selected drive link has a KWP2000LP communication protocol, the test sequence is performed in a different way in the Drive links/checks function group:

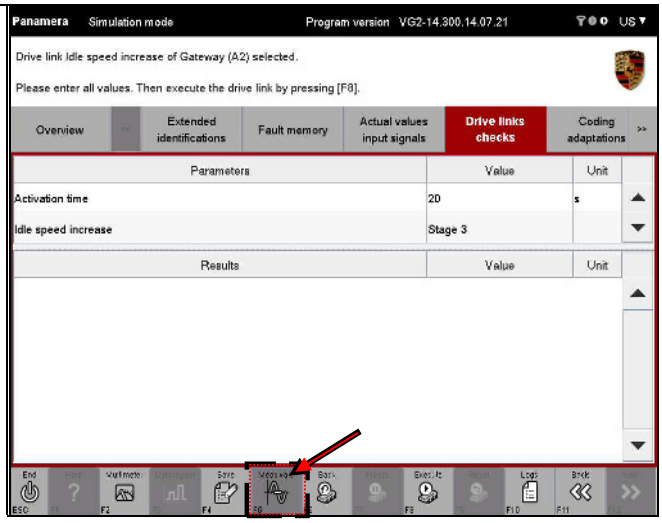
After you have selected a drive link and started the test routine by pressing the <F8> button, you can call up the next function for this drive link by pressing <F12> and work through the test sequence successively.

8.5.6 Combined display of actual values and drive links/checks

You can extend the result display in the Drive links/checks working screen. In addition to the results of the drive link test or executed routine, you can also display measured values of individual measured variables, which were stored for the corresponding drive link, in the result area.

To do this, the additional measured values to be displayed must first be selected in an actual values screen with reduced functions.

1. Press <F5> (Measured values) in the working screen.

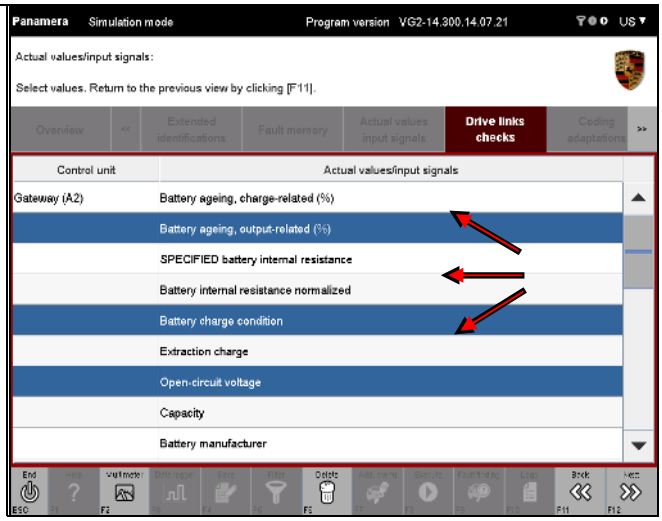


The following selection screen looks identical to the Actual values/input signals screen, but with a few restrictions:

- It is not possible to call up a different function group.
- The functionality of the Actual values/input signals function group is limited to the selection and deselection of measured variables.

2. A list of all measured variables for the control units previously selected in the control unit list or control unit overview is displayed. Individual measured variables are already highlighted for the drive link/routine that was previously selected in the Drive links/checks function group.

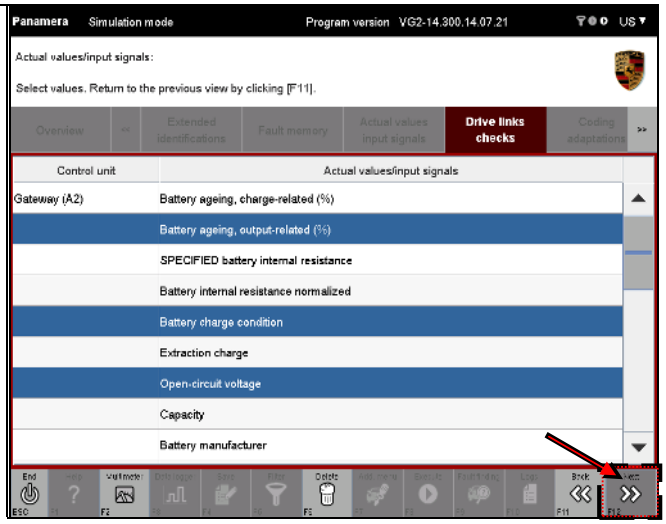
   Now click on the measured variables whose measured values you also want to display.



The preselection cannot be deleted. However, you can add further measured variables to this preselection as required.

3. Then press the <F12> button to accept the selection and return to the Drive links/checks screen.

   If you do not want to accept the selection, press the <F11> button. This also takes you back to the Drive links/checks screen, but no further measured values are displayed. Any selections you have made are discarded.



The current selection is stored in a user-specific filter when you confirm this by pressing <F12>. This filter is retained even when you exit the diagnostic application or re-install the application. If you call up the same control unit again at a later time, the last selections you made will be displayed in the selection screen again, depending on which control units were selected in the control unit list and control unit overview.
If you have selected fewer or different control units in the control unit overview, either fewer or different selections will be displayed.

8.6 Codings/adaptations

This section describes how to write coding values. Essentially, you can choose between manual and automatic coding. For this reason, this section first describes how to select and activate a coding mode. Depending on which coding mode you select, you can then perform coding automatically or first set individual coding values manually and then write them.

Important note:

The control unit variant can be changed by flashing and coding. As a result, a different control unit name than the one displayed previously may be displayed after flashing and coding.

Example:

Let's suppose you code the airbag control unit in the basic variant "Airbag“ and when you code this control unit, it becomes control unit variant "Airbag_A2". As a result, the control unit will be managed as Airbag_A2 following flashing and no longer as Airbag. The name is changed without carrying out a new control unit search.

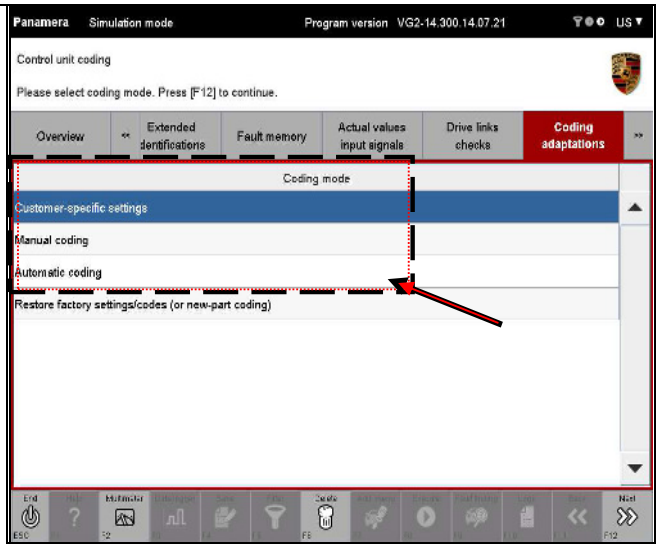
8.6.1 Action-specific buttons for this function group

Codings/adaptations			
Button	**Label**	**Icon**	**Description**
F8	**Write**		Pressing the <F8> button writes a coding value.
F8	**Save**		Pressing the <F8> button saves assigned coding values temporarily at first. The respective feature is written permanently in the last step. The procedure described here applies to all coding modes except for Manual coding without MCR rules (Development).

8.6.2 Displaying coding modes

1. Display the list of installed control units and select the desired control units:
   ►See section 8.1.

2. Select the Codings/adaptations function group on the menu bar.
   A list of the possible coding modes is displayed.



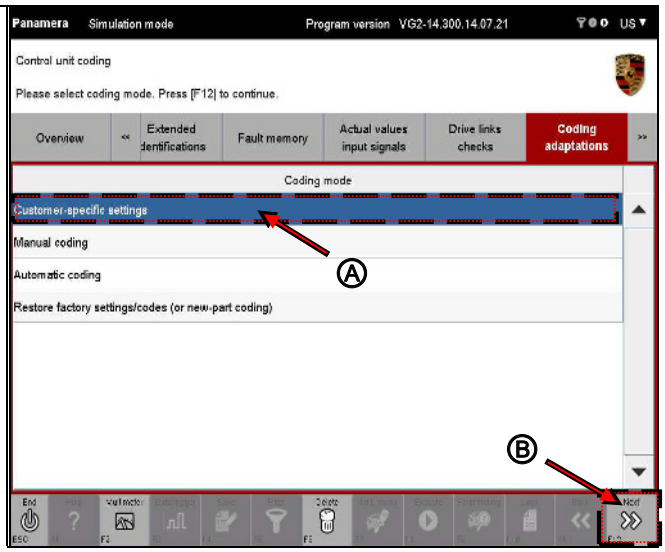
8.6.3 Customer-specific settings

Note:

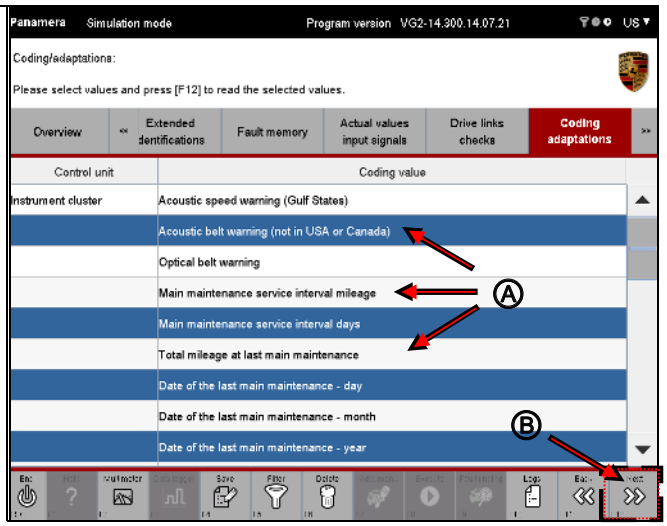
In the `Customer-specific settings` coding mode, you must set and code the individual coding values yourself as no MC rules (machine-readable coding rules) are evaluated

1. Display the list of coding modes:
   ►See section 8.6.2.

2. Select the coding mode `Customer-specific settings` (A) and press <F12> (B) to confirm your selection.

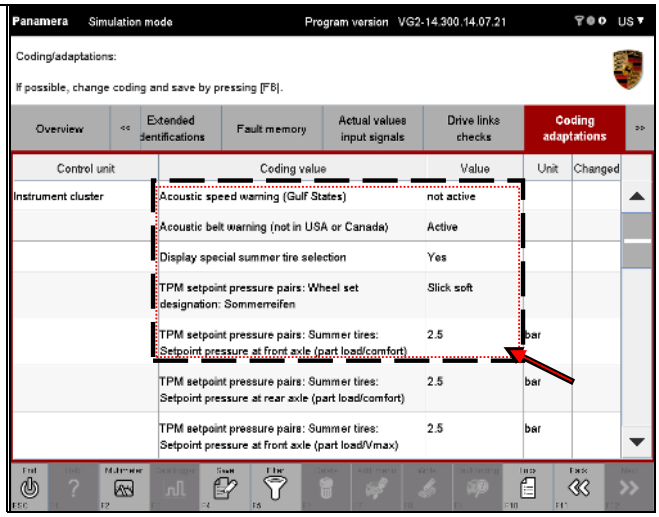


3. You now have the option of selecting individual or all coding values (A).
   Confirm your selection by pressing <F12> (B).



All coding values of the control unit were selected for the display and description below. For this purpose, all elements in the list were selected and the selection was confirmed by pressing <F12>.

4. A list of possible coding values for the control unit appears.



You can change the coding value in two different ways, depending on the coding mode:

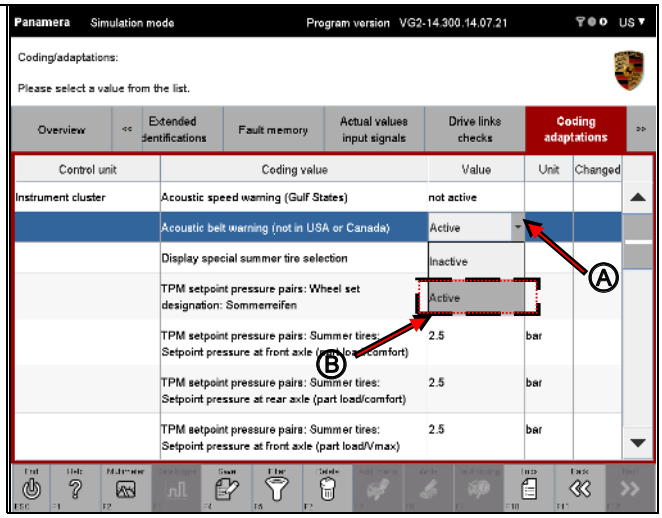
↓ Next page

Option 1: Changing the coding value using a drop-down menu

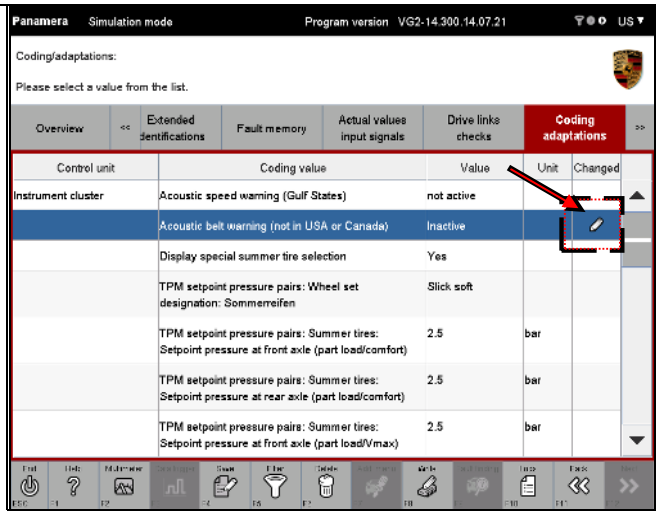
5. If the coding value can be changed and if the selected coding has several fixed coding values, these will be listed in a selection menu.

   Click in the Value field for the coding (A).

   Select the coding value that you want to write from among the values listed in the drop-down menu that appears (B).



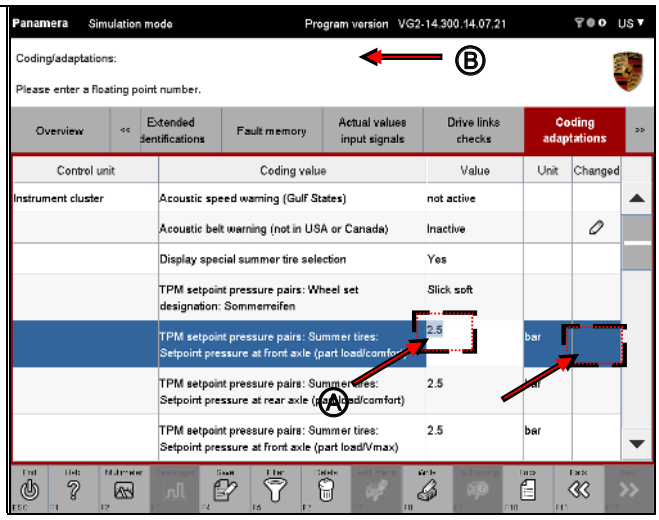
6. If you change the value, this will be indicated by the ✎ icon in the `Changed` column.



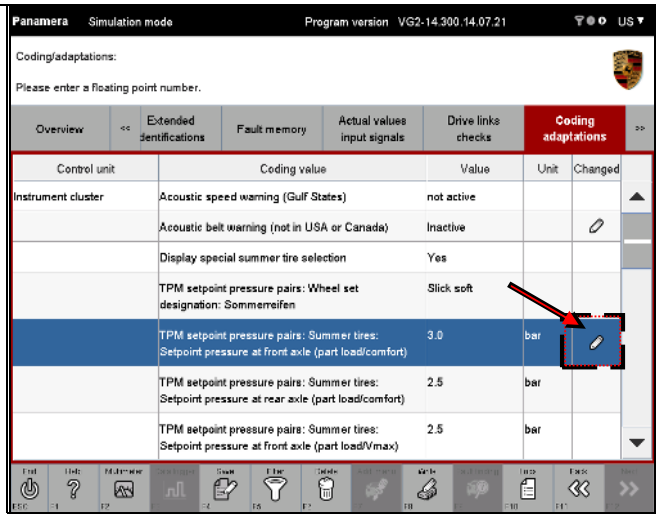
Option 2: Changing the coding value by entering a value manually

7. If the coding value can be changed, but cannot be selected in a drop-down menu, you can change it by clicking in the Value field for the coding and entering the desired coding value manually (A).

   Tips for entering values are provided in the Info area (B).

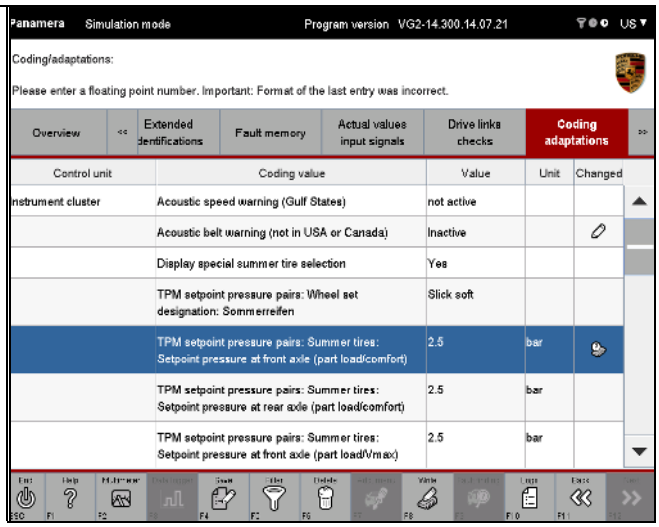


8. If you change the value, this will be indicated by the icon in the `Changed` column.



Note and tip

9. If the value you have entered is not correct because the format of the value is wrong, for example, this will be indicated by the icon in the `Changed` column and the original value will be entered again.



Restoring the original value:

If you want to cancel your entry, you can do this in two different ways:

- Enter the original coding value in the Value field again. The icon next to the Value field disappears.
- Select a different function group, e.g. Overview, and then activate the Codings/adaptations function group again. All changes you have made to the values will be rejected.

Special case: Codings without read service

Note:

If coding does not have a read service, a message to this effect will be displayed in the information area. In this case, the coding values will be taken only from the ODX data and will not be read from the vehicle. These coding values may be assigned default values.

If you have entered missing coding values or changed existing coding values, these values will be written to the control unit in a coding process.

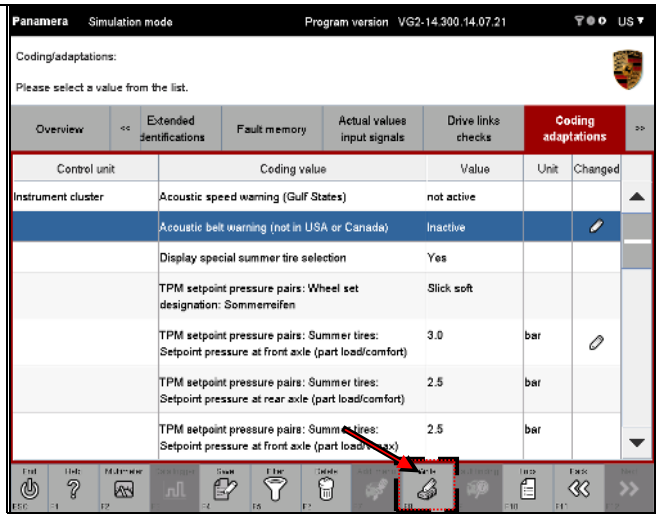
However, these values cannot be read out of the control unit again and compared with the entered data in the usual way in order to check the coding process (check whether the write operation was successful/unsuccessful) because the read service for reading data out of the control unit is not available (see also Info block: "Checking that the data that was written is correct" below).

The procedure in this case differs from the standard operating concept in the following respects before the coding button is activated on the control bar:

- Coding that does not have a default value must be assigned a coding value. To do this, proceed as described above (Option 1, Option 2)
- Coding that already has a default value can be changed, but does not have to be.

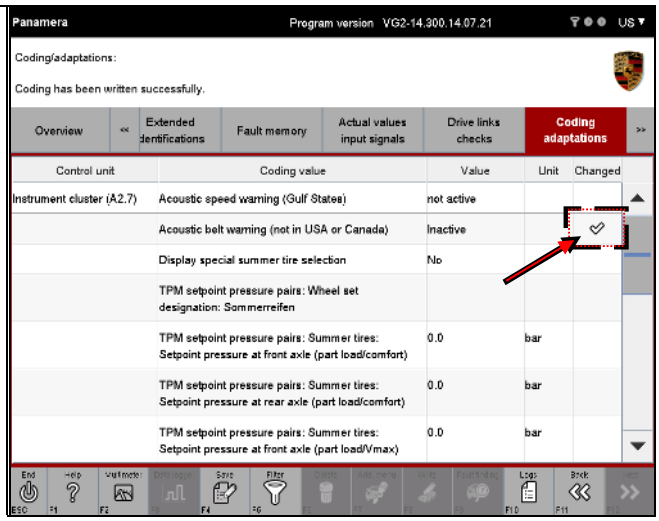
Next steps

10. Press the <F8> button to write the changed coding value.



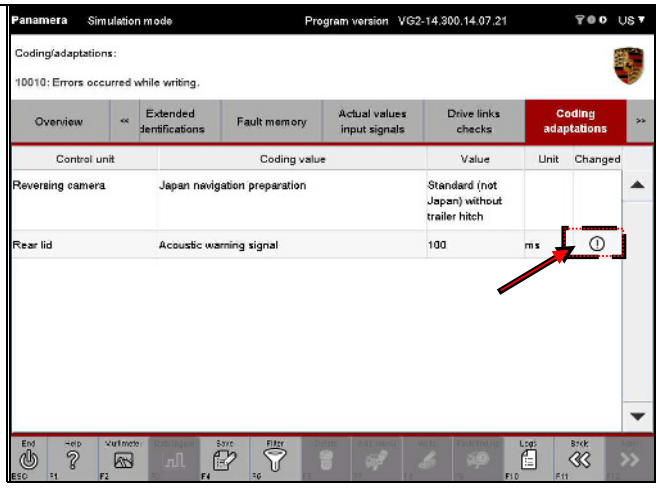
After writing

11. If the new value has been written successfully, this is indicated by the ✓ icon.



12. If a coding value was not written successfully, this is indicated by the ⓘ icon in the `Changed` column.
    Try to write the value again if necessary or call up the Help function.

    If it is not possible to read the full message text in the Info area due to lack of space, you can display it by clicking on `Details`.



Details of error description:

In some cases, e.g. if the texts are too long, the values are only checked when writing the coding. Information about why the data could not be written is displayed after the display of the permitted input value in the Info area.

The Info area is updated only after you change the selection of the coding indicated by an error icon.

Example: If coding with an error is already selected, the error description is not displayed immediately. The reason for the error is only displayed in the Info area after you have deselected this line and then select it again.

Some coding values are not written in the current status of the control unit display even though no problems are indicated. The reason for this is that the control unit has responded positively to a value request, but has not written the value. This may be due to a flash memory problem in the control unit, for example.

The value is defined by the runtime system. This is the case for some dates, for example. The date can be changed, but the value you enter is replaced by the runtime system when writing data.

Checking that the data that was written is correct:

Two different types of checks are performed:

- Read service available:
  If a control unit has a read service, the data that was written is read out again after the write operation and is compared with the data to be written. If the control unit acknowledged the write operation with a positive response, and if the data is correct, the write operation for the coding is deemed successful. In all other cases, a corresponding error message is displayed.
- Read service not available:
  If the control unit does not have a read service (see also note on "Special case: Codings without read service" above), the application merely checks that the control unit acknowledges the write operation with a positive response. If it does, the write operation for the coding is deemed successful.
  The data that was written cannot be checked because there is no read service available.

8.6.4 Manual coding

In the `Manual coding` coding mode, the required data that will be written to the control unit is determined using a selection of equipment features. You must also enter certain vehicle data manually beforehand. The data to be written is then written automatically to the control unit following confirmation.

You must enter the following data in one of the following steps:

►Product code

►Country code

►Model year

Always have the necessary information ready.

Number groups and their meaning:

X: Exclusive

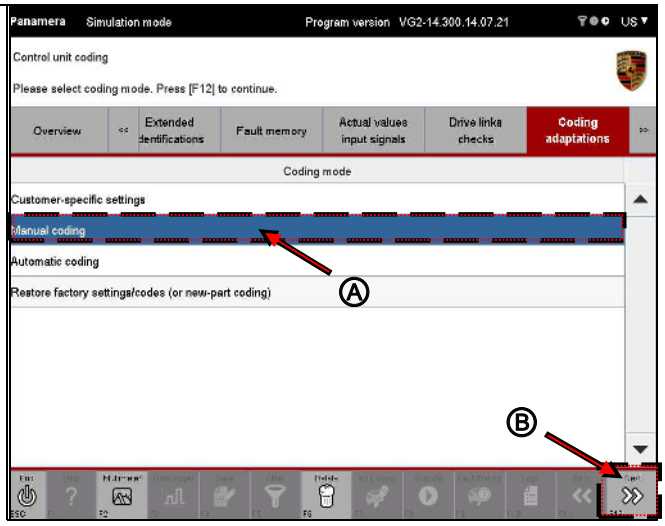
M: Additional equipment

Z: Tequipment

PR: Additional VW equipment (and model type Cayenne)

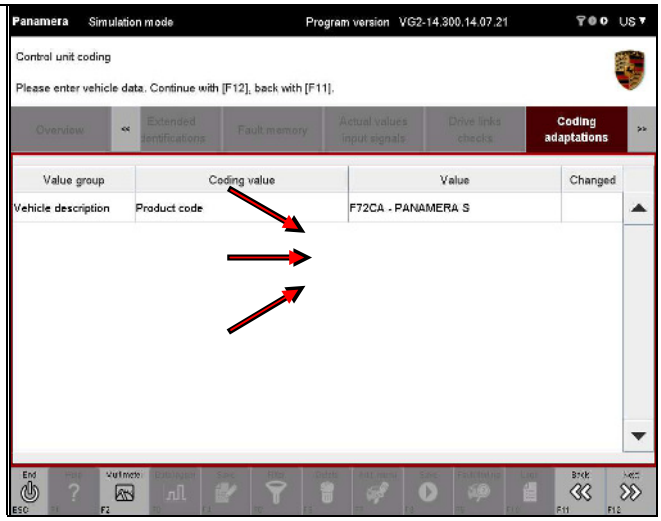
1. Display the list of coding modes:
   ►See section 8.6.2.

2. Select the coding mode `Manual coding` (A) and press the <F12> button (B) to confirm your selection.



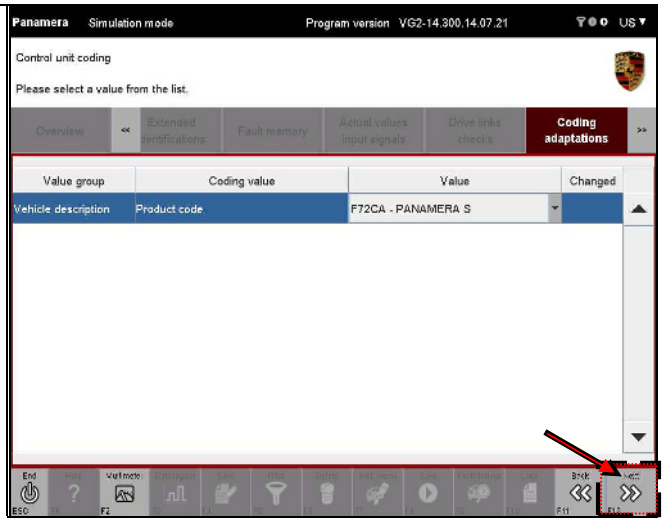
3. You must now enter the following data:
   - Product code
   - Country code
   - Model year

   To do this, click in the corresponding input field in the `Value` column and enter the value.



4. When you have entered all the values, confirm your entries by pressing <F12>.

   If you want to cancel the operation, press the <F11> button. You then return to the list of coding modes.



You must then assign the relevant equipment features for the control units listed in the selection.

Depending on the availability of data and the control unit variant, the features are assigned in two screens displayed one after the other.

Proceed as follows:

Assigning equipment features that do not belong to a specific family

Note on screen content:

The equipment features that are valid for this control unit in the value group are displayed in the next screen. A feature is assigned directly by selecting and deselecting individual coding values.

A feature is made up of two entries:

- The coding number and designation in the `Coding value` column.
- Indication of the presence of the feature in the vehicle data in the `Installed` column. If a feature is set, this is indicated by the ✓ icon and if the feature is not set, the line will be blank.

In addition, the `Changed` column indicates whether the status (Installed/Not installed) of a feature has been changed.

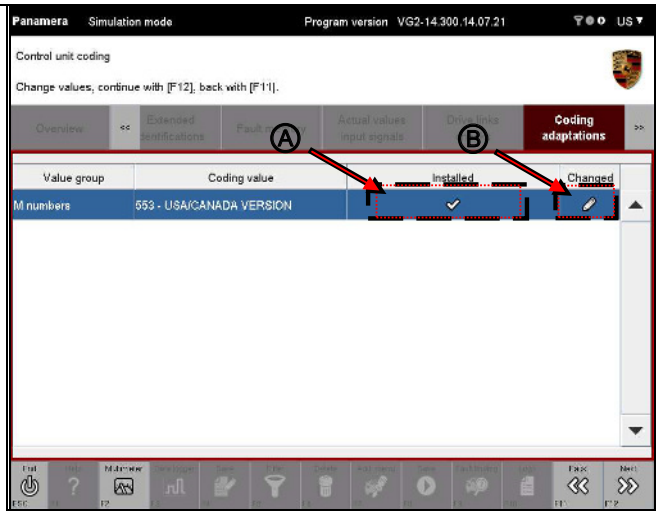
For a better overview, you can sort the columns if necessary (for a general description of how to sort columns, see section 10.6).

5. To identify a feature as present, click in the corresponding cell of the `Installed` column (A).

   If you change a feature, this will initially be indicated in the `Changed` column by the ✎ icon (B).

   Comment: Data is not yet written to the control unit in this step.

   If you want to make further changes to your selection, click again in the corresponding field.



6. Press the <F12> button.

   Pressing <F11> brings you back to the screen for entering vehicle data.

Assigning equipment features that belong to a specific family

Note on screen content:

The equipment features of the value groups are displayed in the form of a grouping/family.
The individual value groups (X, M, Z, PR numbers) are shown one under the other.

A feature is made up of three entries:

- Family designation (e.g. `steering variant, headlights,` etc.) in the `Family` column.
- Designation of the feature (e.g. `601 – BIXENON`) in the `Value` column.
- Marking of the value to be coded in the `Changed` column. If a feature is set, this is indicated by the ✓ icon and if the feature is not set, the line will be blank.

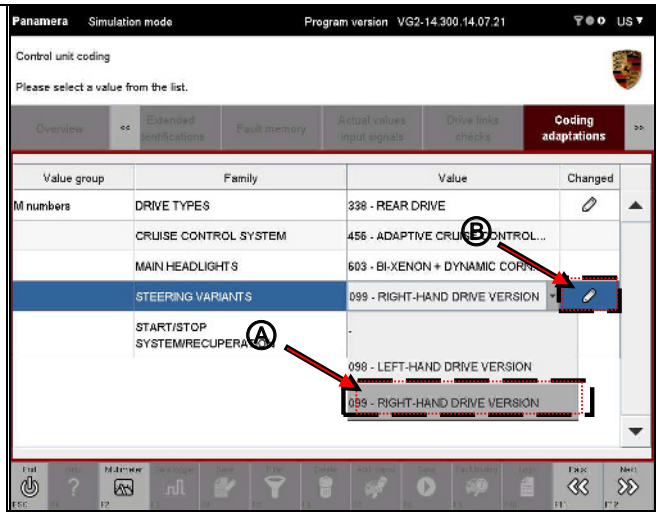
For a better overview, you can sort the columns if necessary (for a general description of how to sort columns, see section 10.6).

7. To identify a feature as present, click in the corresponding cell of the `Value` column and select the feature in a drop-down menu (A). If you select the blank entry, the feature will not be assigned.

   If you change a feature, this will initially be indicated in the `Installed` column by the ✎ icon (B).

   Note: Data is not written to the control unit in this step.

   If you want to make further changes to your selection, click again in the corresponding field.



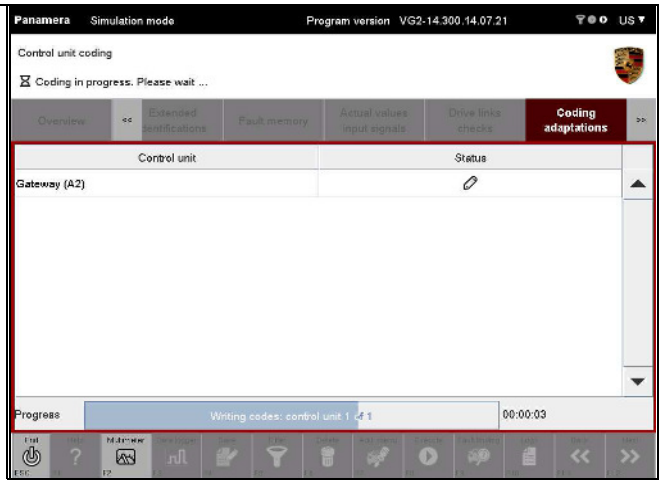
8. Press the <F12> button.

   <F11> brings you back to the previous screen.

9. Coding starts.

   A progress bar at the bottom of the screen informs you about the status of coding. The elapsed time is displayed on the right of the status bar where appropriate.

   The elapsed time is displayed on the right of the status bar where appropriate.

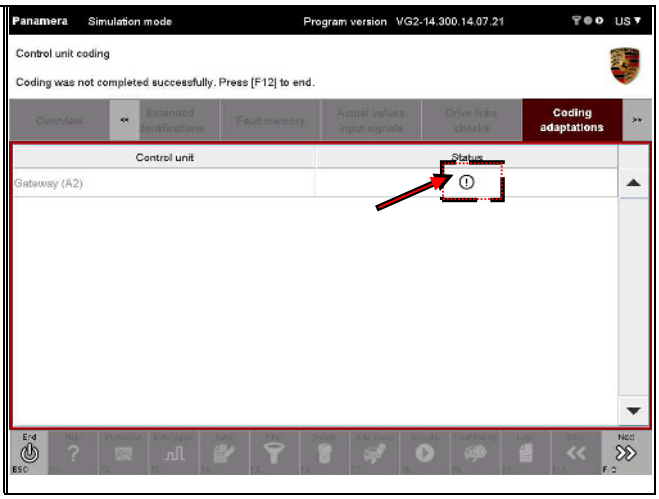


After writing

10. If control unit coding was successful, the ✓ icon will be displayed in the `Status` column for each element.

    However, if an error occurred during control unit coding, this will be indicated by the ⓘ icon in the Status column next to the control unit for which coding was unsuccessful.

    Press the <F12> button.



Next steps

11. After coding, you can change to a different function group using the menu bar or press the <F12> button to return to the list of coding modes.

8.6.5 Automatic coding

Unlike manual coding, you cannot set any features or coding values yourself in the coding mode `Automatic coding`. The data to be coded is determined automatically. Coding then starts automatically. All the necessary vehicle data (product code, country code, model year) is read out of the vehicle beforehand.

Different behavior of the application and fallback solution:

If the data required for automatic coding (vehicle order, chassis number) cannot be read out of the vehicle, you will be offered an alternative fallback solution in which you must enter the necessary data manually. This is similar to the coding mode `Manual coding` (for a more detailed description, see section 8.6.4).

You must enter the following data as required:

►Chassis number

►The features required in order to determine the rule file that applies to the control unit (see Note on `Manual coding`)

The application provides instructions in this case.

Note on customer-specific coding values:

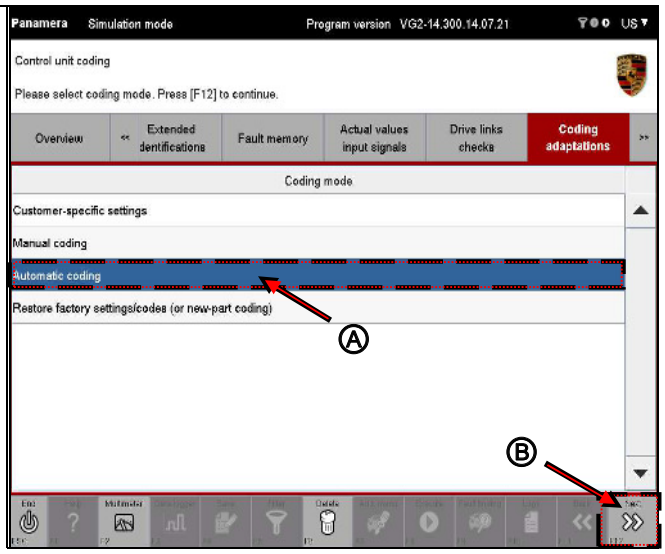
Customer-specific coding values - e.g. the requested activation of the "acoustic speed warning" - are not overwritten in this coding mode.

Note on coding with MCR and ZDC:

Before automatic coding starts, a logic system decides whether coding should be performed using MCR (MCR = machine-readable coding rules) or ZDC (ZDC = target data containers - from the German "Ziel-Daten-Container".

1. Display the list of coding modes:
   ►See section 8.6.2.

2. Select the coding mode `Automatic coding` and press the <F12> button to confirm your selection.



Note on complex action sequences:

If a complex action sequence was stored for the control unit contained in the selection, this will be carried out and the operation involves the steps described in section 8.9.5.
Once this control unit has been coded, automatic coding continues as described below (see next pages).

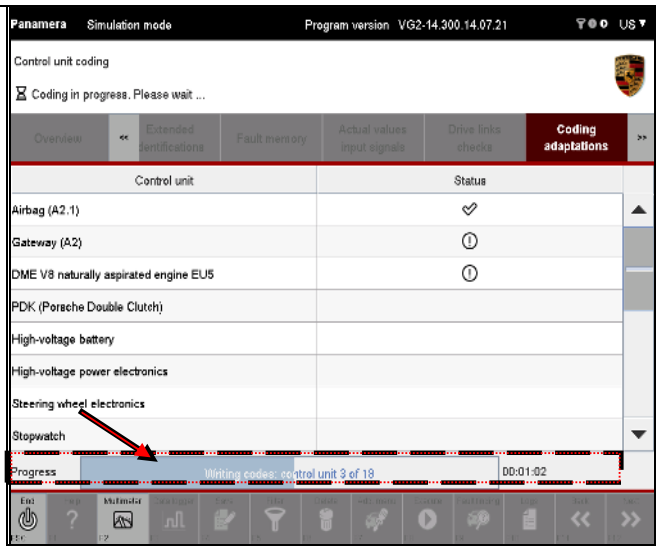
↓ Next page

Coding step: MCR

3. Coding starts.

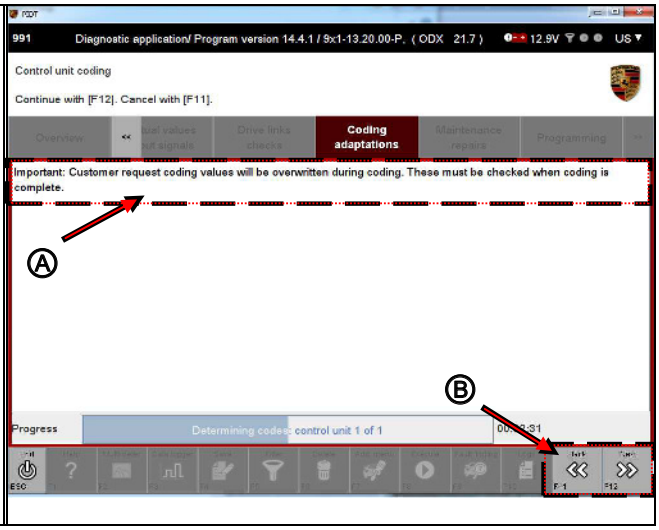
   A progress bar in the lower section of the screen informs you about the status of coding.
   The elapsed time is displayed on the right of the status bar where appropriate.

   The status of coding is indicated by icons:
   : The control unit is currently being coded
   : The control unit was coded successfully
   : An error occurred during coding



4. If a read error occurs, there is a possibility that customer-specific codes may be overwritten when the process continues.

   In this case, a warning is displayed (A) and you have the following options (B):
   - Press <F11> to cancel automatic coding for all control units in order to save the customer-specific codes first if necessary.
   - Press <F12> to continue the process.

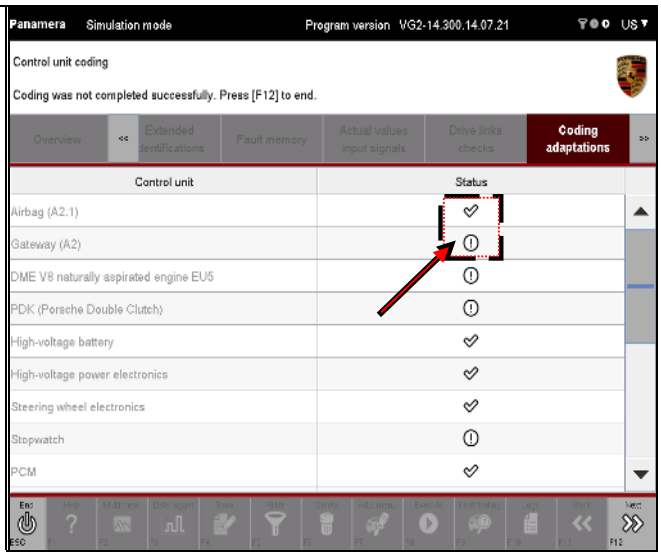


After coding: MCR

5. If control unit coding was successful, the ✓ icon will be displayed in the `Status` column for each element.

   However, if an error occurred during control unit coding, this will be indicated by the ⓘ icon in the Status column next to the control unit for which coding was unsuccessful.

   Press the <F12> button.



After coding: MCR

6. After coding, you can change to a different function group using the menu bar or press the <F12> button to return to the list of coding modes.

8.6.6 Restoring factory settings/codes

What does this do?

If you have selected this coding mode, the customer-specific codes for the control units contained in the selection will be reset to a default value.

The coding mode `Restore factory settings/codes (or new-part coding)` is essentially used in the same way as the coding mode `Automatic coding` (exception: See Note on operation).

Different data is written to the control unit in both modes.

For further information on content and operation:

►See section 8.6.5.

Note on operation:

Possible differences in the operation of the coding mode `Automatic coding`:

The process can be different for both coding modes and the coding mode `Restore factory settings/codes (or new-part coding)` can involve a number of steps - so-called linked sequences.
The individual steps are usually performed automatically and do not require any user input. If an error occurs, however, you may have to answer a decision question by pressing a button. (Possible responses: Cancel or Next).

8.7 Maintenance/repairs

This section describes how to perform processes that are required for commissioning certain control units and functions.

You can call up control unit-specific processes in the Maintenance/repairs function group. Control unit-specific processes are processes that cannot be implemented generically from the ODX data. They are guided processes that are tailored for a specific control unit.

The actual processes are only described as examples in this section since the diagnostic application guides you through each process by displaying information in the form of message texts.

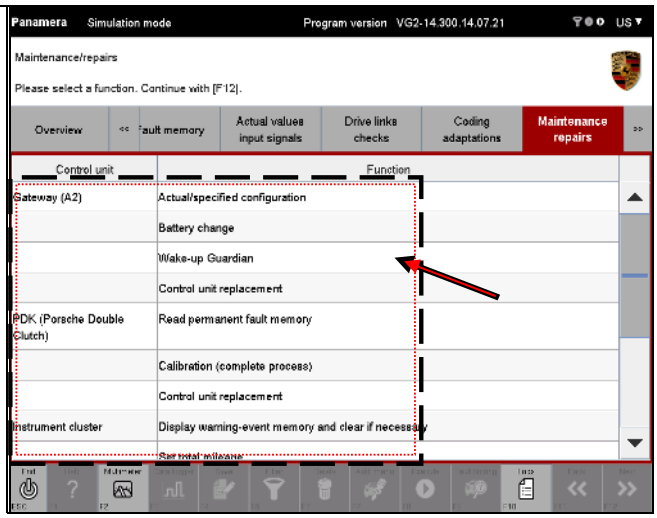
8.7.1 Calling up the function group

1. Display the list of installed control units and select the desired control units:
   ►See section 8.1.

2. Select the Maintenance/repairs function group.

3. A list of the processes that are available for the selected control units is displayed.

   If there is no specific process for the selected control unit, no processes will be displayed in the list.



8.7.2 Example: Control unit replacement

In the Maintenance/repairs function group, the Control unit replacement function is available for all control units. When you select this function, all relevant codes and information for control unit replacement are first read and stored in a file. The data stored in this file can then be written again to a new control unit. This allows you to write the coding values at a later time.

Note on replacement:

The control unit to be replaced must be replaced by a control unit of the same ECU variant since coding values that are vehicle-specific may have to be copied in some cases.

8.7.2.1 Action-specific buttons for this function group

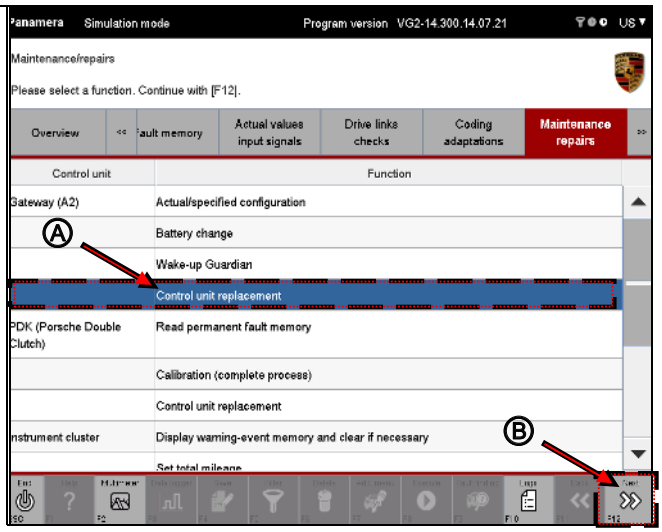
Control unit replacement			
Button	**Label**	**Icon**	**Description**
F8	**Read**		Pressing the <F8> button reads the relevant data for the control unit to be replaced.
F8	**Write**		Pressing the <F8> button writes the previously read and temporarily stored data for the old control unit into the new control unit.

8.7.2.2 Calling up the Control unit replacement function

The gateway control unit was used for the following steps and sub-sections.

1. Select the Maintenance/repairs function group.
   ►See section 8.7.1

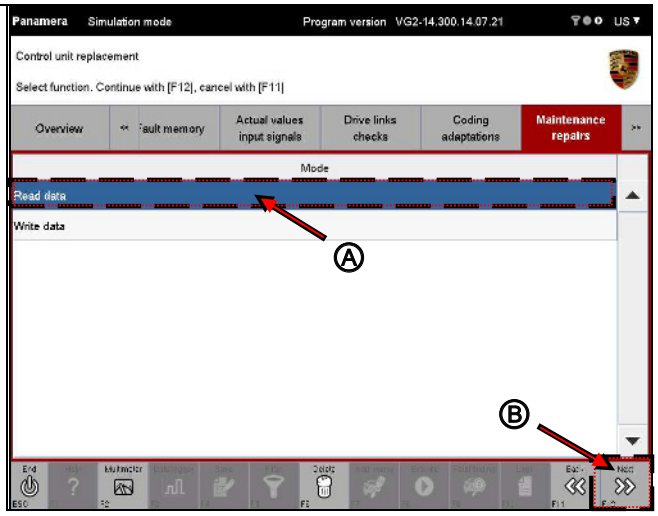
2. Select the `Control unit replacement` function (A) for the relevant control unit in the `Function` column and press the <F12> button (B).



8.7.2.3 Control unit replacement: Read data

1. Call up the Control unit replacement function.
   ►See section 8.7.2.2

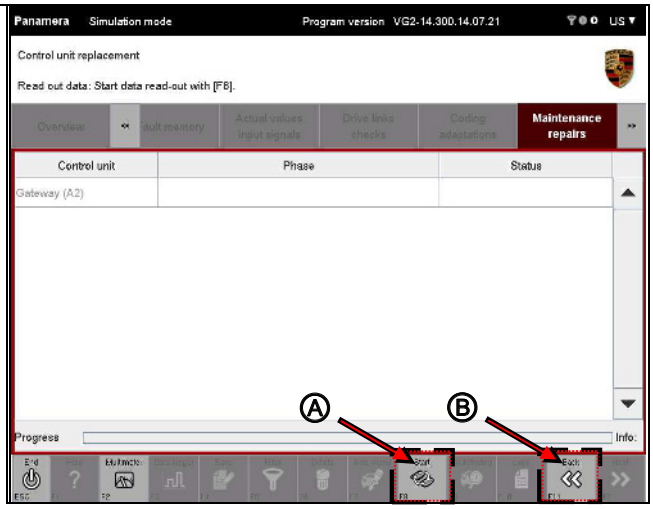
2. Select the `Read data` mode (A) and press the <F12> button (B).



3. The Control unit replacement working screen is displayed. Press the <F8> button (A) to start reading out data.

   <F11> brings you back to the list of control unit replacement modes (B).

   -Please read the following note.



Note on canceling the read-out process:

If you have started the read-out process and want to cancel it, press the <F8> button (icon) after the process has started.

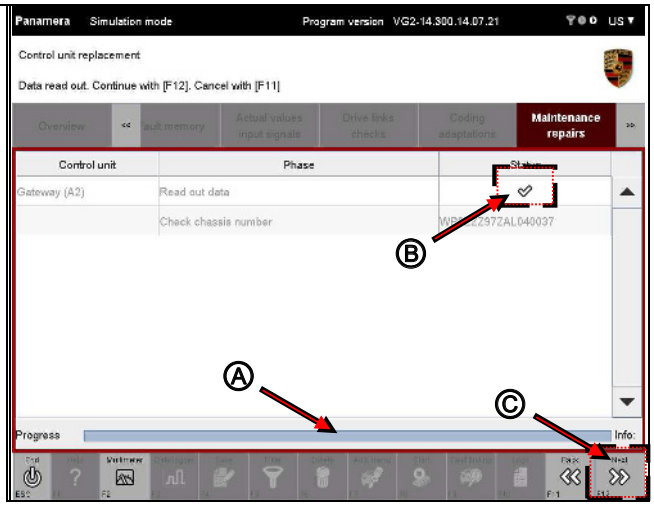
As a result, the data for this control unit is not saved temporarily to a file for a subsequent or later write process.

If you want to write relevant data for control unit replacement to the new control unit at a later stage, you must execute the read operation again.

4. The relevant data for the control unit is read out. A progress bar indicates the status of the read-out process (A).

   If the data read-out process was successful, this is indicated by the ✓ icon in the work area (B).

   Once the read-out process is complete, press the <F12> button (C). This brings you back to the list of modes for the Control unit replacement function.



Behavior of the application in the event of cancellation or errors during the write process

If you have cancelled the read-out process or if an error occurred, the ⓘ icon is displayed in the Status column.
Then press the <F11> button to go to the list of modes for the `Control unit replacement` function.

8.7.2.4 Control unit replacement: Write data

Precondition:

You must have read out the relevant data for the control unit in question:

►See section 8.7.2.3

Note on writing data:

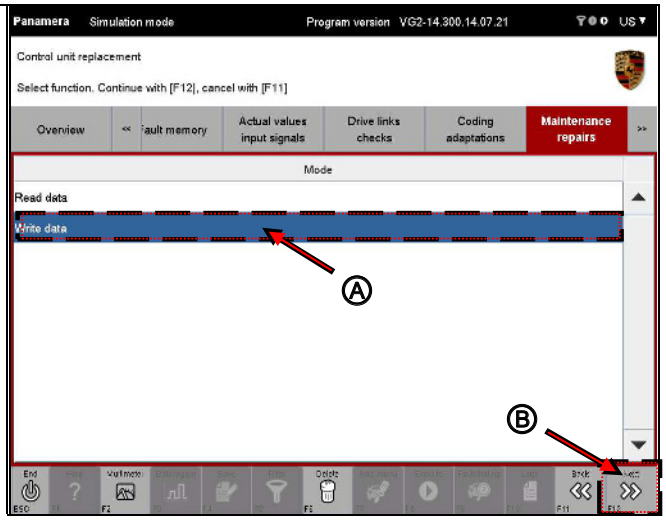
Only basic data is written if there is no valid file containing control unit data or if the chassis numbers that were read out do not match. VIN-B and the production number are then assigned default values.

If the control unit to be replaced is a VIN master (i.e. a control unit from which the VIN is read out), a VIN check is also performed. This results in the following write behavior:

- The vehicle identification numbers match:
  Only the basic data is written to the control unit.
- The vehicle identification numbers do **not** match:
  It is assumed in this case that the control unit in question is a new control unit that does not yet have a VIN. The complete coding is therefore written.

1. Call up the Control unit replacement function.
   ►See section 8.7.2.2

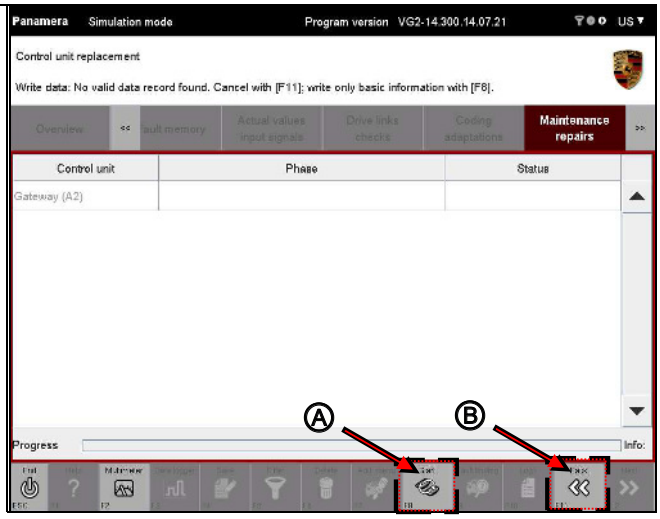
2. Select the `Write data` mode (A) and press the <F12> button (B).



3. The Control unit replacement working screen is displayed. Press the <F8> button to start writing data.

   Press <F1> to display further information.
   <F11> brings you back to the list of control unit replacement modes.

   Please read the following note.



Warning on cancellation of the write process:

If you have started the write process and want to cancel it, press the <F8> button (icon) after the write process has started.

Cancellation of the write operation means that the data records stored using the `Read data` mode will not be completely written.
This will result in an incompletely flashed control unit. This control unit must be completely flashed in order to continue using it.

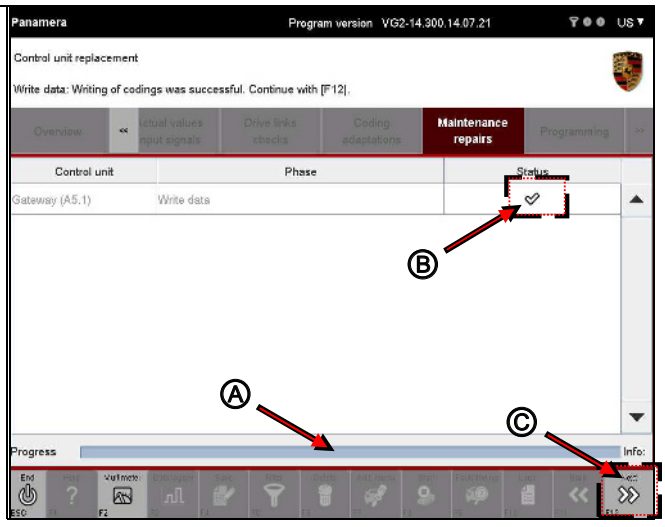
To flash the control unit completely, ...

- ... repeat the process or
- ... program the control unit manually
  (Extended identifications or Codings/adaptations function group).

4. The relevant data for the control unit is written. A progress bar indicates the status of the write process (A).

   If the data was written successfully, this is indicated by the icon in the work area (B)

   Press the <F12> button (C) as soon as the write process is complete.
   This brings you back to the list of modes for the Control unit replacement function.



Behavior of the application in the event of cancellation or errors during the write process

The following write errors can occur:

- Non-writeable codings due to read errors
- The write process was stopped prematurely by pressing <F8> (Stop)
- Only basic data was written

In these cases, the ⓘ icon is displayed in the Status column. Then press the <F11> button (B) to go to the list of modes for the `Control unit replacement` function.

8.8 Programming

This section describes how to program a control unit. It first describes how to select and activate a programming mode. Depending on which programming mode you select, the control unit is then programmed either automatically or manually. The procedure for programming a control unit is therefore similar to the procedure for coding a control unit in the Codings/adaptations function group (see section 8.6).

Important note:

The ECU variant can be changed by flashing and coding. As a result, a different control unit name than the one displayed previously may be displayed after flashing and coding.

Example:

Let's suppose you program the airbag control unit in the basic variant "Airbag“ and when you program this control unit, it becomes control unit variant "Airbag_A2". As a result, the control unit will be managed as Airbag_A2 following flashing and no longer as Airbag. The name is changed without carrying out a new control unit search.

8.8.1 Action-specific buttons for this function group

Entering vehicle data			
Button	**Label**	**Icon**	**Description**
F8	**Save**		Pressing the <F8> button saves assigned equipment features temporarily.
Programming			
Button	**Label**	**Icon**	**Description**
F8	**Save**		Pressing the <F8> button programs a selected control unit using a flash job.

8.8.2 Displaying the programming modes

Note on availability:

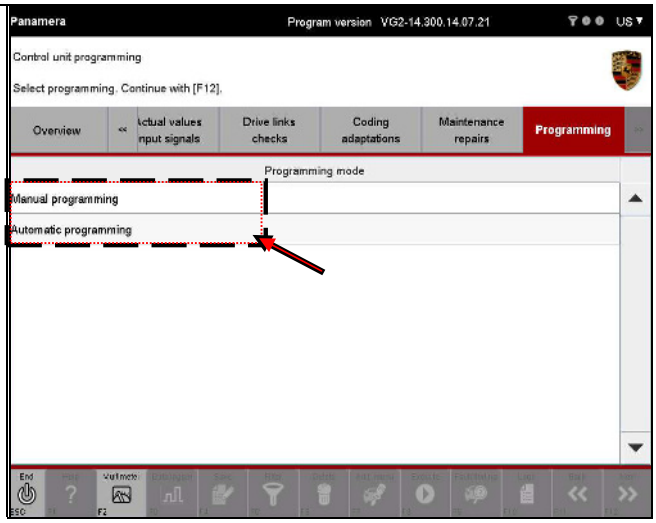
If a data record containing flash rules was not stored for the selected control unit, not all programming modes will be available for selection.

1. Display the list of installed control units and select a control unit:
   ►See section 8.1.

   The PDCC control unit was selected in the following example.

2. Select the Programming function group on the menu bar.

   A list of the possible programming modes is displayed.



8.8.3 Manual programming

If a data record containing flash rules was stored for the control unit, the option `Manual programming` will be available. The manual programming operation is divided into two parts:

1. Determination of a valid flash rule
2. Programming the control unit

1. Determination of a valid flash rule

What happens?

In the following steps, you must first enter certain data and then select or deselect various equipment features. This data is used to determine whether a valid flash rule exists in the data record stored for the control unit. If there is no valid flash rule, you cannot program the control unit and the programming process is aborted.

Required data:

You must enter the following data in one of the following steps:

►Product code

►Country code

►Model year

►Chassis number

Always have the necessary information ready.

Number groups and their meaning:

X: Exclusive

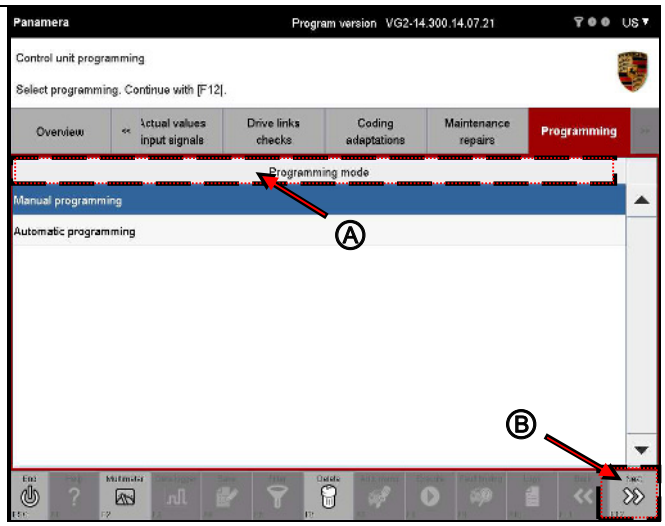
M: Additional equipment

Z: Tequipment

PR: Additional VW equipment (and model type Cayenne)

1. Display the list of possible programming modes:
   ►See section 8.8.2.

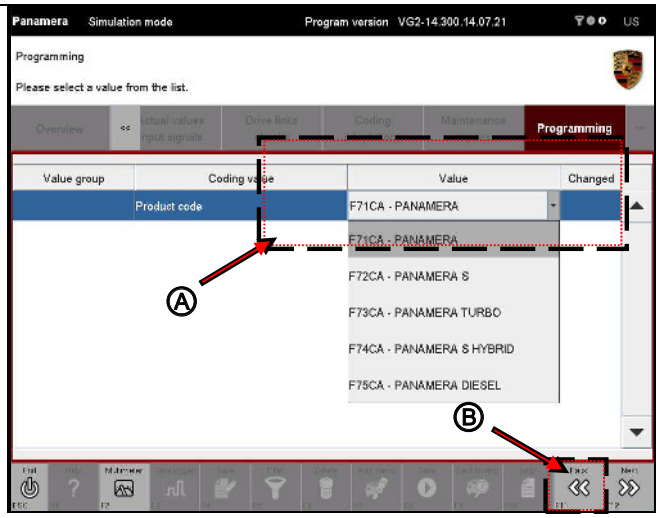
2. Select the programming mode `Manual programming` (A) and press the <F12> button (B).



3. You must first enter the vehicle data.

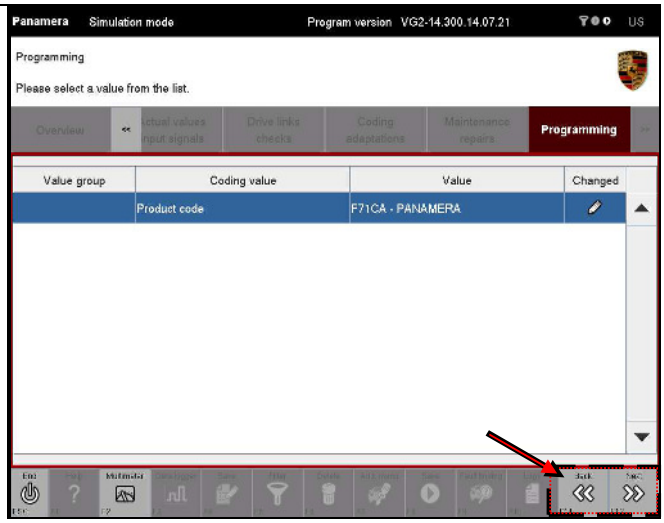
   To do this, click in the corresponding input field in the `Value` column and enter the value or select it in a drop-down menu (A).

   If you want to cancel manual programming, press the <F11> button. You then return to the list of programming modes (B).



4. When you have entered all the values, confirm your entries by pressing <F12>.

   If you want to cancel manual programming, press the <F11> button. You then return to the list of programming modes.



In the next screen, you must assign the relevant equipment features for the control units contained in the selection.

Depending on the availability of data and the control unit variant, the features are assigned in two screens displayed one after the other.

Proceed as follows.

Assigning equipment features that do not belong to a specific family

Note on screen content:

The possible equipment features for this control unit in the value group are displayed in the next screen. A feature is assigned directly by selecting and deselecting individual values.

A feature is made up of two entries:

- The coding number and designation in the `Coding value` column.
- Indication of the presence of the feature in the vehicle data in the `Installed` column. If a feature is set, this is indicated by the ✓ icon and if the feature is not set, the line will be blank.

In addition, the `Changed` column indicates whether the status (Installed/Not Installed) of a feature has been changed.

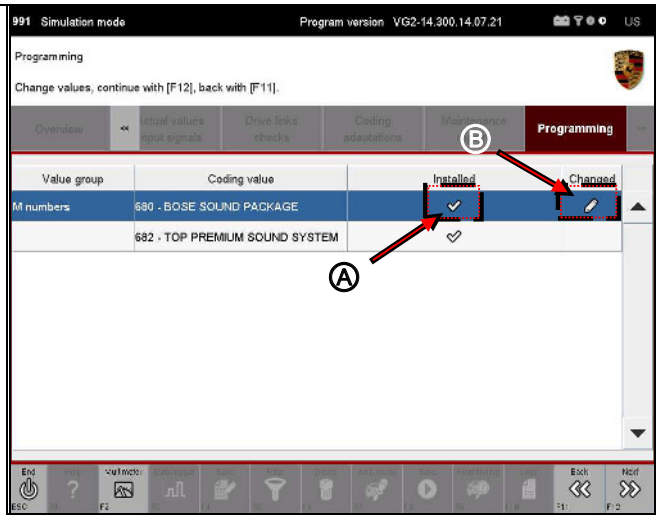
For a better overview, you can sort the columns if necessary (for a general description of how to sort columns, see section 10.6).

5. To set a feature, click in the corresponding cell of the `Installed` column (A).

   If you change a feature, this will initially be indicated in the `Changed` column by the ✎ icon (B).

   Note: Data is not yet written to the control unit in this step.

   If you want to make further changes to your selection, click again in the corresponding field.



6. Press the <F12> button.

   <F11> brings you back to the previous screen.

Assigning equipment features that belong to a specific family

Note on screen content:

The equipment features of the value groups are displayed in the form of a grouping/family.
The individual value groups (X, M, Z, PR numbers) are shown one under the other.

A feature is made up of three entries:

- Family designation (e.g. `steering variant, headlights,` etc.) in the `Family` column.
- Designation of the feature (e.g. `601 – BIXENON`) in the `Value` column.
- Marking of the value to be coded in the `Changed` column. If a feature is set, this is indicated by the ✔ icon and if the feature is not set, the line will be blank.

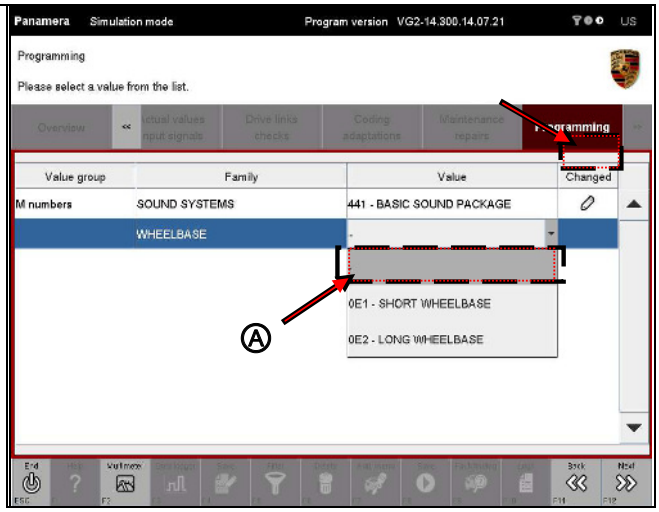
For a better overview, you can sort the columns if necessary (for a general description of how to sort columns, see section 10.6).

7. To identify a feature as present, click in the corresponding cell of the `Value` column and select the feature in a drop-down menu (A). If you select the blank entry, the feature will not be assigned.

   If you change a feature, this will initially be indicated in the `Installed` column by the ✎ icon (B).

   Note: Data is not written to the control unit in this step.

   If you want to make further changes to your selection, click again in the corresponding field.



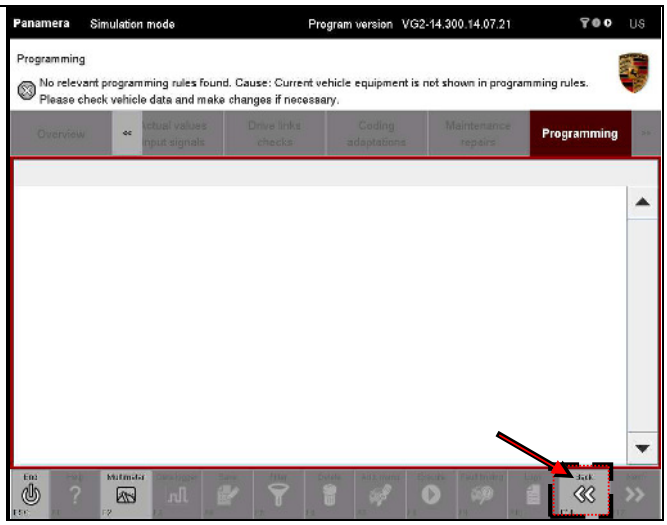
8. Press the <F12> button.

   <F11> brings you back to the previous screen.

Exception: No suitable rules were found.

If no valid flash rules were found based on the entered data and selected features, programming is aborted at this point. The following screen is then displayed:

9. Pressing <F11> brings you back to the list of programming modes.



2. Programming the control unit

Note on screen content:

If a valid flash rule was found, the next screen will display all control units together with their available data containers, which are needed for executing this flash rule.

It is possible that other control units will also be displayed in the work area in addition to the control units contained in the selection, i.e. the control units you selected beforehand. These control units must then also be flashed in order to ensure a consistent data status.

The programmable data containers are listed in the Session column.

When the screen is called up, the control unit software version is checked automatically. The software version of the control unit software is compared with the software version of the data container listed in the work area. The result of this check is shown in the `Status` column.

The following cases are distinguished during the version check:

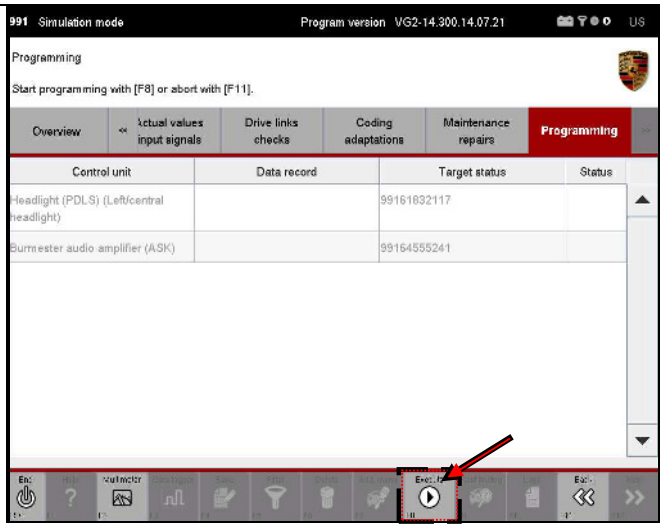
- Not current: The control unit software is not up-to-date. The software contained in the data container is more up-to-date than the control unit software.
- Current: The software versions programmed in the control unit and in the data container are identical.
- More recent: The control unit software version is more recent than the version that was stored in the data container.

Please note:

It is not possible to flash only a selection of data containers. All data containers listed in the work area are always flashed since there may be dependencies between the software versions of different control units.

10. Press the <F8> button to start programming.

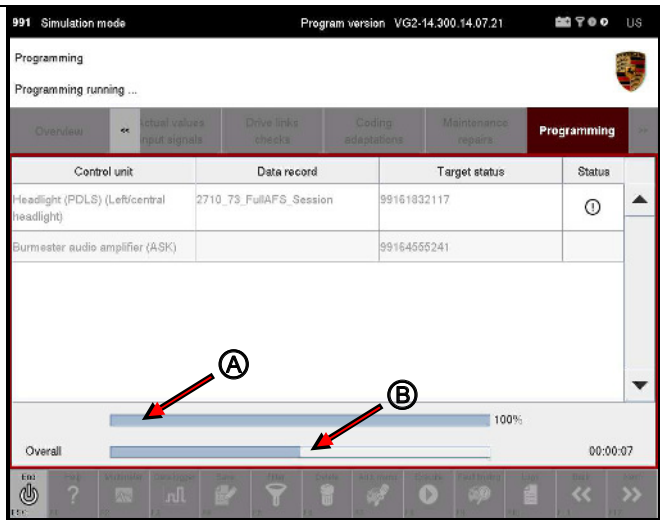
    Pressing <F11> brings you back to the list of programming modes.



11. Two progress bars show the current programming status:

    The top progress bar shows the progress while executing a flash session (A).

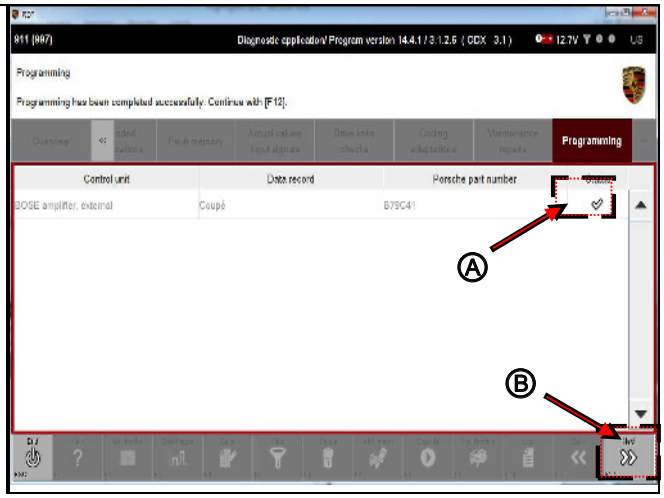
    The bottom progress bar shows the overall progress of the programming operation (B).



After writing

12. If programming was successful, the ✓ icon (A) is displayed behind each control unit in the Status column.

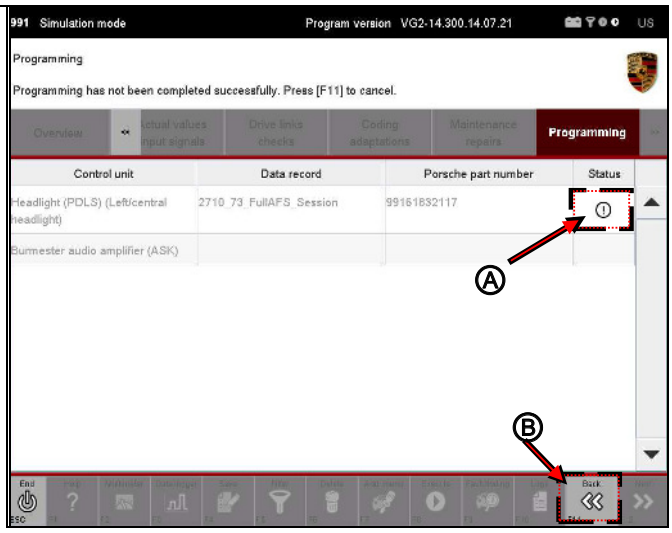
    Pressing <F12> brings you back to the list of programming modes (B).



Error while programming several control units:

13. If an error occurred while programming a control unit, this is indicated by the ⓘ icon in the Status column next to the unsuccessfully programmed control unit.

    You cannot continue programming.
    Cancel the operation by pressing <F11>. You then return to the list of programming modes (B).



8.8.4 Automatic programming

The objective of automatic programming is to determine the correct flash container(s) for the specific vehicle based on the vehicle data without any further selection by the user (where possible) and to program one or more control units following confirmation by the user.

Different behavior of the application and fallback solution:

If the data required for automatic programming (vehicle order, chassis number) cannot be read out of the vehicle, you will be offered an alternative fallback solution in which you must enter the necessary data manually. This is similar to the programming mode `Manual programming` (for a more detailed description, see section 8.8.3).

You must enter the following data as required:

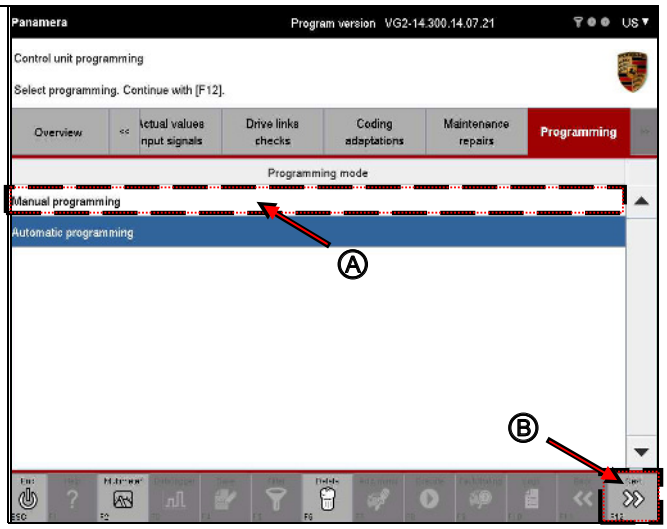
►Chassis number

►The features required in order to determine the rule file that applies to the control unit (see Note on `Manual programming`)

The application provides instructions in this case.

1. Display the list of possible programming modes:
   ►See section 8.8.2.

2. Select the programming mode `Automatic programming` (A) and press the <F12> button (B).



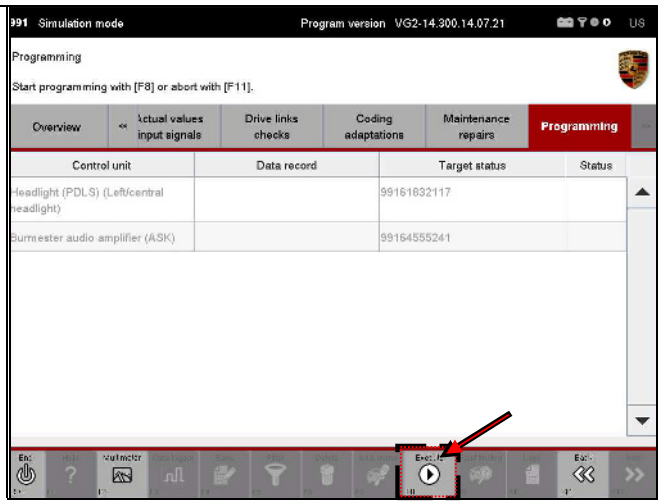
Note on complex action sequences:

If a complex action sequence was stored for the control unit contained in the selection using an asi file, this will be carried out and the operation involves the steps described in section 8.9.5.
Once this control unit has been programmed, automatic programming continues as described below (see next pages).

3. All control units for this flash rule, including their flash sessions, are displayed.

   Press the <F8> button to start programming.

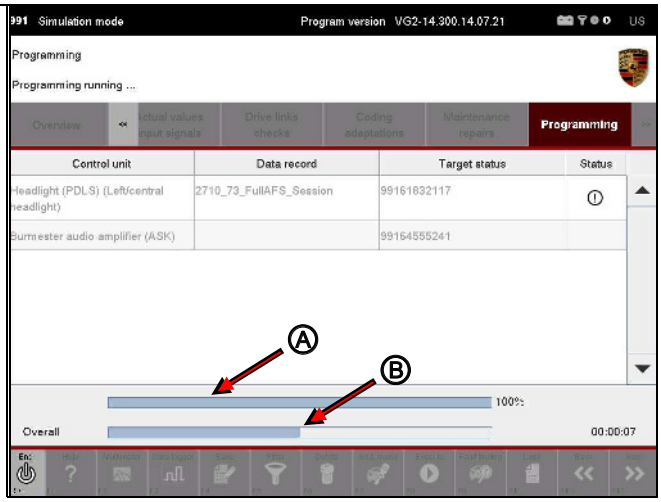
   Pressing <F11> brings you back to the list of programming modes.



4. Two progress bars show the current programming status:

   The top progress bar shows the progress while executing a flash session (A).

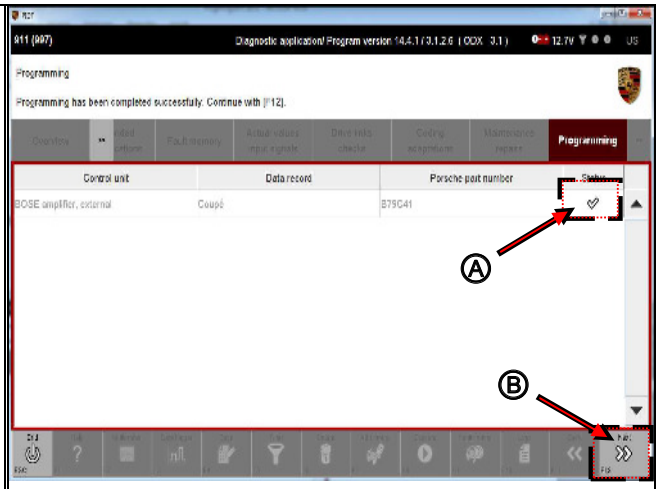
   The bottom progress bar shows the overall progress of the programming operation (B).



After writing

5. If programming was successful, the ✓ icon (A) is displayed behind each control unit in the Status column.

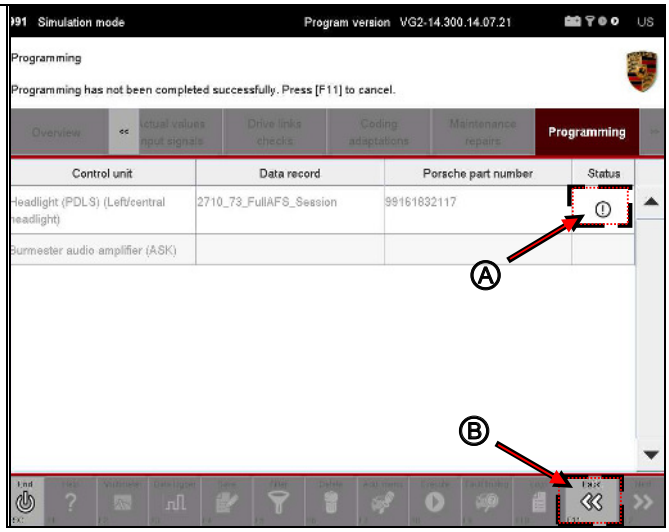
   Pressing <F12> brings you back to the list of programming modes (B).



Error during programming

6. If an error occurred while programming a control unit, this is indicated by the ⓘ icon (A) in the Status column next to the unsuccessfully programmed control unit.

   You cannot continue programming.
   Cancel the operation by pressing <F11>. You then return to the list of programming modes (B).



8.9 General vehicle functions (F7)

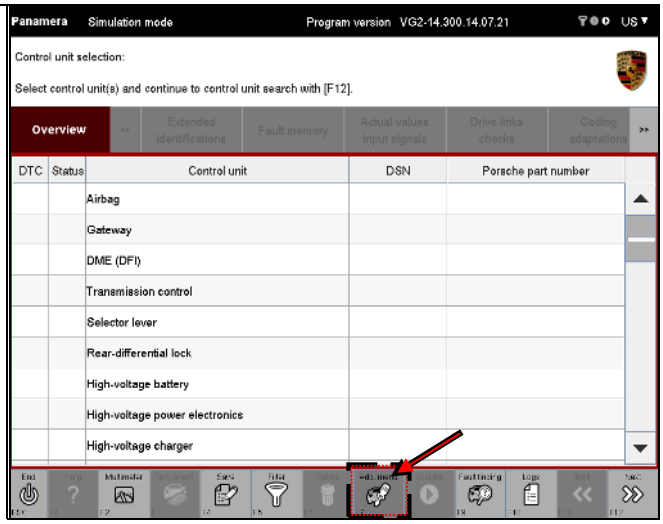
This section describes how to call up the general vehicle functions of the diagnostic application. It also describes how to use these functions.

The diagnostic application guides you through the various functions and provides tips for working through the steps to be carried out.

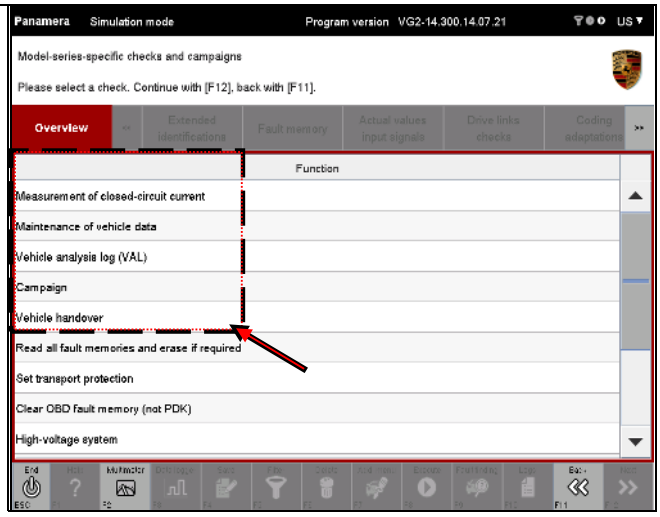
8.9.1 Calling up the general vehicle functions

You can only call up the general vehicle functions from the control unit list or the control unit overview. The function is deactivated in all other function groups.

1. Press the <F7> button.



2. The list of general vehicle functions is displayed.



8.9.2 Vehicle analysis log (VAL)

This section describes how to create, print and if necessary, send a vehicle analysis log. Two different types of VAL can be created:

- Serv. VAL: Customer service vehicle analysis log
- OBD VAL

8.9.2.1 Action-specific buttons for this function group

Button	Label	Icon	Description
F8	**Transfer**		Pressing the <F8> button copies the selected VAL to a USB data storage medium.
F10	**Print**		Pressing the <F10> button calls up the application that you defined for opening XML files. This can be a web browser, for example. If the application used for displaying the files has a print dialog, you can print the VAL using this application.

8.9.2.2 Icons

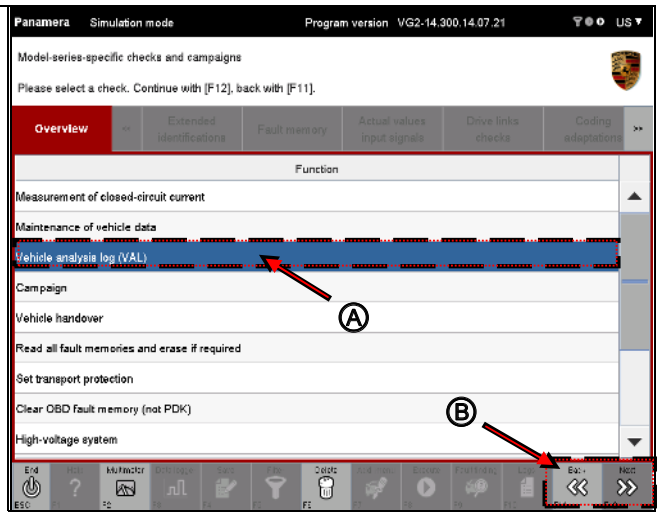
Status displays when reading data out of the control units	
Icon	**Description**
	This icon appears in the Status column and indicates that the corresponding control unit is currently being processed.
	This icon appears in the Status column and indicates that the corresponding control unit has been processed.
	This icon appears in the Status column and indicates that an error occurred while processing this control unit.

8.9.2.3 Calling up and starting the Vehicle analysis log function

1. Display the list of installed control units and press the <F7> button to call up the general vehicle functions:
   ►See section 8.9.1.

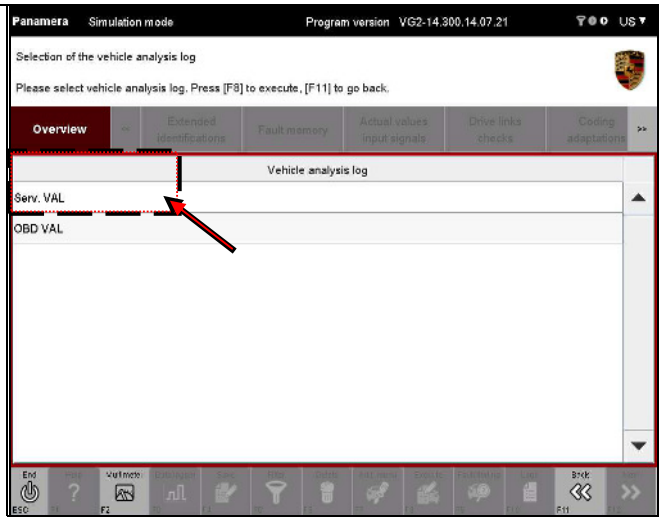
2. Select the entry Vehicle analysis log (A) and press the <F12> button (B) to confirm your selection.

   Pressing <F11> brings you back to the control unit overview or control unit list (B).



3. The possible VAL types that can be created are displayed in a list:

   - Serv. VAL
   - OBD VAL



8.9.2.4 VAL: Creating a Service VAL

You must enter and check the following information in one of the following steps:

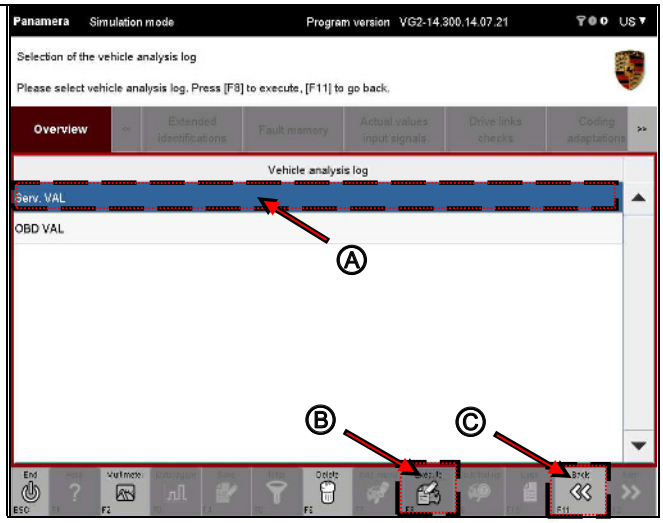
►Chassis number.

Always have the required chassis number ready.

1. Display the list of installed control units and press the <F7> button to call up the general vehicle functions. Then select the entry `Vehicle analysis log`:
   ►See section 8.9.2.3.

2. Select the entry `Serv. VAL` (A) and press the <F8> button (B) to confirm your selection.

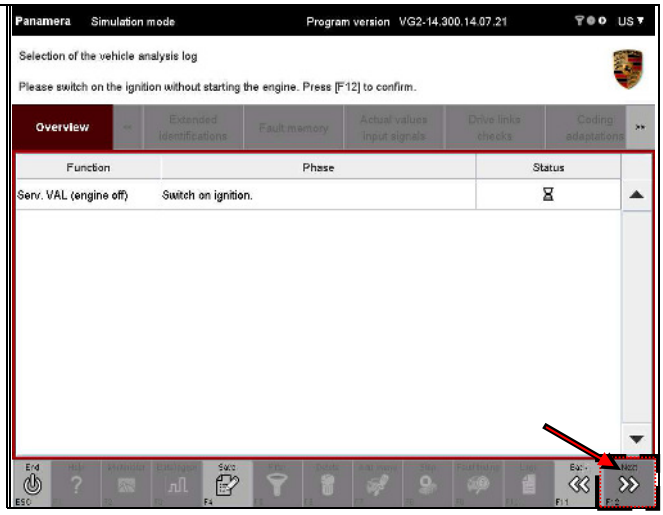
   Pressing <F11> brings you back to the list of general vehicle functions (C).



3. Read the instructions in the information area and perform any actions that are required.

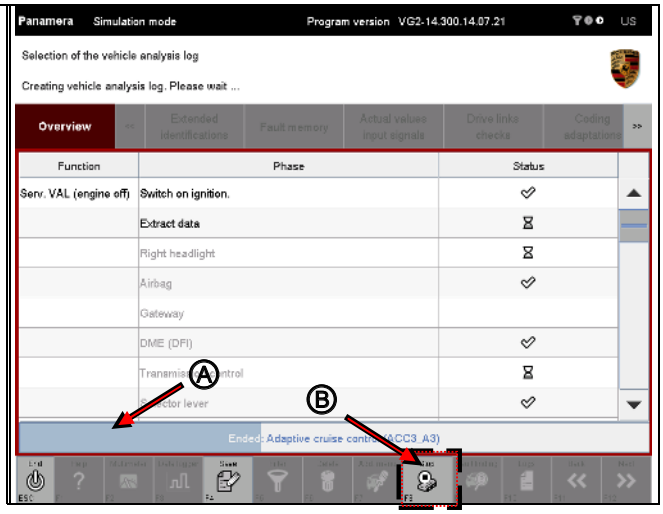
4. Press the <F12> button.

   Pressing <F11> brings you back to the list of VAL types.



5. The Service VAL is created. A progress bar (A) at the bottom of the work area shows the current status of the process.

   Press <F8> to cancel the process (B).
   To return to the list of VAL types, press the <F11> button.



Note on display:

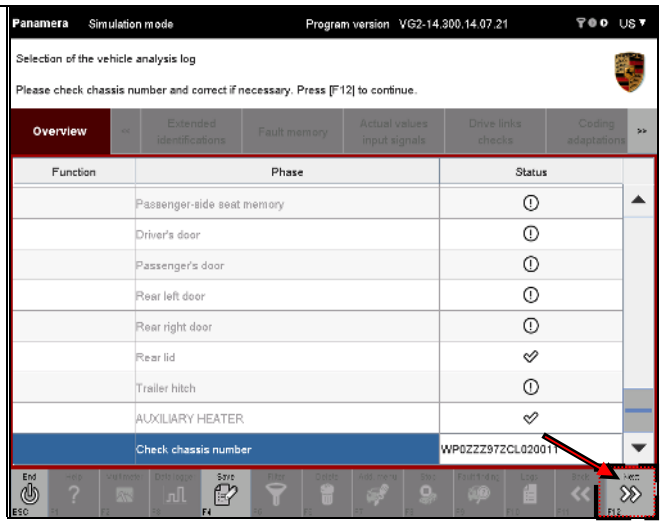
- Control units to which communication is currently being established and whose data is being read are indicated by the ⧖ icon in the `Status` column.
- Control units for which the read-out process was completed successfully are indicated by the ✓ icon in the `Status` column.
- Control units to which communication could not be established or for which a communication error occurred are indicated by the ⓘ icon in the `Status` column.

Entering or checking the chassis number

If all the necessary control unit data has been read out, you must check the chassis number or enter or correct it manually.

Option 1: Chassis number is correct

6. If the chassis number is correct, simply press the <F12> button.



Option 2: Correcting or entering the chassis number

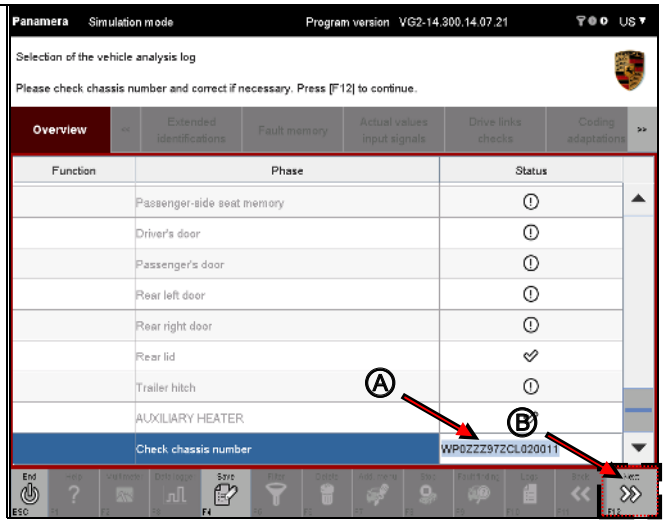
7. If the chassis number that was entered is not correct or if the chassis number is missing, it must be corrected or entered manually.

   To do this, click in the field next to the entry `Check chassis number`.

   Correct the entry or enter a chassis number (A).

   Note: After you have entered the chassis number, a format check is performed during which the letters in the chassis number are automatically changed to uppercase letters.

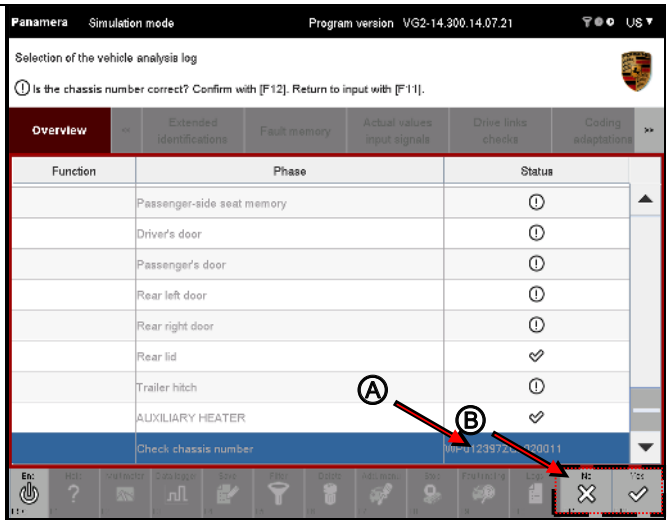
   Confirm your entry by pressing the <F12> button (B).



Next steps

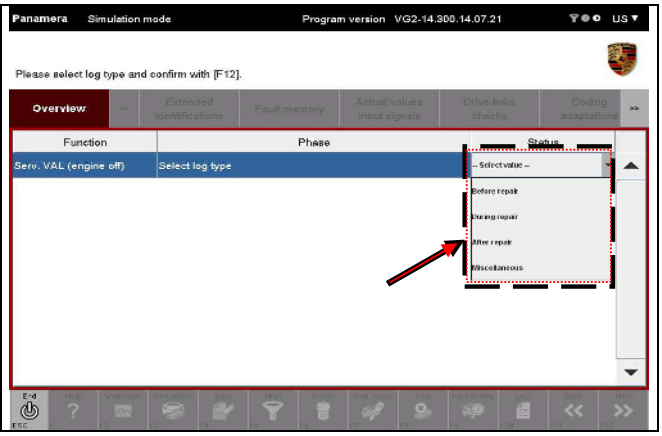
8. You are then prompted again to confirm that the chassis number is correct (A).

   You have the following options (B):
   - Press <F11> to cancel the process. You return to the input screen and can correct the chassis number again.
   - Press <F12> to confirm that the displayed chassis number is correct.



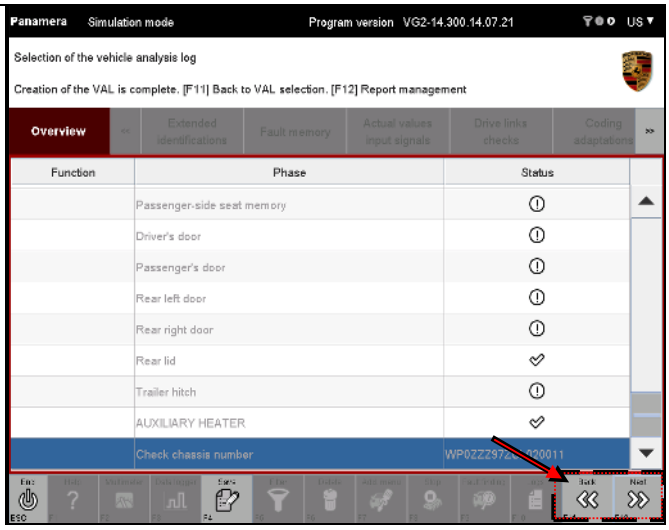
9. Once you have confirmed that the chassis number is correct, you are prompted to select a log type. Select the type of log you want to create from the displayed list:
   - Before repair
   - During repair
   - After repair
   - Miscellaneous

   Confirm your selection by pressing <F12>.



10. The VAL is written as soon as you confirm. Another selection screen then appears.

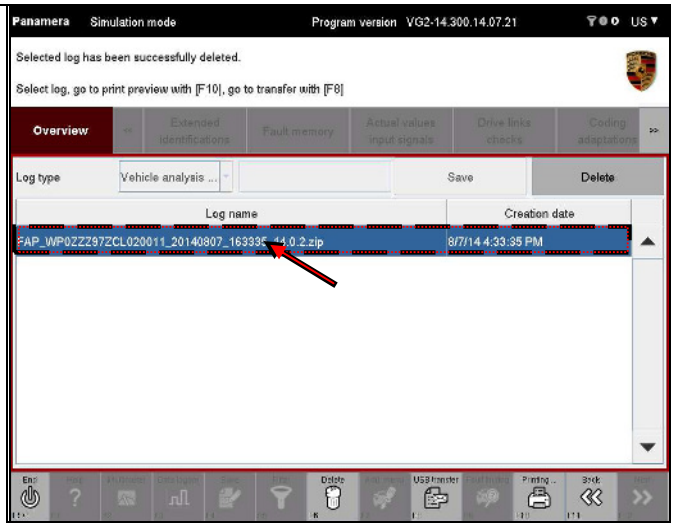
    You have the following options:
    - Press <F11> to return to the list of VAL types.
    - Press <F12> to go to General Report Management, where you can view and print the created VAL.



11. When you press the <F12> button, the General Report Management screen appears in which the log type Vehicle analysis log is preselected.

    All previously created VALs are listed in the table shown in the work area.

    The most recently created Send VAL is shown at the top, while the most recently created Service VAL is listed below this.



Further information:

In addition to calling up the list of vehicle analysis logs after you have created the log, you can also call up the list from one of the function groups by pressing the <F10> button. For a more detailed description of calling up the list in this way:

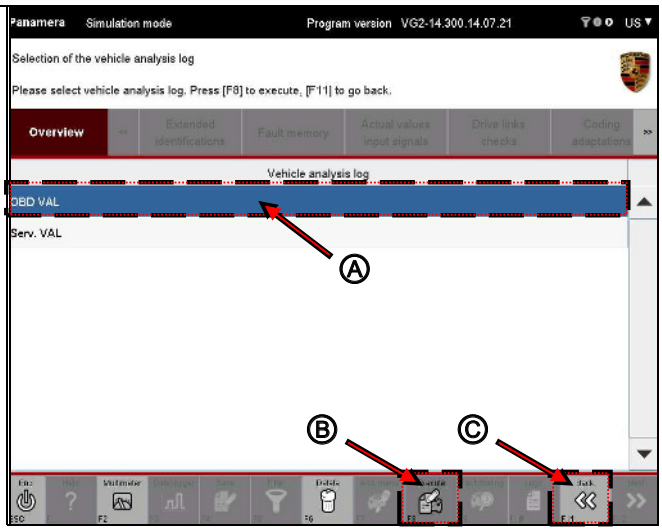
►See section 8.9.2.6

8.9.2.5 VAL: Creating an OBD VAL

1. Display the list of installed control units and press the <F7> button to call up the general vehicle functions. Then select the entry `Vehicle analysis log`:
►See section 8.9.2.3.

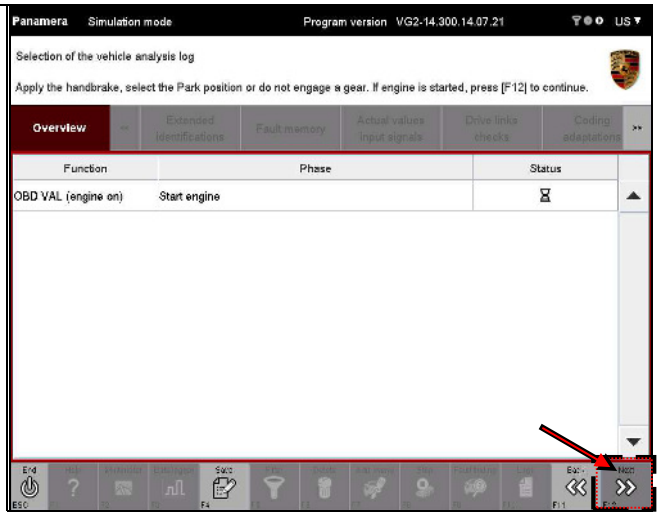
2. Select the entry `OBD VAL` (A) in the list of vehicle analysis logs and press the <F8> button (B) to confirm your selection.

   Pressing <F11> brings you back to the list of general vehicle functions (C).

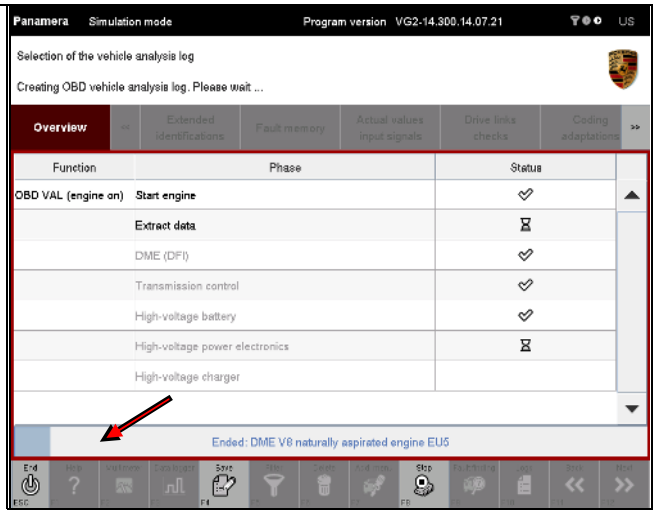


3. Read the instructions in the information area and perform any actions that are required.

4. Then press the <F12> button.



5. The OBD VAL is created. A progress bar at the bottom of the work area shows the current status of the process.



Note on display:

- Control units to which communication is currently being established and whose data is being read are indicated by the ⧗ icon in the `Status` column.
- Control units for which the read-out process was completed successfully are indicated by the ✓ icon in the `Status` column.
- Control units to which communication could not be established or for which a communication error occurred are indicated by the ⓘ icon in the `Status` column.

6. When you have been prompted to enter all necessary data, you must check or enter the vehicle data in the same way as for the Service VAL. For more information on this: ►See section 8.9.2.4, steps 6 to 11, page 160 - 162.

8.9.2.6 VAL: Displaying the list of vehicle analysis logs

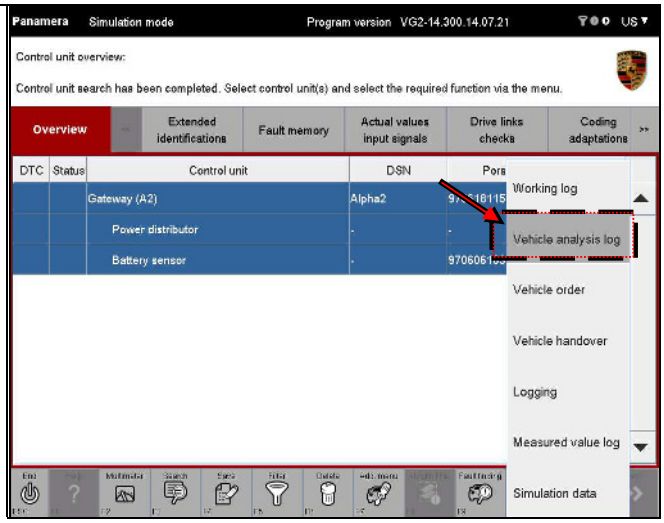
Even if you do not switch directly to General Report Management after creating the vehicle analysis log, you can still display the list of VALs.

Both Service VALs and OBD VALs are displayed in the list of saved VALs. The individual VAL types can be identified by the prefix:

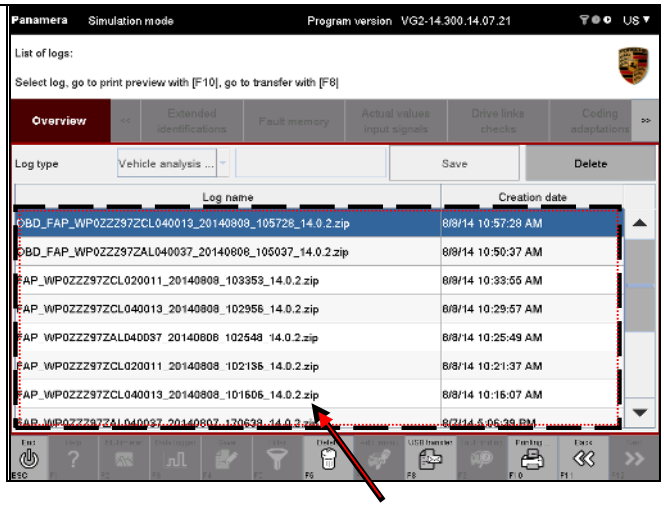
- The Service VAL has the prefix FAP.
- The OBD VAL has the prefix OBD_FAP.

1. Press the <F10> button.
   If the button cannot be selected, first switch to one of the function groups (e.g. Overview) and then press <F10>.

2. A button menu appears in which several entries are listed.
   Select the log type `Vehicle analysis log`.



3. A list of all vehicle analysis logs is displayed (for information on the naming convention for VALs, see Note above).

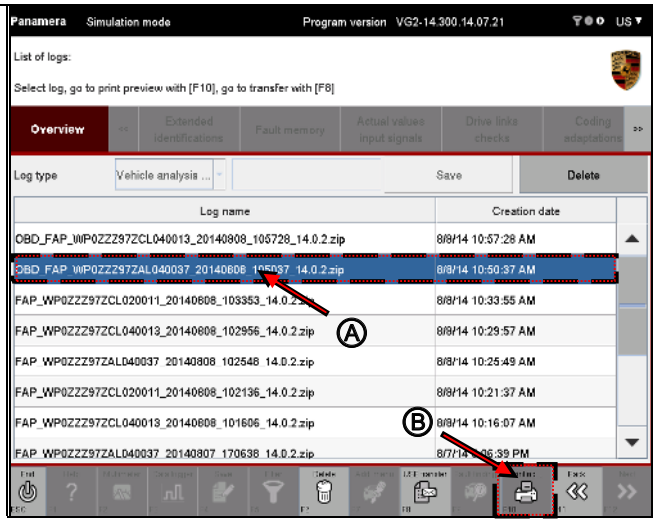


8.9.2.7 VAL: Printing

The selected VAL is not printed by the diagnostic application but by the application used to display the vehicle analysis logs. If this application has a print dialog and if a correctly configured printer is connected, you can print the VAL using this application.
For information on how to configure the file link and set up a printer, contact your system administrator if necessary.

1. Display the list of vehicle analysis logs:
   ►See section 8.9.2.6

2. Select the VAL you want to print (A) and press the <F10> button (B).



3. This starts the application used to display VALs.

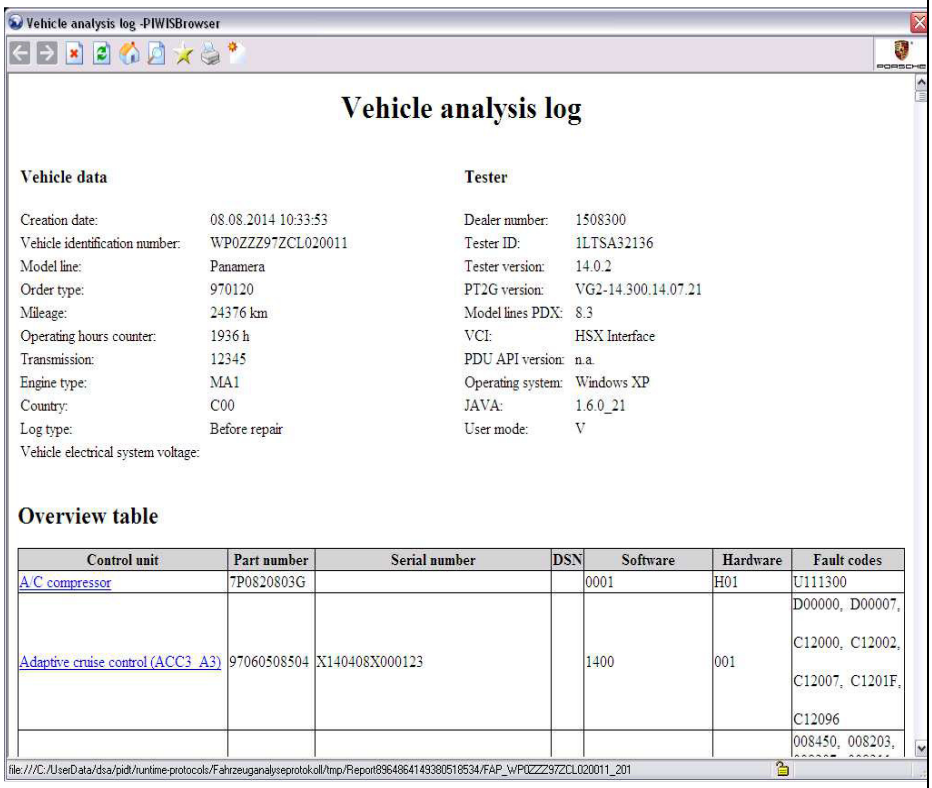
8.9.2.8 VAL: Example

Note:

The VAL in this example was opened in a browser.

Header

Hyperlinks: References to coding values of the individual control units

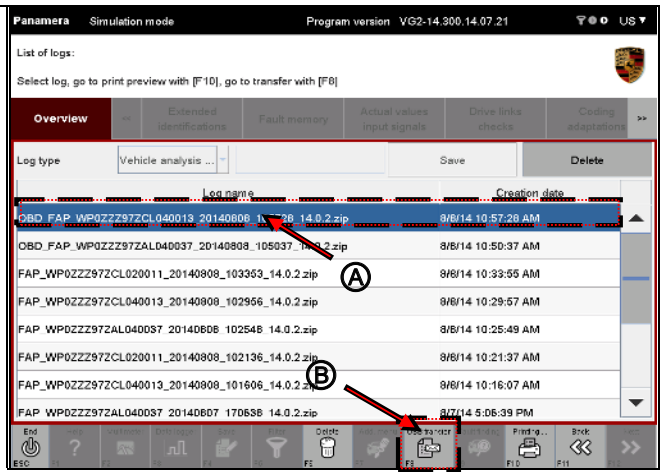


8.9.2.9 VAL: Copying to a USB data storage medium

You can copy a vehicle analysis log to a USB data storage medium. A special Transfer button is displayed for this purpose in the General Report Management function.

1. Display the list of vehicle analysis logs:
   ►See section 8.9.2.6

2. Select the log you want to transfer (A) and press the <F8> button (B).

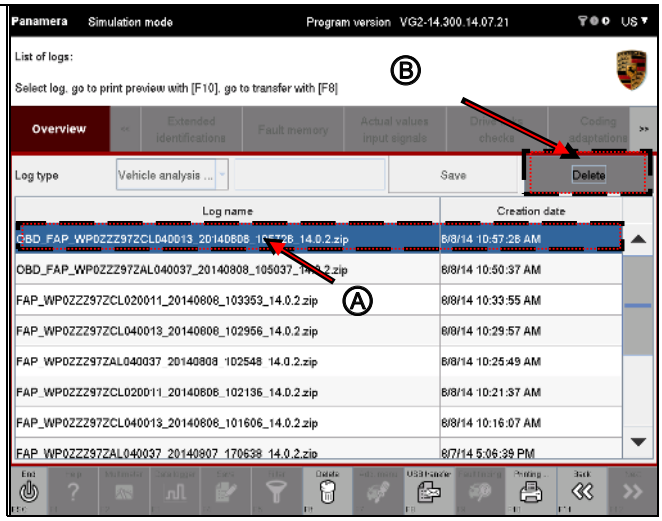


3. Copy the vehicle analysis log to a USB data storage medium using the File management function of the basic software.

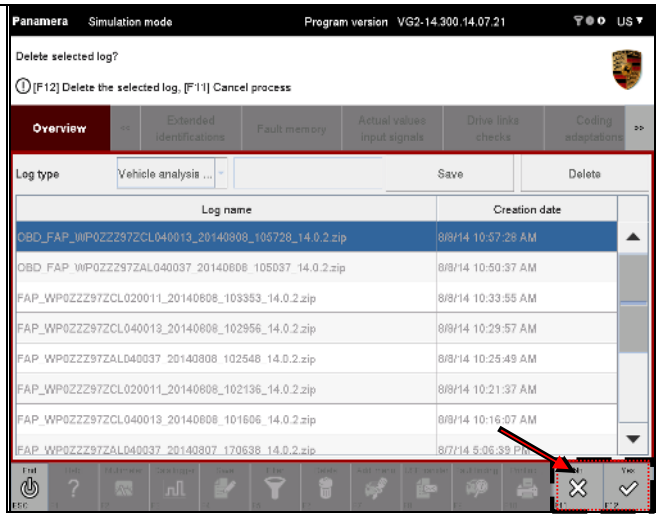
8.9.2.10 VAL: Deleting

1. Display the list of vehicle analysis logs:
   ►See section 8.9.2.6

2. Select the log you want to delete (A) and press the `Delete` button (B).



3. You must confirm deletion of the VAL. You have the following options:
   - Press <F11> to cancel the process and return to the list of VALs.
   - Press <F12> to confirm deletion of the VAL.



8.9.3 Maintenance of vehicle data

The vehicle data is maintained in several steps. In a first step, you must check the mandatory data that was read from the vehicle and enter or change it as required. You must then assign various equipment features in a further step. If you have changed at least one data entry/feature, you can then write the assigned data to the control unit.

Maintenance of vehicle data essentially involves the successive assignment of the following values:

1.) Mandatory data

2.) Colors and materials

3.) X number family

4.) X numbers

5.) M number family

6.) M numbers

7.) Z number family

8.) Z numbers

9.) PR numbers

Note on the availability of the individual input screens:

Depending on the availability of data (control file, for an explanation, see Note on functionality) or vehicle model (or control unit), some steps can be omitted.

For example:

- The assignment of PR numbers is only necessary or possible for the model type Cayenne.
- M numbers and PR numbers must not be assigned to one model at the same time.

Note on functionality:

The list of individual features is created by comparing the control unit data that was read with a control file. The control file assigns a unique number to the features.

Unknown features:

If no number is stored for a feature that was read out of the control unit, this is

identified as an unknown feature.

If this unknown feature is deselected and the vehicle data is then written to the control unit, this feature will no longer be displayed when the vehicle data is read again.

If the feature is retained, it will still be displayed as an unknown feature.

Number groups and their meaning:

X: Exclusive

M: Additional equipment

Z: Tequipment

PR: Additional VW equipment (and model type Cayenne)

8.9.3.1 Action-specific buttons for this function group

After summarizing the assigned equipment features			
Button	**Label**	**Icon**	**Description**
F8	**Write**		Pressing the <F8> button writes the vehicle data to the control unit.
After writing the assigned equipment features			
Button	**Label**	**Icon**	**Description**
F8	**Transfer**		Pressing the <F8> button copies the selected log to a USB data storage medium.
Decision question			
Button	**Label**	**Icon**	**Description**
F11	**No**		Pressing the <F11> button cancels an action that requires confirmation. The <F11> button shown here is only displayed in combination with the form of the <F12> button shown in the next line.
F12	**Yes**		Pressing the <F12> button confirms an action that requires confirmation. The <F12> button shown here is only displayed in combination with the form of the <F11> button shown in the previous line.

8.9.3.2 Tequipment

For vehicles as of model line G1, you can carry out upgrade actions using an activation code. For example, you can purchase a Power Kit and program this in the vehicle using the diagnostic application.

What has to be done and which prerequisites apply?

A specific activation code must first be requested from Porsche AG via the PPN for the feature to be upgraded.

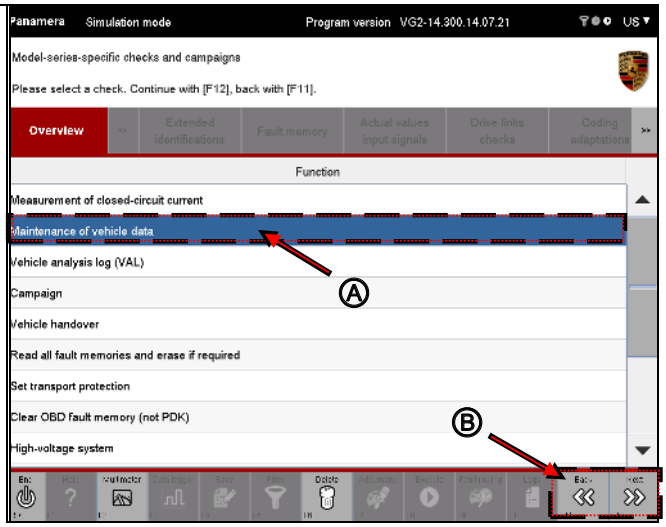
Then have the activation code you received for the Tequipment upgrade on the vehicle ready. This must be entered in the "Maintenance of vehicle data“ function in the diagnostic application (see next sub-section).

8.9.3.3 Vehicle data

1. Display the list of installed control units and press the <F7> button to call up the general vehicle functions:
   ►See section 8.9.1.

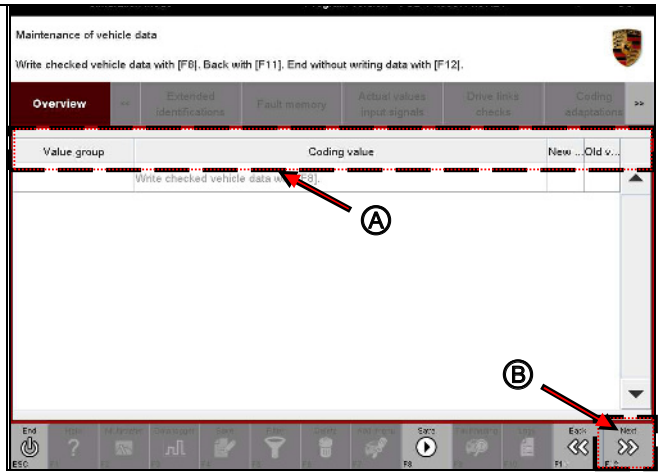
2. Select the entry `Maintenance of vehicle data` (A) in the list of general vehicle functions and press the <F12> button (B) to confirm your selection.

   Pressing <F11> brings you back to the control unit overview or control unit list (B).



3. If the vehicle data is inconsistent, you will be prompted to check and change the details on the following pages (A).

   Read the message and acknowledge it by pressing <F12> (B).



Mandatory data: Vehicle description

Note on screen content:

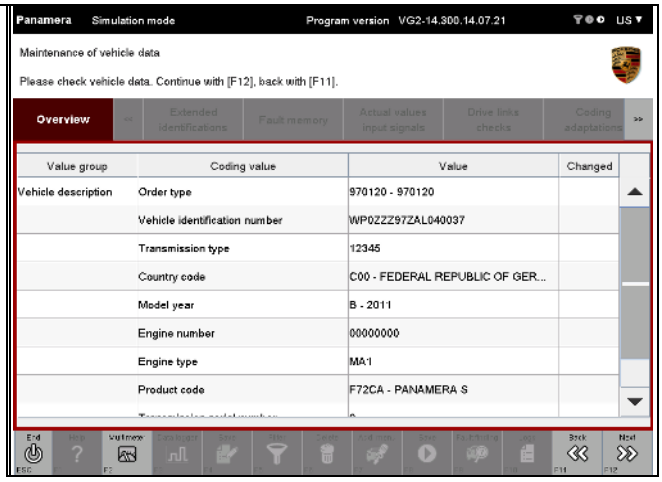
The mandatory data is first read out of the gateway and engine control units, compared and then displayed in the next screen. The following data is displayed:

- ►Order type
- ►Vehicle identification number
- ►Transmission type
- ►Country code
- ►Model year
- ►Engine number
- ►Engine type
- ►Product code
- ►Transmission serial number
- ►Installation specification

Note: Changeability

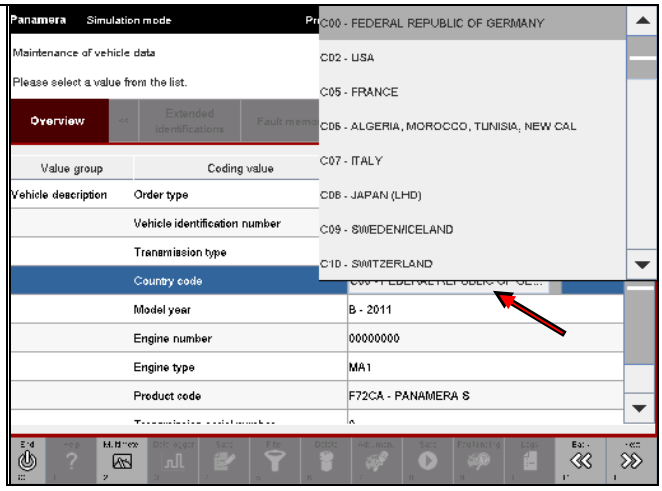
If the data in the two control units (gateway control unit and engine control unit) is inconsistent, this is indicated by the icon in the `Changed` column for the corresponding data entry. You can change this data, but you do not have to. When the data is finally written to the control unit, it is corrected as required, thereby ensuring consistency of the data.

4. The vehicle data is read out of the vehicle and displayed. Inconsistent data is indicated by the icon in the `Changed` column.



5. You can change the data manually. To do this, click in the corresponding field in the `Value` column and enter the relevant data.

   Depending on the type and default setting, the change can also be made by selecting data from a drop-down menu (see illustration).

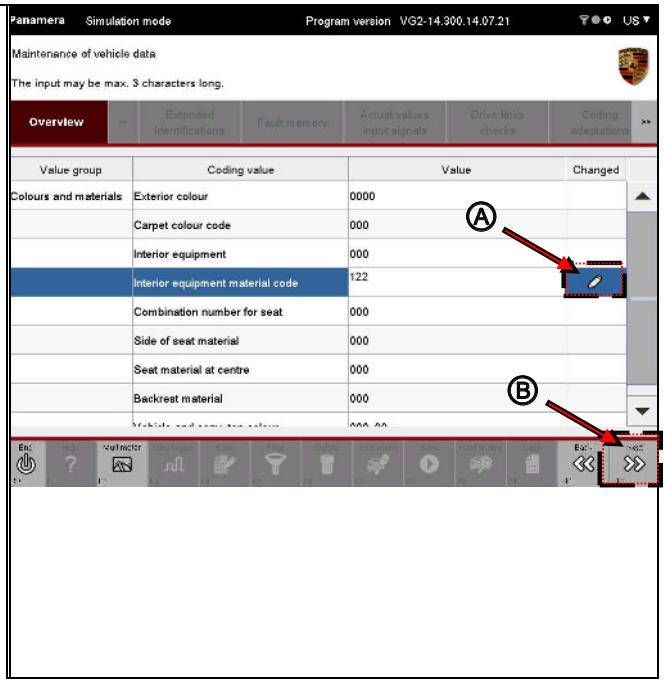


6. When you change an entry, this is indicated by the icon next to the changed entry in the `Changed` column (A).

   Changed and temporarily saved data will be indicated by the icon (only if you jump back to this selection dialog from a later step). Inconsistent data is also indicated by this icon since it will be changed when the data is finally written (A).

   Press the <F12> button (B).

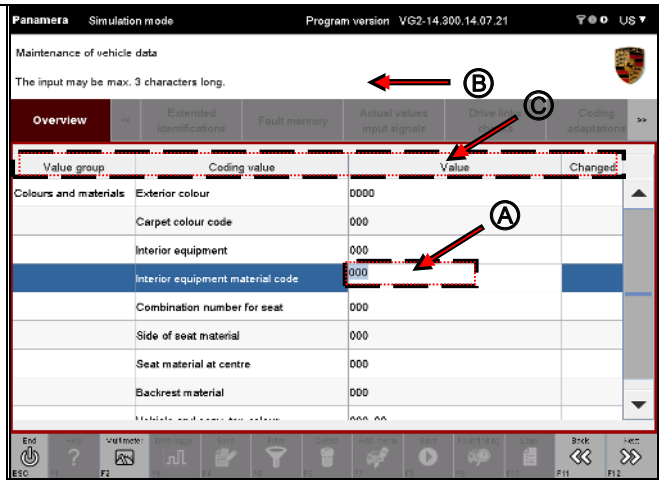
   Pressing <F11> brings you back to the list of general vehicle functions.



Colors and materials

7. Click in the corresponding field in the `Value` column and enter the relevant data (A).

   Relevant tips for entering data appear in the information area (B). For a better overview, you can sort the columns if necessary (C) (for a general description of how to sort columns, see section 10.6).

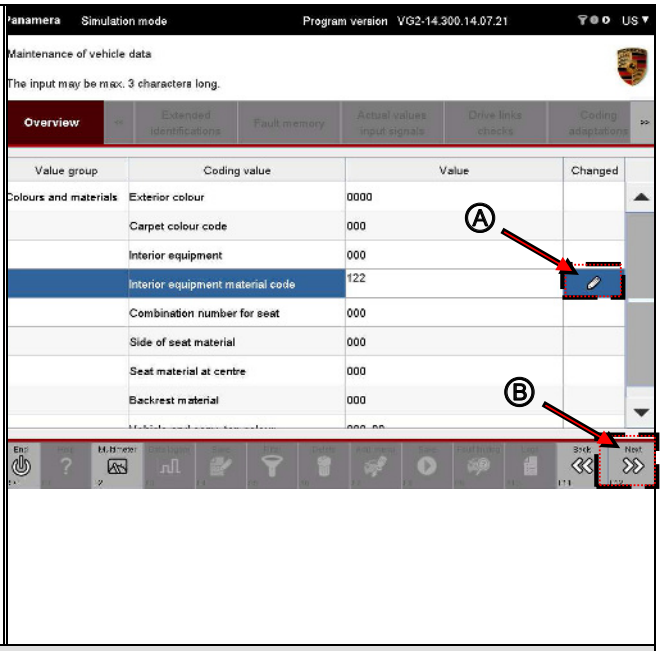


8. When you change an entry, this is indicated by the icon next to the changed entry in the `Changed` column (A).

   Changed and temporarily saved data will be indicated by the icon (only if you jump back to this selection dialog from a later step). Inconsistent data is also indicated by this icon since it will be changed when the data is finally written (A).

   Press the <F12> button (B).

   <F11> brings you back to the vehicle description.



X numbers: X number family

Note on screen content:

In the next screen, the equipment features of the value group "X numbers" are displayed in the form of a grouping/family. Equipment features that do not belong to any family - i.e. represent special X numbers - will be assigned in the next step.

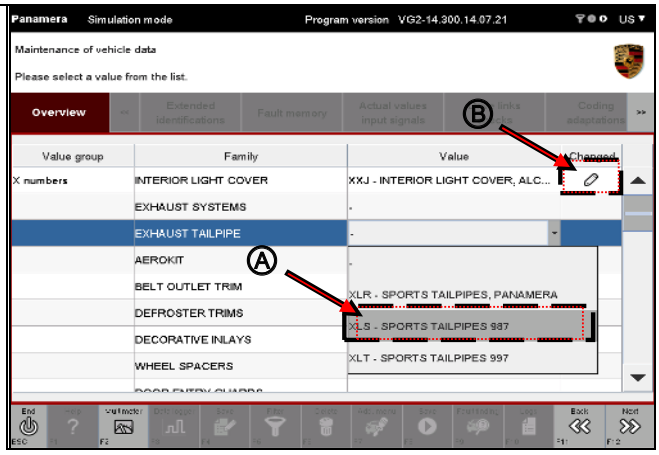
A feature is made up of three entries:

- X number family (e.g. `wheel spacers, loudspeaker covers,` etc.) in the `Family column`.
- Designation of the feature (e.g. `XRN - 17 MM wheel spacers, 2 EA. RA`) in the `Value column`.
- Indication of the presence of the feature in the vehicle data in the `Installed` column. If a feature is set, this is indicated by the icon and if the feature is not set, the line will be blank.

For a better overview, you can sort the columns if necessary (for a general description of how to sort columns, see section 10.6).

9. To identify a feature as present, click in the corresponding cell of the `Value` column and select the feature in a drop-down menu (A). If you select the blank entry, the feature will not be assigned.

   If you change a feature, this will initially be indicated in the `Changed` column by the ✎ icon (B).



10. Press the <F12> button.

    <F11> brings you back to the list of colors and materials.

X numbers: Special X numbers

Note on screen content:

The equipment features of the value group "X numbers" are displayed in the next screen. Unlike the previous step, a feature is assigned in this step by selecting and deselecting individual X numbers directly.

A feature is made up of two entries:

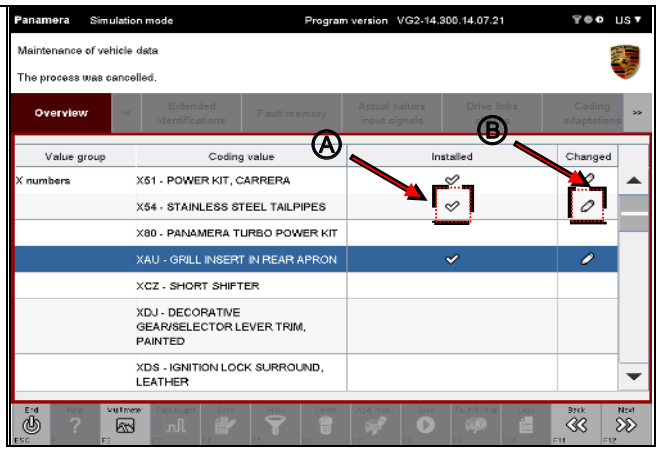
- X number (e.g. X51, X70, etc.) in the `Coding value column`.
- Indication of the presence of the feature in the vehicle data in the `Installed` column. If a feature is set, this is indicated by the ✓ icon and if the feature is not set, the line will be blank.

In addition, the Changed column indicates whether the status (Installed/Not installed) of a feature has been changed.

For a better overview, you can sort the columns if necessary (for a general description of how to sort columns, see section 10.6).

11. To identify a feature as present, click in the corresponding cell of the `Installed` column (A).

    If you change a feature, this will initially be indicated in the `Changed` column by the ✎ icon (B).



↓ Next page

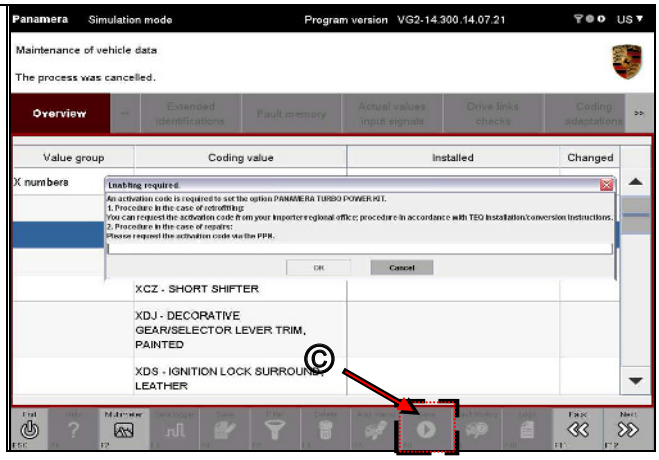
Special function Tequipment

Retrofitting the vehicle:

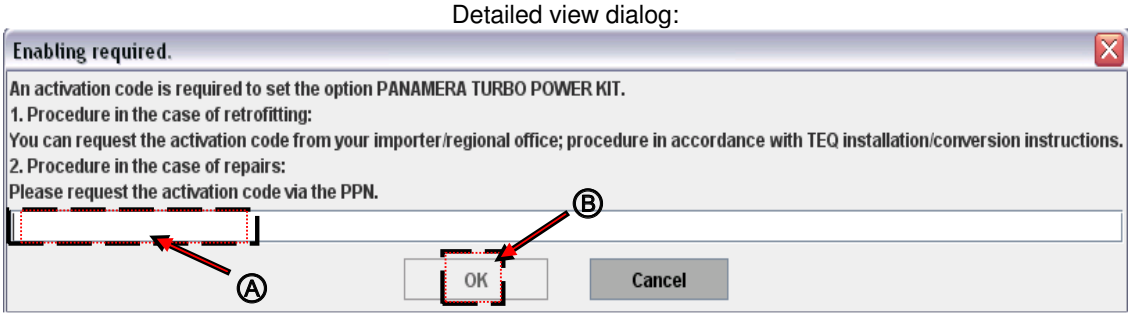
Some features require a special activation code. A corresponding message tells you what you must do.

12. Enter the activation code in the screen (A, see Detailed view) and confirm your entry by pressing <OK> (B, see Detailed view). How to get the activation code:
    ► See section 8.9.3.2

    To temporarily save the equipment list of the X numbers, including the special function Tequipment, press the <F8> button (C).



Detailed view dialog:



Next steps:

13. Press the <F12> button.

    <F11> brings you back to the previous screen.

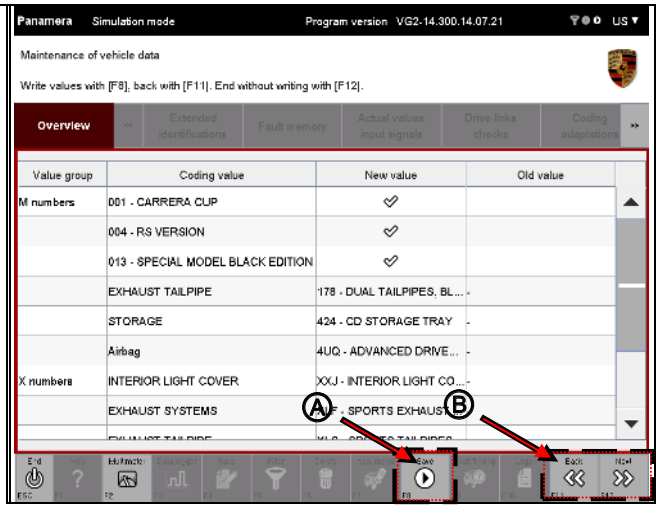
14. Repeat the steps as required for
    * M number family
    * M numbers
    * Z number family
    * Z numbers
    * PR numbers

Summary of results

Note on screen content:

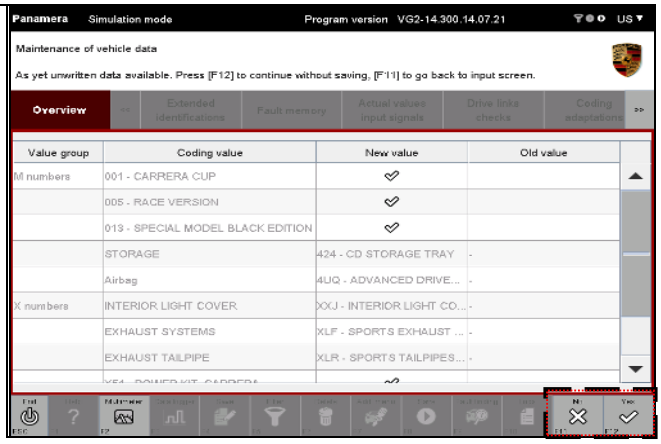
All equipment features that have been set - i.e. all features with a ✓ icon - of all value groups (X numbers, M numbers, Z numbers, including the family groups and PR numbers) are displayed in an overview screen in the next screen.

15. You have the following options:
    - Press <F8> to write the vehicle data to the vehicle (A).
    - Press <F11> to return to the previous list for the corresponding value group (B).
    - Press <F12> to exit the Maintenance of vehicle data function and return to the list of general vehicle functions (B).



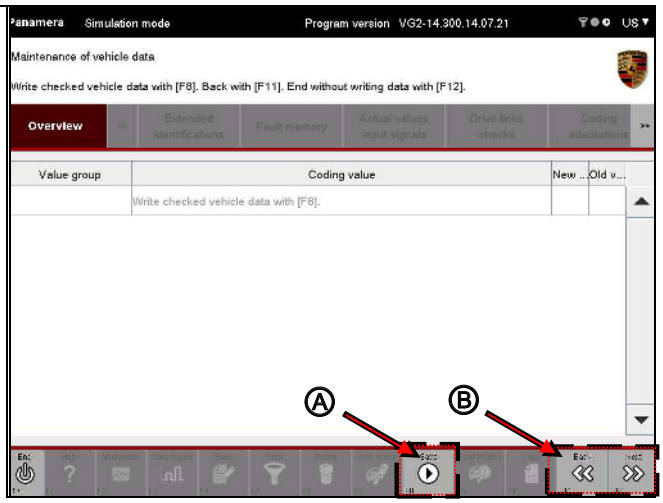
Special case: Exiting the vehicle data with <F12>

16. If you press the <F12> button, you will be informed that there is still some data that has not yet been written. You have the following options:
    - Press <F11> to cancel the process. You return to the summary of results.
    - Press <F12> to confirm that you want to exit the Maintenance of vehicle data function. You return to the list of general vehicle functions.



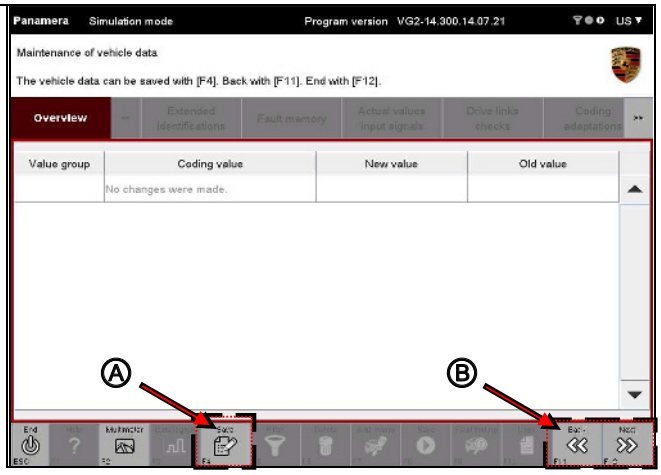
Special case: Repaired vehicle data

17. If your vehicle data was inconsistent at the beginning, the system made corrections during the process, even if you did not make any changes to the vehicle data.
    As a result, you are now prompted to save your data. You have the following options:
    - Press <F11> to cancel the process. You return to the last processing screen (B).
    - Press <F12> to confirm that you want to exit the Maintenance of vehicle data function. As soon as you confirm this again, you return to the list of general vehicle functions (B).
    - Press <F8> to save the vehicle data (A).



Special case: No changes to the vehicle data

18. If you have not made any changes to the vehicle data, you will be informed that you can save the vehicle data by pressing <F4>.
    You have the following options:
    - Press <F11> to cancel the process. You return to the summary of results (B).
    - Press <F12> to confirm that you want to exit the Maintenance of vehicle data function. You return to the list of general vehicle functions (B).
    - Press <F4> to save the vehicle data (A).



Next steps: Switching to Report management

19. Pressing <F12> then brings you to the General Report Management function.

    Pressing <F11> brings you back to the list of general vehicle functions.

8.9.4 Vehicle handover log

You can create a vehicle handover log within the general vehicle functions. During vehicle handover, all control units are activated from transport mode and checked for fault entries. A number of basic settings in the vehicle are also coded. This process runs automatically.

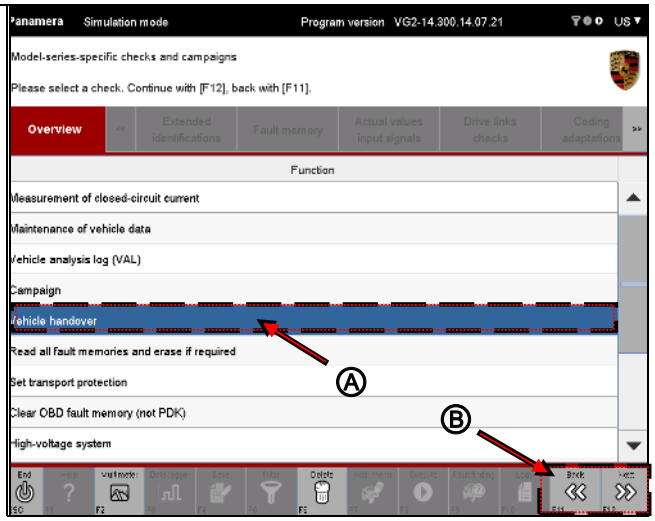
This section describes how to create, print and delete a vehicle handover log.

8.9.4.1 Creating a vehicle handover log

1. Display the list of installed control units and press the <F7> button to call up the general vehicle functions:
   ►See section 8.9.1.

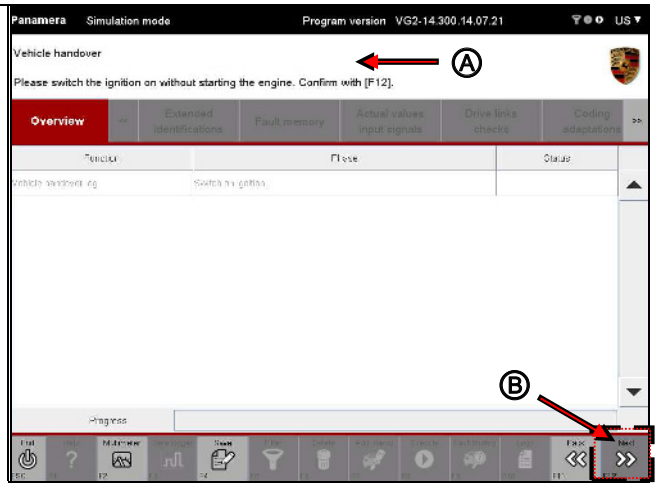
2. Select the entry `Vehicle handover` (A) in the list of general vehicle functions and confirm your selection by pressing the <F12> button (B).

   Pressing <F11> brings you back to the control unit overview or control unit list (B).



3. Read the first instruction in the information area and carry out the required action (A).

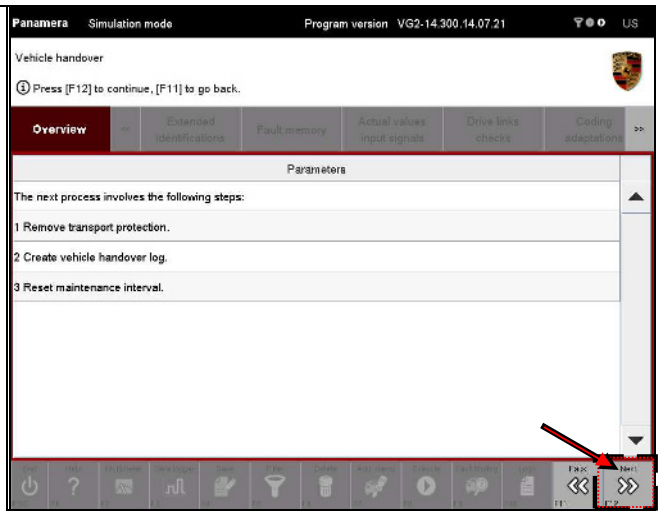
   Confirm your action by pressing <F12> (B).



Instructions:

4. Confirm the instruction by pressing <F12>.

   <F11> brings you back to the previous screen.

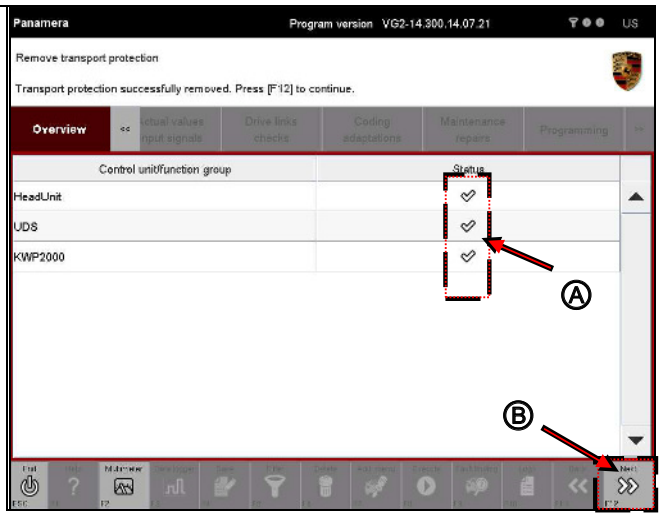


5. Read the next instruction in the information area (A)

Next steps

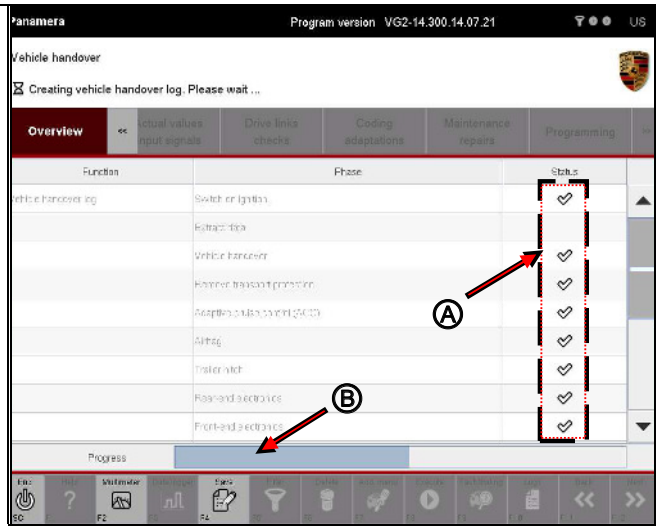
6. Service requests are then sent to various control units and functional groups (UDS, KWP2000). The result of the actions is displayed in the Status field (A).
   - If the service was performed successfully, this is indicated by a ✓ icon.
   - If the service was not performed successfully, this is indicated by a ⓘ icon. In this case, a corresponding message is also displayed in the information area.

   When all actions have been performed successfully, press the <F12> button (B).



7. The required data is read out of the control units and written. A check is also performed to determine whether each control unit can be addressed (A).

   A progress bar shows the current status of the vehicle handover log creation process. The number of control units to be processed plus the pre- and post-processing steps determine the maximum value on the bar. The length of the bar can therefore “jump” during processing and does not show the actual progress (B).

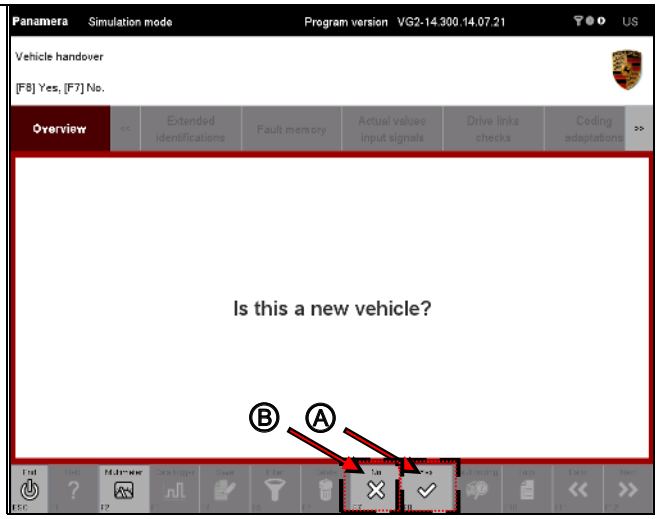


Note on display:

- Control units to which communication is currently being established and whose data is being read are indicated by the ⌛ icon in the `Status` column.
- Control units for which the read-out process was completed successfully are indicated by the ✔ icon in the `Status` column.
- Control units to which communication could not be established or for which a communication error occurred are indicated by the ⓘ icon in the `Status` column.

New vehicle query

8. A query screen then appears asking you whether the vehicle is a new vehicle.
   You have the following options:
   - Press <F8> to confirm that the vehicle is a new vehicle (A).
   - Press <F7> to indicate that the vehicle is an old vehicle (B)



Next steps

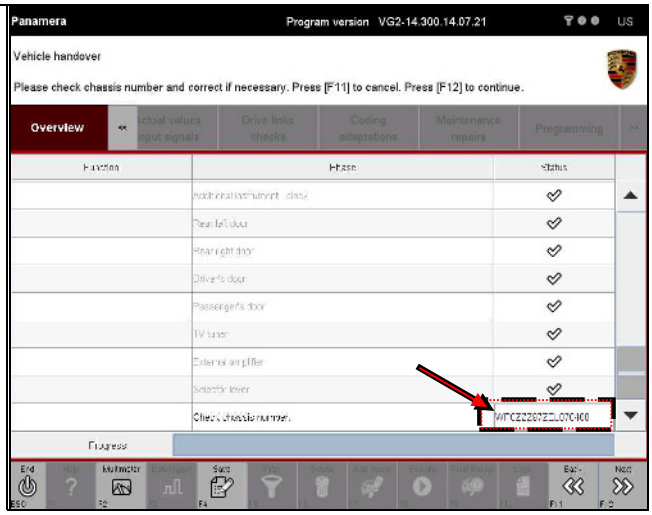
Note on subsequent procedure:

The next steps apply both for a new vehicle and an old vehicle.

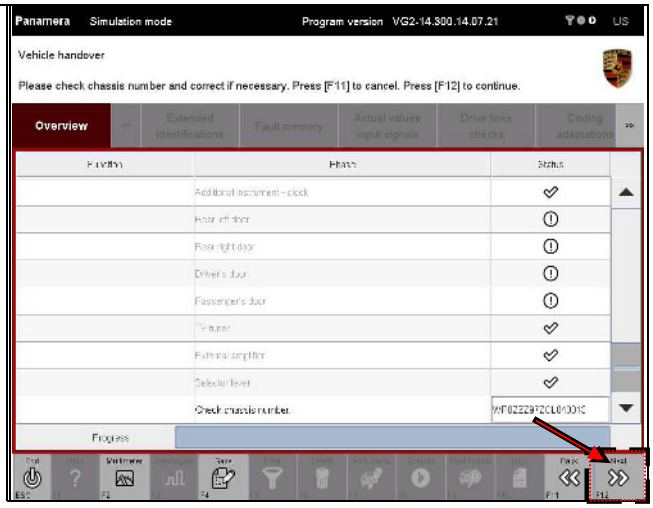
9. When you have entered all the required data as prompted, you must check the chassis number.

   First scroll to the entry `Check chassis number` in the list.
   If the number is not correct, you must correct it.

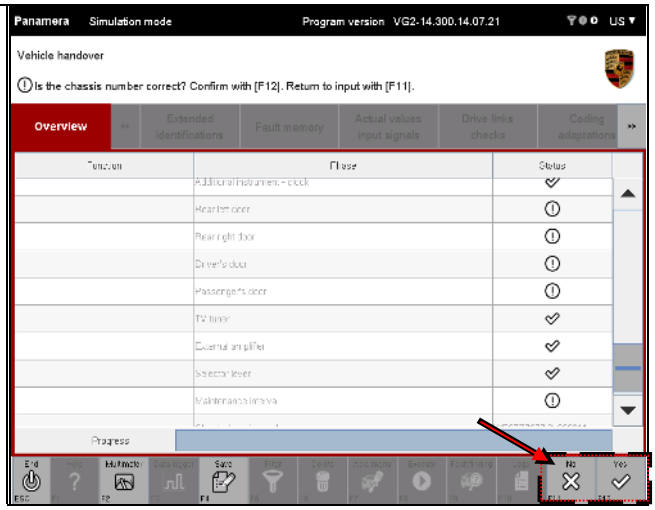
   To do this, click in the `Status` field and change the entry.



10. When you have checked or corrected the chassis number, press the <F12> button.

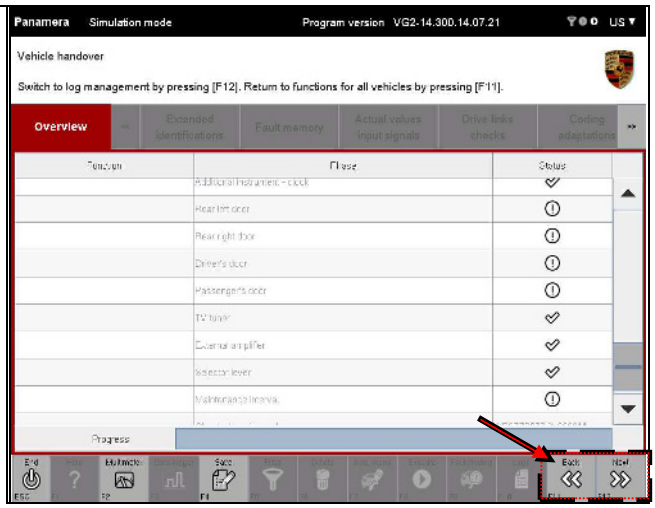


11. You must then confirm again that the chassis number is correct. You have the following options:
    - Press <F11> to return to the screen for entering the chassis number.
    - Press <F12> to confirm that the chassis number is correct.



12. Once you have confirmed that the chassis number is correct by pressing <F12>, another selection screen appears.

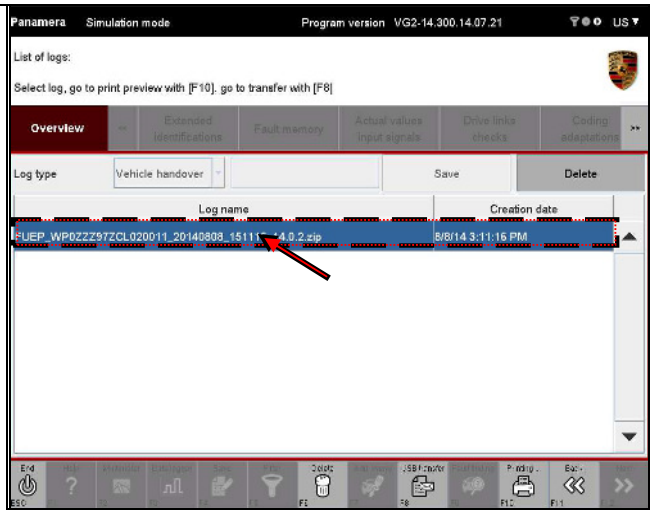
    You have the following options:
    - Press <F11> to return to the list of general vehicle functions.
    - Press <F12> to go to General Report Management, where you can view and print the created vehicle handover log.



13. When you press <F12>, the General Report Management screen appears in which the log type `Vehicle handover` is preselected.

    All previously created vehicle handover logs are listed in the table shown in the work area.

    The most recently created vehicle handover log is at the top of the list.



Further information:

In addition to calling up the list of vehicle handover logs after you have created the log, you can also call up the list from one of the function groups by pressing the <F10> button. For a more detailed description of calling up the list in this way:

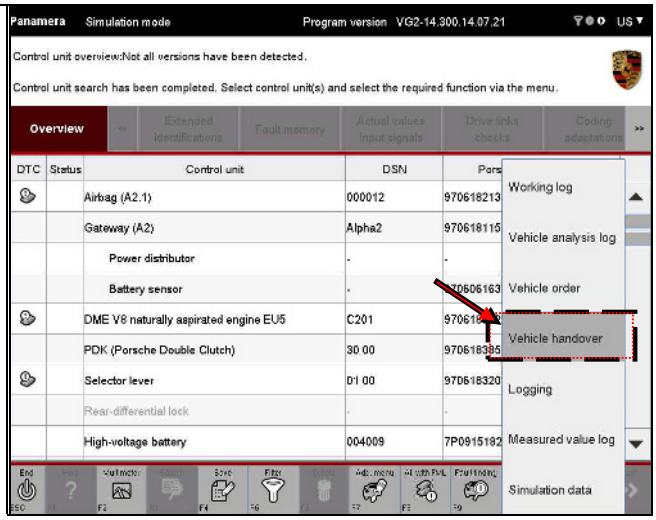
►See section 8.9.4.2

8.9.4.2 Vehicle handover log: Displaying the list of vehicle handover logs

Even if you do not switch directly to General Report Management after creating the vehicle handover log, you can still display the list of vehicle handover logs.

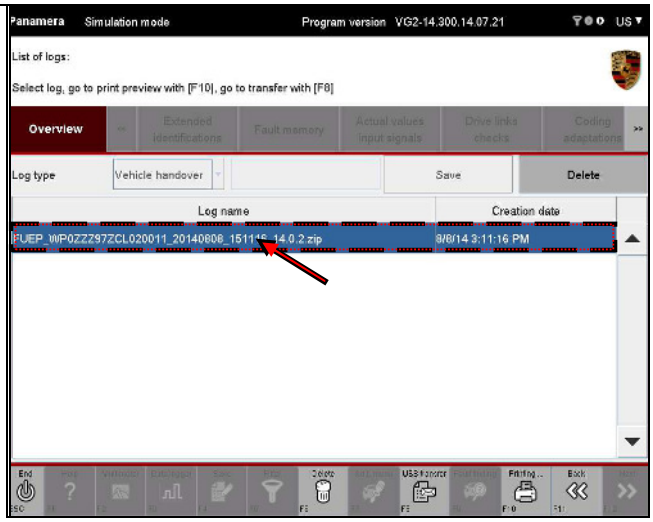
1. Press the <F10> button.
   If the button cannot be selected, first switch to one of the function groups (e.g. Overview) and then press <F10>.

2. Select the log type `Vehicle handover` in the button menu.



3. All previously created vehicle handover logs are listed in the table shown in the work area.

   The most recently created vehicle handover log is at the top of the list.



8.9.4.3 Vehicle handover log: Printing

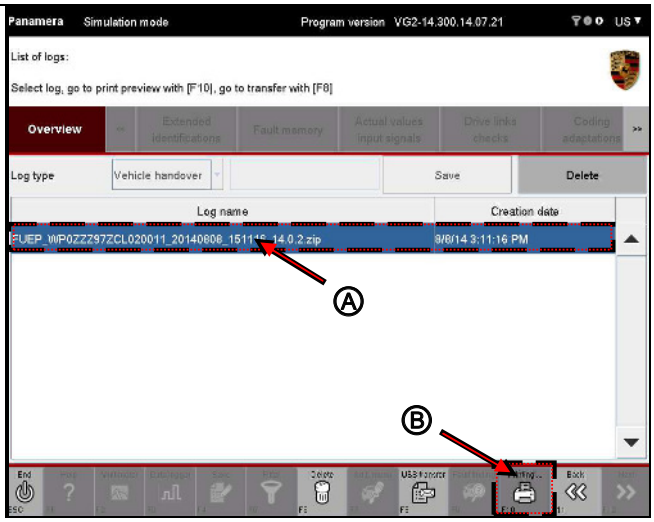
The selected vehicle handover log is not printed by the diagnostic application but by the application used to display the vehicle handover logs. If this application has a print dialog and if a correctly configured printer is connected, you can print the vehicle handover log using this application.
For information on how to configure the file link and set up a printer, contact your system administrator if necessary.

1. Display the list of vehicle handover logs:
►See section 8.9.4.2

2. Select the vehicle handover log you want to print (A) and press the <F10> button (B).

   Pressing <F6> cancels the selection.

   <F11> brings you back to the screen from which you called up the function.



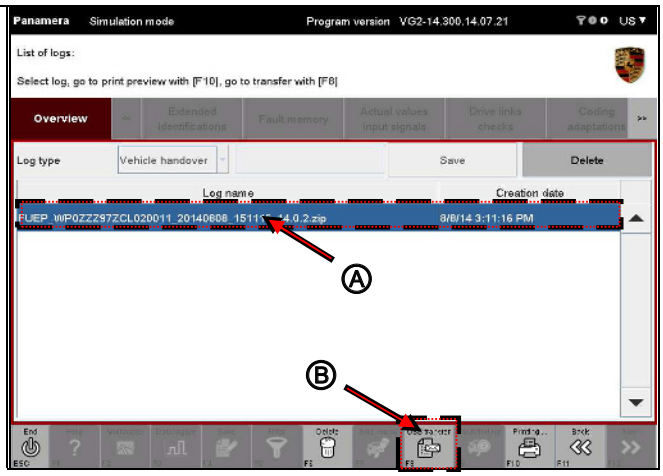
3. This starts the application used to display vehicle handover logs.

8.9.4.4 Vehicle handover log: Copying to a USB data storage medium

You can copy a vehicle handover log to a USB data storage medium. A special Transfer button is displayed for this purpose on the General Report Management screen.

1. Display the list of vehicle handover logs:
   ►See section 8.9.4.2

2. Select the log you want to transfer (A) and press the <F8> button (B).

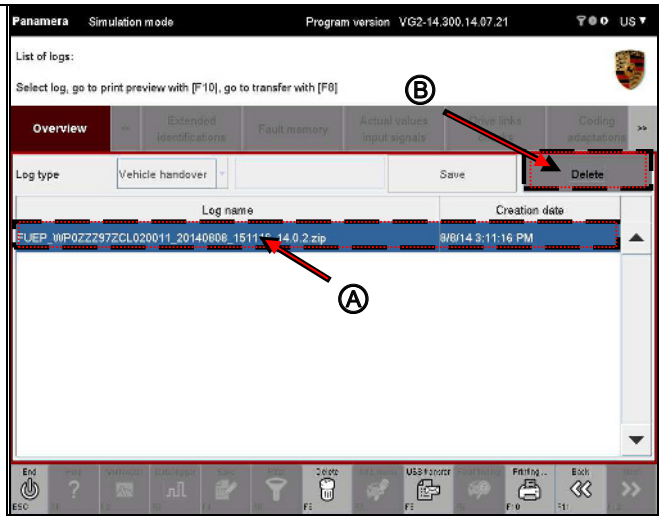


3. Copy the vehicle handover log to a USB data storage medium using the File management function of the basic software.

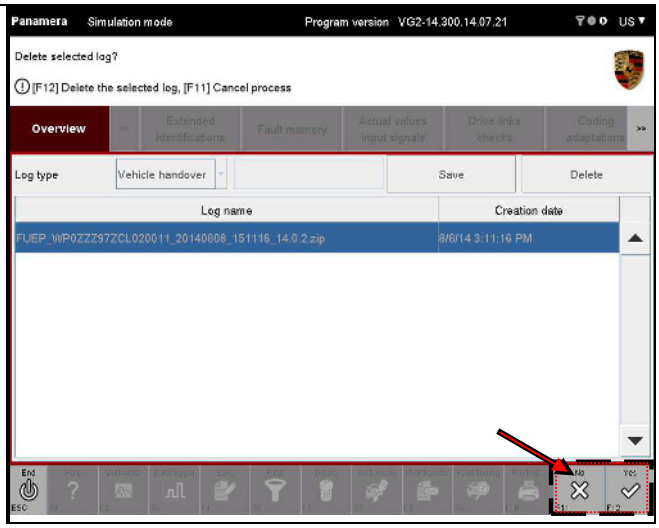
8.9.4.5 Vehicle handover log: Deleting

1. Display the list of vehicle handover logs:
   ►See section 8.9.4.2

2. Select the log you want to delete (A) and press the `Delete` button (B).



3. You must confirm deletion of the vehicle handover log. You have the following options:
   - Press <F11> to cancel the process and return to the list of vehicle handover logs.
   - Press <F12> to confirm deletion of the vehicle handover log.



8.9.5 Campaign: Campaign coding and programming

Coding of a control unit by means of campaign coding differs from conventional coding (see section 8.6) in that you simply have to enter a campaign number. If the campaign number is valid – i.e. a valid flash rule exists for this campaign – the coding and programming process is performed automatically.

Sequence and scope of a campaign:

Several campaigns (in the form of several "steps") may be stored in one flash rule. If this is the case, the rule will be processed in several steps.

User interaction is therefore described only as an example in this section.

What types of steps are there?

The following individual steps can occur and can be processed within a campaign:

- Programming step: Programming by means of rule flashing (based on one flash rule file per step)
- Coding step: Coding by means of MCR coding
- Delay step: Wait loop with a preconfigured waiting time.
- Ignition step: Ignition detection can be activated or deactivated beforehand for the subsequent campaign sequence in this step.
- Display step: Display of general information between individual steps and in an overview screen at the end of a completed campaign.
- External voltage detection step: The current battery voltage is read out and compared with configurable limit values.
- Clear all fault memories step: The fault memories of all control units are deleted.
- Sequence/PXML step: More complex sequence with its own GUI and user guidance. Please read the instructions and follow the user guidance provided for each sequence.
- Control unit documentation: Documentation of control unit values in the C&P log.

Difference compared with functions in the Maintenance/repairs function group:

Campaigns with several steps are simply a series of individual programming and coding steps. Unlike the variant used in the Maintenance/repairs function group, campaigns do not normally have any specific and elaborate user guidance and do not include an option for reading data from the vehicle and interpreting it (exception: steps with complete sequences or PXML integration).

Campaigns are therefore a type of large macro used to automate flash processes and in which individual programming and coding functions complete with wait loops can be processed successively.

Required data:

You must enter the following data in one of the following steps:

►Campaign number

Always have the necessary information ready.

Note on entering the campaign number:

The campaign number is not case-sensitive. This means that there is no differentiation between uppercase and lowercase when entering the number.

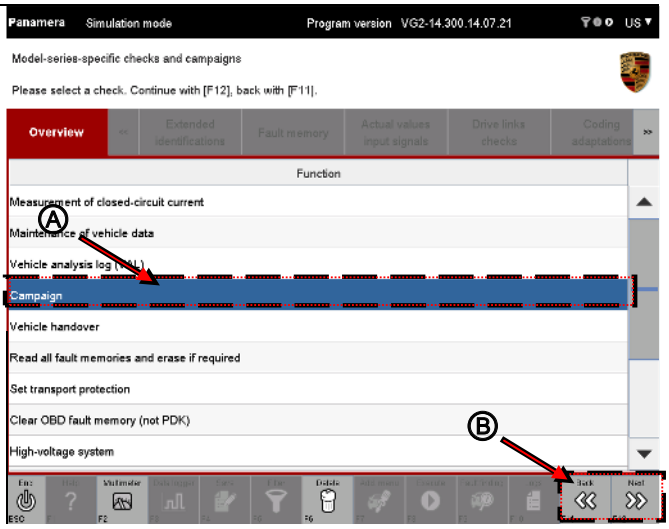
Example:

The entry `W123` or `w123` will produce the same result.

1. Display the list of installed control units and press the <F7> button to call up the general vehicle functions:
   ►See section 8.9.1.

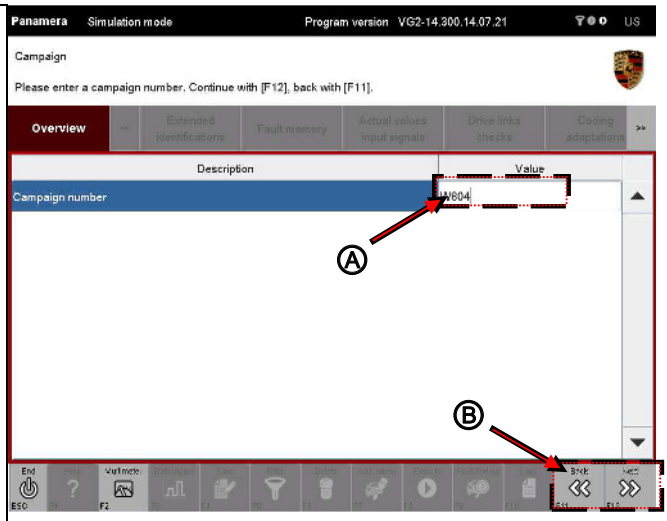
2. Select the entry `Campaign` (A) in the list of general vehicle functions and confirm your selection by pressing the <F12> button (B).

   Pressing <F11> brings you back to the control unit overview or control unit list (B).



3. Enter the campaign number and press the <F12> button

   Note: Pressing <F11> brings you back to the list of general vehicle functions.



Tip

No user interaction required in some cases:

There will be no need for any user interaction - e.g. pressing the <F12> button to move on - in some cases since the diagnostic application moves on automatically to the next step.
Example: Fault handling or display step (see information below).

This is normal behavior.

Various contents

Note:

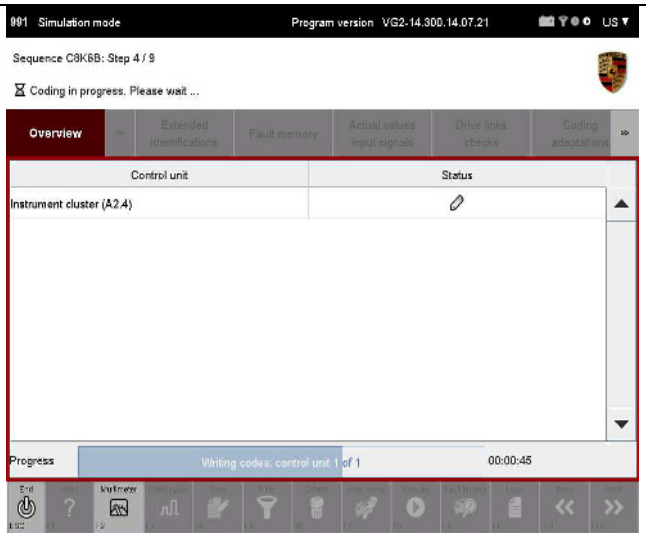
The following steps are merely examples. User guidance is campaign number-specific.

To give you an idea of how much time is still required for a campaign, the number of the current step and the total number of steps to be performed are displayed in the information area.

4. Example:
Coding step.

Note: Control unit coding will be repeated several times in succession as required (Retry function) if an error occurs during the coding process.
The number of retries was defined beforehand in a rule file.
Wait times can be configured between the retries.
This is normal behavior.

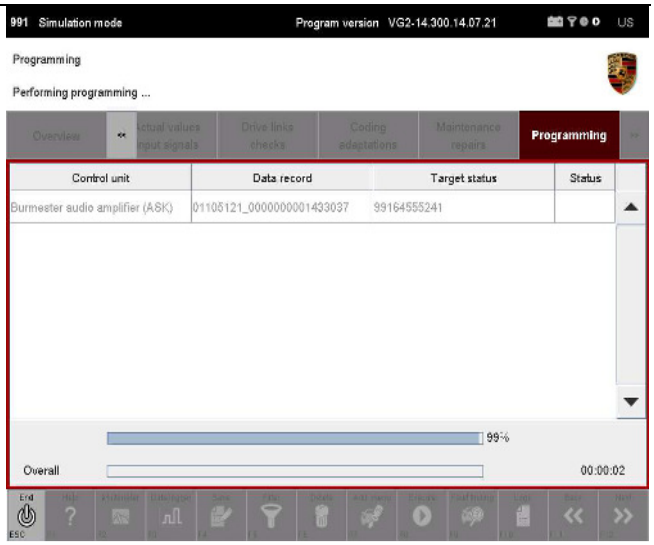
If the application was also configured in such a way that the alternative installation (see section 8.1.1) is to be evaluated and if an alternative family is available, the step will be performed for every control unit in the family.



5. Example:
Programming step

Note: Control unit programming will be repeated several times in succession as required (Retry function) if an error occurs during the flash process.
The number of retries was defined beforehand in a rule file.
Wait times can be configured between the retries.
This is normal behavior.

If the application was also configured in such a way that the alternative installation (see section 8.1.1) is to be evaluated and if an alternative family is available, the step will be performed for every control unit in the family.



Behavior if there is no suitable programming rule:

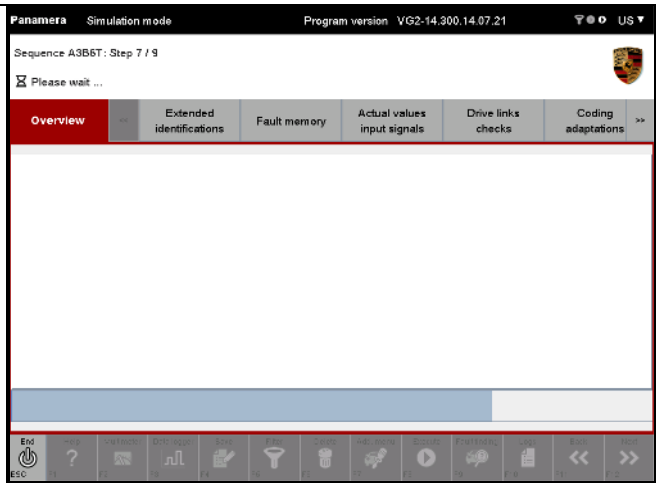
If a suitable programming rule could not be found in the rule file, the programming step will be regarded as having failed. A decision question, which you must answer (possible answers: Next or Cancel), will appear in this case. This will be displayed again in the concluding result.

Behavior if problems arise during programming:

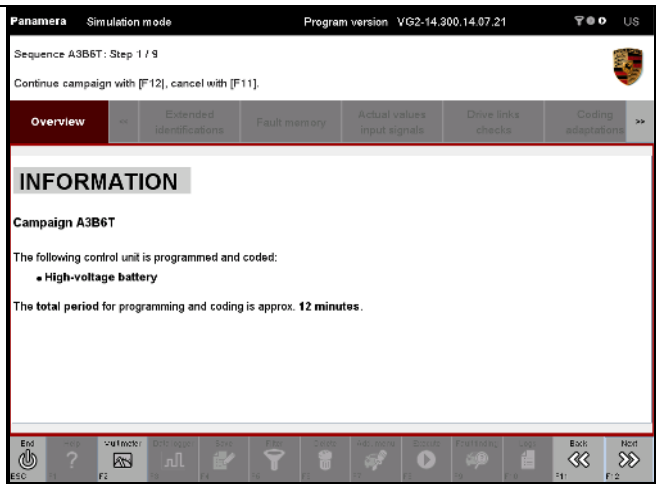
If control unit programming fails, the application will generally automatically try - several times if necessary - to program the control unit again.

If this fails, please contact Support.

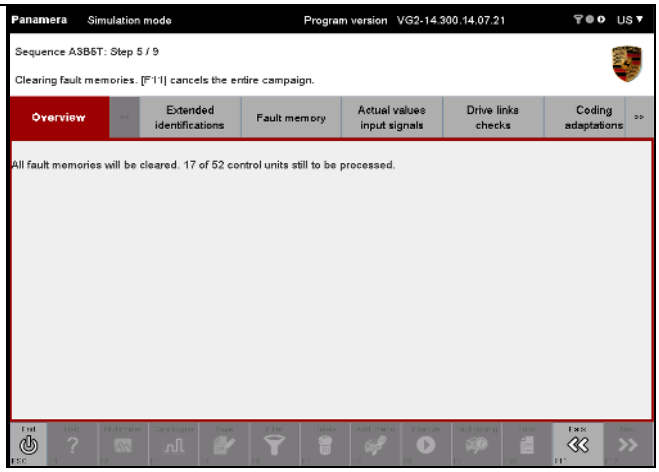
6. Example:
   Delay step.



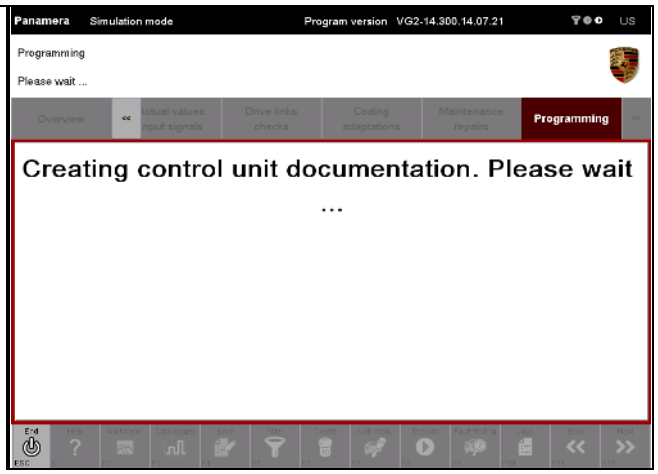
7. Example:
   Display step.



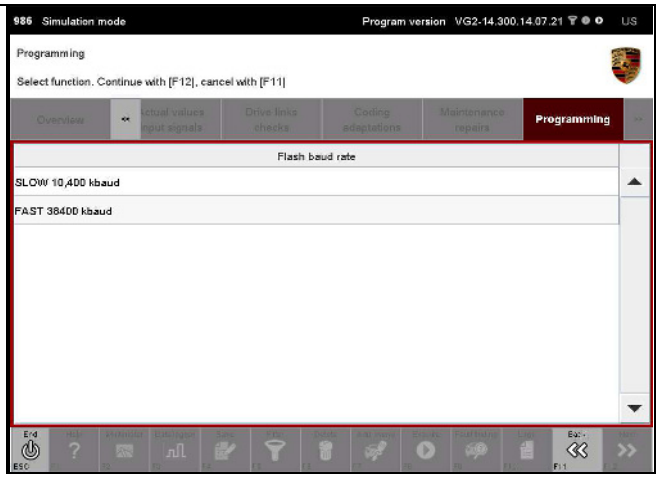
8. Example:
Clear all fault memories step.



9. Example:
Control unit documentation step.

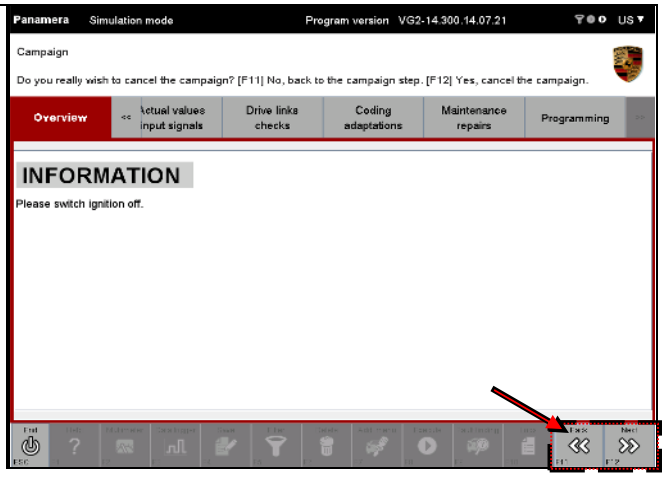


Note:
If there are several suitable rules in a rule file, you must select the rule you want to use.



Canceling an active campaign with <F11>

10. Confirm cancellation of the campaign.
    <F11> brings you back to the campaign step.
    <F12> cancels the campaign.



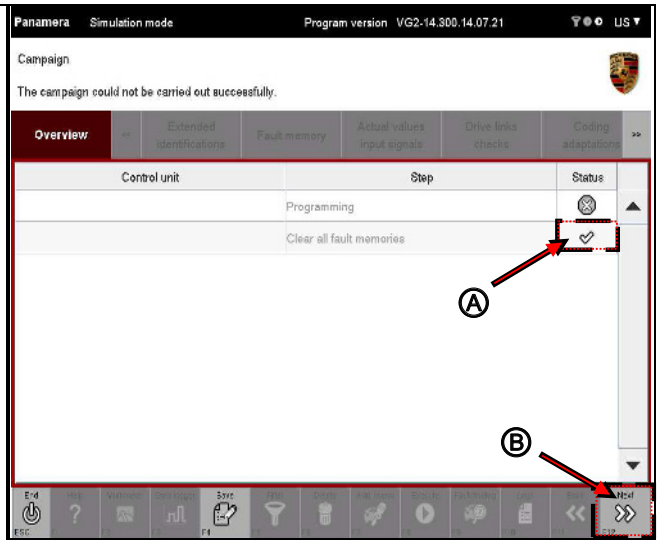
Concluding screen

11. An overview screen is displayed at the end of a completed campaign or series of campaign steps.

    Successful coding is indicated by the ✔ icon (A).

    If coding was not successful, this is indicated by the ⊗ icon.

    Press the <F12> button (B) to return to the list of general vehicle functions or select one of the function group buttons.



8.10 Working log

The information displayed on a screen can be saved in a so-called working log. The working log is created by pressing a button on the control bar and additional information is added successively by pressing the button again in other functions or function groups or if the content of the work area changes. This section describes how to create a working log - as a temporary working log initially.

In General Report Management, you can display, print, permanently save and delete a working log you have created. For further information on General Report Management:

►See section 8.10.3, 8.10.4 and 8.10.6.

Maximum size and behavior when creating the working log:

The maximum file size for saving the working log is generally 1 MB, which corresponds to a log of more than 100 pages.

If this size is exceeded, every subsequent save operation for the log must be explicitly confirmed by answering a Yes/No question.

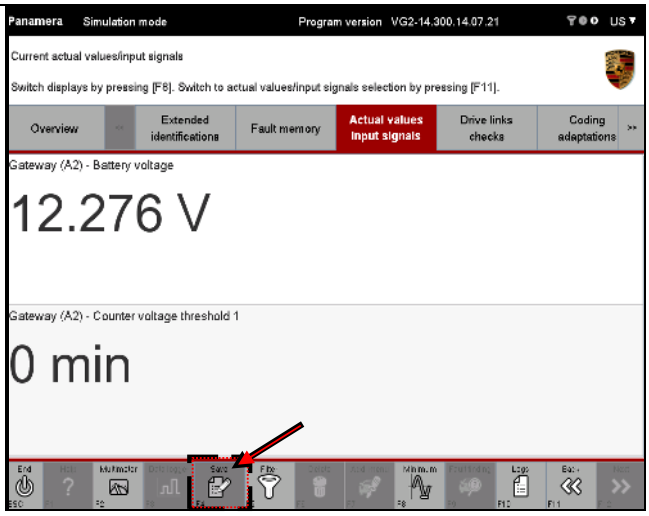
Special case - Vehicle analysis log (VAL):
If the size is exceeded, only a warning is displayed, but the log is saved automatically.

8.10.1 Working log: Creating a temporary working log

1. Display the list of installed control units and select the desired control units:
   ►See section 8.1.

2. Select a function group or function.

3. Press the <F4> button to temporarily save the information that is currently displayed on the screen in a working log.

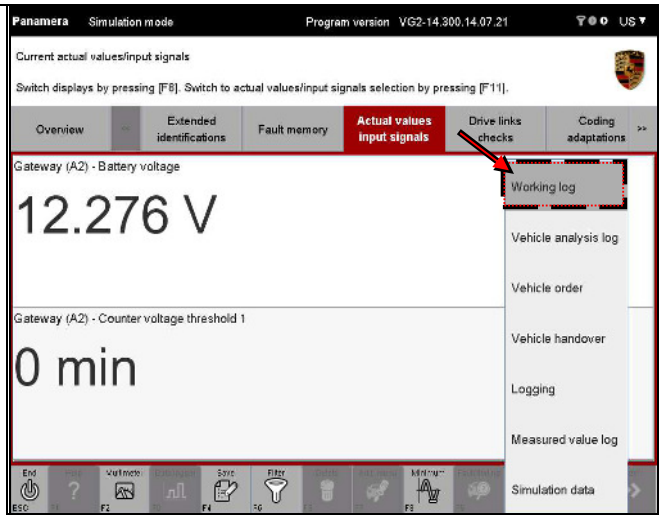


4. If you also want to save information displayed in other screens, switch to the corresponding screen and press the <F4> button there. The recorded information is then copied to the same working log. The working log is updated with new information until it is finally closed/saved.

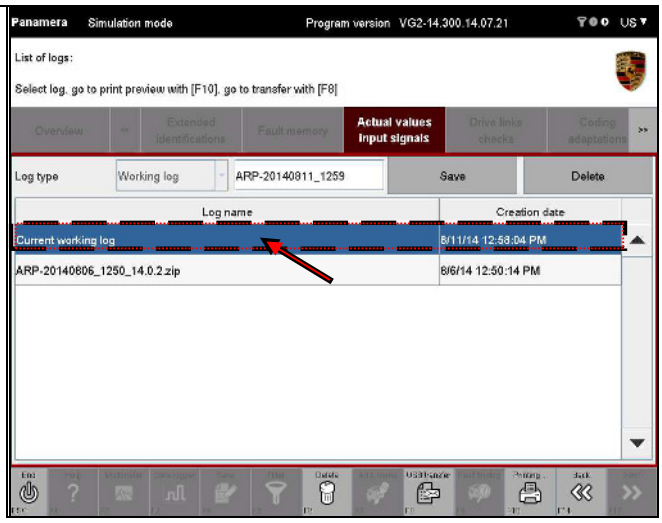
8.10.2 Working log: Displaying the list of working logs

1. Press the <F10> button.
   If the button cannot be selected, first switch to one of the function groups (e.g. Overview) and then press <F10>.

2. A button menu appears in which several entries are listed.
   Select the log type `Working log`.



3. A list of all working logs is displayed.
   The temporarily stored log is always at the top of the list.

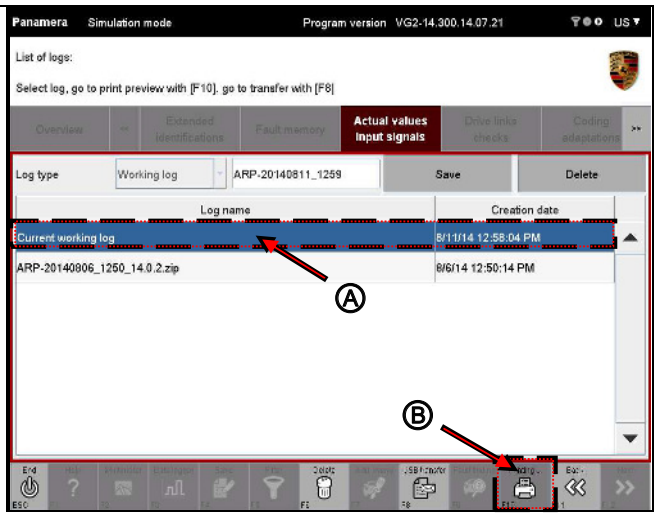


8.10.3 Working log: Displaying and printing a working log

In order to print a log, a suitable printer must be connected to the Tester and configured accordingly.

1. Display the list of working logs:
   ►See section 8.10.2

2. Select the desired logs (A) and then press the <F10> button (B).

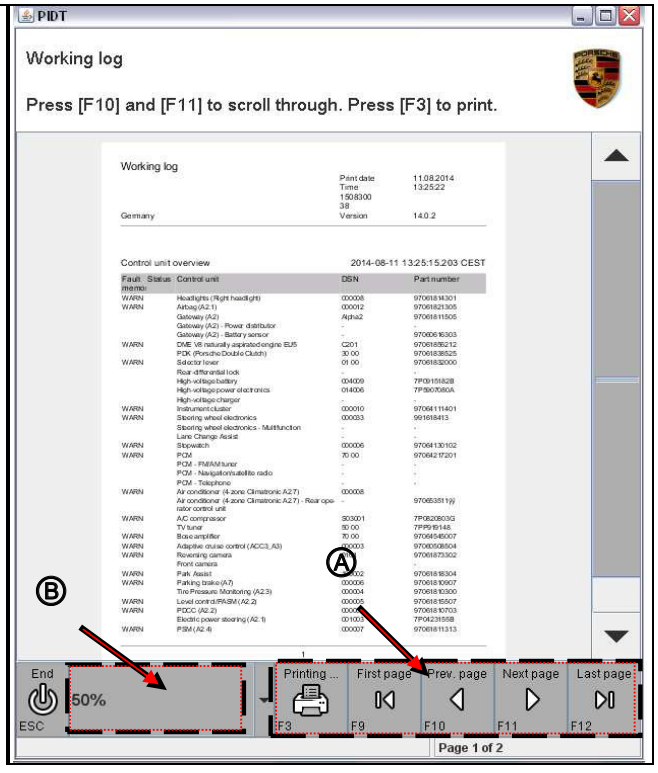


3. A list of all selected logs appears in a preview window.

   The following options are available in the window (A):

   - , <F3> button: Print log
   - , <F9> button: Jump to the first page
   - , <F10> button: Jump to the previous page
   - , <F11> button: Jump to the next page
   - , <F12> button: Jump to the last page
   - , <ESC> button: Close window.

   You can also use the **Zoom** function to change the display size of the log (B).



4. To print the log, press the `Print` button, indicated by the icon.

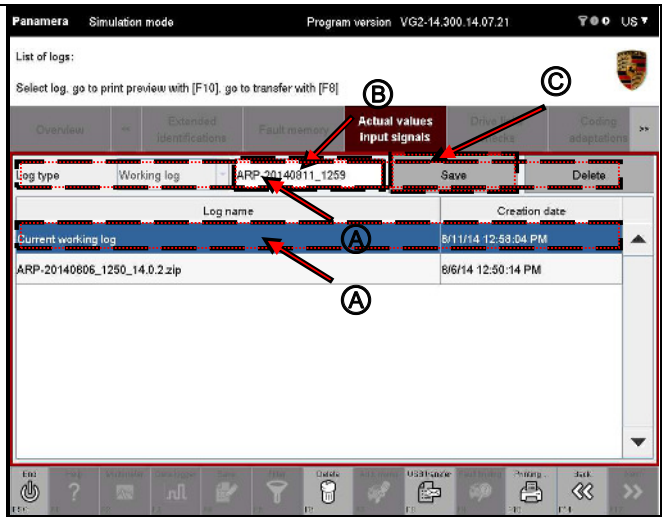
8.10.4 Working log: Saving a working log

You can save the temporarily stored working log locally.

1. Display the list of working logs:
   ►See section 8.10.2

2. Select the temporarily stored working log (A).

   Enter the name you want to use to save the working log (B) and press the `Save` button (C).

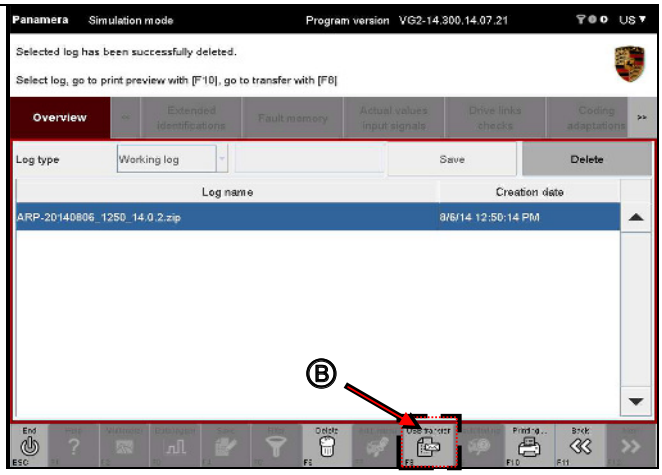


8.10.5 Working log: Copying to a USB data storage medium

You can copy a working log to a USB data storage medium. A special Transfer button is displayed for this purpose on the General Report Management screen.

1. Display the list of working logs:
   ►See section 8.9.4.2

2. Select the log you want to transfer (A) and press <F8> (B).

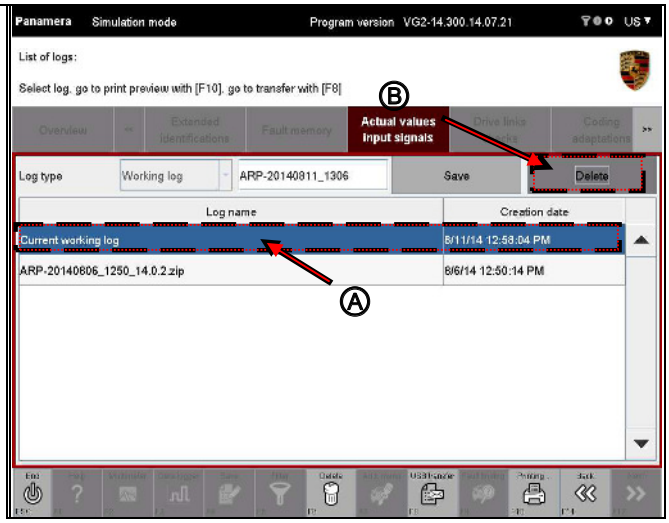


3. Copy the working log to a USB data storage medium using the File management function of the basic software.

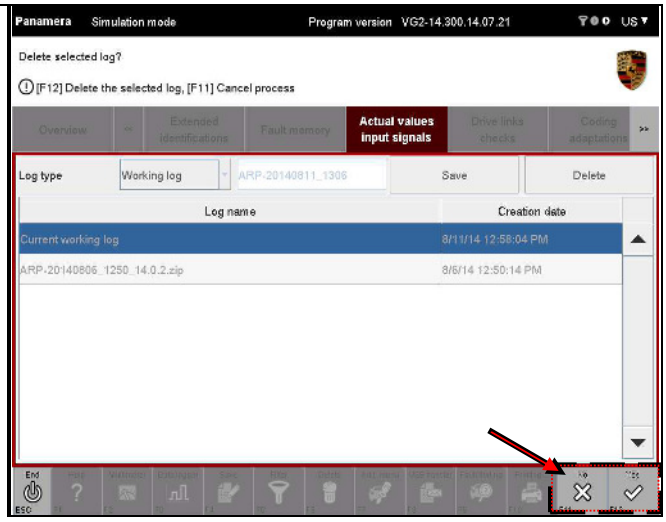
8.10.6 Working log: Deleting a working log

1. Display the list of working logs:
   ►See section 8.10.2

2. Select the working logs you want to delete (A) and press the `Delete` button (B).

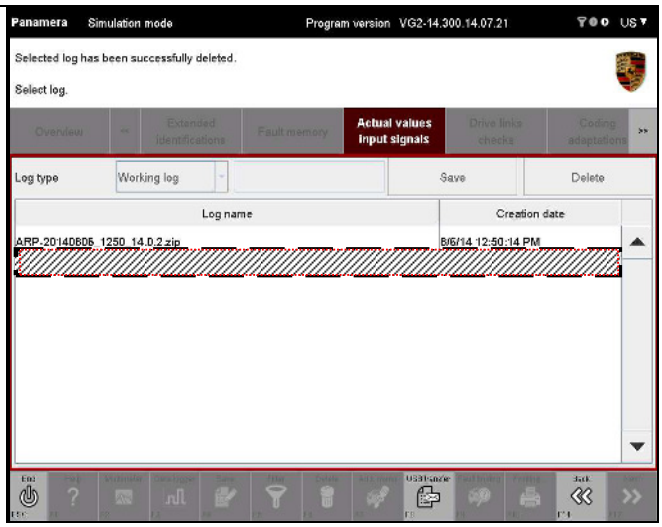


3. A query appears prompting you to confirm the deletion of the selected working logs. You have the following options (B):
   - Press <F11> to cancel the process. You return to the list of working logs.
   - Press <F12> to confirm that you want to delete the selected working logs.

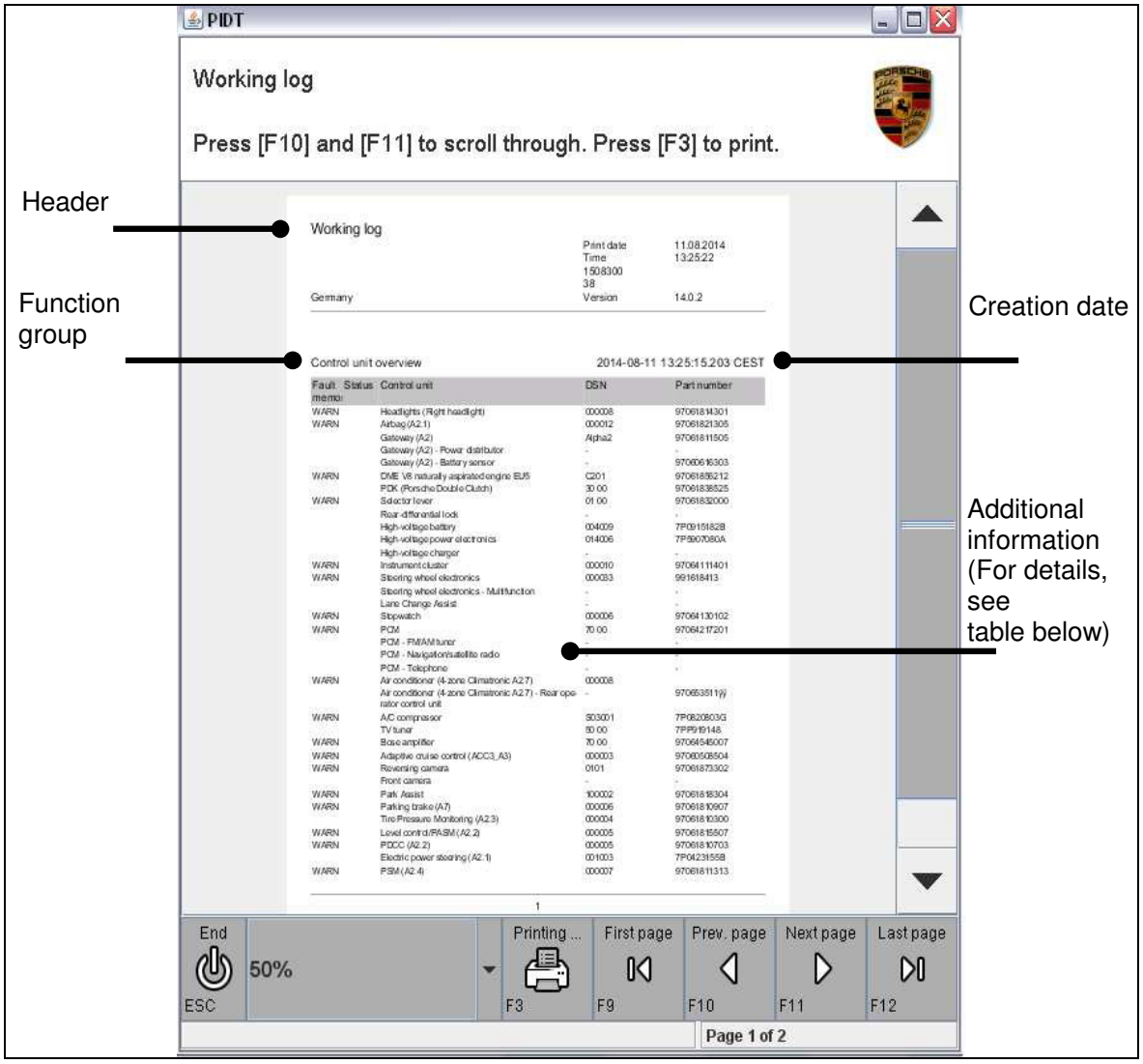


Next steps

4. If you confirmed the query by pressing <F12>, the selected log is deleted and the list of working logs is updated.



8.10.7 Working log: Stored information



Additional information:

The information that is written to the working log from the various procedures is listed in the table below.

	Procedure	Control unit variant	DSN	Part number	Fault memory	Environmental data	Actual values	Routine	Coding that was read	Coding to be written	Flash session	Flash job result	PDU
Control unit list	X	X											
Control unit overview	X	X	X	X	X								
Fault memory	X	X			X								
Environmental data	X	X				X							
Measured values	X	X					X						
Routines	X	X						X					
Coding	X	X							X	X			
Programming	X	X									X	X	
VAL	X												
Vehicle handover log	X												
Control unit replacement	X												
Installation specifications check	X												
OBD Scan Tool	X												

Note and restriction (1):

- Only the presence of fault memory entries is stored in the control unit overview.
- In the Fault memory function group, only the fault memories found during the last cyclical read operation are saved in the working log.
- During the cyclical reading of result values (drive links, routines), only the values determined during the last read operation are saved in the working log.

Note and restriction (2):

- In the Codings/adaptations function group, coding that was read can be saved in the working log before changing the coding by pressing the Working log button; coding that was read and coding to be written can be saved in the working log after changing the coding values, but before writing the values by pressing the Working log button.
  The latter case also applies if the fault occurred during the write operation in that the control unit did not actually report a fault, but did not transfer the coding.
  As a matter of principle, the coding that was written cannot be saved in the working log because it must be read out and is therefore the coding that was read (after a write operation).
- Error messages for virtual coding values can also be displayed in the working log.

8.11 Logging

The purpose of logging is to provide first-level support for initial analysis in the event of a fault.

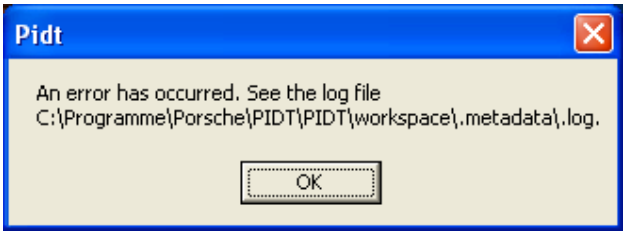
Extended logging saves more comprehensive information in the log files, which are required for more detailed fault analysis.

Creating a log file when the setup is wrong:

If the default log directory (example: C:\Userdata\dsa\pidt\log) does not exist when you are installing the diagnostic application (e.g. if the directory was deleted unintentionally), the installation program first tries to create this directory structure.

If this fails, the installation program tries to use the current path for logging the setup, i.e. for logging into the directory containing the installation program. This ensures that the subsequent setup procedure can be reproduced using the log files.

If it is not possible to create the default log directory, an error message is displayed when you use the diagnostic application:

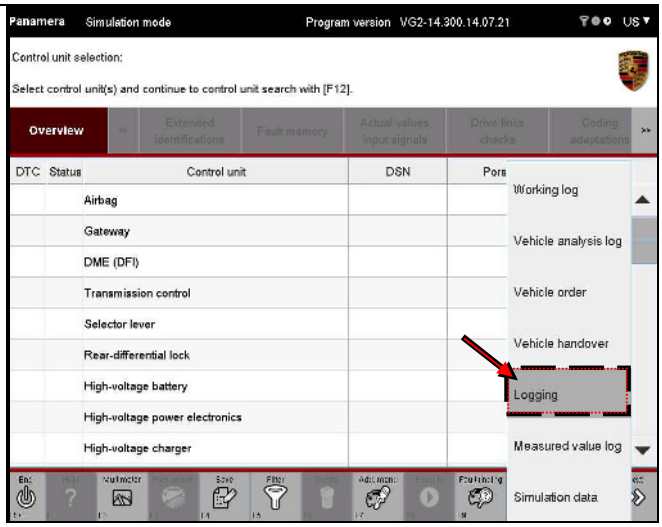


If this happens, contact your system administrator.

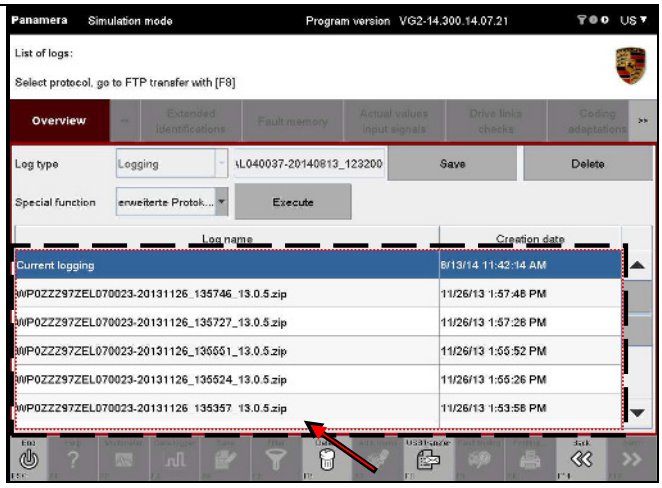
8.11.1 Logging: Displaying the Log function

1. Press the <F10> button.
   If the button cannot be selected, first switch to one of the function groups (e.g. Overview) and then press <F10>.

2. A button menu appears in which several entries are listed.
   Select the entry `Logging`.



3. Information on the current logging is displayed.



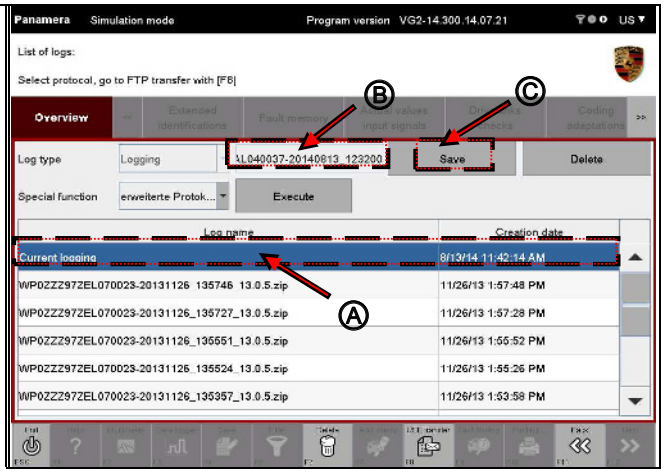
8.11.2 Logging: Saving the current logging

1. Call up the `Logging` function:
   ►See section 8.11.1.

2. Select the current logging (A).

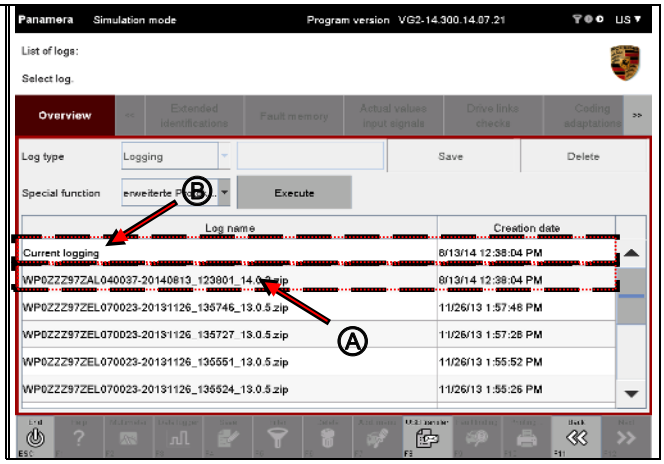
   Change the name generated by the system as required (B).

   To save the current logging under a new name, press the `Save` button (C).



3. The selected logging is zipped and is displayed as an entry in the list of logs (A).

   A new logging is started immediately and this is displayed as the `Current logging` (B).

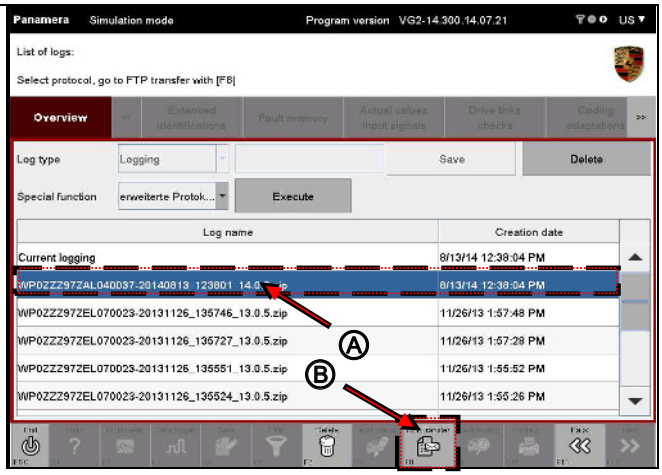


8.11.3 Logging: Copying to a USB data storage medium

You can copy a logging to a USB data storage medium. A special Transfer button is displayed for this purpose on the General Report Management screen.

1. Display the list of logs:
   ►See section 8.9.2.6

2. Select the log you want to transfer (A) and press the <F8> button (B).



3. Copy the logging to a USB data storage medium using the File management function of the basic software.

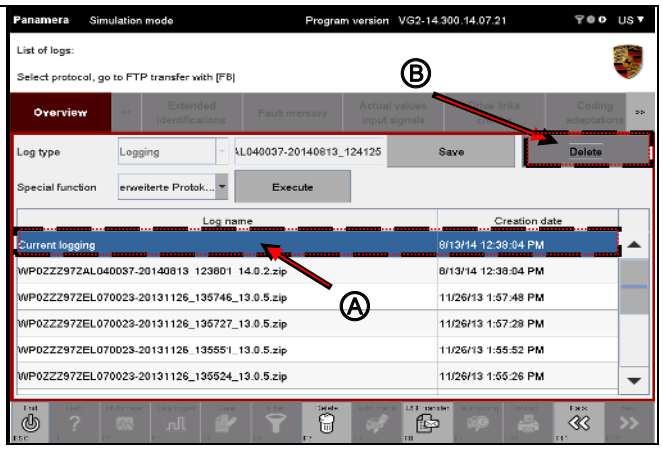
8.11.4 Logging: Deleting the 'current' logging

You can delete the current logging in the `Logging` function. After you delete the current logging, a new current logging is created immediately. You can see this from the creation date of the current logging.

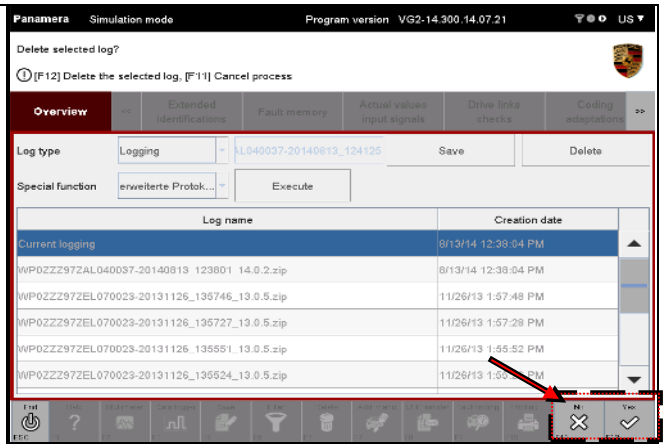
You cannot delete any saved loggings.

1. Call up the `Logging` function:
   ►See section 8.11.1.

2. Select the current logging (A) and then press the `Delete` button (B).



3. A query appears prompting you to confirm the deletion of the current log. You have the following options (B):
   - Press <F11> to cancel the process. You return to the list of logs.
   - Press <F12> to confirm that you want to delete the current logging.

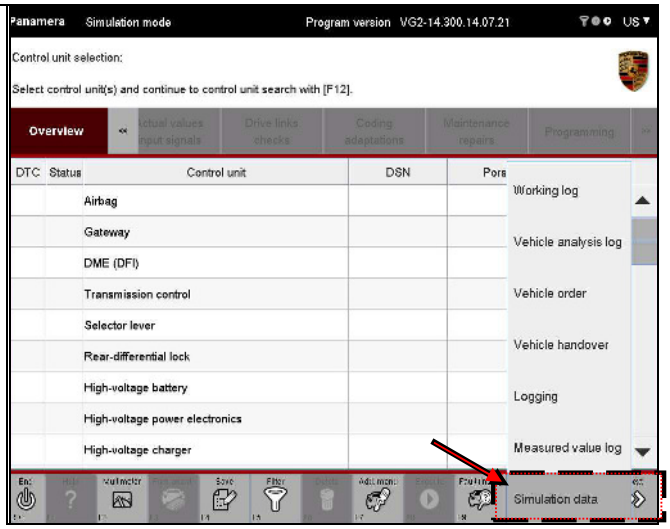


4. When you confirm the query by pressing <F12> (Yes), the current logging is deleted. A new logging is then started immediately.

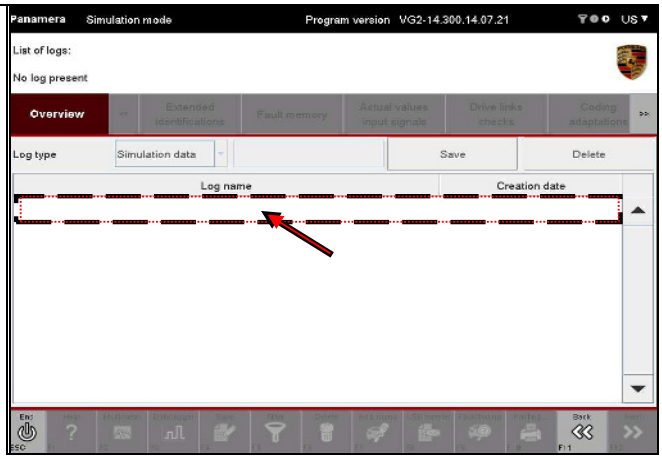
8.12 Displaying the Simulation data function

1. Press the <F10> button.
   If the button cannot be selected, first switch to one of the function groups (e.g. Overview) and then press <F10>.

2. A button menu appears in which several entries are listed.
   Select the entry `Simulation data`.



3. A list of all simulation data logs that have already been saved is displayed.
   If no simulation data has been logged, the list will be empty.



8.13 Filter

This section describes how to use the Filter function of the diagnostic application. In particular, it describes how to create and delete filters, how to activate and deactivate filters, how to assign filter properties (Process filter) and how to reset filter properties.

When all display-relevant processes of the application have been completed (e.g. the overview display setup is complete, etc.), you can call up the Filter function from the following function groups:

- Overview
- Extended identifications
- Actual values/input signals
- Drive links/checks
- Codings/adaptations

Filter properties **cannot** be defined for the following function groups or functions:

- Fault memory
- Environmental data (part of the Fault memory function group)
- Log services
- Programming
- Maintenance/repairs

Behavior of the Filter function in the application:

►Filters are defined generally for all control units and individually for each function group. In other words:
The Filter function allows you to create a separate filter for each function group. The filters that are created are not combined with each other and the viewing area of a Filter function is restricted to the respective function group. Filters are applied based on previously selected elements that are assigned to the filter as properties in a selection screen.

►New filters for a specific list view can be created and applied independently of the currently active filter. In other words:
If a different filter is activated for the same list view, the previously active filter is automatically deactivated.

►Different filters can be active at the same time for different function groups or list views. For example, you can keep a separate filter active for each function group or list view. However, these filters do not affect each other (see comment above). The only thing they have in common is the number of control units in the selection.

►If a filter is active, this will be indicated by the icon in the title bar in the respective function group. Whether an icon is displayed or not depends on the function group. In other words:
If you switch from the filtered Overview to a different function group in which no filter is active, for example, the icon in the title bar will not be displayed in the other function group.
The icon only indicates that a filter is active or not active in the function group in question. Filters that are active in other function groups – including the control unit overview or control unit list – will not be indicated by an icon in the current view.

►Filters remain active until you explicitly deactivate them or exit the diagnostic application. No filters are active after you restart the diagnostic application.

Taking the alternative installation into consideration:

The alternative installation is taken into consideration when applying filters for the control unit search.

Example: Filter entry DME also filters according to DME_HYBRRID

Saving filter settings:

Filters are saved beforehand when the diagnostic application is re-installed.

Restriction: On which levels and in which screens can filters be applied?

When the Filter function is called up, filtering takes place only for the elements on the first and second levels (see section 4). These are:

- Elements that are displayed when the respective function group is called up (e.g. drive links).
- Elements that are displayed as a result of a subsequent further selection (e.g. selection of drive links).

Function groups that have operating options on the third level (e.g. Actual values/input signals) can only be filtered in the elements of the second level.

Example: In the Actual values/input signals function group, for example, you cannot filter according to individual measured values that are displayed on the working screen of the function group and are updated cyclically. You can only filter according to the elements of the overview screen of the function group, i.e. according to actual values/input signals.

If you are in the measured values display (working screen) and press the <F5> button to assign properties to a filter, the display will not show the screen with the measured values from which you started, but the overview of actual values/input signals that is displayed when you call up the function group.

Note on description in this section:

The Filter function is described using an example in this section:
Starting from the control unit overview, a filter is defined that filters three control units. Only these control units are then displayed.

Filtering for other elements, e.g. extended identifications, actual values or input signals, drive links, etc., is identical to the procedure described here.

For more information, however, please see note on restriction during filtering above!

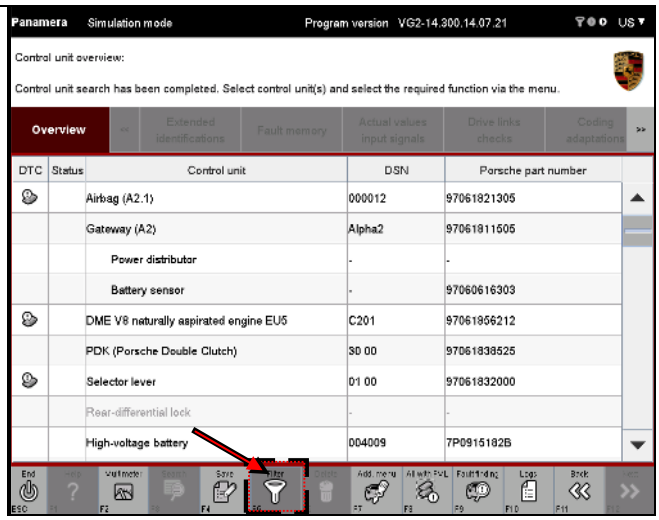
8.13.1 Action-specific buttons for this function group

Filter			
Button	**Label**	**Icon**	**Description**
F8	**Write**		This icon appears in the title bar when you call up the Filter function. Pressing the <F8> button assigns filter properties to a filter.
Decision question			
Button	**Label**	**Icon**	**Description**
F11	**No**		Pressing the <F11> button cancels an action that requires confirmation. The <F11> button shown here is only displayed in combination with the form of the <F12> button shown in the next line.
F12	**Yes**		Pressing the <F12> button confirms an action that requires confirmation. The <F12> button shown here is only displayed in combination with the form of the <F11> button shown in the previous line.

8.13.2 Calling up the Filter function

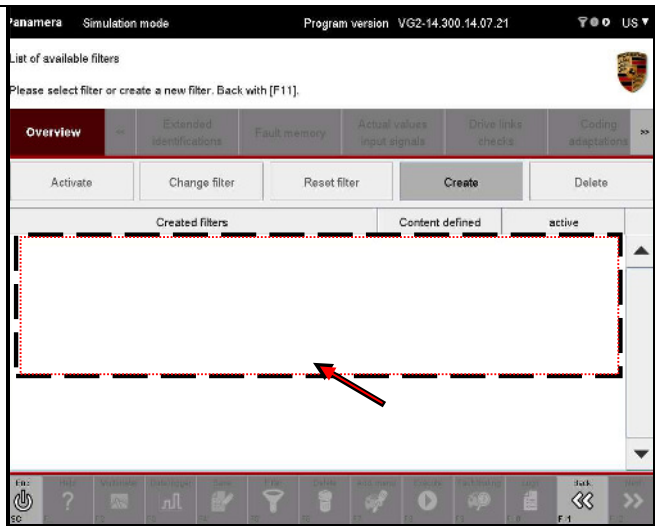
1. Call up one of the function groups from which you can start the Filter function (see introductory note).
   Display the list of installed control units, for example:
   ►See section 8.1.

2. Then press the <F5> button.



3. A list of the available filters is displayed.

   If a filter is not yet defined, the list will be empty.



8.13.3 Creating a filter

This section describes how to define filter properties. The filter properties of a filter are defined in a screen in which you can select or deselect several entries.

Note on filter behavior:

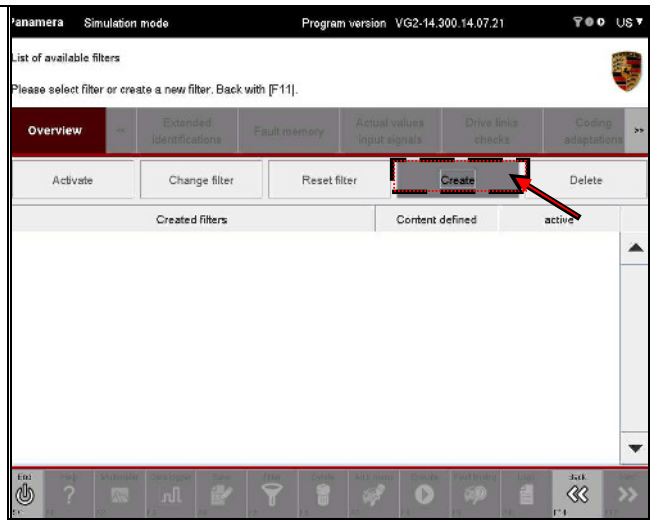
If you have selected several control units and do not define a filter condition for all control units, the following behavior applies after you activate the filter and return to the function group:

- Only the elements that were highlighted are displayed for the control units for which filter conditions were defined.
- The control units for which no filter conditions were defined are either not displayed or are highlighted to indicate that no entries are set.

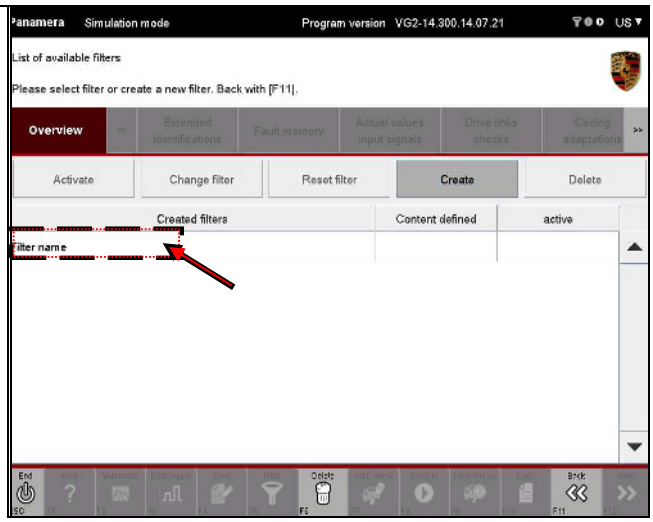
The filter is therefore a restrictive filter.

1. If you have not already done so: Call up the Filter function by pressing the <F5> button.

2. Press the `Create` button.



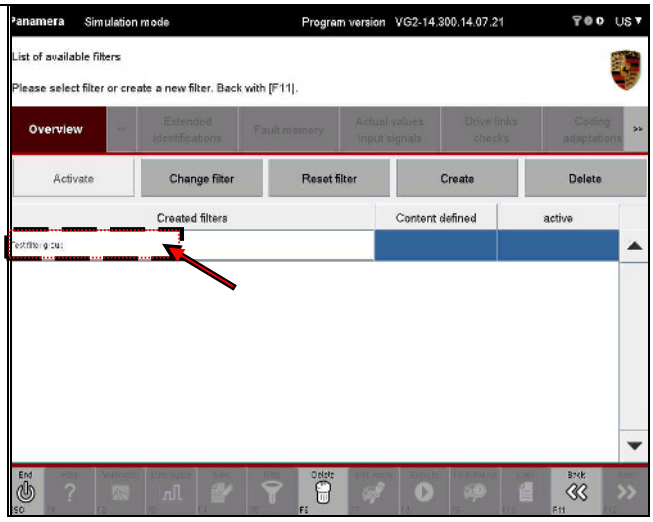
3. A new filter with the default name is created.



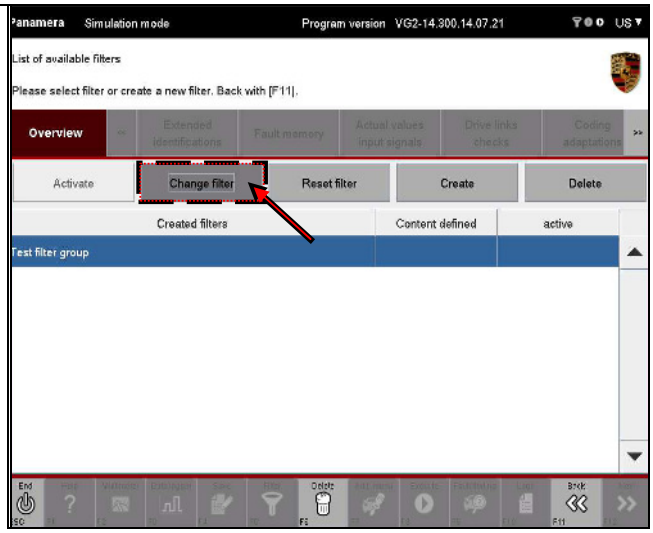
4. Now assign a suitable name to the filter.

   To do this, click in the name field for the filter and enter the desired name.

   The name `Test filter group` was used in the example.

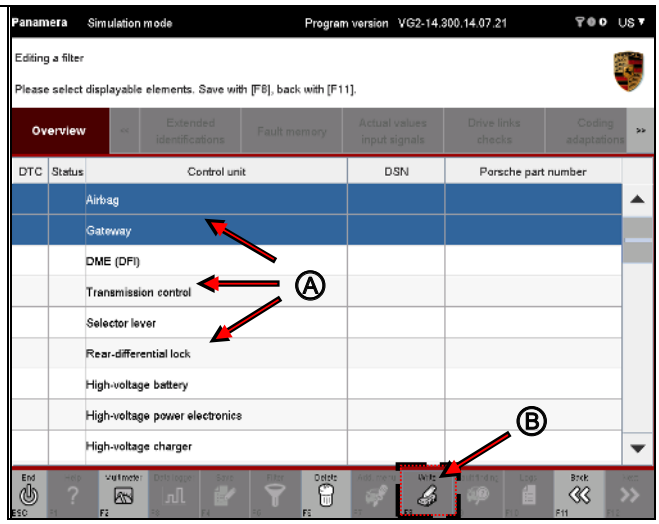


5. To assign the necessary properties to the filter - and to select the elements that are to be filtered - press the `Process filter` button.

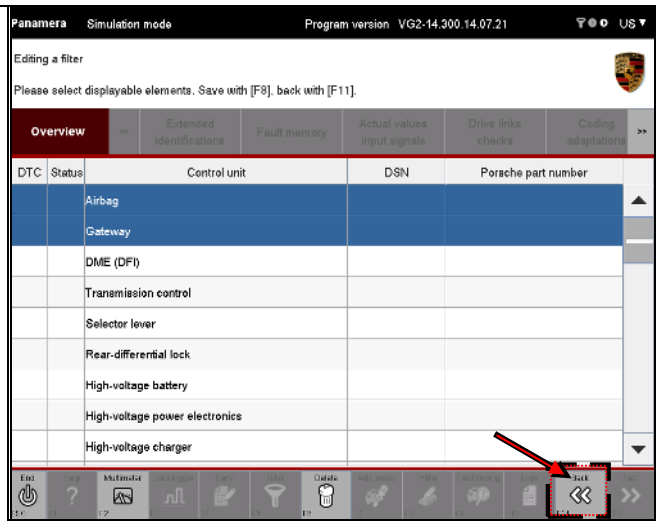


6. A selection screen appears in which you can define the filter properties. Elements of the Overview function group are displayed in this case.

   Select the elements you want to filter (A).
   Then press the <F8> button to save the selection.

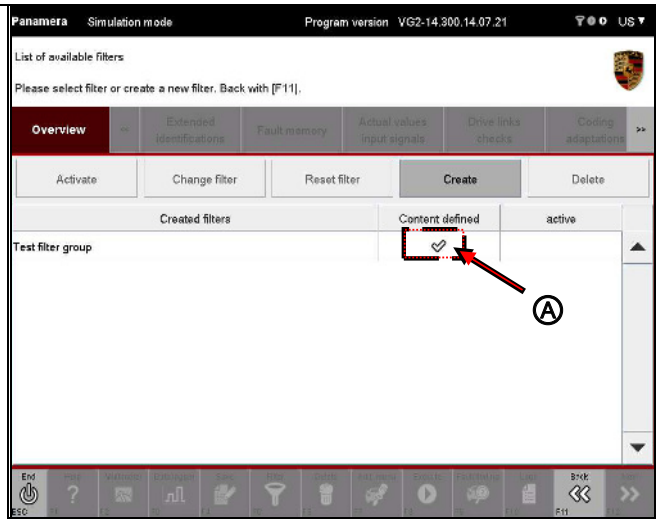


7. Then press the <F11> button to return to the list of available filters.



8. Properties have now been assigned to the filter based on your selection.

   This is indicated by the ✓ icon in the `Content defined` column.



8.13.4 Activating a filter

Precondition:

To activate a filter, it must first have been created:
►See section 8.13.3.

Note on activating a filter:

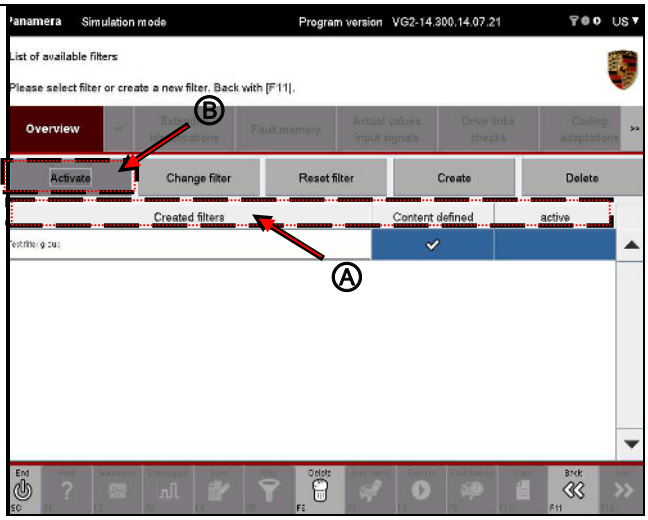
When you activate the filter, the properties you assigned to the filter are evaluated and the display of elements is shown filtered according to the default settings.

If no elements were selected beforehand (see section 8.13.3) in the filter conditions, i.e. if no restriction was defined, the filter cannot be activated.

When you activate a filter, all other filters for this function group or list view will be deactivated.

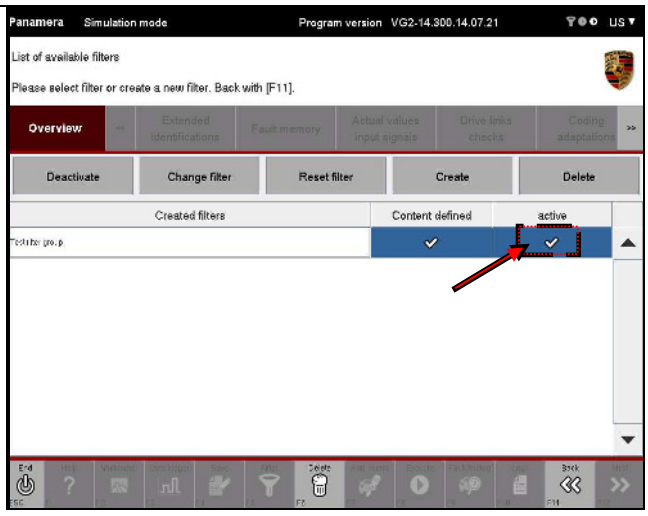
1. If you have not already done so: Call up the Filter function by pressing the <F5> button.

2. Select the desired filter (A) and then press the `Activate` button (B).



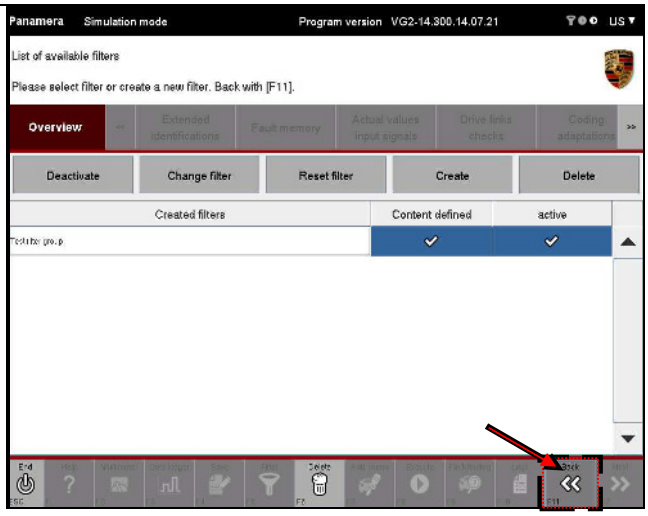
3. The current filter is now activated.

   This is indicated by the ✓ icon in the `active` column.



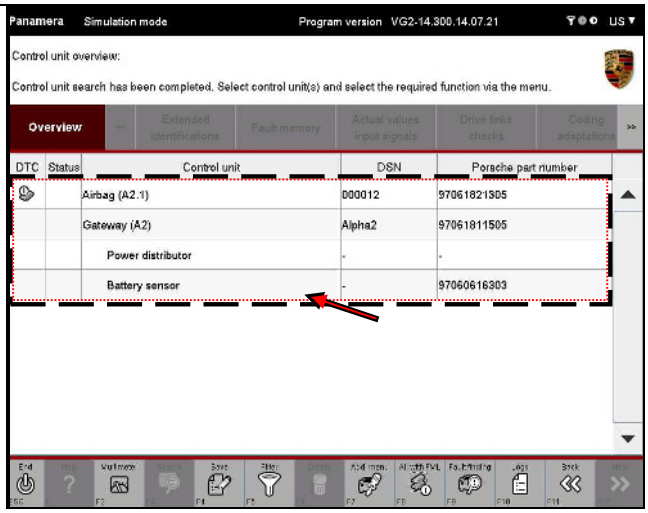
Result of the filter applied in the example above

4. Press the <F11> button to return to the screen from which you called up the Filter function.
   This was the control unit overview in this example.



5. A filtered control unit overview is displayed.

   Only the elements selected in the filter are displayed.



Display in the title bar:

As long as the filter is active in the function group or list view, the icon will be displayed on the right in the title bar.

8.13.5 Changing the filter

Preconditions:

- A filter was already activated:
  ►See section 8.13.4
- More than one filter is defined in the list of possible filters.
- The filters are not empty and can therefore be activated.

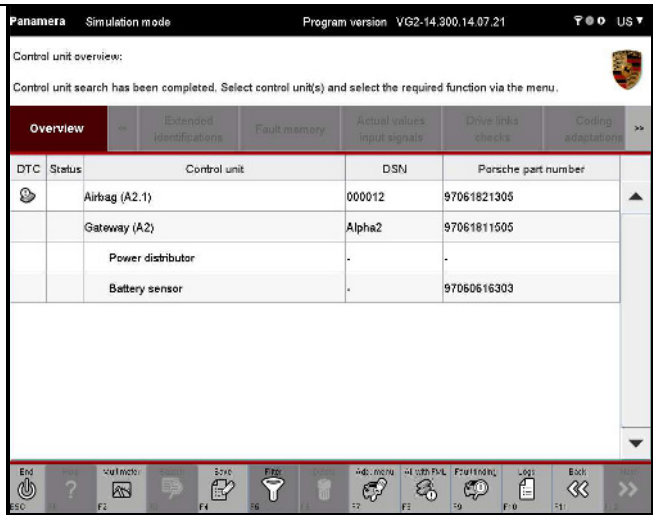
Note on the example in this section:

Two filters were defined:

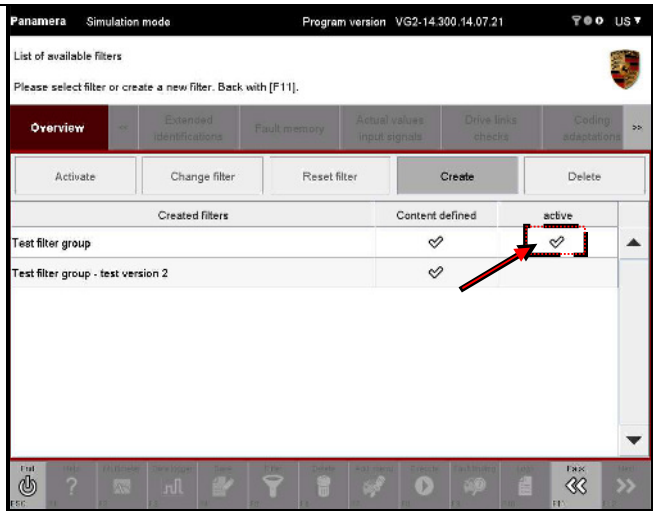
- Test filter group. Filters the control unit overview according to the control units `Airbag` and `Gateway`.
- Test filter group – test version 2. Filters the control unit overview according to the control units `Instrument cluster` and `PSM`.

1. Initial situation:
   The control unit overview is filtered using the filter
   `Test filter group`.

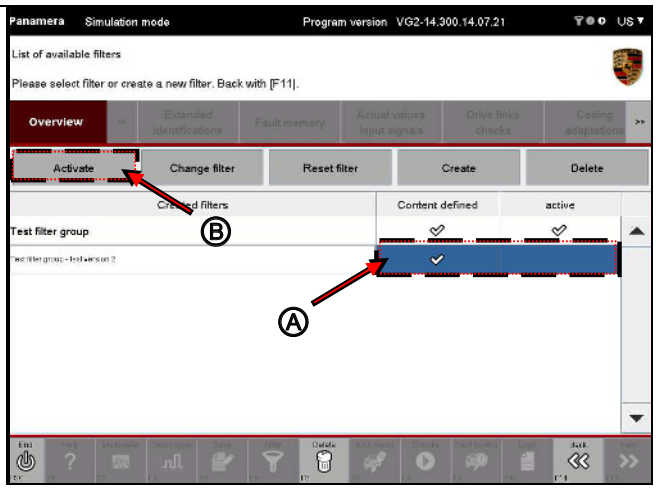
   Press the <F5> button to display the list of possible filters.



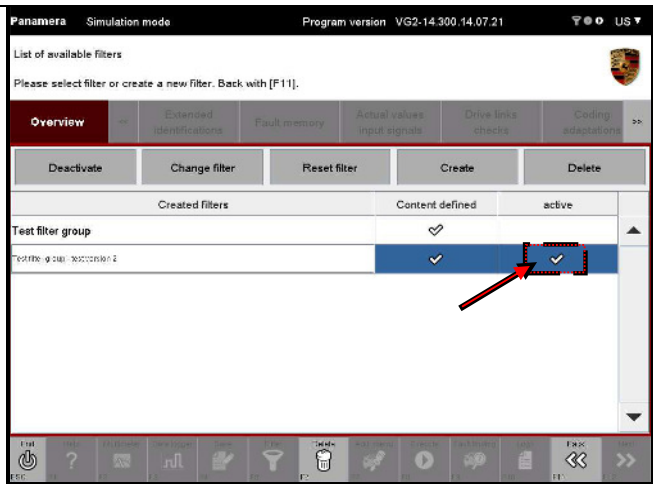
2. In the list of possible filters, the active filter is indicated by the ✓ icon in the `active` column.



3. Select a different filter, which you want to use for this function group (A).
   Activate the new filter by pressing the `Activate` button (B).



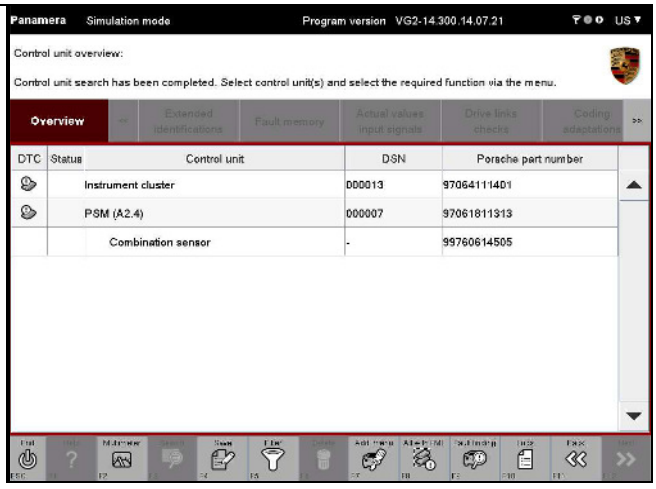
4. In the list of possible filters, the new/changed active filter is indicated by the ✓ icon in the `active` column.



Result of the filter applied in the example above

5. When you return to the function group by pressing <F11>, the new list view is populated.

   In this example, the control unit overview is now filtered according to the control units `Instrument cluster` and `PSM`.



8.13.6 Deactivating a filter

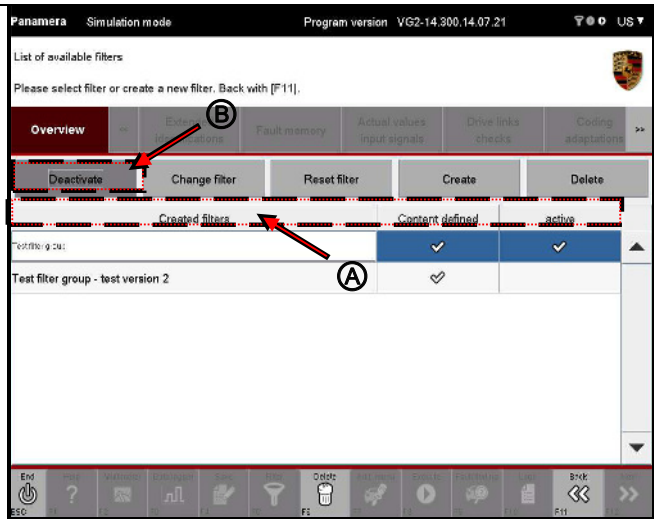
Precondition:

To deactivate a filter, it must first have been created:
►See section 8.13.3.

The filter must also have been activated:
►See section 8.13.4.

1. If you have not already done so: Call up the Filter function by pressing the <F5> button.

2. Select the desired active filter (A) and then press the `deactivate` button (B).



Next steps

Function groups Extended identifications, Actual values/input signals, Drive links/checks and Codings/adaptations:

To display an updated view of the filtered elements, press the <F11> button in the list of filter groups.

Note and special case

Overview function group:

- If you carry out a control unit search without preselection (see section 8.1), the view is updated normally because all control units are available for filtering.
- If you preselect elements in the control unit list by selecting individual control units and then initiate a control unit search, only the control units selected in the preselection are displayed in the control unit overview.

  As a result, not all control units are displayed in the control unit overview, just some of them.

  If you now create and activate a filter in the control unit overview for displaying control units that are not shown in this reduced control unit overview, an empty control unit overview is displayed.

  To display the desired control units based on the filter, you must first switch to the control unit list and then perform another control unit search in order to update the control unit overview.

Example:

Assumption: You want to select the `Rear lid` control unit. The filter "Test filter group" filters according to the control units `Airbag` and `Gateway`.

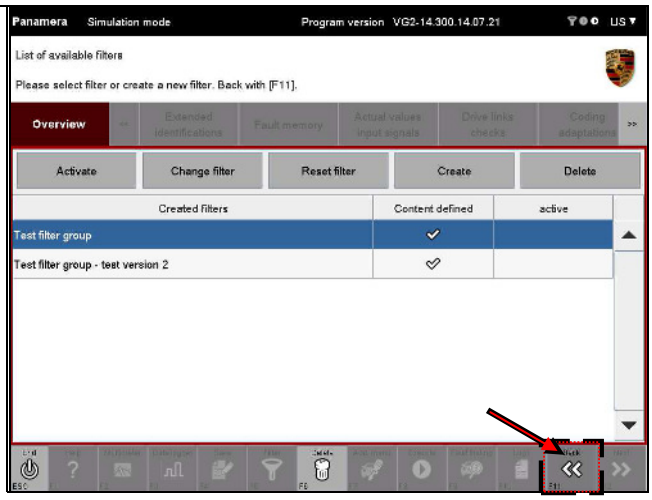
Precondition: In the control unit list, only the control units `Airbag`, `Parking brake` and `Gateway` were selected beforehand and a control unit search was performed only for these. The control units displayed in the control unit overview are therefore limited to these control units.

Activating the filter: After you activate the filter, only the control units and sub-components of the control units `Airbag` and `Gateway` are displayed from the reduced control unit overview. You continue working as normal with these control units.

Problem: You deactivate the filter and want to select the rear lid control unit. However, only the control units `Airbag`, `Parking brake` and `Gateway` are displayed because this is the restricted control unit overview, which you preselected previously in the control unit list.

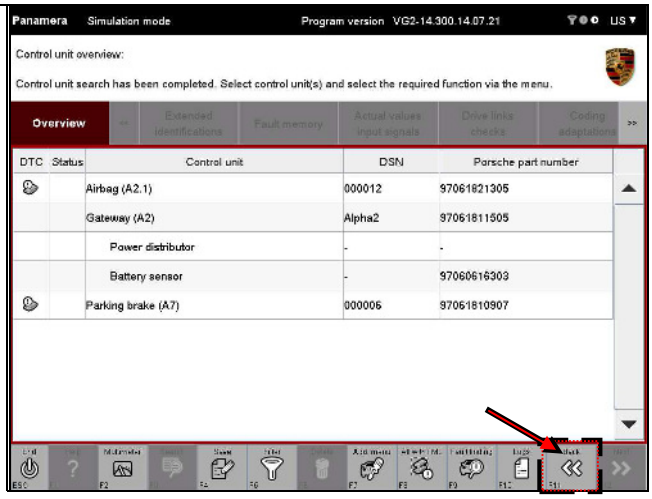
Solution: The control unit overview must be updated. The following steps explain how to do this.

3. First press the <F11> button in the filter list.



4. An incomplete control unit overview is displayed.

   Then press the <F11> button again to display the control unit list.



5. By pressing <F12>, you can now perform a control unit search with the filtered control units in the usual way (for a more detailed description, see 8) or, if at least one of the control units is selected, you can select one of the function groups.

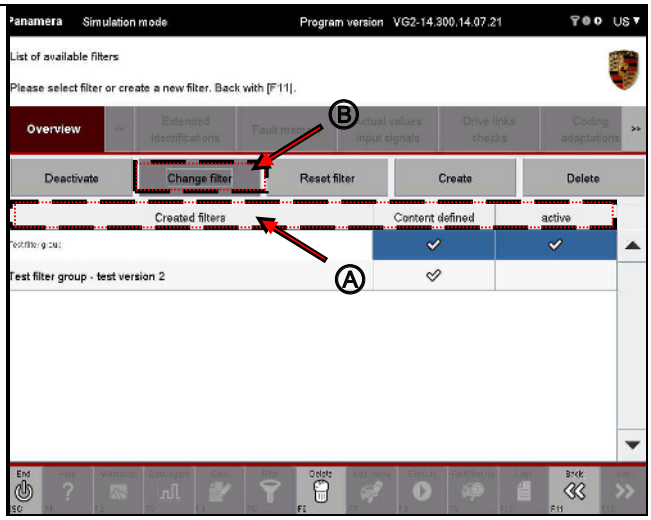
8.13.7 Processing a filter

Precondition:

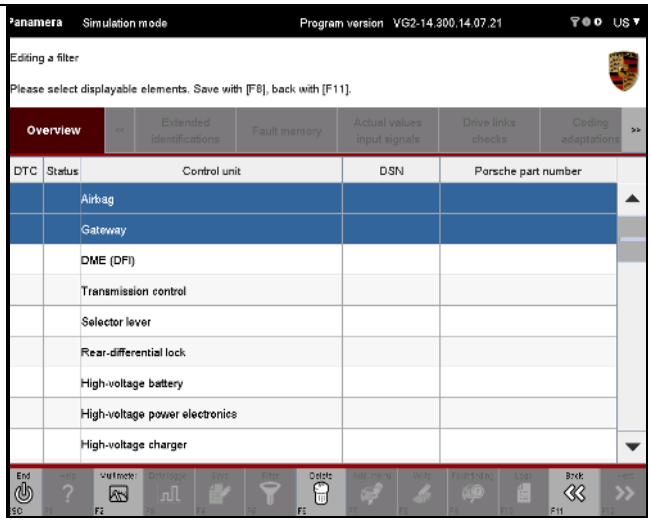
To process a filter, it must first have been created:
►See section 8.13.3.

1. If you have not already done so: Call up the Filter function by pressing the <F5> button.

2. Select the desired filter group (A) and press the `Process filter` button (B).

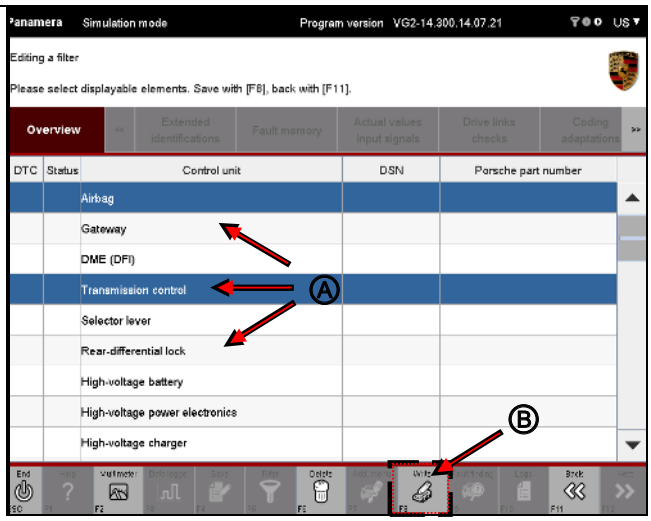


3. The list of entries selected for the filter group appears.

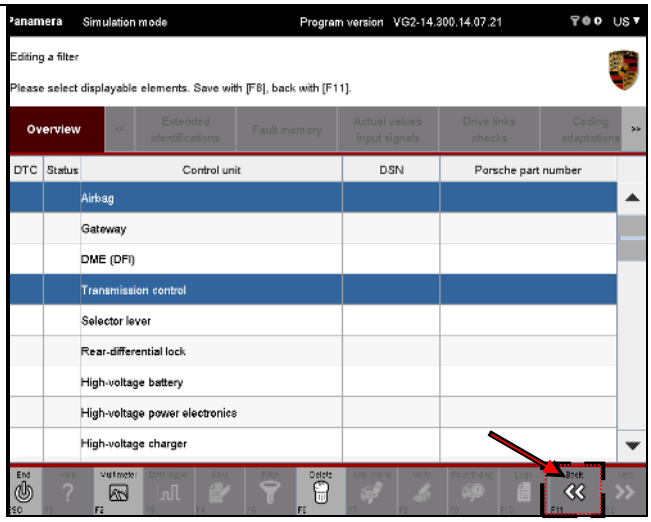


4. Change the selection (A). In this example, the `Gateway` control unit was deselected and the `Parking brake, ParkAssist` and `Transmission control` units were selected.

   Save the changed selection by pressing the <F8> button (B).



5. Then press the <F11> button to return to the list of available filter groups.



Next steps

Function groups Extended identifications, Actual values/input signals, Drive links/checks and Codings/adaptations:

To display an updated view of the filtered elements, press the <F11> button in the list of filter groups.

Note and special case

Overview function group:

- If you carried out a control unit search without preselection (see section 8.1), the view is updated normally because all control units are available for filtering.
- If you preselect elements in the control unit list by selecting individual control units and then initiate a control unit search, only the control units selected in the preselection are displayed in the control unit overview.

  As a result, not all control units are displayed in the control unit overview, just some of them.

  If you now create and activate a filter in the control unit overview for displaying control units that are not shown in this reduced control unit overview, an empty control unit overview is displayed.

  To display the desired control units based on the filter, you must first switch to the control unit list and then perform another control unit search in order to update the control unit overview.

Example:

Assumption: You want to select the `Rear lid` control unit. The filter "Test filter group" filters according to the control units `Airbag` and `Gateway`.

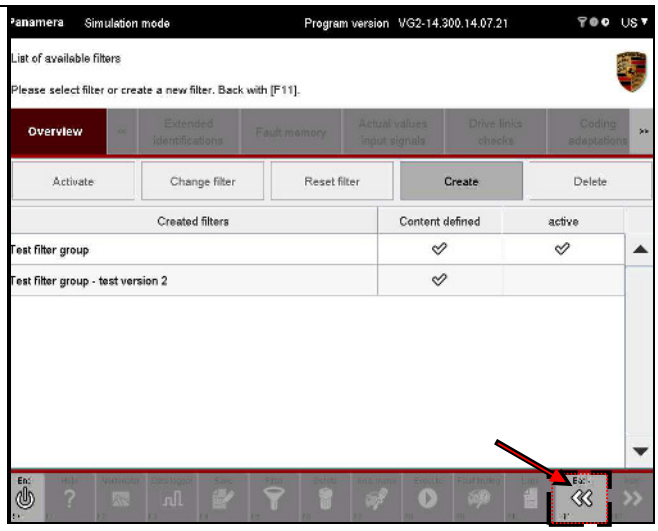
Precondition: In the control unit list, only the control units `Airbag`, `Parking brake` and `Gateway` were selected beforehand and a control unit search was performed only for these. The control units displayed in the control unit overview are therefore limited to these control units.

Activating the filter: After you activate the filter, only the control units and sub-components of the control units `Airbag` and `Gateway` are displayed from the reduced control unit overview. You continue working as normal with these control units.

Problem: You deactivate the filter and want to select the rear lid control unit. However, only the control units `Airbag`, `Parking brake` and `Gateway` are displayed because this is the restricted control unit overview, which you preselected previously in the control unit list.

Solution: The control unit overview must be updated. The following steps explain how to do this.

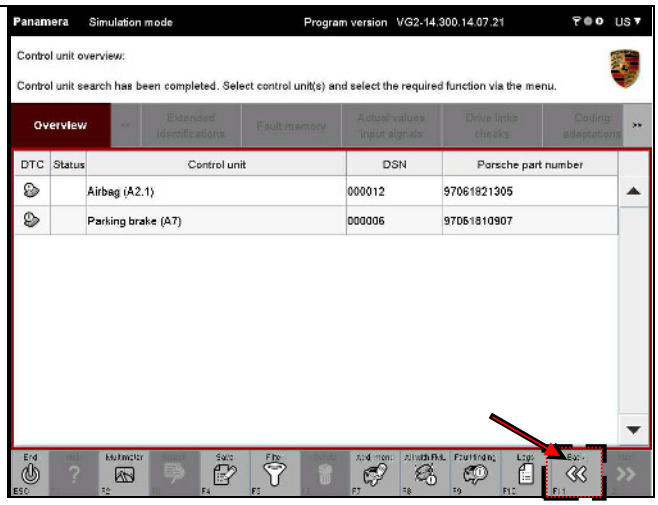
6. First press the <F11> button in the filter group list.



7. An incomplete control unit overview is displayed.

   Then press the <F11> button again to display the control unit list.

   The control unit list is updated and now includes the newly added control unit names, which were selected previously in the filter.



8. By pressing <F12>, you can now perform a control unit search with the filtered control units in the usual way (for a more detailed description, see 8) or, if at least one of the control units is selected, you can select one of the function groups.

8.13.8 Resetting a filter

If you want to assign new selection properties to a filter without changing the name or deleting the filter, you can do this by resetting the filter. The filter is "empty" after you reset it, i.e. it no longer contains elements to be displayed later.

Note on filter behavior:

►There may be filter conditions for this filter that are defined for control units that …

- … are not displayed in the current control unit selection or
- … that are not contained in the current control unit variant.

If you still want to reset the filter conditions and also reset the filter condition of the control units that are not displayed in the selection, you must then confirm this explicitly. All filter conditions are then reset.

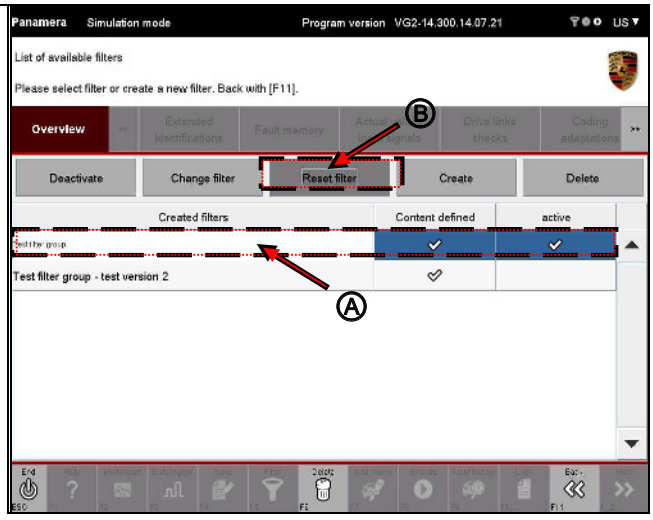
►When you reset a filter, it will also be deactivated since it is empty.

Precondition:

To reset a filter, it must first have been created:
►See section 8.13.3.

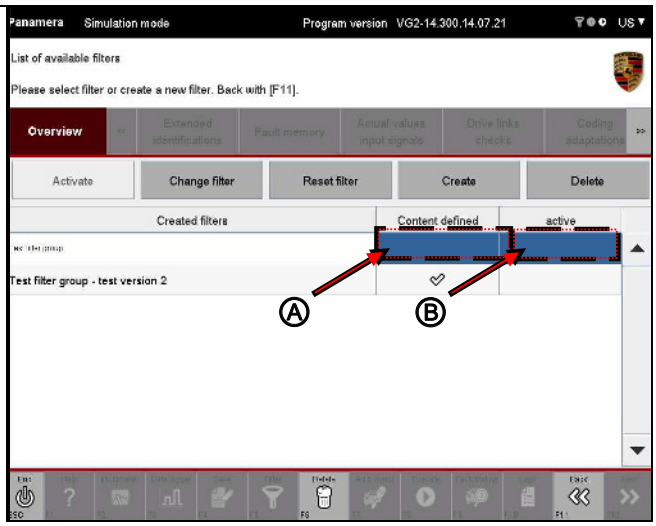
1. If you have not already done so: Call up the Filter function by pressing the <F5> button.

2. Select the desired filter whose filter properties you want to reset (A) and press the `Reset filter` button (B).



3. No properties are now assigned to the filter (no icon displayed in the `Content defined` column) (A).

   The filter is also deactivated (no icon displayed in the `active` column) (B).



4. You can now assign new properties to the filter in the usual way.
   ►See section 8.13.3.

8.13.9 Deleting a filter

If you want to not only delete the filter properties (reset the filter) but also delete the complete filter (filter properties and name), select the `Delete` option.

Note on deleting filter properties:

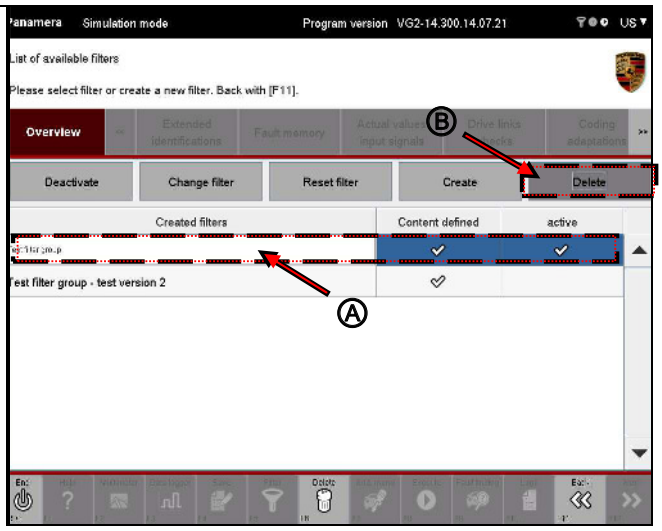
If the filter contains conditions for control units that are not included in the selection, you must confirm deletion explicitly. The complete filter is deleted following confirmation.

Precondition:

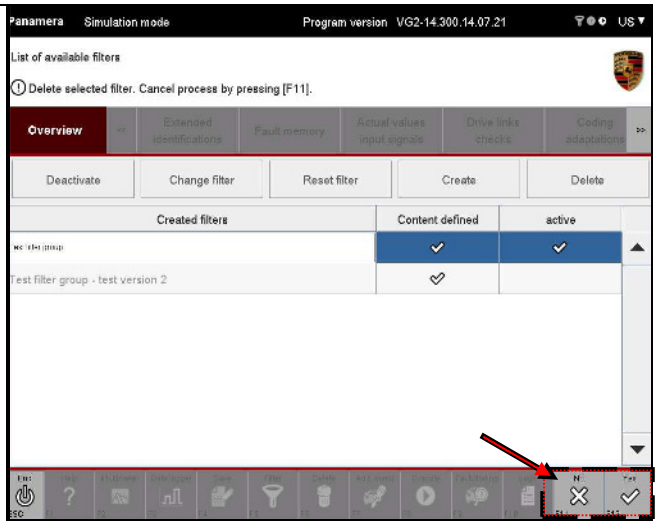
To delete a filter, it must first have been created:
►See section 8.13.3.

1. If you have not already done so: Call up the Filter function by pressing the <F5> button.

2. Select the filter you want to delete (A) and press the `Delete` button (B).

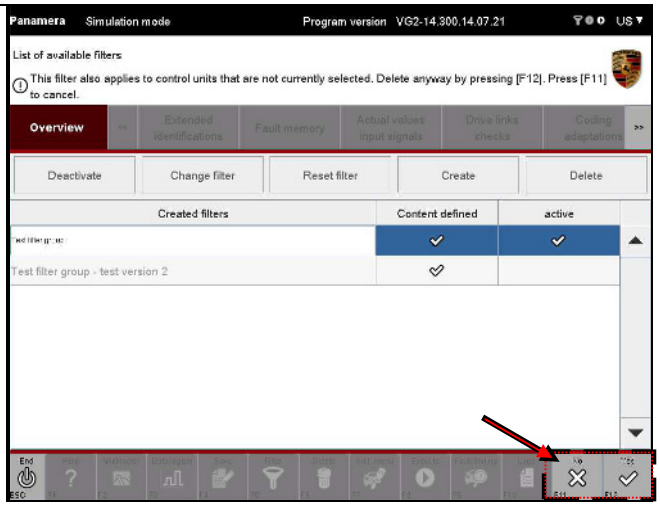


3. You must now confirm deletion of the filter. You have the following options:
   - Press <F11> to cancel the process. You return to the list of filters.
   - Press <F12> to confirm that you want to delete the filter.



Special procedure

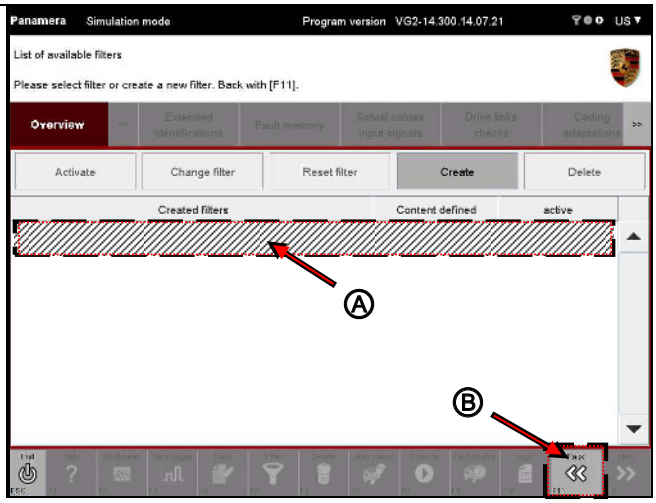
4. If filter properties are defined for control units that are not included in the current selection, you must explicitly confirm deletion once again. You have the following options:
   - Press <F11> to cancel the process. You return to the list of filters.
   - Press <F12> to confirm that you want to delete the filter.



After deletion

5. After you delete a filter, the filter is deleted from the list of saved filters (A).

   Pressing <F11> brings you back to the screen from which you called up the Filter function (B).



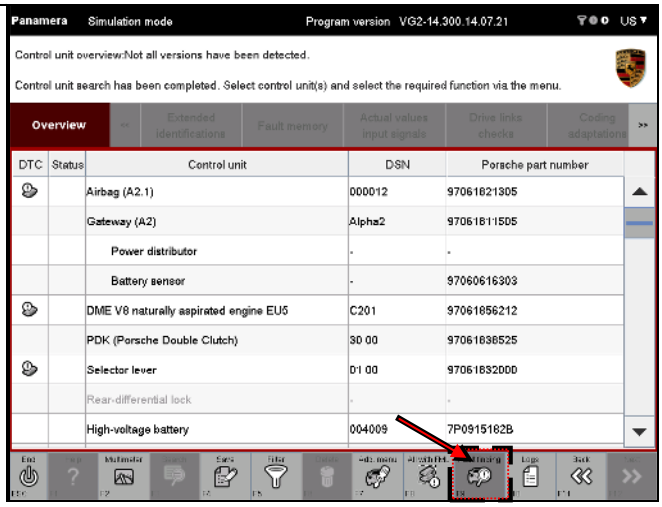
8.14 Guided Fault Finding (GFF, <F9>)

You can call up Guided Fault Finding from within the diagnostic application. Guided Fault Finding is not part of the diagnostic application and is therefore not described here.
You will find further information on the operating principle and user interaction options for this function in the corresponding documentation for Guided Fault Finding.

Guided Fault Finding can only be called up from the control unit overview.

1. Press the <F9> button.

   This starts the Guided Fault Finding application.



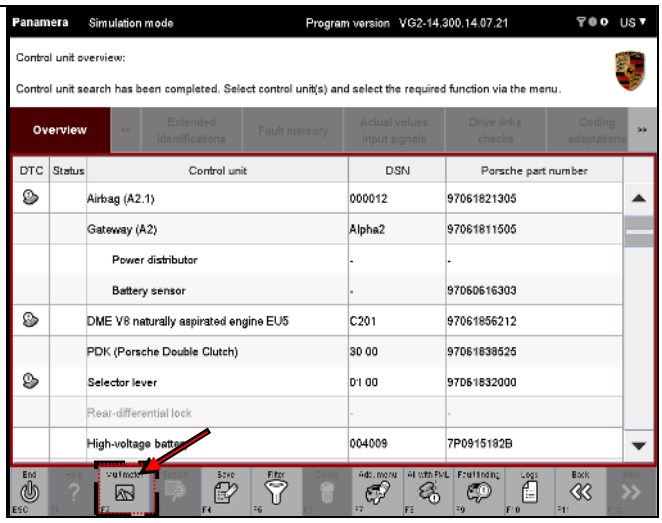
2. As soon as you exit the function, the diagnostic application is displayed in the active window again.

8.15 Measuring equipment (Multimeter, <F2>)

You can call up the measuring equipment application from within the diagnostic application. The measuring equipment application is not part of the diagnostic application and is therefore not described here.
You will find further information on the operating principle and user interaction options for this function in the corresponding documentation for the measuring equipment software.

1. Press the <F2> button.

   The measuring equipment application starts and is displayed in the active window.



2. As soon as you exit the function, the diagnostic application is displayed in the active window again.

9 OBD Scan Tool

If you started the diagnostic application using the transfer parameter `-project OBD` (or by pressing a button with this functionality, if available), it will be started as the OBD Scan Tool. Please note that you cannot use the OBD Scan Tool in display mode.

Unlike the diagnostic application, the OBD Scan Tool is not vehicle manufacturer-specific. The services that are used are standardized. The purpose of the OBD Scan Tool is to display only the drive and exhaust gas-relevant elements.

If you need a broader range of functions, use the diagnostic application in one of the basic application modes (see section 8).

The next sub-sections describe how to call up the individual function groups of the Tool and how to navigate within a screen in order to display the required information.

9.1 Glossary

CARB	California Air Resources Board
CIN	Calibration Identification Number
CVN	Calibration Verification Number
DTC	Diagnostic Trouble Code (fault memory/event memory)
EGR	Exhaust Gas Recirculation
ISO 15031	Definition of communication and the command set for On-Board Diagnostics (OBD)
MID	Measurement ID/Monitoring ID
MIL	Malfunction Indication Lamp
MODE	Diagnostic Test Mode – also referred to as "Task" in ISO 15031-4
OBD	On-Board Diagnostics
PID	Parameter ID
SCN	Software Calibration Number
TID	Test ID
VIN	Vehicle Identification Number (chassis number and vehicle identification number)

9.2 Function groups of the OBD Scan Tool

The following function groups are available:

Function group	Description
Overview	The Overview function group displays the list of available systems (engine, transmission), i.e. the elements of the loaded OBD project. The function group corresponds to the control unit list or control unit overview of the diagnostic application in one of the basic application modes.
On-board Diagnosis Overview	When you select the On-board Diagnosis/Overview function group, basic information about the individual function groups is displayed in an overview.
Actual values	The Actual values function group displays the list of available actual values and actual values that are supported by the system.
Environment values	The Environment values function group displays the list of available environment values and environment values that are supported by the system.
Fault memory Read	All fault memory entries for the selected system are read and displayed in the Fault memory/Read function group.
Test values of sporadically monitored systems	The Test values of sporadically monitored systems function group displays the list of available and supported operating conditions/actual values for the selected system.
Pending fault	The Pending fault function group displays the list of current faults (pending faults).
Vehicle information	The Vehicle information function group displays general vehicle information from the exhaust gas-relevant control units.
Permanent fault memory	The Permanent fault memory function group displays the list of permanent fault memory entries.

Table 7: Description of the function groups of the OBD Scan Tool

9.3 Overview

What happens?

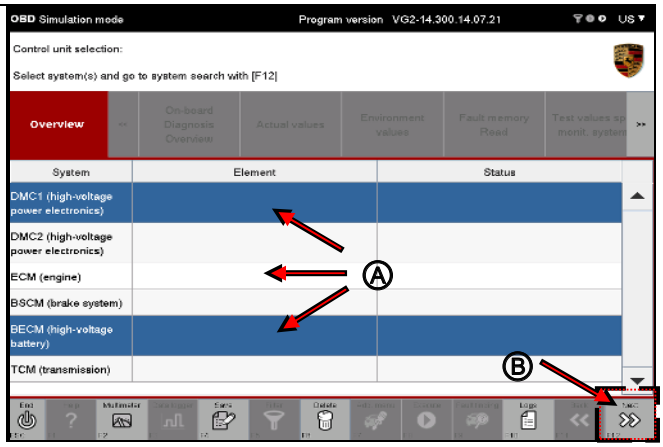
When you start the OBD Scan Tool, the overview screen is displayed first. For the next steps, a relevant system must be selected for which you can then retrieve further information using the function groups.

The available systems are determined from the VIT of the OBD project. Based on the control unit search used in the diagnostic application, a system search is performed after you have started the Tool and selected a system and the result is displayed in the work area.

1. Select the desired system (A) and press the <F12> button (B).

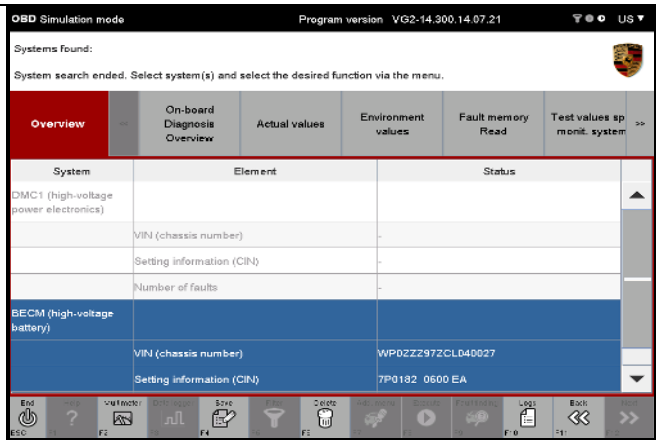
   Note: If you want to perform a system search for all systems, simply press the <F12> button without preselecting a system.

   A system search is then started.



2. When the system search is complete, the elements that were found are displayed in the work area.

   Select the desired systems and elements and then select one of the function groups.

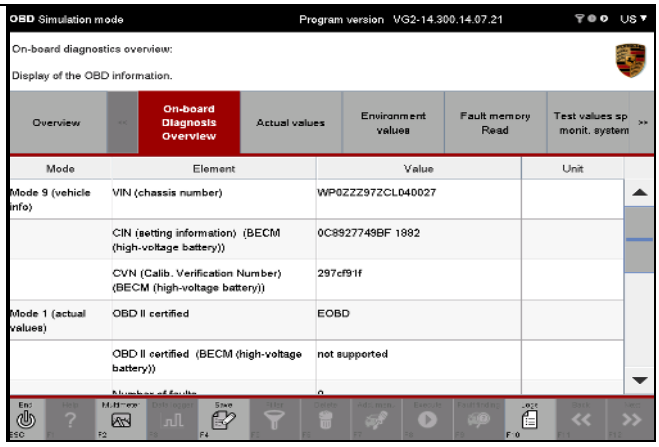


9.4 On-board Diagnosis/Overview

1. Select the desired systems and elements:
   ►See section 9.3

2. Select the On-board Diagnosis/Overview function group.

   Basic information is displayed for:
   * Mode 9 Vehicle information
   * Mode 1 Actual values
   * Mode 3 Fault memory
   * Mode A Permanent fault memory



9.5 Actual values

What is displayed?

Current data for the exhaust gas-relevant systems is displayed. This includes analog and digital inputs and outputs as well as system information. The displayed values are current values, not default or substitute values.

9.5.1 Action-specific buttons for this function group

OBD Scan Tool: Actual values			
Button	**Label**	**Icon**	**Description**
F8	**Value**		Pressing the <F8> button changes the value display to the current actual value.
F8	**Minimum**		Pressing the <F8> button changes the value display to the current minimum value.
F8	**Maximum**		Pressing the <F8> button changes the value display to the current maximum value.

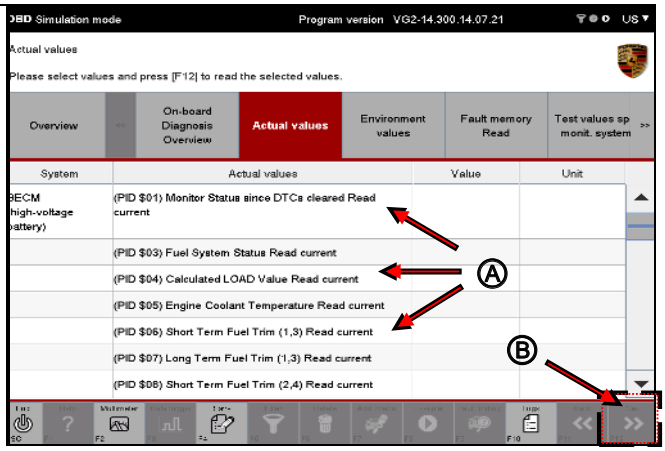
9.5.2 Displaying measured values

1. Select the desired systems and elements:
   ►See section 9.3

2. Select the Actual values function group.

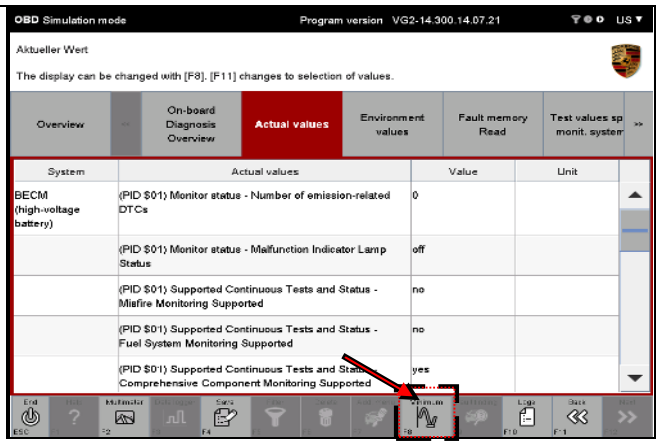
   The available actual values for the system are displayed in the overview screen.

   Select the desired actual values (A) and press the <F12> button (B).



3. The individual actual values and their measured values are displayed in the working screen.

   Pressing the <F8> button allows you to choose one of the following display modes for the actual value:



   - Value
     This option displays the currently read actual value.

   - Minimum
     This option displays the minimum value of the values that were read out.

   - Maximum
     This option displays the maximum value of the values that were read out.

What does "Minimum" or "Maximum" mean in this case?

The following relationship applies based on the physically supplied values of the respective addressed control unit/system:

- Minimum is either the smallest lexical value (in a character string), the smallest number (for a number) or FALSE (for Boolean values). The validity range and reference variable is the duration of the initiated measurement.
- Maximum is either the largest lexical value (in a character string), the largest number (for a number) or TRUE (for Boolean values). The validity range and reference variable is the duration of the initiated measurement.
- The value is the current lexical value (in a character string), the current number (for a number) or TRUE or FALSE (for Boolean values).

9.6 Environment values

What is an environment value?

Environment values are the elements that provide information about the conditions under which a fault memory entry was stored. They are similar to the environmental data in the diagnostic application (see section 8.3.5).

9.6.1 Action-specific buttons for this function group

OBD Scan Tool: Environment values			
Button	**Label**	**Icon**	**Description**
F8	**Value**		Pressing the <F8> button changes the value display to the current actual value.
F8	**Minimum**		Pressing the <F8> button changes the value display to the current minimum value.
F8	**Maximum**		Pressing the <F8> button changes the value display to the current maximum value.

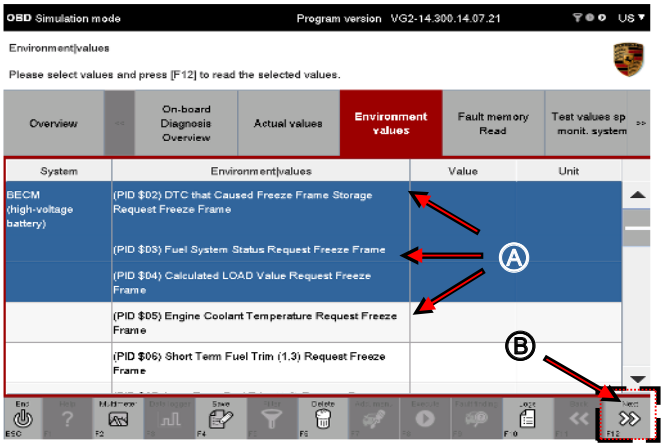
9.6.2 Displaying environment values

1. Select the desired systems and elements:
   ►See section 9.3

2. Select the Environment values function group.

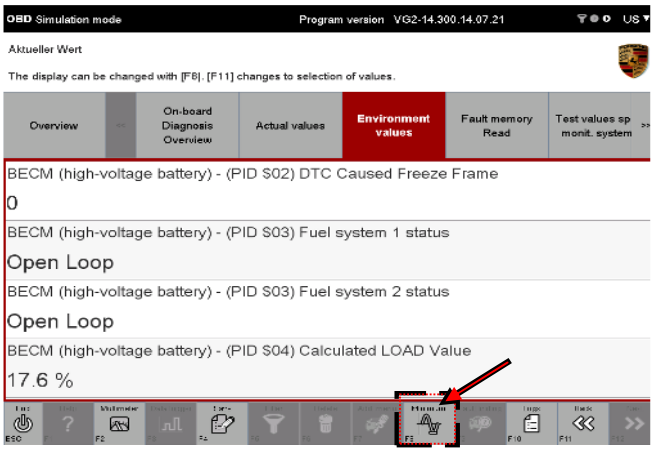
   The available environment values for the system are displayed in the overview screen.

   Select the desired environment values (A) and press the <F12> button (B).



3. The current environment values are displayed in the working screen.

   Pressing the <F8> button allows you to choose one of the following display modes for the environment value:



- Value
  This option displays the current value that was read out.

- Minimum
  This option displays the minimum value of the values that were read out.

- Maximum
  This option displays the maximum value of the values that were read out.

What does "Minimum" or "Maximum" mean in this case?

The following relationship applies based on the physically supplied values of the respective addressed control unit/system:

- Minimum is either the smallest lexical value (in a character string), the smallest number (for a number) or FALSE (for Boolean values). The validity range and reference variable is the duration of the initiated measurement.
- Maximum is either the largest lexical value (in a character string), the largest number (for a number) or TRUE (for Boolean values). The validity range and reference variable is the duration of the initiated measurement.
- The value is the current lexical value (in a character string), the current number (for a number) or TRUE or FALSE (for Boolean values).

9.7 Fault memory/Read

Function description:

This function group displays all fault memory entries for drive or exhaust gas-relevant systems that were confirmed and were thus declared as genuine faults. Unlike permanent faults, these fault memory entries are not stored in the non-volatile memory.

9.7.1 Action-specific buttons for this function group

OBD Scan Tool: Read fault memory			
Button	**Label**	**Icon**	**Description**
F8	**Delete FML**		Pressing the <F8> button deletes <u>all</u> fault memories.
Decision question			
Button	**Label**	**Icon**	**Description**
F11	**No**		Pressing <F11> cancels an action that requires confirmation (e.g. if you decide not to delete a fault memory as originally specified). The <F11> button shown here is only displayed in combination with the form of the <F12> button shown in the next line.
F12	**Yes**		Pressing <F12> confirms an action that requires confirmation (e.g. you want to delete a fault memory). The <F12> button shown here is only displayed in combination with the form of the <F11> button shown in the previous line.

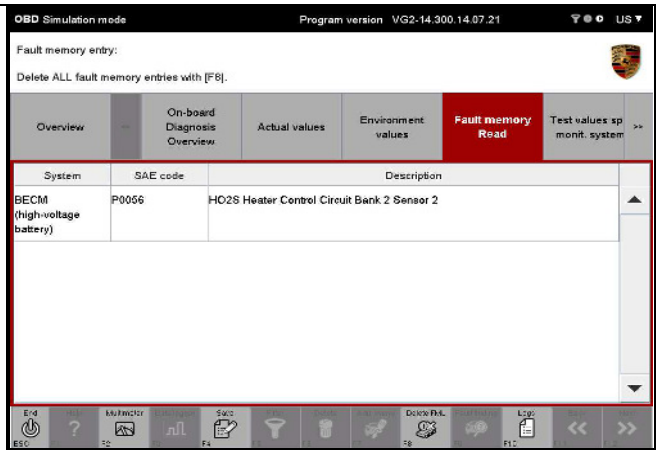
9.7.2 Displaying the fault memory

1. Select the desired systems and elements:
   ►See section 9.3

2. Call up the Fault memory/Read function group.

   The fault memory entries for the system are displayed.

   If there are no fault memory entries, a message to this effect will appear in the `Description` column for the system.



9.7.3 Deleting the fault memory

1. Display all fault memories:
   ►See section 9.7.2

2. Press the <F8> button.

   A query appears prompting you to confirm that you want to delete all fault memory entries. You have the following options:
   - Press <F11> to cancel the process. You return to the list of fault memory entries.
   - Press <F12> to confirm that you want to delete all fault memory entries.

9.8 Test values of sporadically monitored systems

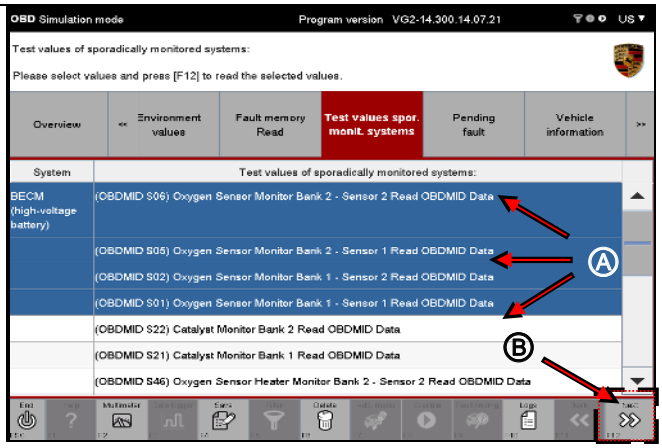
Which test values are displayed?

Values from on-board diagnostic systems, which either continuously monitor (e.g. misfire monitoring) or sporadically read out (e.g. catalytic converter system) special components/systems, are displayed within this function.

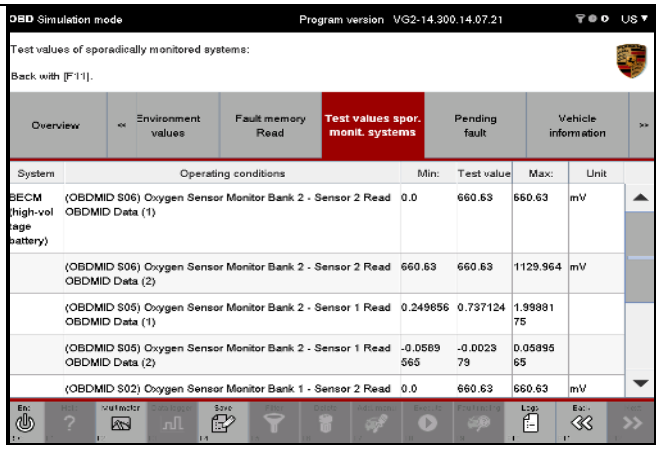
1. Select the desired systems and elements:
   ►See section 9.3

2. Select the Test values of sporadically monitored systems function group.

   Select the elements for which you want to retrieve further information (A) and press the <F12> button (B).



3. The information is displayed in the work area.



9.9 Pending faults

What are pending faults?

Pending faults are faults that were discovered during the current or last completed driving cycle and relate to drive and exhaust gas-relevant systems.

The display of this type of faults is intended to make it easier for you to find currently occurring problems after you have carried out repairs, deleted diagnostic information and then carried out one single driving cycle. If a test fails during this driving cycle, the corresponding fault entry is generated and displayed.

Please note:

The test result does not necessarily indicate a faulty component in the vehicle. If the fault is still present after an additional driving cycle, this fault memory entry is set and you can then read it out using the Fault memory/Read function group (see section 9.7). This is then an indication that the component is faulty.

9.9.1 Action-specific buttons for this function group

OBD Scan Tool: Pending fault			
Button	**Label**	**Icon**	**Description**
F8	**Delete FML**		Pressing the <F8> button deletes ALL fault memories.
Decision question			
Button	**Label**	**Icon**	**Description**
F11	**No**		Pressing <F11> cancels an action that requires confirmation (e.g. if you decide not to delete a fault memory as originally specified). The <F11> button shown here is only displayed in combination with the form of the <F12> button shown in the next line.
F12	**Yes**		Pressing <F12> confirms an action that requires confirmation (e.g. you want to delete a fault memory). The <F12> button shown here is only displayed in combination with the form of the <F11> button shown in the previous line.

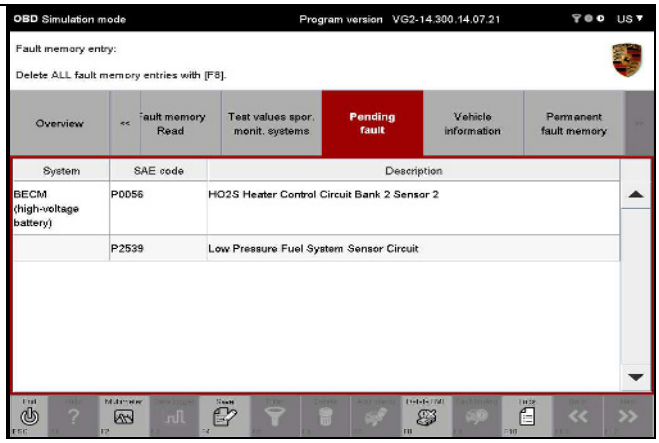
9.9.2 Displaying pending faults

1. Select the desired systems and elements:
   ►See section 9.3

2. Select the Pending fault function group.

   The pending faults for the system are displayed.

   If there are no fault memory entries, a message to this effect will appear in the `Description` column for the system.



9.9.3 Deleting all pending faults

1. Display all pending faults:
   ►See section 9.9.2

2. Press the <F8> button.

   A query appears prompting you to confirm that you want to delete all pending faults. You have the following options:
   - Press <F11> to cancel the process. You return to the list of all pending faults.
   - Press <F12> to confirm that you want to delete all pending faults.

9.10 Vehicle information

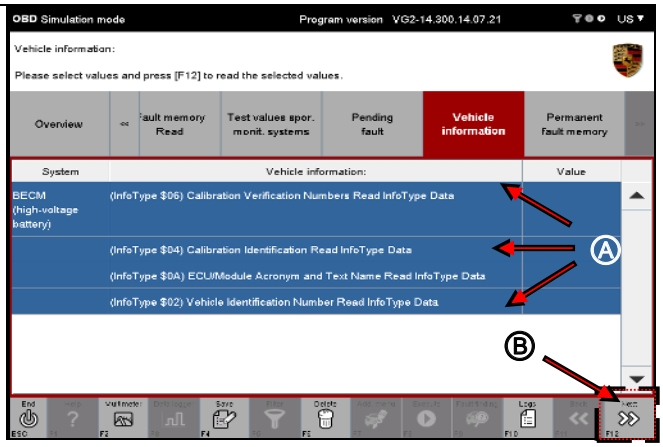
What is displayed?

Vehicle-specific data, e.g. the vehicle identification number (VIN) and calibration IDs, is displayed.

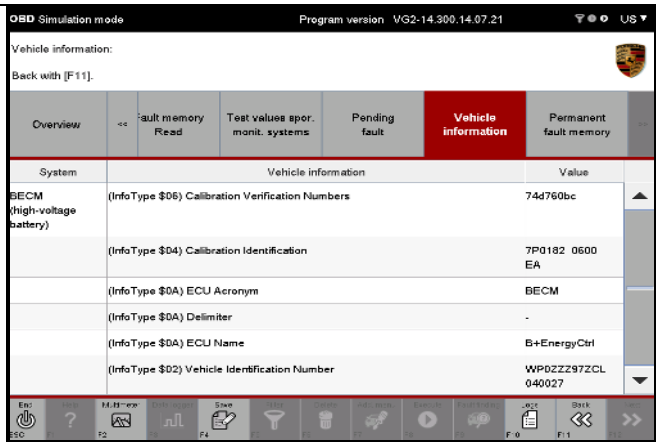
1. Select the desired systems and elements:
►See section 9.3

2. Select the Vehicle information function group.

   Select the elements for which you want to retrieve further information (A) and press the <F12> button (B).



3. The information is displayed in the work area.



9.11 Permanent fault memory

What is displayed?

The permanent fault memory contains a collection of entries that were confirmed as faults. The fault entries are stored in the non-volatile memory until such a time as the monitor for the respective entry decides that the fault is no longer present.

The purpose of the permanent fault memory is to ensure that a vehicle inspection cannot be passed simply by deleting the DTCs (fault memory entries) and then disconnecting the vehicle from the vehicle battery.

9.11.1 Action-specific buttons for this function group

Actual values/input signals/data logger			
Button	**Label**	**Icon**	**Description**
F8	**Delete FML**		Pressing the <F8> button deletes ALL fault memories.
Decision question			
Button	**Label**	**Icon**	**Description**
F11	**No**		Pressing <F11> cancels an action that requires confirmation (e.g. if you decide not to delete a fault memory as originally specified). The <F11> button shown here is only displayed in combination with the form of the <F12> button shown in the next line.
F12	**Yes**		Pressing <F12> confirms an action that requires confirmation (e.g. you want to delete a fault memory). The <F12> button shown here is only displayed in combination with the form of the <F11> button shown in the previous line.

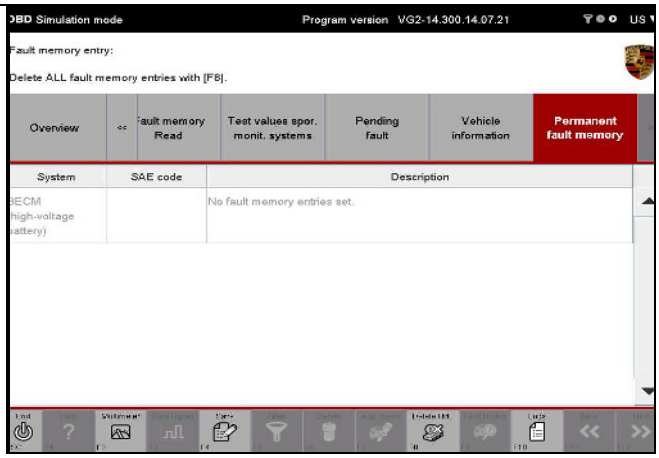
9.11.2 Displaying the permanent fault memory

1. Select the desired systems and elements:
   ►See section 9.3

2. Select the Permanent fault memory function group.

   The permanent fault memory entries for the system are displayed.

   If there are no fault memory entries, a message to this effect will appear in the `Description` column for the system.



9.11.3 Deleting the permanent fault memory

1. Display all permanent fault memory entries:
   ►See section 9.11.2

2. Press the <F8> button.

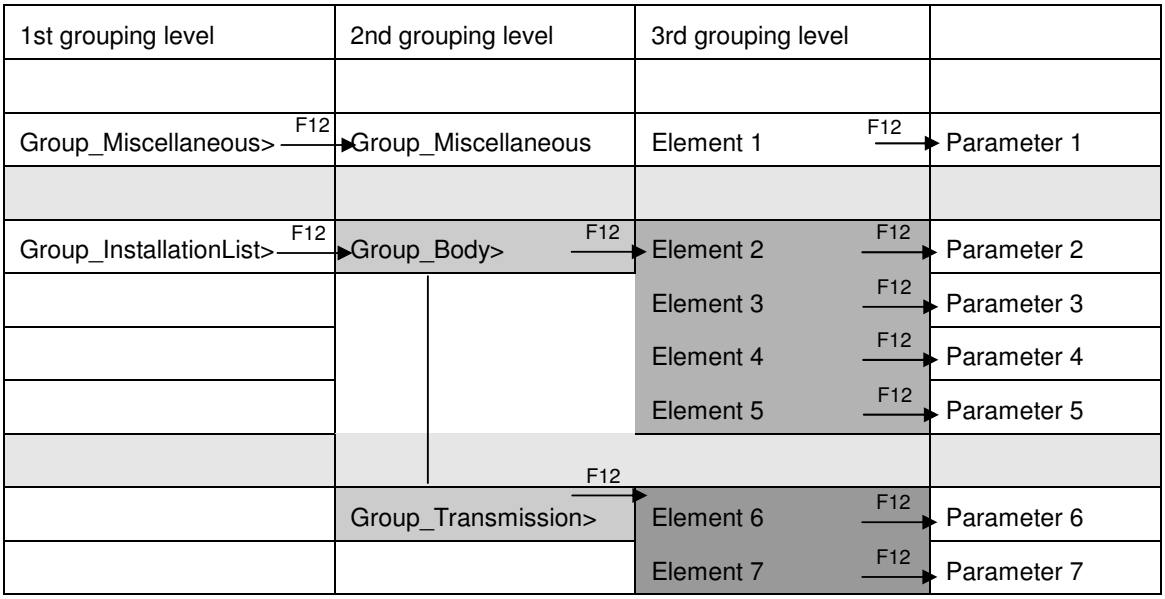
   A query appears prompting you to confirm that you want to delete all permanent fault memory entries. You have the following options:
   - Press <F11> to cancel the process. You return to the permanent fault memory list.
   - Press <F12> to confirm that you want to delete all permanent fault memory entries.

10 Special features of the interface

10.1 Displaying groupings

Diagnostic elements can be displayed both directly and as groupings in the diagnostic application. If groupings were defined beforehand, the application works differently to the steps described in section 8 in that the relevant element cannot be clicked and selected directly, but the corresponding group must be selected first. The following examples explain how this works.

Example 1: Selection of several groups



If you have selected several groups and some of these contain sub-groups, the individual elements are not displayed until the selection does not contain any more sub-groups.
For the case shown in the example, this means the following: If you select both *Group_Miscellaneous* and *Group_InstallationList*, elements of the 2nd grouping level *Group_Miscellaneous* will not be displayed because *Group_InstallationList* still contains further sub-groups (*Group_Body* and *Group_Transmission*).

If you select all groups in the 2nd grouping level (i.e. *Group_Miscellaneous*, *Group_Body* and *Group_Transmission*) and press <F12>, all elements will then be displayed. Since there are no further groupings, the elements of *Group_Miscellaneous* are then also displayed.

The parameters are displayed after you have made your selection and pressed <F12>.

Example 2: The group ALL

1st grouping level	2nd grouping level	3rd grouping level	
ALL> F12 ▶	Element 1		
	Element 2		
	Element 3		
	Element 4		
	Element 5		
	...		
Group_AB			

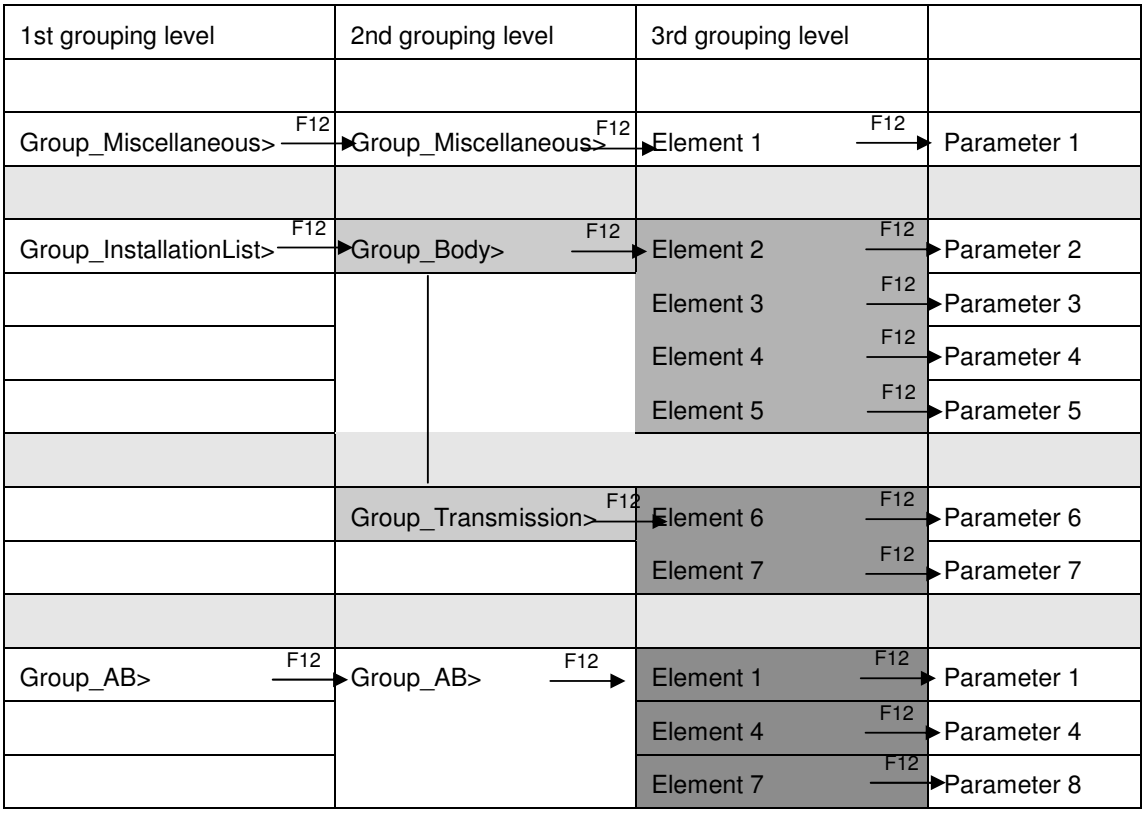
If groupings exist, you can display all elements of the group *ALL* by selecting this group and pressing <F12>. These are generally all elements of the respective function group.

However, the following restrictions apply for the group *ALL*:

- The content of the group ALL is generated generically for the respective operating mode. The behavior in the respective operating modes can therefore be different for the group.
- If the group *ALL exists and if there are also other groups, the operating behavior shown in example 2 applies*.
- If the group *ALL does not exist and if there are also other groups, the operating behavior shown in example 1 applies*.

Note: As a rule, the elements of group ALL are displayed in the sequence that was defined in the grouping tool (PTTD).

Example 3: Elements that are present in several groups



By copying elements to individual groups, it is possible that elements in the 3rd grouping level - or lower, depending on the number of grouping levels - may be displayed several times (see *Group_AB*).

If these elements are all selected, all parameters will also be displayed several times in the next screen.

10.2 Views

10.2.1 What types of views are there?

Prerequisite for displaying the Functional view:

In order to display the Functional view, a corresponding PTTD attribute set must be assigned and installed accordingly. The attribute set must include groupings of *function-oriented groups* (for an explanation of the term "*function-oriented group*": see below) so that these can be displayed within the diagnostic application.
If either there is no corresponding PTTD attribute set installed or if there are no *function-oriented groups* defined in this attribute set, the related button for calling up this view will be grayed out and cannot be selected or no groups will be displayed in the work area.

If the relevant prerequisites are met, you can switch between two types of displays:

- Display using the normal "control unit view". In this case, data is grouped and assigned according to control unit relationship. Sub-components are displayed indented below the respective control unit (see also description in section 8.1). Control units can also be displayed in groups if a corresponding attribute set was assigned by the PTTD (see section 10.1).

- Display using *function-oriented groups*. In *function-oriented groups*, diagnostic services of control units are grouped together to form a virtual control unit. [1]. The display based on *function-oriented groups* is referred to as a Functional view. You can then carry out diagnostics in the usual way using the virtual control units.

10.2.2 Control unit view

This is the normal view that is selected when you start the diagnostic application. For further information on the display and operating behavior, see the illustrations and explanations in section 8.

[1] Example: Elements of the BCM_front and BCM_rear control units are grouped together in a function-oriented group "Interior lighting".

10.3 Displaying string resources

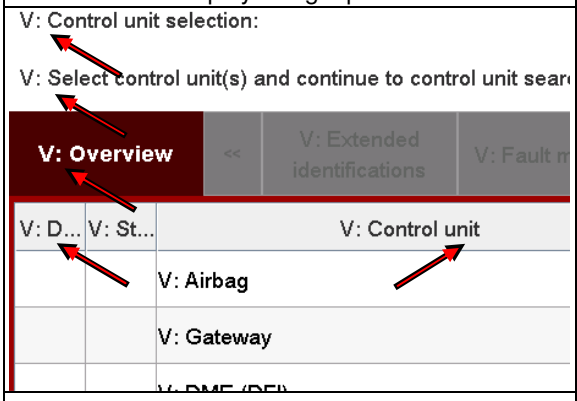
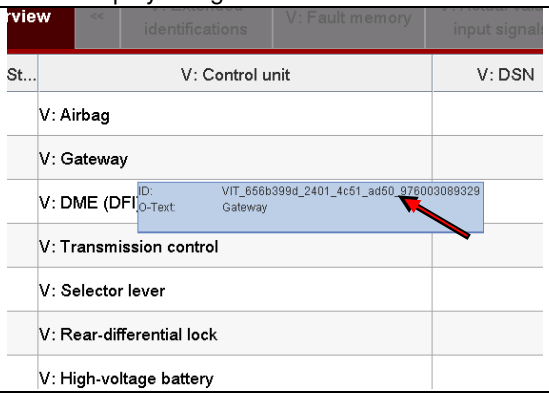
Depending on the installation and configuration of the diagnostic application, you can call up further information on the text assignments and translations of individual sections of text. There may be two options available for doing this.

1.) Display the text blocks using a prefix, where "V" stands for V-Text and "O" stands for O-Text.

2.) Display the text information using the mouse-over effect:
If this feature is enabled, a context box will be displayed in the diagnostic application after a configurable time when you move the mouse over part of the text. The following information is listed in the context box:

- ODX text ID
- O-Text

As soon as you move the mouse over a different part of the text, another context box containing relevant content is displayed. When you press the left mouse button – to make a selection, for example –, the context box disappears.

Displays	
Display using a prefix	Display using the mouse-over effect
	

10.4 Behavior of the menu bar

Depending on the action that is currently being performed, the menu bar can be deactivated in order to prevent an unintentional switch to a different function group.

Example: The menu bar is deactivated when writing coding. It is not activated again until the coding process is complete.

10.5 Search for diagnostic elements

You can search for services and parameters in the ODX files of the control units. The <F3> button is available for this purpose in the control unit overview after you have selected at least one control unit.
You can enter a search term in the vehicle-wide search screen. The search is then performed for the control units listed in the selection.

This section describes how to call up the vehicle-wide search and search for diagnostic elements.

Note on calling up the vehicle-wide search:
You can only call up the `Vehicle-wide search` function from the control unit overview, not from the control unit list or from other function groups or working screens for other functions. You must have at least one control unit in the selection.

Note on the search area:
The search area includes a number of function groups.

You can search for services and parameters within the following function groups:

- Extended identifications
- Actual values/input signals
- Drive links/checks
- Codings (only in the coding mode `Customer-specific settings` here)

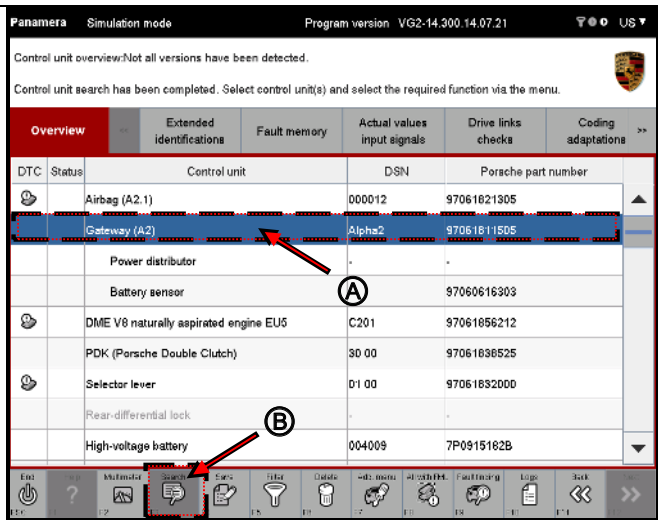
You cannot search for individual ODX elements in the Maintenance/Repairs search area, but you can perform a search for the functions displayed in the check list:

You **cannot** perform a search for elements of the following function groups and functions:

- Fault memory
- Programming
- Log services
- General vehicle functions (<F7>)

1. Display the list of installed control units and go to the control unit overview:
►See section 8.1.

2. Select the desired control units containing ODX data in which you want to perform the search (A) and press the <F3> button (B).



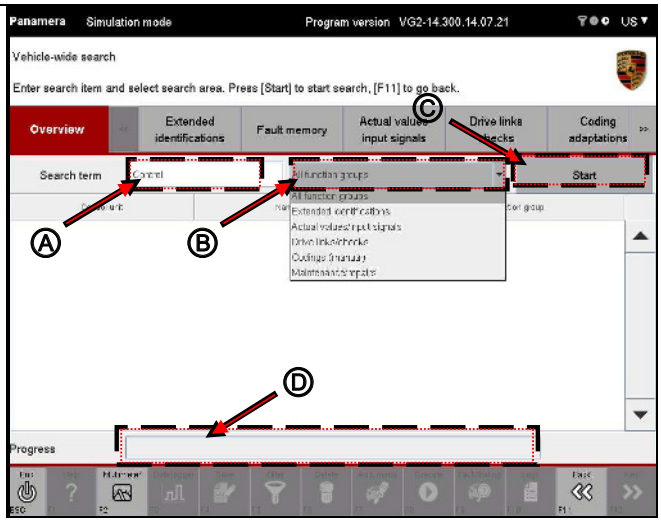
Note on entering the search term:

You can use the following placeholders when entering search terms:

- *: The asterisk is a placeholder for any number of characters.
- ?: The question mark is a placeholder for a single character.

3. The vehicle-wide search screen appears.
Enter a search term (A), select the desired search area (B) and press the `Start` button (C).

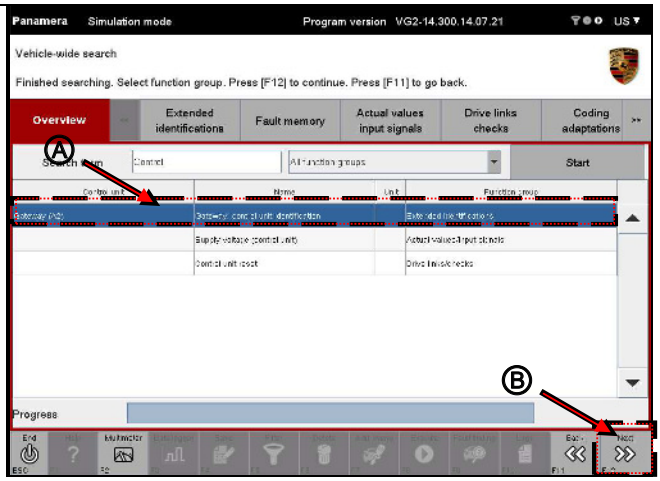
A progress bar (D) shows the current status of the search.



Note on the selection of entries in the results list:

You can only select one element.

4. Select the desired entry (A) and press the <F12> button (B).



Note on the display in the respective function group:

Depending on the function group in which the element was found, the following will be displayed.

- Extended identifications:
  The **working screen** of the function group is displayed.
  All elements of the control units in the selection are displayed in the working screen. The elements that were selected in the vehicle-wide search are already highlighted.
  You can execute diagnostic services directly in the working screen.
- All other function groups that can be searched using the vehicle-wide search:
  The **overview screen** of the respective function group is displayed.
  All elements of the control units in the selection are displayed in the overview screen. The elements that were selected in the vehicle-wide search are preselected, i.e. highlighted. With the elements preselected, you can press <F12> (Next) to move on to the working screen of the function group and execute diagnostic services there.

Note on behavior if there are groupings in the function group that is then selected:

After you select one or more elements of a function group and confirm your selection by pressing <F12>, the screen for the first grouping level is displayed. The groupings containing the elements that were selected in the vehicle-wide search are already highlighted (for information on displaying groupings, see also section 10.1).

Note on other possible actions for the selected function group:

You can switch to a different function group by selecting one of the function group buttons on the menu bar. The elements belonging to the control units selected in the control unit overview are then displayed in the function group that is then called up - irrespective of the elements that were selected in the vehicle-wide search.

10.6 Changing column sorting

10.6.1 Sortable content

Note:

It is not possible to change the column sorting in all columns and in all grids. The following list shows what can be sorted in which function groups.

The next two sections describe how to sort columns.

Function group	Screen	Sortable columns	Non-sortable columns
Control unit list		Control unit	DTC, Status, DSN, Part number
Control unit overview		DTC, Status, Control unit, DSN, Part number	--
Extended identifications		Control unit, Identification	Value, Unit, Changed
Fault memory		Control unit, Priority, Fault code, Active, Description	--
Fault memory	Environmental data	Control unit, Priority, Fault code, active, Description	--
Actual values/input signals	Start screen	Control unit, Measured value	--
Actual values/input signals	Value display	Control unit, Name,	Type, Value, Unit
Drive links/checks	Start screen	Control unit, Drive links/tests	--
Drive links/checks	Execution	--	Parameters, Value, Unit
Drive links/checks	Adding measured values	Control unit, Measured value	--
Codings/adaptations	Start screen	--	Coding mode
Codings/adaptations -> Customer-specific settings	Selection	Control unit, Coding value	--
Codings/adaptations -> Coding of binary data	Configuration record selection	--	Control unit, Configuration record, Data record
Codings/adaptations -> Coding of binary data	Data file selection	--	Data record, Data file, Configuration record, Value in file
Codings/adaptations -> Customer-specific settings	Setting and coding coding values	Control unit, Coding value	Value, Unit, Changed
Codings/adaptations -> Manual (Manual coding with MCR)	Entering vehicle data	--	Coding value, Value
Codings/adaptations -> Manual (Manual coding with MCR)	Setting equipment features	--	Control unit, Test step, Status

Function group	Screen	Sortable columns	Non-sortable columns
Codings/adaptations -> Manual (Manual coding with MCR): Check vehicle data	Checking vehicle data	--	Control unit, Coding value, Value
Codings/adaptations -> Manual (Manual coding with MCR)	Coding	Control unit, Session, Part number, Status	--
Codings/adaptations -> Automatic (Automatic coding with MCR)	Checking vehicle data	--	Control unit, Coding value, Value
Codings/adaptations -> Automatic (Automatic coding with MCR)	Coding	Control unit, Session, Part number, Status	--
Codings/adaptations -> Restore factory settings/codes	Checking vehicle data	--	Control unit, Coding value, Value
Codings/adaptations -> Restore factory settings/codes	Coding	Control unit, Session, Part number, Status	--
Maintenance/repairs:	Start screen	Control unit, Function	--
Maintenance/repairs: -> Control unit replacement	Mode selection - Read/Write	--	Mode
Maintenance/repairs: -> Control unit replacement: Read data	Read-out screen	Control unit, Phase, Status	--
Maintenance/repairs: -> Control unit replacement: Write data	Write screen	Control unit, Phase, Status	--
Maintenance/repairs: BR-specific processes (e.g. Grind in, Calibrate, Check basic setting of EPB, Change battery, etc.)	--	--	All
Programming	Start screen	--	Programming mode
Programming -> Manual programming	Entering vehicle data	--	Description, Value
Programming -> Manual programming	Changing values	--	Control unit, Test step, Status
Programming -> Manual programming	Programming	--	Control unit, Session, Part number, Status
Programming -> Automatic programming	Programming	Control unit, Session, Part number, Status	--
Programming -> Programming without flash rules	Session selection	Control unit, Session, Part number,	--
Programming: -> Programming without flash rules	Session details	Control unit, Identification, Value, Unit	--
Log services		Name, Request	--

Function group	Screen	Sortable columns	Non-sortable columns
General vehicle functions -> External applications		--	Applications
General vehicle functions -> Maintenance of vehicle data		--	Value group, Coding value, Value, Changed
General vehicle functions -> Vehicle analysis log (VAL)	Selection of VAL type	--	Vehicle analysis log
General vehicle functions -> Vehicle analysis log (VAL)	Creating the VAL (Serv. and OBD VAL)	--	Function, Phase, Status
General vehicle functions -> Campaign (campaign coding)	Entering campaign number	--	Description, Campaign number entry
General vehicle functions -> Campaign (campaign coding)	Checking vehicle data	--	Control unit, Coding value, Value
General vehicle functions -> Campaign (campaign coding)	Programming	--	Control unit, Session, Part number, Status
General vehicle functions -> Vehicle handover log	Information screen	--	Function, Phase, Status
General vehicle functions -> Vehicle handover log	Read-out screen	--	Function, Phase, Status
General vehicle functions -> Vehicle handover log	Maintenance interval	--	Control unit, Maintenance work, Complete
General vehicle functions -> ODX data check	Data check screen	--	Control unit, Check, Test, Status, Results
General vehicle functions -> Read all fault memories and erase if required	Fault memory display	Control unit, Priority, Fault code, active, Description	--
Filter	List of available filters	Created filters, Content defined, active	--
Filter	Processing a filter in the Control unit overview/control unit list function group	DTC, Status, Control unit, DSN, Part number	--
Filter	Processing a filter in the Actual values/input signals function group	Control unit, Description	--
Filter	Processing a filter in the Drive links/checks function group	Control unit, Description	--
Vehicle-wide search	Search screen	--	Control unit, Name, Unit, Function group

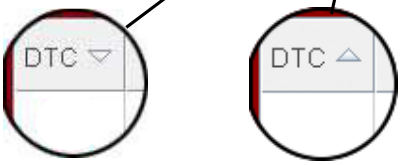
10.6.2 Simple sorting

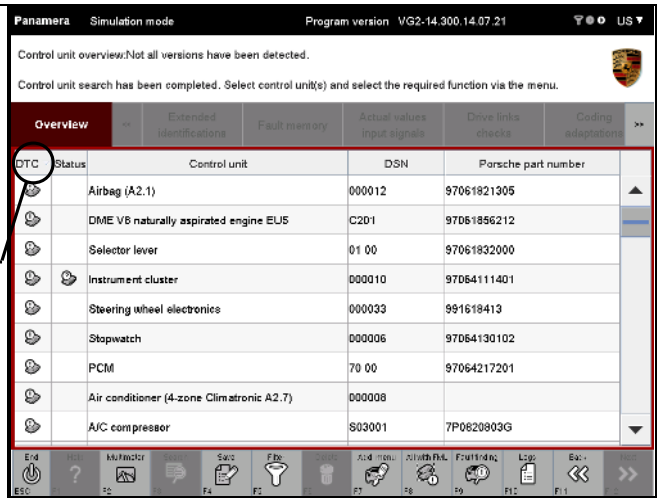
You can change the sort direction of the displayed data. As you may already be familiar with from Office programs, you can do this by clicking in the respective table header.

Column sorting is described here using the control unit overview as an example.

1. Sorting according to control units with a fault memory entry.

   To do this, click in the column header until the arrow is pointing in the desired sort direction.





10.6.3 Canceling sorting

If you want to cancel sorting again, simply click in the column header for as long as required until the arrow indicating the sort direction disappears. The elements in the work area are then displayed unsorted again.

10.6.4 Nested sorting

You have the option of combining two sort directions. To do this, proceed as follows:

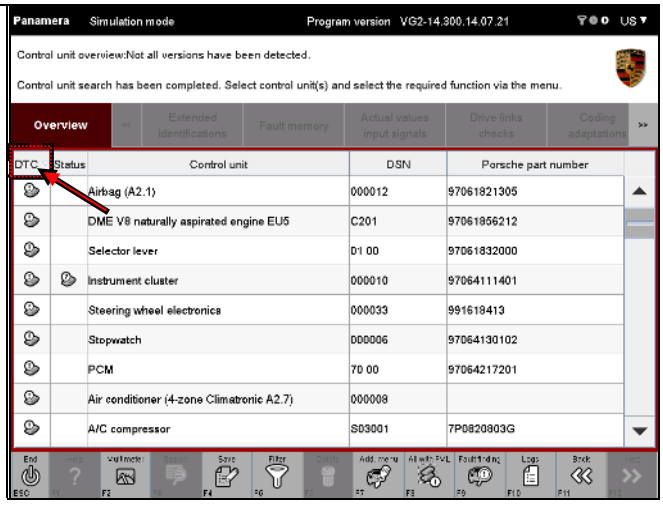
- First pre-sort the entries in a column. The elements displayed in this column are then sorted in the usual way according to this first sort criterion (see examples above).
- Then sort according to a second criterion by clicking in the second column header. The elements in the pre-sorted display are then sorted again.

Example: Sorting control units with fault memory entries according to part number

1. First sort according to control units that have a fault memory entry.

   To do this, click in the header of the `DTC` column.

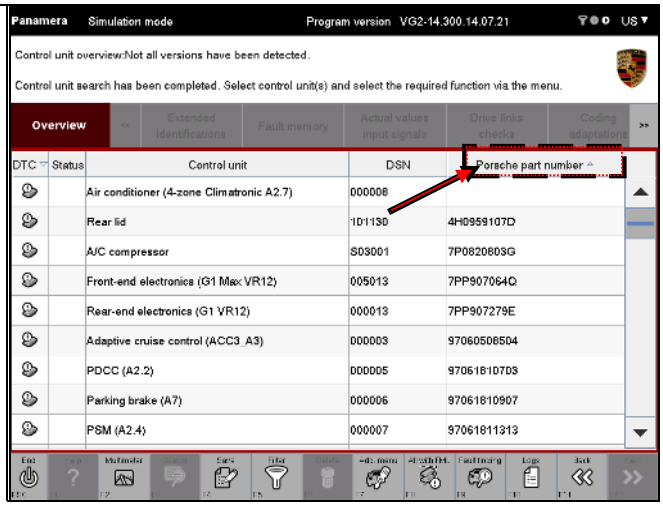
   The sort direction that was set for the first criterion is indicated by a large triangle.



2. Then sort according to part number.

   To do this, click in the header of the `Porsche part number` column.

   The sort direction that was set for the second criterion is indicated by a small triangle.

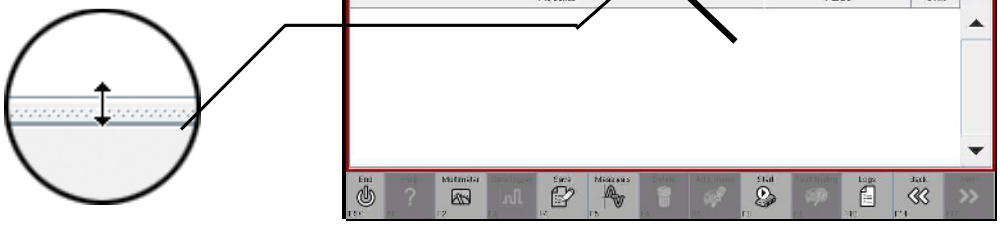


10.7 Moving the dividing line

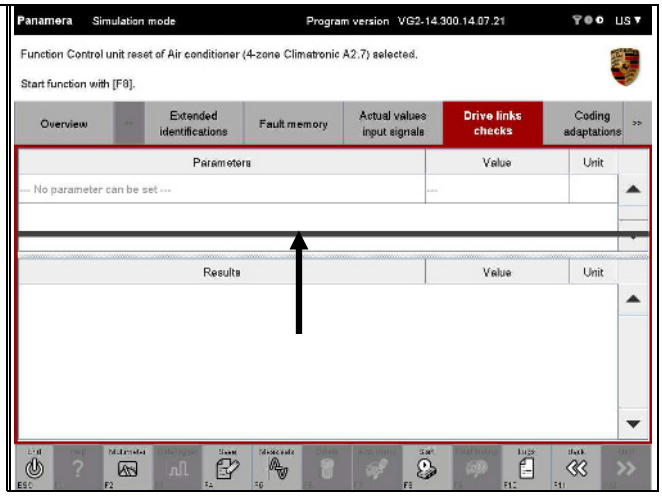
In screens that are divided into two sections, you can move the dividing line between two sections of the work area. This is described here using the Drive links/checks function group as an example.

1. Move the cursor over the dividing line, press the left mouse button and keep it pressed.

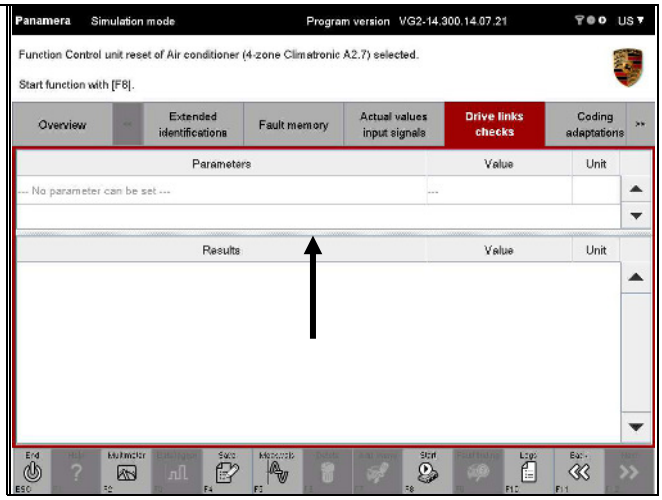
   If you are using a touchscreen, touch the touchscreen at the dividing line.



2. Then drag the dividing line in the desired direction.
   Keep the left mouse button pressed or keep your finger on the touchscreen while dragging the line.



3. When you have reached the desired position, release the left mouse button or remove your finger from the touchscreen.



10.8 Creating screenshots

In addition to copying the contents of the work area, you can also copy the complete image of the application (graphics, text, table structure, shading, frames, etc.) by creating a screenshot.

Make sure that the diagnostic application is displayed on top and is running in the active window.

Option 1

1. Press the key combination <ALT> + <Print Screen> on your keyboard.
   The screenshot created in this way can be integrated as an image in an application (e.g. Microsoft WORD).

Option 2

2. Pressing the key combination <CTRL> + <P> also allows you to save a screenshot to your hard drive. The screenshot is saved to the `workspace` directory of the diagnostic application.

10.9 Language version

You can select other language versions in order to use the software with an interface in the desired language. The language can be changed in two different ways:

1. Using the Porsche basic system, which transfers the language version to the diagnostic application by means of a transfer parameter and sets this language version automatically when the application is started.
2. While the application is running: In this case, you can change the language version with just a few clicks using an icon in the title bar of the display window.

The procedure for changing the language version using the icon while the application is running is described below.

Please note: Time required for changing the language version

It can take up to 20 seconds for all texts to be changed to the desired target language.

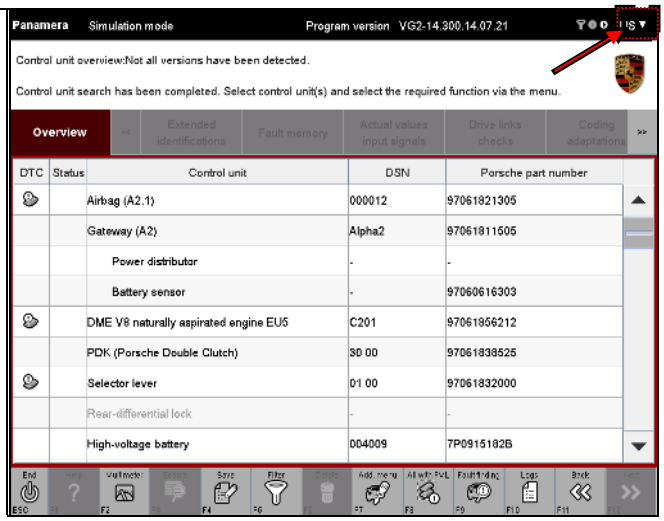
Please note: Language mix in the display

In some cases, no displayable text may have been defined for the selected language version. In this case, the text is automatically displayed in a “default language” or if there is no default language defined, the developer text is displayed. If the developer text is not even defined, a number - the text ID - is displayed.

1. Find the following icon in the top right corner of the title bar:

   Click on it using the left mouse button.

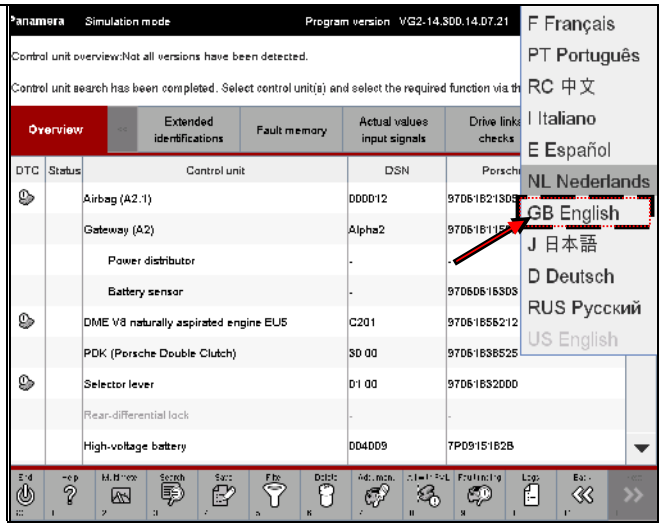
   If you are using a touchscreen, touch the required position on the touchscreen.



2. A drop-down menu appears in which you can set the desired language.
   The various languages are displayed in a list.

   Click on the relevant language version.

   The drop-down menu disappears and the language is set.



Canceling language selection:

To exit the drop-down menu without setting a new language version, simply click in an empty section of the work area.

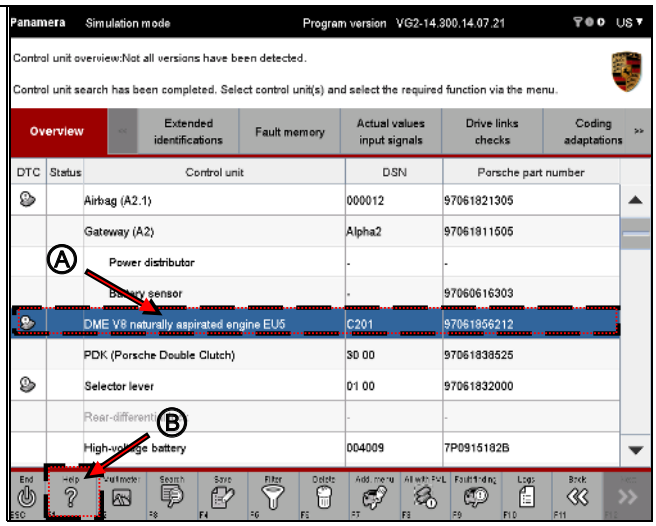
10.10 Context-sensitive help

You can display information about elements in the work area. The <F1> (Help) button is available on the control bar for this purpose.

Selectability:

In order to call up the Help function, you must have selected only one element. The <F1> button is not active if you have selected more than one element.

1. Select an element (A) and press the <F1> (Help) button (B).



Note on display:

If you click on an element that is marked with a ? icon and a fault code and then press the <F1> button, a button menu appears first. This button menu has two entries:

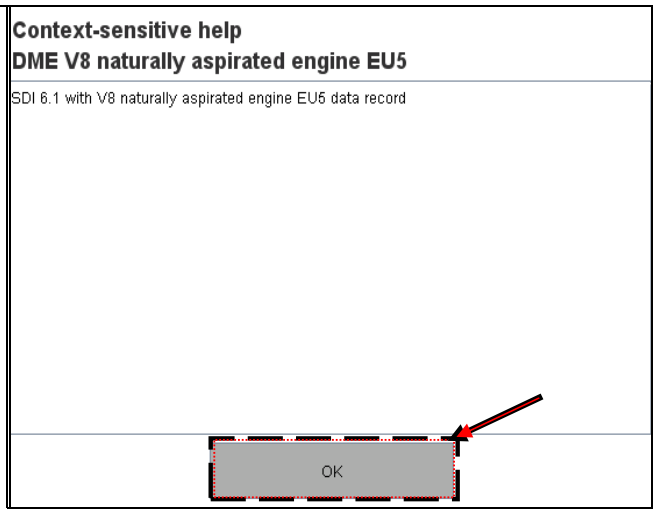
- Help.
  Click on the Help entry if you want to call up help text for the selected control unit.
- Error message.
  Click on the Error message entry if you would like to see a detailed error message.

If there is only a fault code shown in the column, a detailed error message will be displayed when you click on <F1>.

If there is no fault code in the column, information text for the relevant control unit appears when you click on <F1>.

2. The available information is displayed in a pop-up window.

   To close the window and return to the working screen again, press the OK button.



10.11 Information area and Details button

Instructions are given and messages and operating tips are displayed in the information area. If text is too long for the available space, this is indicated by a Details button. Press this button to read all the information text.

Details button:

Example of text that is too long (see screenshot).

Press the Details button to read the complete information text (A). A dialog box then appears in which the full text is displayed.

Then press the Exit button (B) to return to the diagnostics area.