VOLKSWAGEN AG

C Charge / Discharge VAS 6558A/13

Operating manual V5.00 05/18

Content

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VOLKSWAGEN AG
KD-Werkstattausrüstung
D-38436 Wolfsburg

Manufacturer: AVL DiTEST GmbH
Alte Poststrasse 156
8020 Graz
AUSTRIA

AVL ID-Nr.: AT7799EN Rev. 05

Safety Instructions

Explanation of symbols

Symbols with the following meanings are used in the safety instructions of the operating manuals, unpacking, start-up and brief instructions or other documentation provided, in screen displays on the tester during operation and on the products themselves:

DANGER

Texts with this symbol contain information relating to your safety and how you can reduce the risk of serious or fatal injuries.

WARNING

Texts with this symbol contain information relating to your safety and how you can reduce the risk of serious injuries.

CAUTION

Texts with this symbol contain information on how you can avoid damage to the vehicle and the device.

Additional danger signal:

Danger due to electrical current.

Remarks:

NOTICE

Text with this symbol contains additional, useful information.

Information

This text indicates important information or instructions. Failure to comply with these instructions prevents or significantly hampers a successful finalization of the operations described in this documentation.

WARNING

Read all instructions.

WARNING

Requirements needed to operate this device:

- High-voltage technician (HVT)
- High-voltage expert (HVE)
- Electrically qualified person for high-voltage systems in vehicles
- Electrician for special tasks on high-voltage systems in vehicles.

If you don’t have any of these qualifications please exit this application immediately!

WARNING

Use only as described in this manual. Use only manufacturer’s recommended attachments.

WARNUNG

Do not operate equipment with a damaged cord or if the equipment has been dropped or damaged – until it has been examined by a qualified service person.

WARNING

Do not let cord hang over edge of table, bench or counter, or come in contact with hot manifolds or moving fan blades.

WARNING

An extension cord is not allowed. For testing use only specified cables.

WARNING

To reduce the risk of fire, do not operate equipment in the vicinity of open containers of flammable liquids (gasoline).

WARNING

Risk of explosions

The VAS 6558A/13 has internal parts which emit sparks and therefore must not be exposed to flammable fumes. The VAS 6558A/13 should be operated at least 460 mm (18 inches) above the floor surface since fumes from fuels and other materials accumulate at floor level.

WARNING

Connecting non-VW HV-Modules

The VAS 6558A/13 has been developed for vehicles from the Volkswagen group. Connecting the VAS 6558A/13 directly to HV-Modules from other manufacturers can therefore result in damage to the modules and / or the VAS 6558A/13.

CAUTION

The VAS 6558A may only be used within the measurement ranges stipulated in the technical data and descriptions in the operating manual. Do not perform measurements on damaged leads.

CAUTION

Cleaning

Before cleaning the VAS 6558A, pull out the USB cable ~~and measuring cables~~!
Clean the VAS 6558A **only** with a dry cloth.
Do **not** use cleaners or solvents.

READ ALL INSTRUCTIONS - SAVE THESE INSTRUCTIONS!

IMPORTANT SAFETY INSTRUCTIONS

1. Read all instructions.
2. Care must be taken as burns can occur from touching hot parts.
3. Do not operate equipment with a damaged cord or if the equipment has been dropped or damaged - until it has been examined by a qualified serviceman.
4. Do not let cord hang over edge of table, bench or counter or come in contact with hot manifolds or moving fan blades.
5. If an extension cord is necessary, a cord with a current rating equal to or more than that of the equipment should be used. Cords rated for less current than the equipment may overheat. Care should be taken to arrange the cord so that it will not be tripped over or pulled.
6. Always unplug equipment from electrical outlet when not in use. Never use the cord to pull the plug from the outlet. Grasp plug and pull to disconnect.
7. Let equipment cool completely before putting away. Loop cord loosely around equipment when storing.
8. To reduce the risk of fire, do not operate equipment in the vicinity of open containers of flammable liquids (gasoline).
9. Adequate ventilation should be provided when working on operating internal combustion engines.
10. Keep hair, loose clothing, fingers, and all parts of body away from moving parts.
11. To reduce the risk of electric shock, do not use on wet surfaces or expose to rain.
12. Use only as described in the manual. Use only manufacturer´s recommended attachments.
13. ALWAYS WEAR SAFETY GLASSES. Everyday eyeglasses only have impact resistant lenses, they are NOT safety glasses.

SAVE THESE INSTRUCTIONS

1 General Information

1.1 General Notes

Before starting an high voltage battery repair the capacitor(s) of the HV-battery have to discharged. After the repair has finished the capacitor(s) have to be recharged be.

This charging / discharging can be done using the High Voltage Measuring Module VAS 6558A.

For charging / discharging the capacitors of the VOLKSWAGEN e-UP! the **adapter VAS6558A/13** is necessary.

The discharged state of the capacitor(s) is shown to the user by the PC-based software delivered by the VAS6558A.

Das VAS 6558A/13 was designed for use in car-Shops / service stations or similar institutions.

It’s determined for professional, trained personnel.

Please follow the regulations valid to your country!
Read this operating manual and follow especially the safety hints!

1.2 Safety Notes

Please observe the safety instructions for the VAS 6558A/13.
You can find them after the contents section.

1.3 Certificate of Calibration

The manufacturer hereby declares (fig 1-1) that the device delivered with this operating manual does not require any calibration within the first 2 years after its delivery. Subsequent calibrations should be carried out every 12 months.

PRÜFZERTIFIKAT
TEST CERTIFICATE

C Charge / Discharge VAS 6558A/13
Order number: VS9086

C-Laden/Entladen VAS 6558A/13 wurde unter Einhaltung aller Vorgaben nach der jeweils gültigen Prüfvorschrift erfolgreich getestet und hat in einwandfreiem Zustand unser Haus verlassen.
In den ersten 24 Monaten nach der Auslieferung des Geräts ist keine Kalibrierung erforderlich.

C-Charge/Discharge VAS 6558A/13 was tested successfully with compliance to all specified values and under the actual test procedure and left our facilities in perfect condition.
During the first 24 month after delivery of the device, calibration is not required.

AVL DiTEST ist nach ISO 9001 zertifiziert!

AVL DiTEST is accredited according to ISO 9001!

AVL DiTEST GmbH - Alte Poststrasse 156 - 8020 Graz - AUSTRIA

Fig. 1-1 Certificate of initial calibration

1.4 Designated Use

It’s only allowed to use the VAS 6558A/13 in that way, described in this manual.

WARNING

The Housing should only be opened by service personal. See Service information, Chap. 3.1. Regional Service partners).

The product described has been developed, manufactured and checked according to the relevant safety standards. If the safety instructions are observed, the start-up is carried out as stipulated, the device is used for the intended purpose and the recommended maintenance and care is also observed, then in normal cases there is no danger regarding damages to property or for the health of persons associated with the VAS 6558A/13.

1.5 Associated Documents

Along with this operating manual, which is to be used by the user in the workshop, there are also the following technical documents for the VAS 6558A/13:

- Unpacking instructions, start-up, brief instructions VAS 6558A/13
- Registration certificate
- Service information

2 Components

2.1 Adapter

Fig. 2-1 VAS 6558A/13

2.2 Transport box

Fig. 2-2 Transport box

2.3 Scope of delivery

Table 2-1 Scope of delivery

Components	System-delivery	Accessories
VAS 6558A/13 **VAG-Nr.: ASE 405 395 00 000** **AVL-Nr.: VS9086** VAS 6558A/13 - Adapter - Unpacking instructions, start-up, brief instructions (hard copy) - CD containing: - Autarkic PC-Software - Manuals -	•	
VAS 6910/5* **VAG-Nr.: ASE 447 235 00 000** **AVL-Nr.: BO7859** - CD containing - Autarkic PC-Software - Manuals		•

* Delivered only as SW-update without hardware

3 Commissioning

Take the VAS6558A/13 into operation. Use the “*Unpacking- Start-up and brief instructions*” manual for the VAS6558A/13.

3.1 Firmware-Update

To do a firmware update of the VAS 6910 firmware proceed as follows:

Start up your VAS 6558A.

1. Start the update program by click on
   Start | Programme | DiTEST | VAS6558A | VAS 6558A Firmware Update.

2. Click the **OK** Button twice

   The newest program version and the actual installed version are shown.

   If a newer version is available please start the update process by clicking on the then enabled **Start** button.

3. Follow the instructions on the screen.

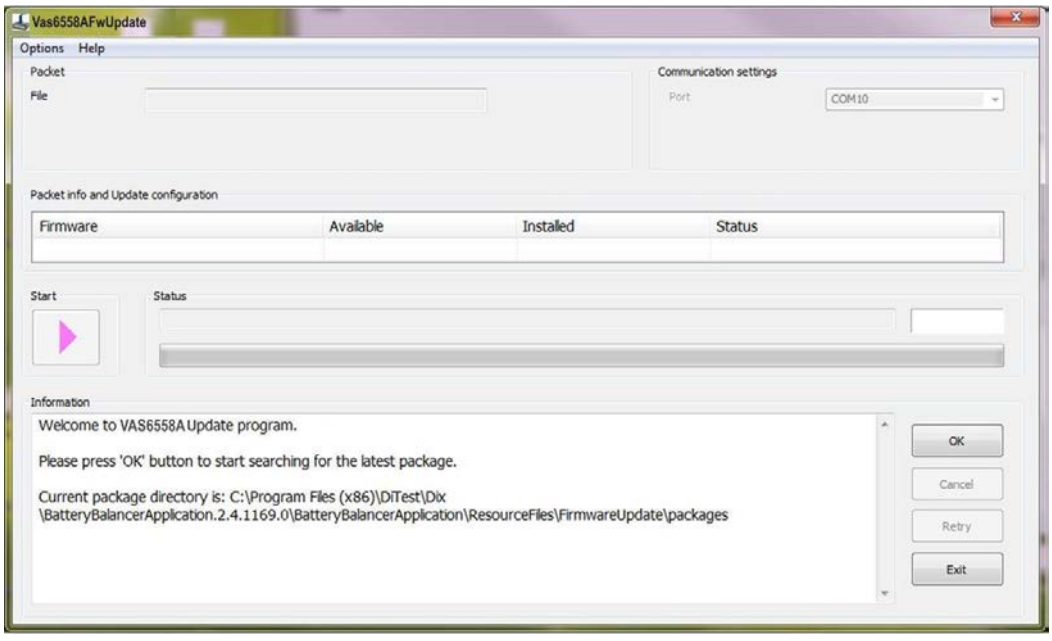

Fig. 3-1 Firmware Update

4 Operation

4.1 Preparation

1. Take the high-voltage measuring module VAS 6558A in operation (⇨Unpacking-, start-up- and brief instructions, VAS 6558A, chap. „*Set-up*“).
2. **If** you are measuring at a VOLKSWAGEN e-Up!
   Take the VAS 6558A/13 into operation. (⇨Unpacking-, start-up- and brief instructions).

   Make adaptations as shown.

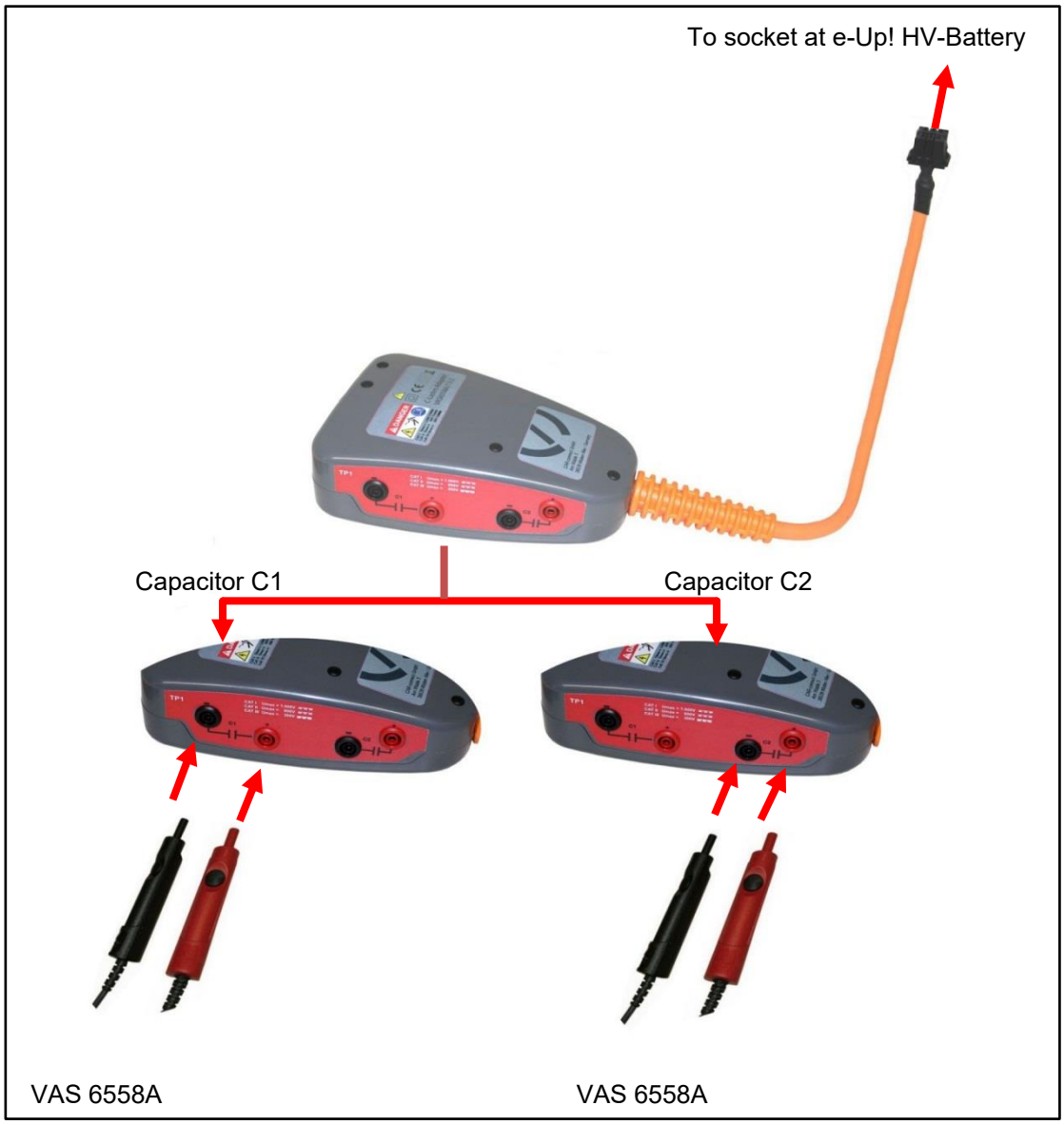

Fig. 4-1 Adaptations

4.2 Measure Battery Voltage

Hereinafter the measurement of the HV-Battery voltage on an e-UP! is described.
The procedure on an eGolf is very similar. Differences will be described separately.

1. Start the software by selcting: **Start | Programfiles | DiTEST | DSS DSS**.
2. Click on **Diagnostic | Charge capacitor**.

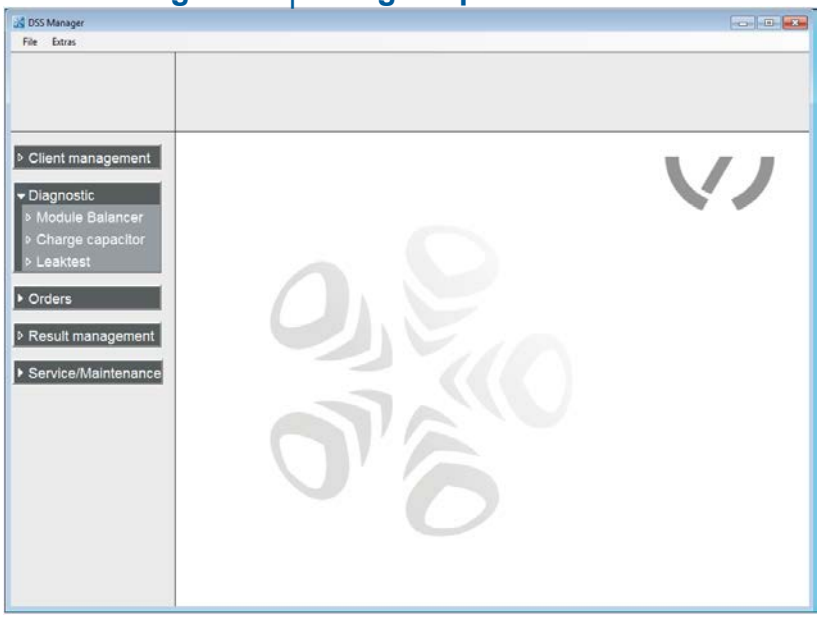

Fig. 4-2 DSS Manager

3. Click at **e-Up – Measure battery voltage**.

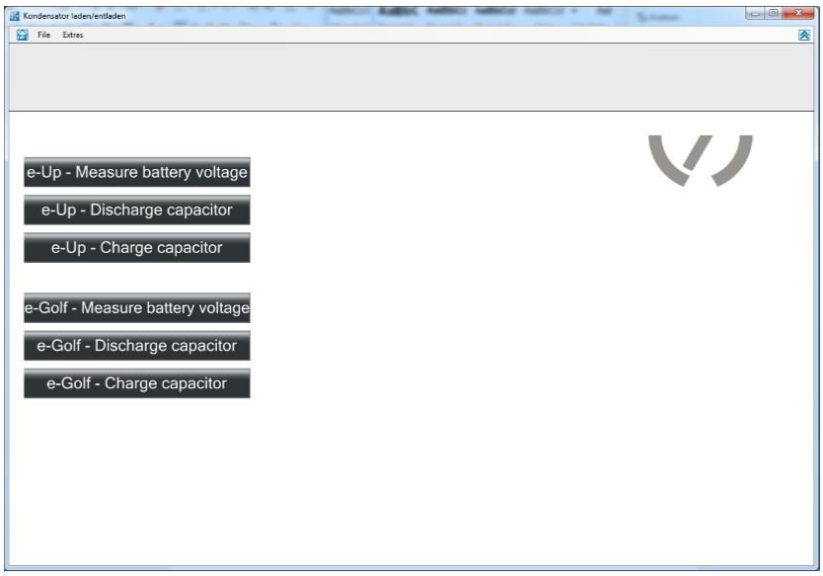

Fig. 4-3 Measure e-Up – Battery voltage

4. The next screen shows safety instruction.

WARNING

Read and follow the safety instructions!

5. Follow the safety instructions carefully and click **F8 Next**.

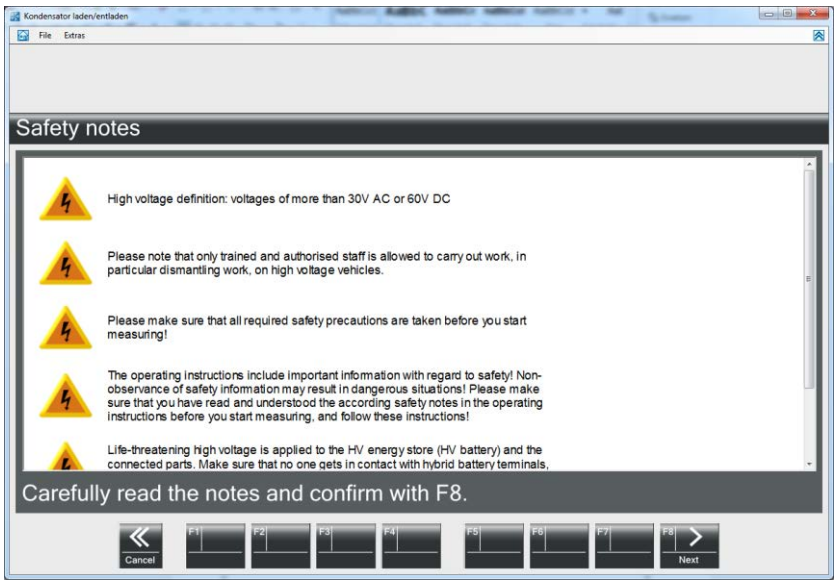

Fig. 4-4 Safety instructions

6. Input your name or select your name from a dropdown list. Confirm your input by **F8 Next**.

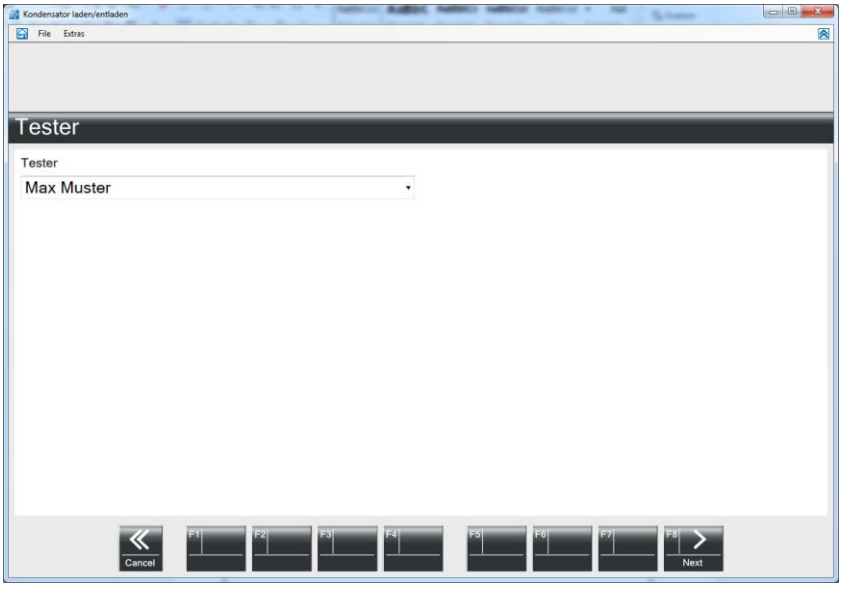

Fig. 4-5 Select Username

7. Run the device security test.
   Please short-circuit the test tips and press the button on the red handle.
8. When complete, please proceed with **F8 Next**.

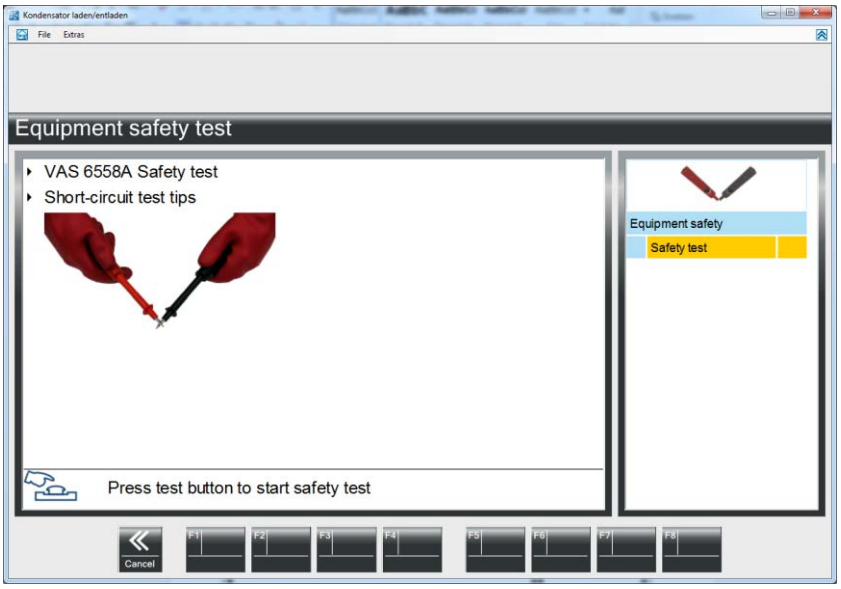

Fig. 4-6 Equipment safety test

Items 9 to 11 describe the sequence for an e-up!
For the e-golf sequence description see items 12 to 14.

9. Measuring the battery voltage.
   Measure the either the Module voltage (fig. 4-7) or measure the voltage of the total voltage of the battery (fig. 4-8). The battery voltage is calculated automatically.
   Press the button on the red handle to start the measurement.

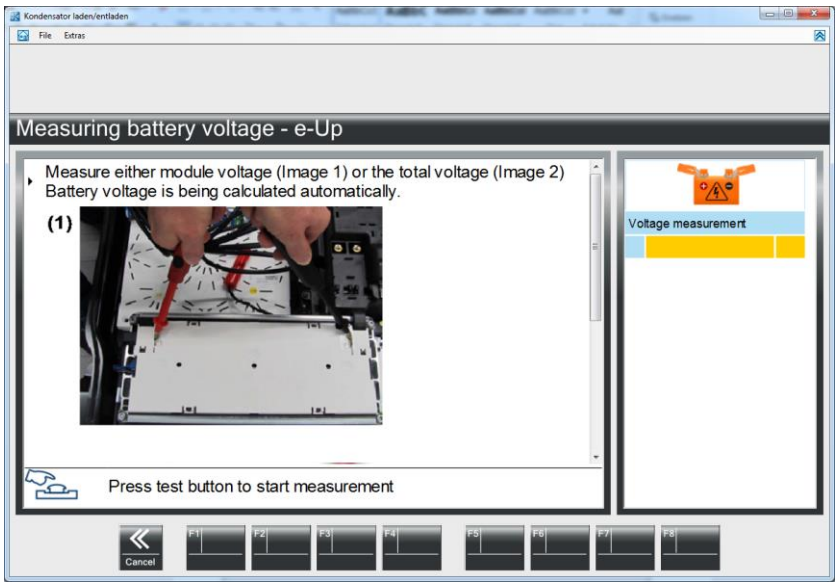

Fig. 4-7 Measuring the module voltage

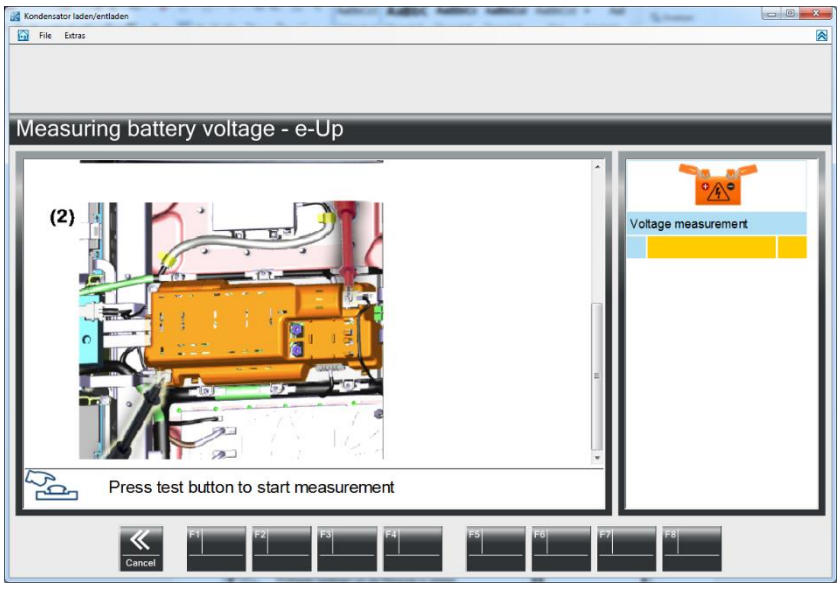

Fig. 4-8 Measuring the total battery voltage

10. The voltage is shown on the screen.
    To continue press **F8 Next** or wait for automatic timed forwarding.

Fig. 4-9 Display of the battery voltage

11. The Module Voltage, the calculated total battery voltage and the calculated voltages of the capacitors are shown on the next screen.

    By clicking on **F7 Back** the measurement can be repeated.

    If you continue with **F8 Next** the values are stored for use when charging the capacitors.
    The measurement of the battery voltage has finished now.

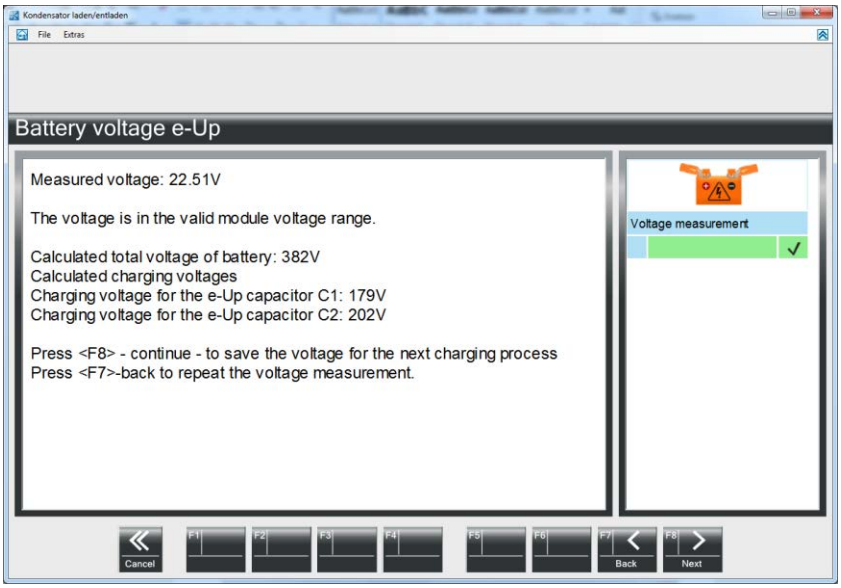

Fig. 4-10 Display of all measured and calculated voltages

Measuring the Battery Voltage on an e-Golf!

1. Measuring the Battery Voltage.
   Measure the either the Module voltage (fig. 4-11) or measure the voltage of the total voltage of the battery (fig. 4-12). The battery voltage is calculated automatically.
   Press the button on the red handle to start the measurement.

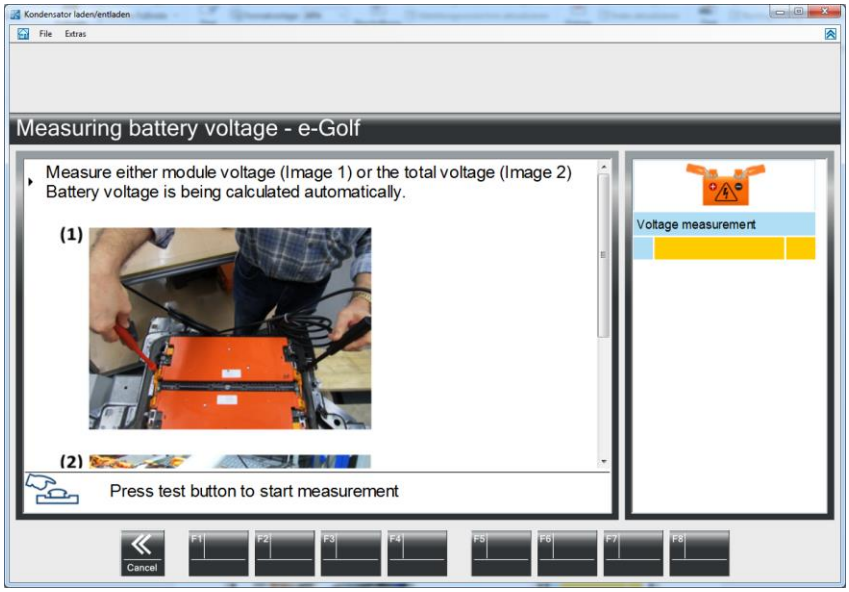

Fig. 4-11 Measuring the module voltage

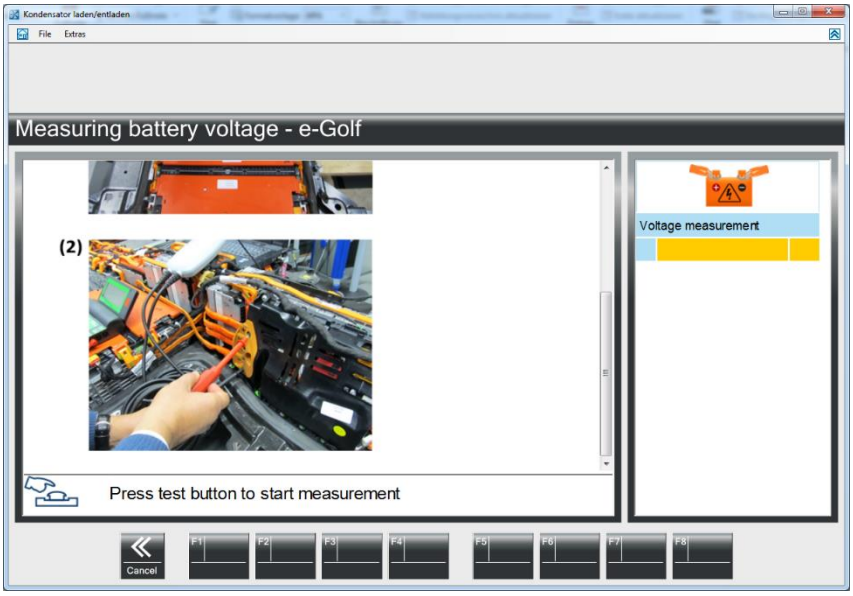

Fig. 4-12 Measuring the total battery voltage

2. The voltage is shown on the screen.
   To continue press **F8 Next** or wait for automatic timed forwarding.

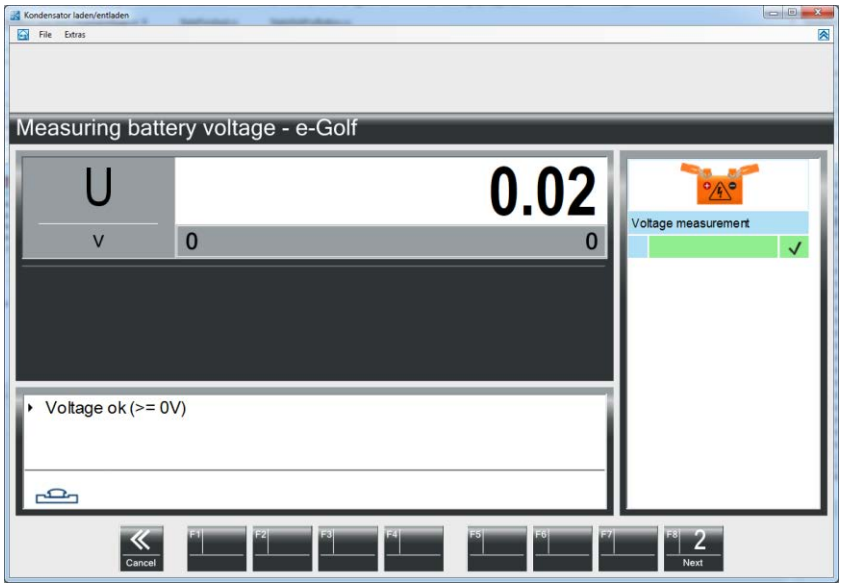

Fig. 4-13 Display of the battery voltage

3. The Module Voltage, the calculated total battery voltage and the calculated voltages of the capacitors are shown on the next screen.

   By clicking on **F7 Back** the measurement can be repeated.

   If you continue with **F8 Next** the values are stored for use when charging the capacitors.
   The measurement of the battery voltage has finished now.

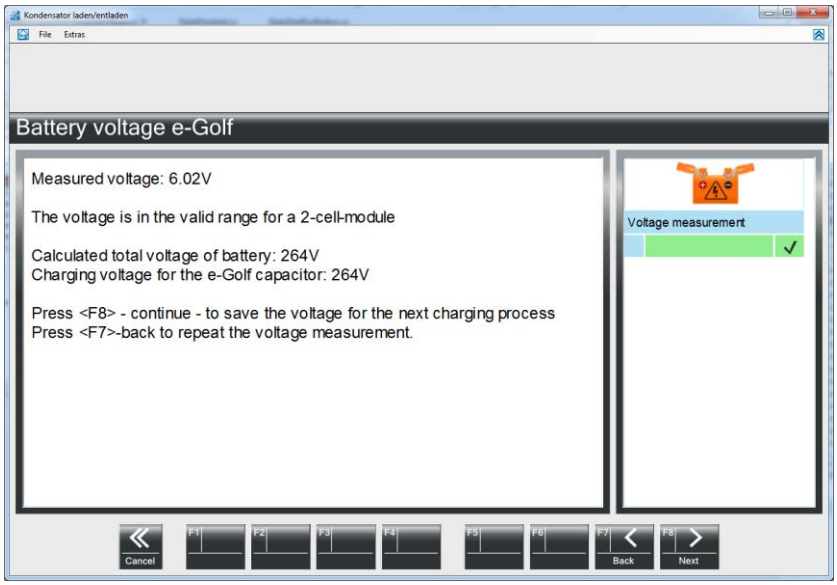

Fig. 4-14 Display of all measured and calculated voltages

4.3 Discharging Capacitor(s)

Hereinafter the discharging of the capacitors of the e-Up! is described. The procedure for the e-golf is very similar. Differences are described separately.

1. Start the software by selecting: **Start | Programfiles | DiTEST | VAS DSS**.
2. Click at **Diagnostic | Charge capacitor**.

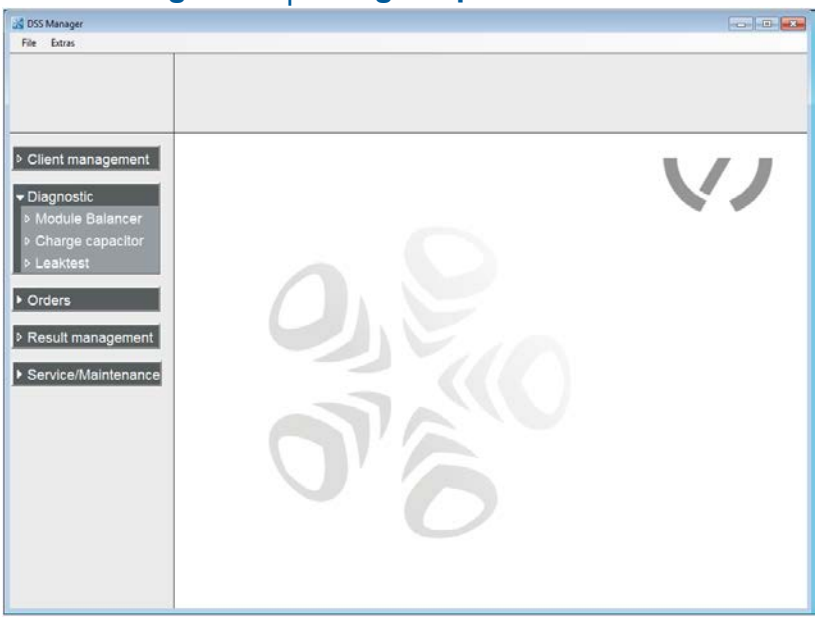

Fig. 4-15 DSS Manager

3. Select **e-Up – Discharge capacitor**.

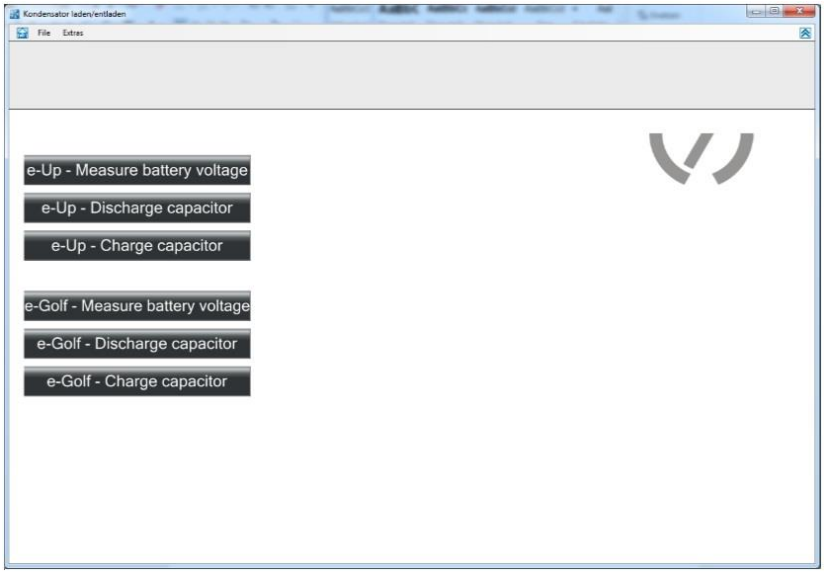

Fig. 4-16 e-Up – Discharge capacitor

4. A screen with safety instructions is shown.

WARNUNG

Read carefully and follow the safety instructions shown on the screen!

5. Please follow the safety instructions carefully and confirm with **F8 Next**.

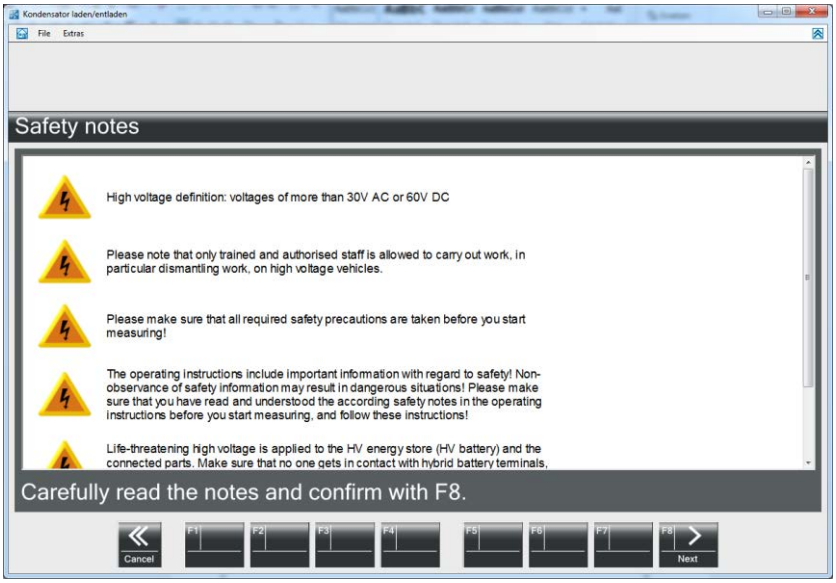

Fig. 4-17 Safety instructions

6. Select or input operator name and continue with **F8 Next**.

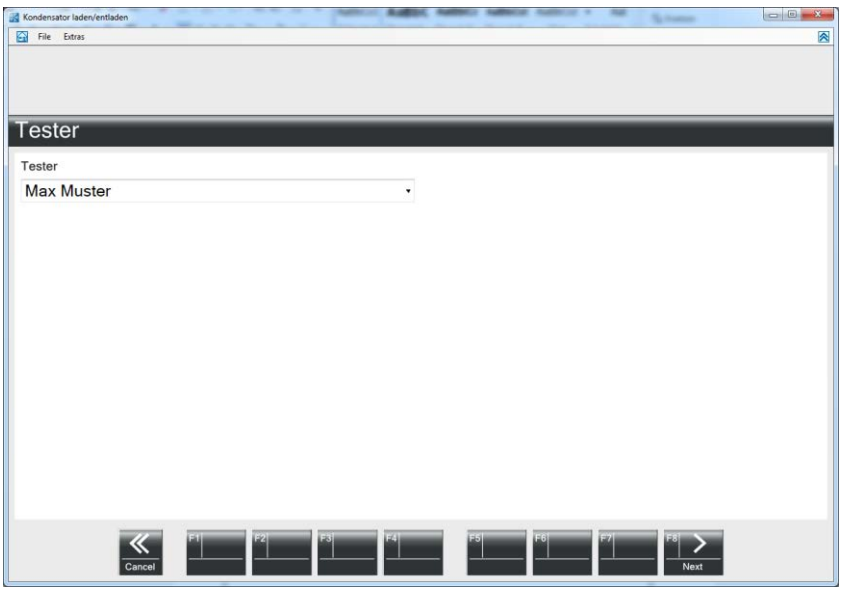

Fig. 4-18 Input operator name

7. Run the device security test.
   Please short-circuit the test tips and press the button on the red handle.
8. When complete, please proceed with **F8 Next**.

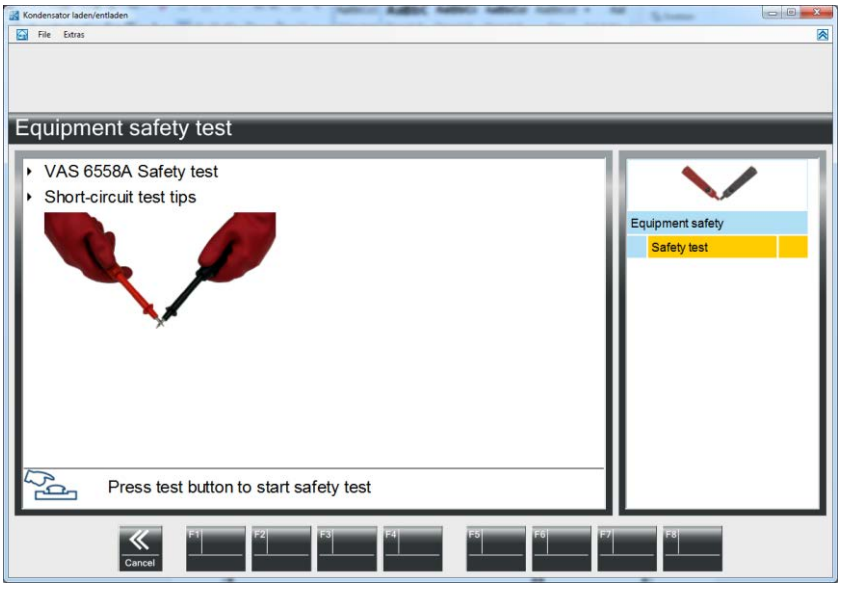

Fig. 4-19 Equipment safety test

Items 9 to 16 describe the sequence done on an e-Up!
For the e-Golf refer to items 17 to 21.

9. Remove the plug from the HV-Battery.

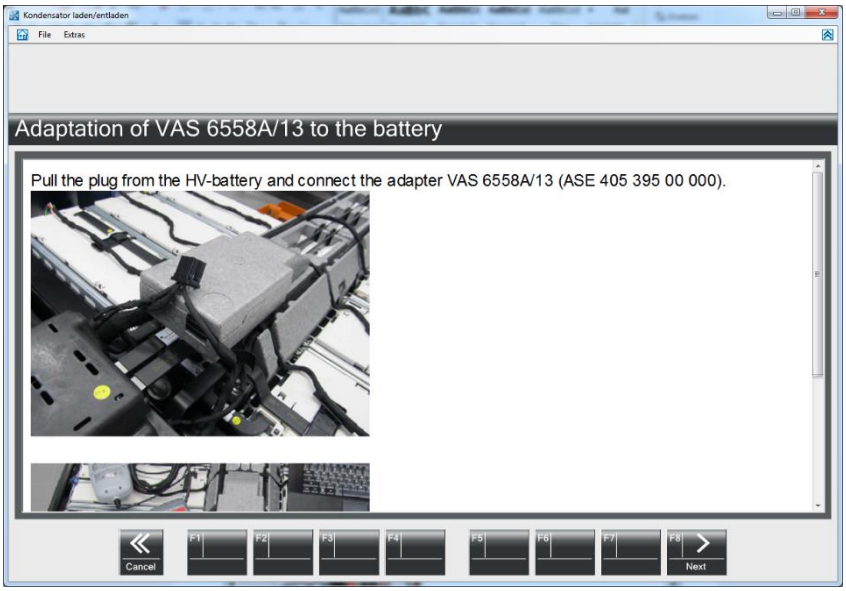

Fig. 4-20 Removing the plug from the HV-Battery

10. Connecting the Adapter VAS 6558A/13 (ASE 405 395 00 000) to the HV-Battery.

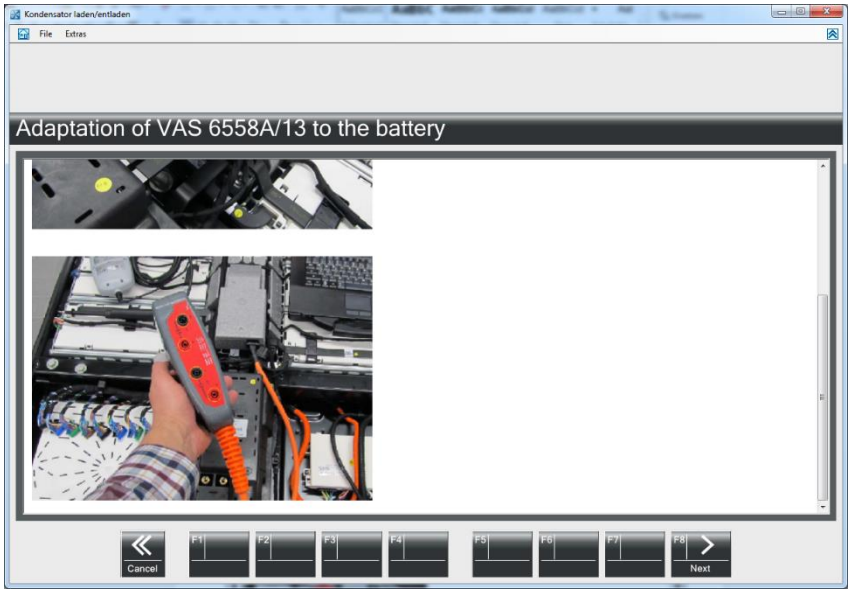

Fig. 4-21 Connecting the VAS 6558A/13 to the HV-Battery

11. Connect the VAS 6558A to the C1-Sockets of the adaptor VAS 6558A/13 (ASE 405 395 00 000).
    Start discharging by pressing the test button on the red handle (keep pressed till finished).

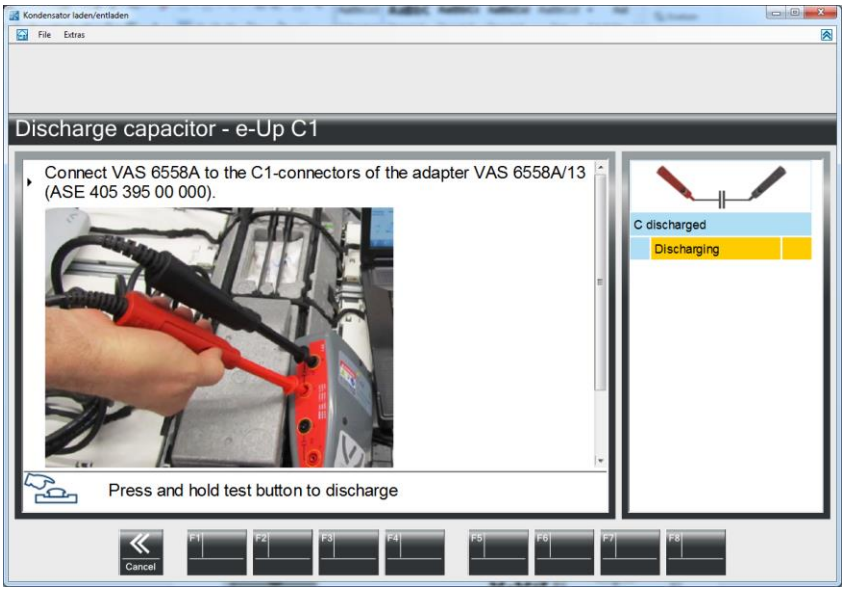

Fig. 4-22 Connect the VAS 6558A to the VAS 6558A/13

12. The capacitor C1 is discharged.
    When discharging has finished, a message is shown „Voltage is below 10V… Please release the test button now to continue”.

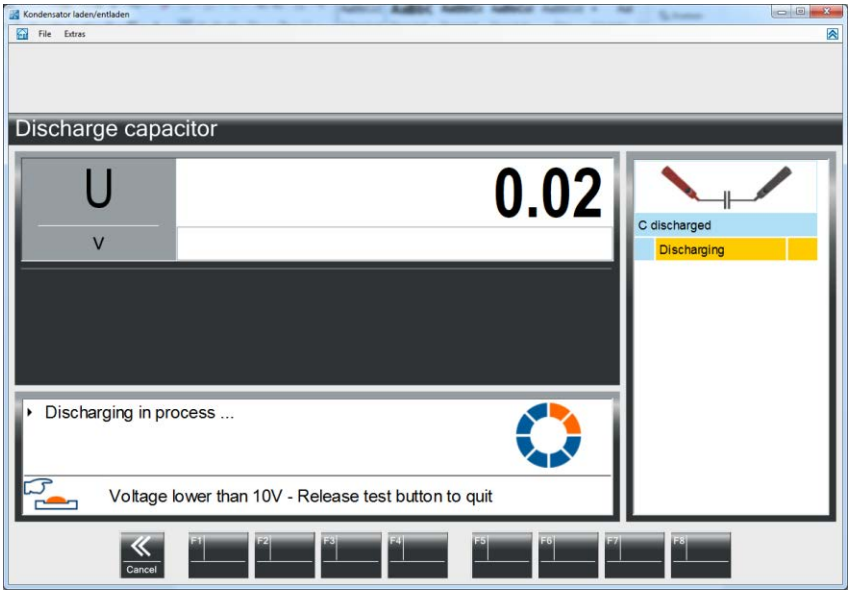

Fig. 4-23 Capacitor C1 discharging

13. After discharging of the C1 capacitor has finished the residual voltage of the capacitor is shown.
Select **F8 Next** to proceed to start the C2 discharge.

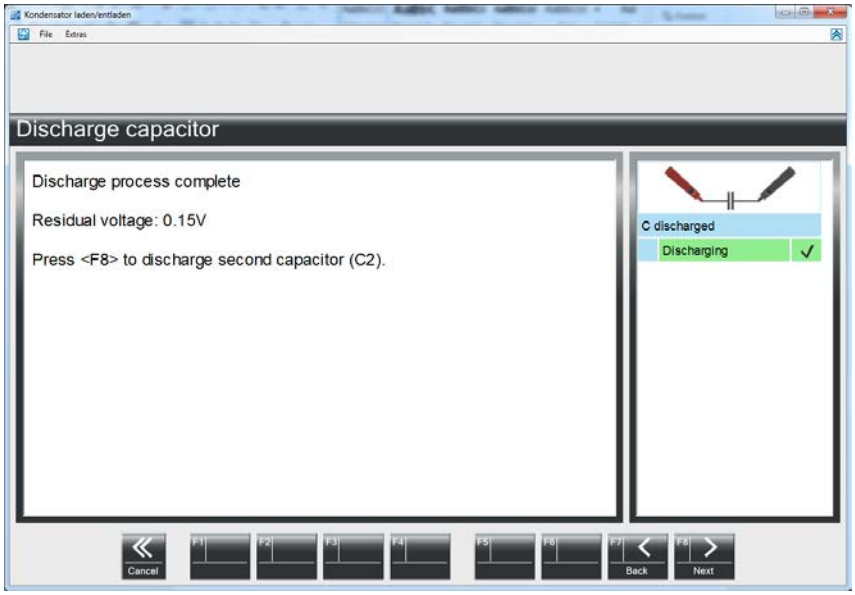

Fig. 4-24 Result

14. Connect the VAS 6558A to the C2-Sockets of the adaptor VAS 6558A/13 (ASE 405 395 00 000).
Start discharging by pressing the test button on the red handle (keep pressed till finished).

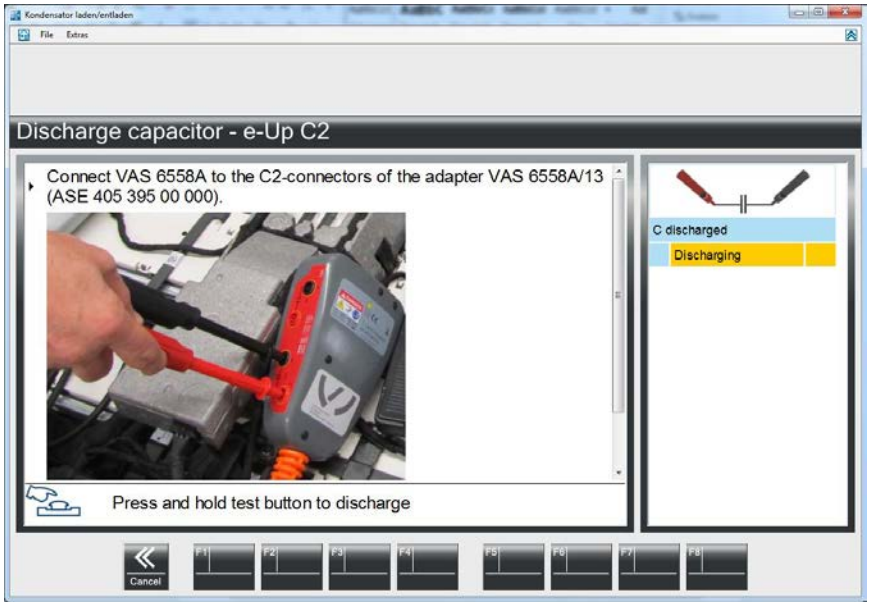

Fig. 4-25 Adaption des VAS 6558A am VAS 6558A/13

15. Capacitor C2 is discharged.
    After discharging has finished release the test button to proceed to the next step.
16. The result document is shown.
    To finish the discharge procedure click **F8 Next**.

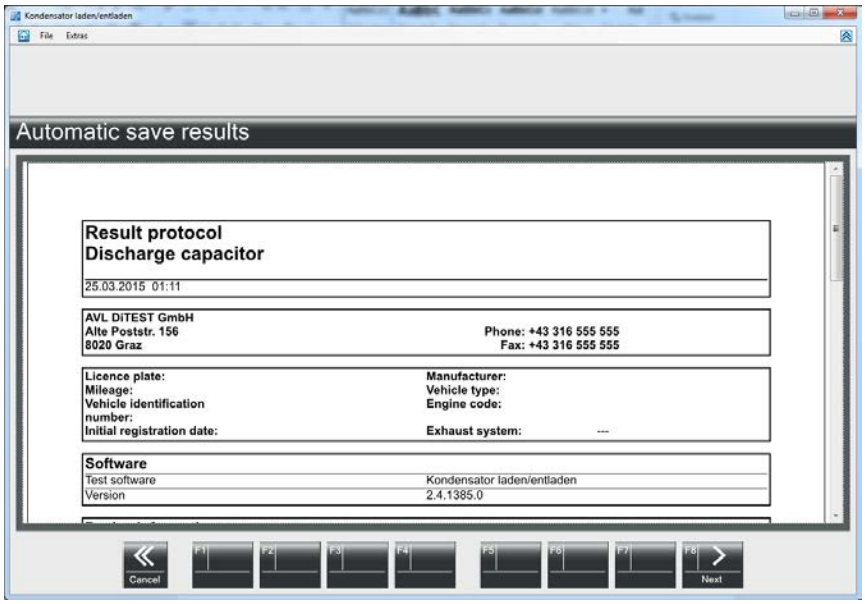

Fig. 4-26 Result protocol

Discharging the capacitor on the e-Golf!

17. Remove conductor rail from module 0.
    Confirm by pressing **F8 Next**, that you have removed the conductor rail.

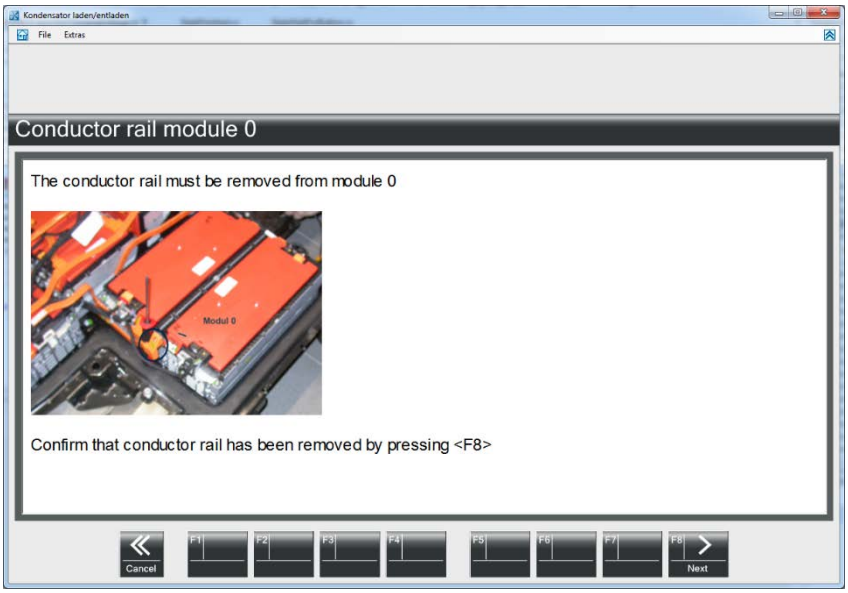

Fig. 4-27 Removing the conductor rail from module 0

18. Contact the VAS6558A measuring leads to the measuring points of the capacitor.
    Press and hold the test button. The capacitor is discharged.

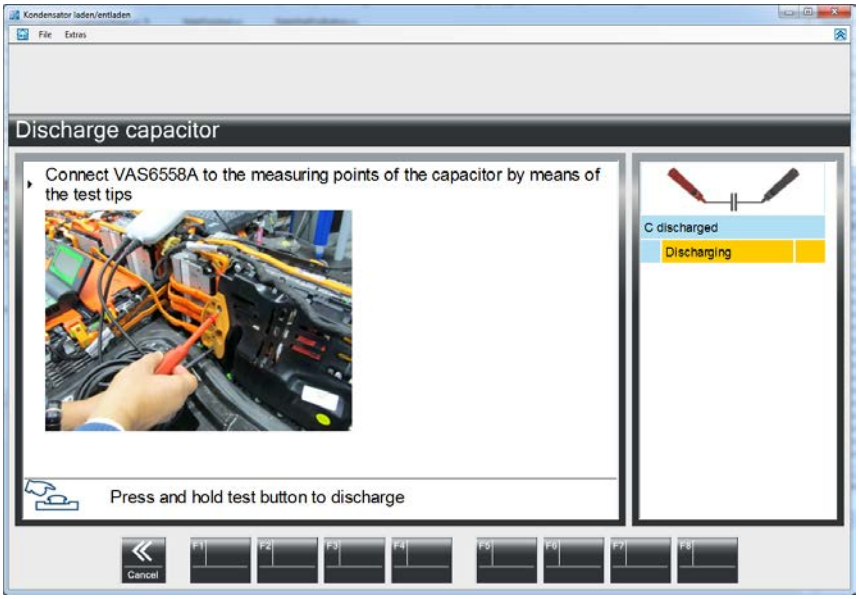

Fig. 4-28 Discharging the capacitor (e-golf)

19. To quit the discharging release the test button.

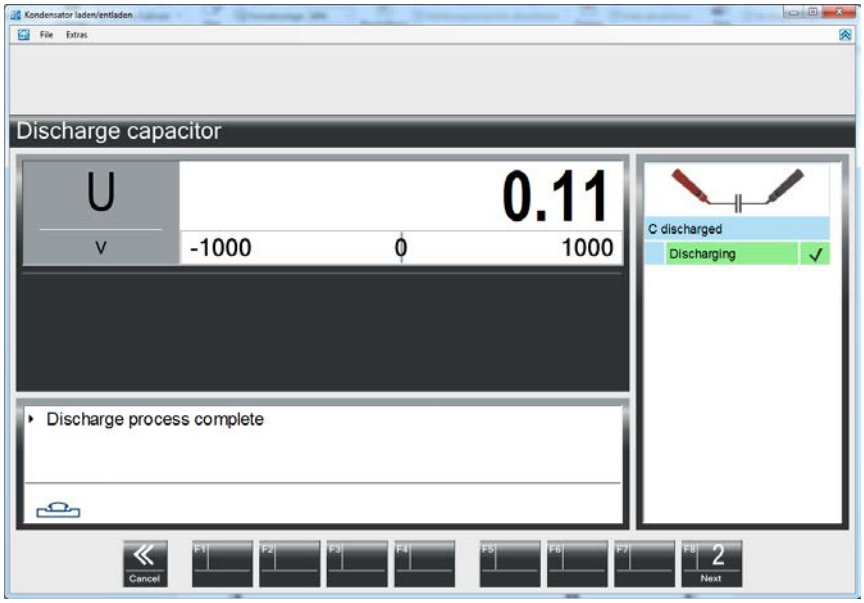

Fig. 4-29 Discharging of the capacitor complete

20. When the capacitor is discharged the residual voltage of the capacitor is shown.
Continue with **F8 Next**.

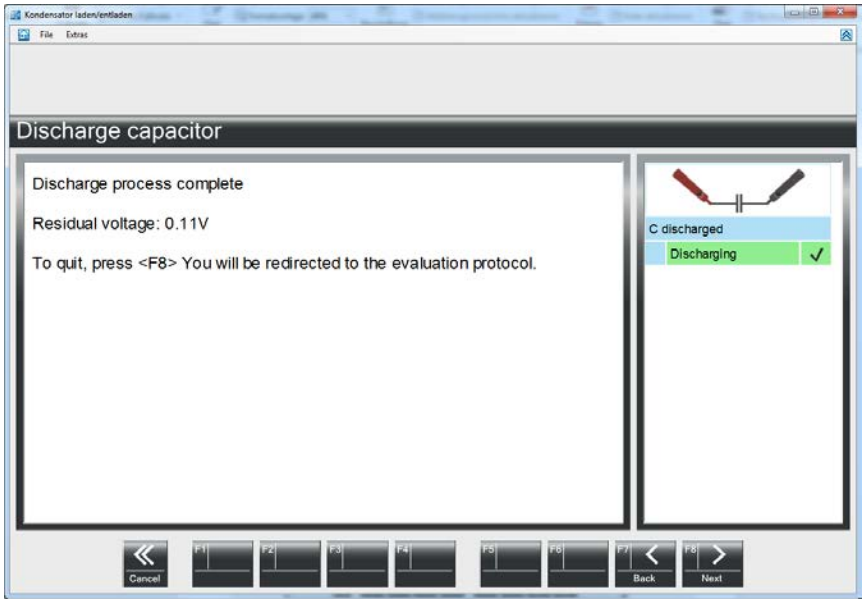

Fig. 4-30 Result screen

21. The result protocol is shown.
    Quit the discharge process by **F8 Next**.

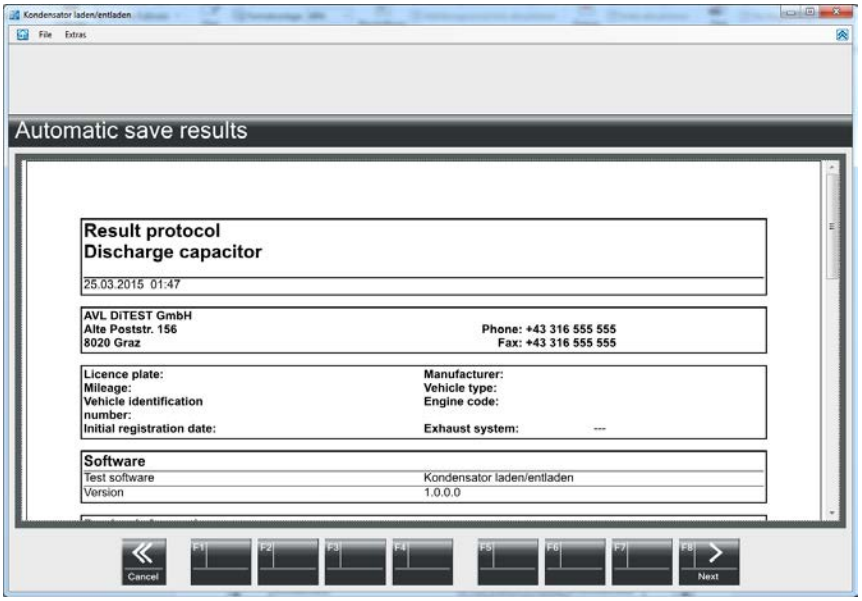

Fig. 4-31 Result protocol

4.4 Charging Capacitor(s)

Hereinafter the charging of capacitors on an e-Up is described.

On an e-Golf it is very similar. Differences are described separately.

1. Start the software by selecting: **Start**│**Programfiles**│**DiTEST**│**VAS DSS**.
2. Click on **Diagnostic**│**Charge capacitor**.

Fig. 4-32 DSS Manager

3. Click at **e-Up – Charge capacitor**.

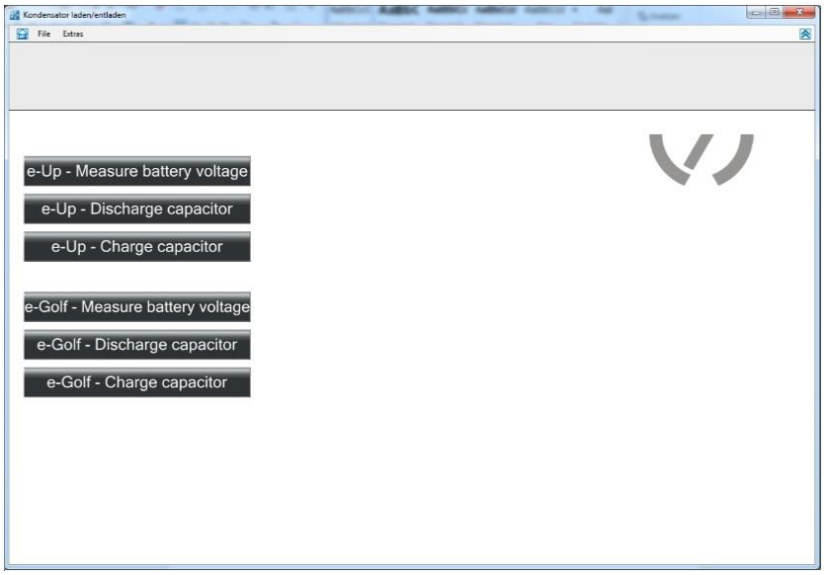

Fig. 4-33 e-Up – Charge Capacitor

4. The next screen shows safety instruction.

WARNING

Read and follow the safety instructions!

5. Follow the safety instructions carefully and click **F8 Next**.

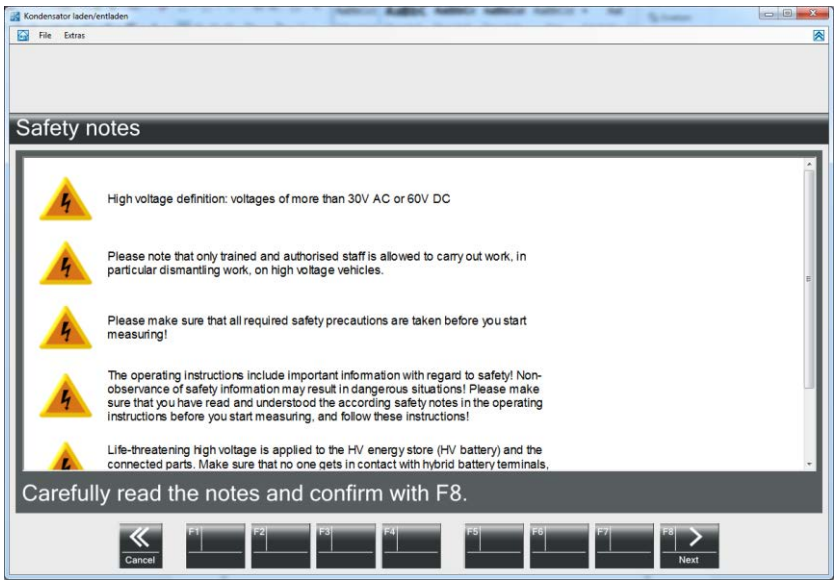

Fig. 4-34 Safety instructions

6. Input your name or select your name from a dropdown list. Confirm your input by **F8 Next**.

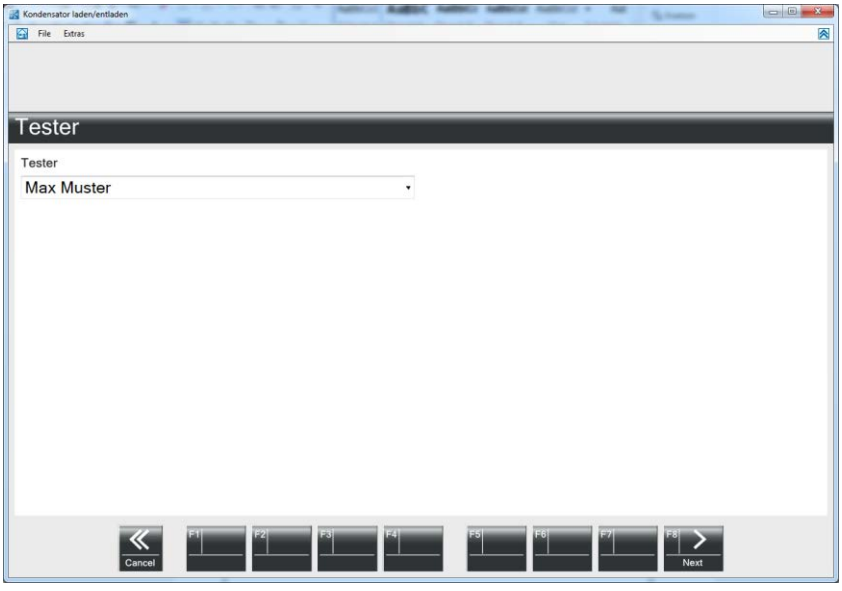

Fig. 4-35 Select Username

7. Run the device security test.
   Please short-circuit the test tips and press the button on the red handle.
8. When complete, please proceed with **F8 Next**.

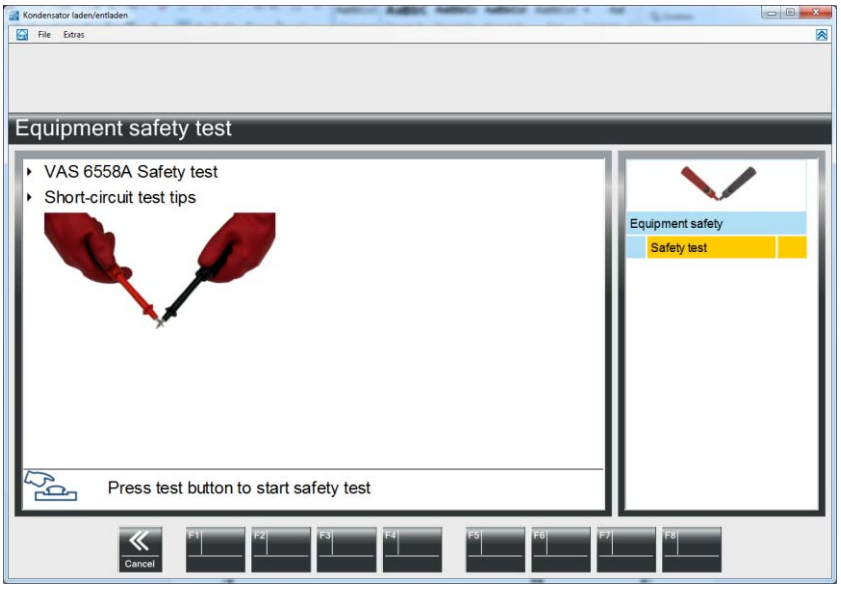

Fig. 4-36 Equipment safety test

Items 9 to 18 describe the sequence on an e-Up!
For the sequence used for the e-Golf note items 19 to 26.

9. Remove the plug from the HV-Battery and connect the Adapter VAS6558A/13. Continue with **F8 Next**.

Fig. 4-37 Remove plug from the HV-Battery

10. Connecting the Adapter VAS 6558A/13 (ASE 405 395 00 000) to the HV-Battery.

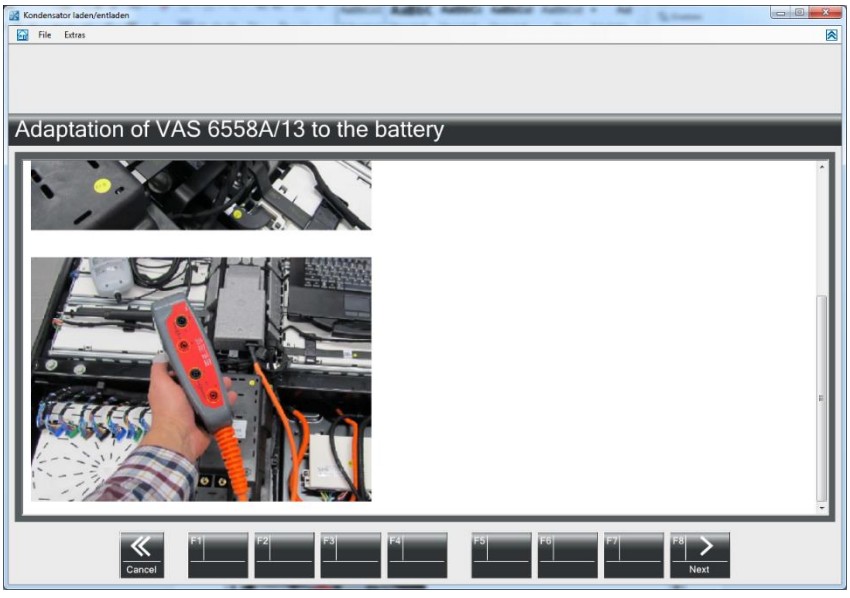

Fig. 4-38 Adaption of VAS 6558A/13 to the battery

11. Please confirm the measured values by pressing **F8 Weiter**.

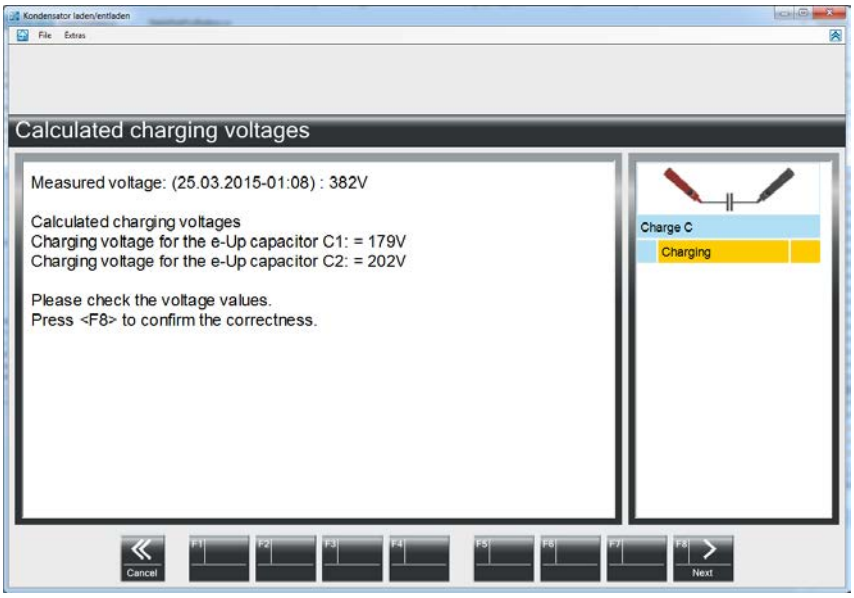

Fig. 4-39 Charging voltages for C1 and C2

12. Connect the Measuring leads of the VAS6558A to the C1 sockets of the adapter VAS 6558A/13 (ASE 405 395 00 000). **Please note the polarity!** Start the charging process by press and hold of the test button (red handle).

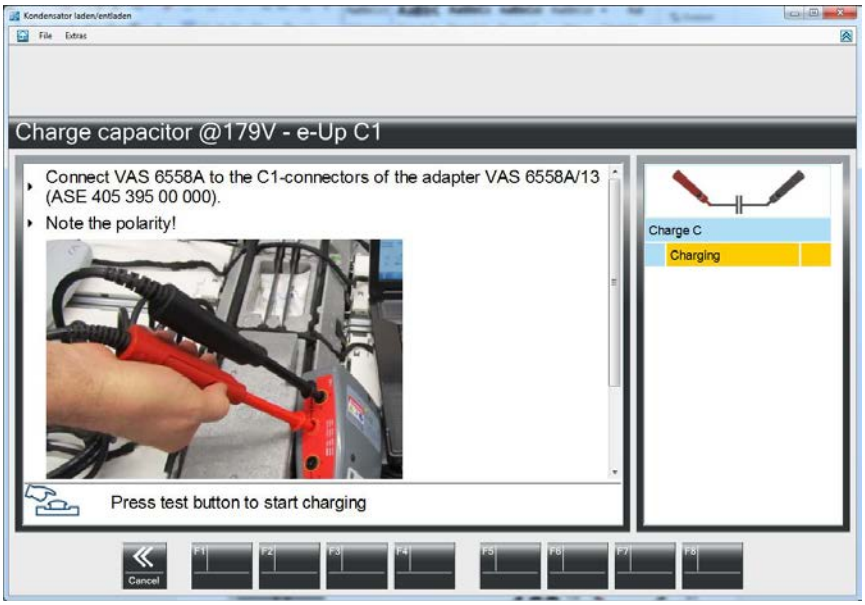

Fig. 4-40 Adaption of the VAS 6558A at the VAS 6558A/13

13. The actual charging voltage is shown.
    If the charging has completed remove the measuring tips immediately.

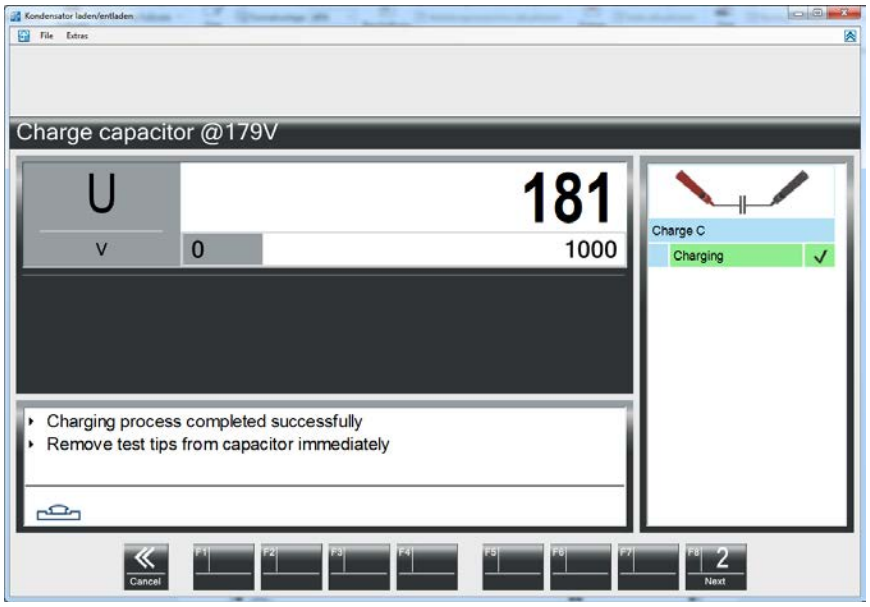

Fig. 4-41 Charging process

14. The result is shown.
    Continue with **F8 Next** to charge capacitor C2.

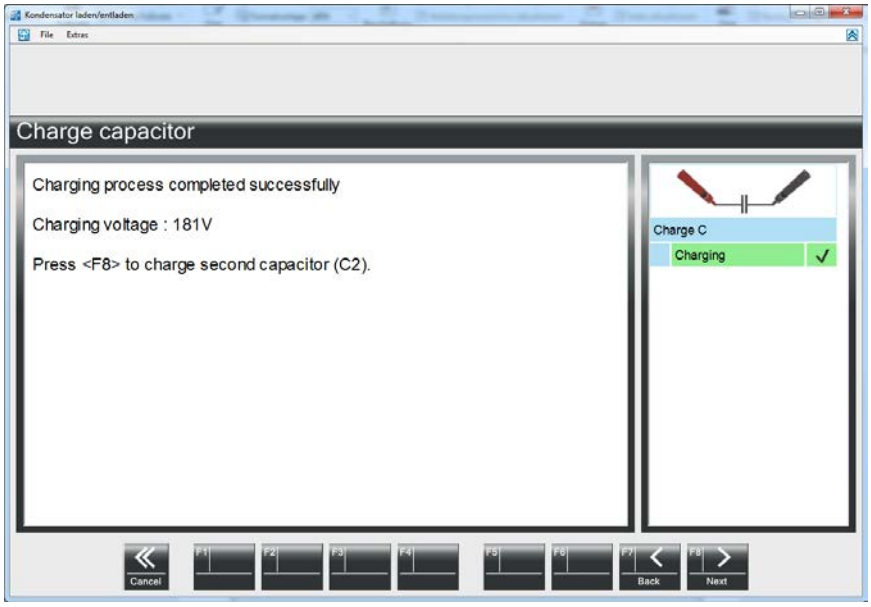

Fig. 4-42 Result

15. Connect the Measuring leads of the VAS6558A to the C2 sockets of the adapter VAS 6558A/13 (ASE 405 395 00 000). Please note the polarity! Start the charging process by press and hold of the test button (red handle).

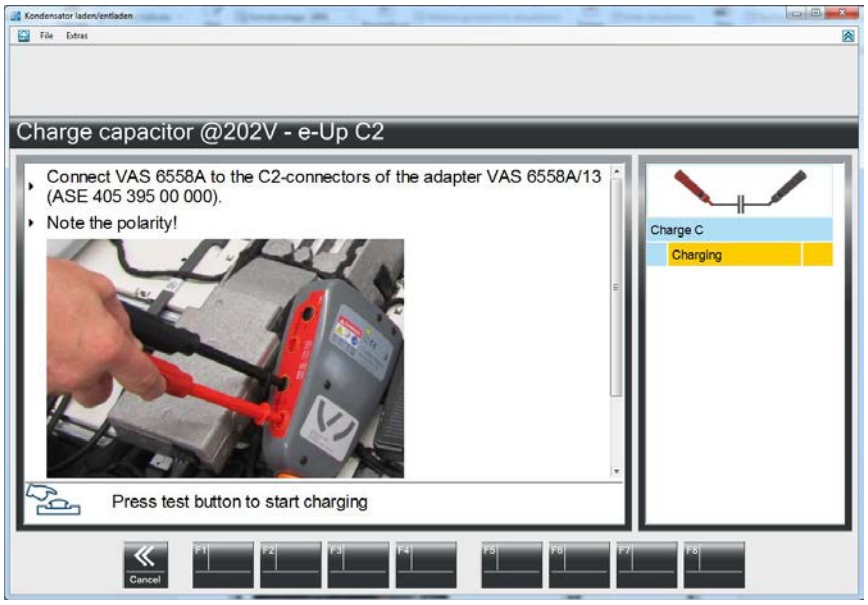

Fig. 4-43 Adaption of the VAS 6558A to the VAS 6558A/13

16. The actual charging voltage is shown.
If the charging has completed remove the measuring tips immediately.

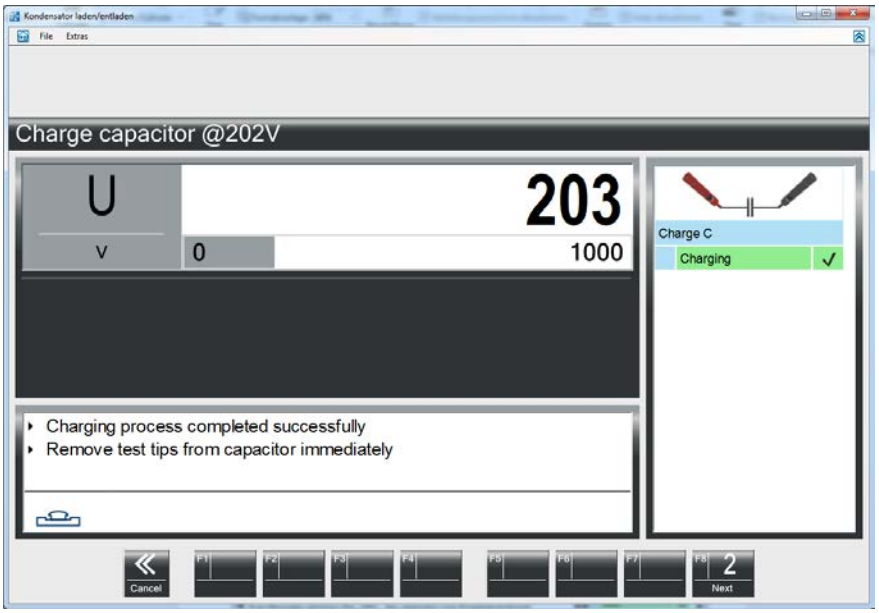

Fig. 4-44 Charge capacitor

17. The result is shown.
    Continue with **F8 Next**.

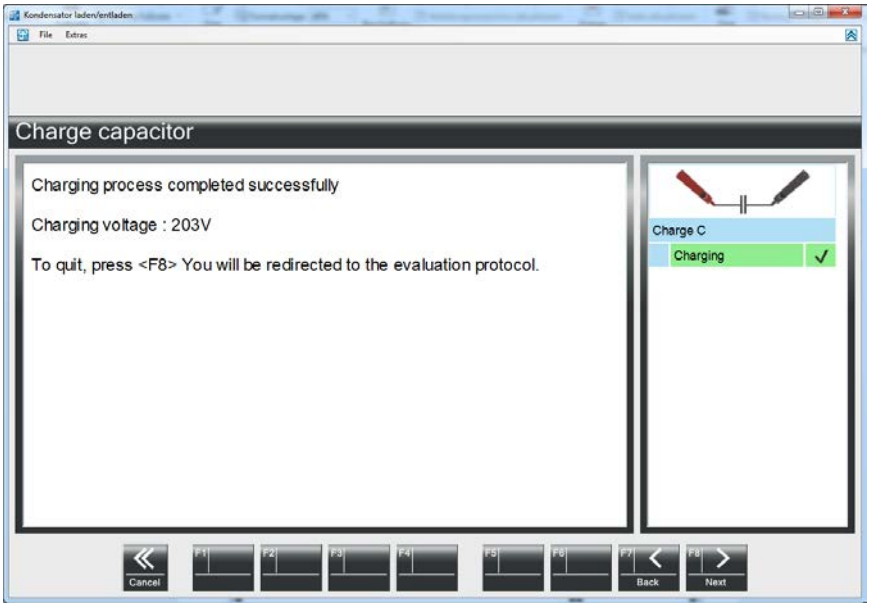

Fig. 4-45 Result

18. The result protocol is shown.
    Quit the discharge process by **F8 Next**.

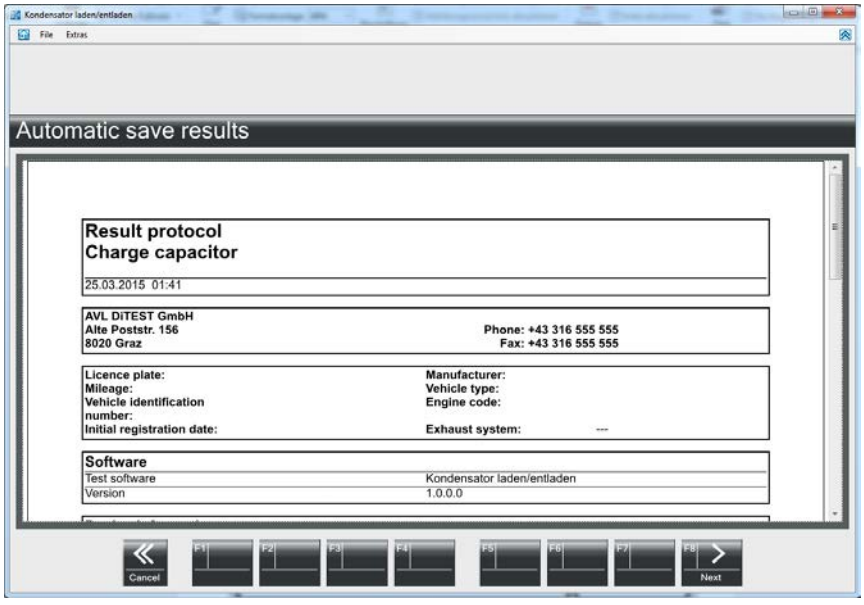

Fig. 4-46 Result protocol

Capacitor charging on e-Golf!

19. Remove the plug from the HV-Battery and connect the Adapter VAS6558A/13. Continue with **F8 Next**.

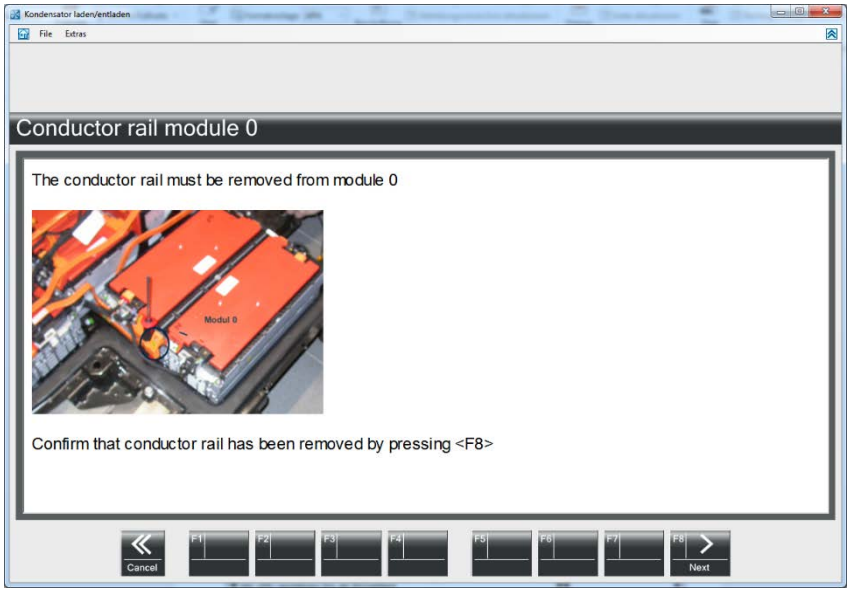

Fig. 4-47 Remove plug from the HV-Battery

20. Connecting the Adapter VAS 6558A/13 (ASE 405 395 00 000) to the HV-Battery.

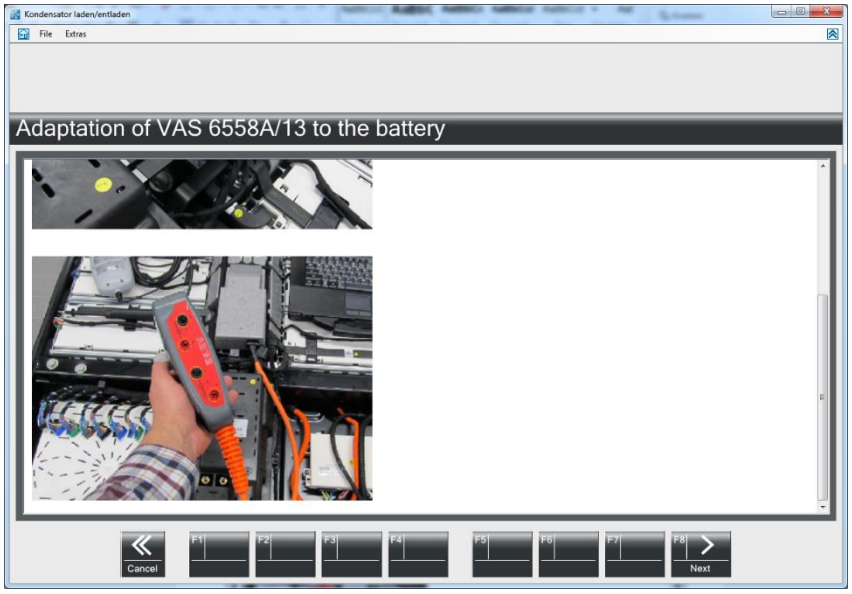

Fig. 4-48 Adaption of VAS 6558A/13 to the battery

21. Contact the VAS6558A measuring leads to the measuring points of the capacitor.
    Press and hold the test button. The capacitor is discharged.

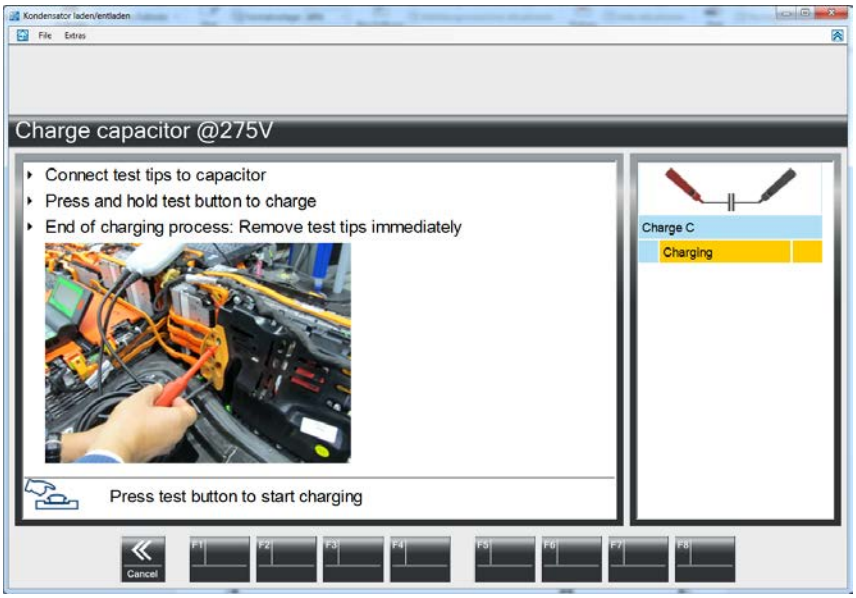

Fig. 4-49 Charging the capacitor

22. The actual charging voltage is shown.
    If the charging has completed remove the measuring tips immediately.

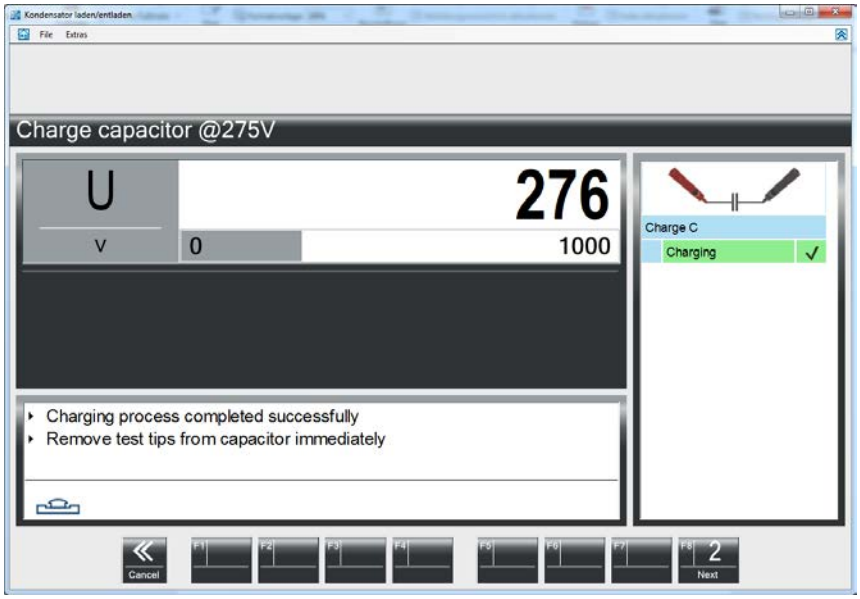

Fig. 4-50 Charging of the capacitor complete

23. The result is shown.
    Continue with **F8 Next**.

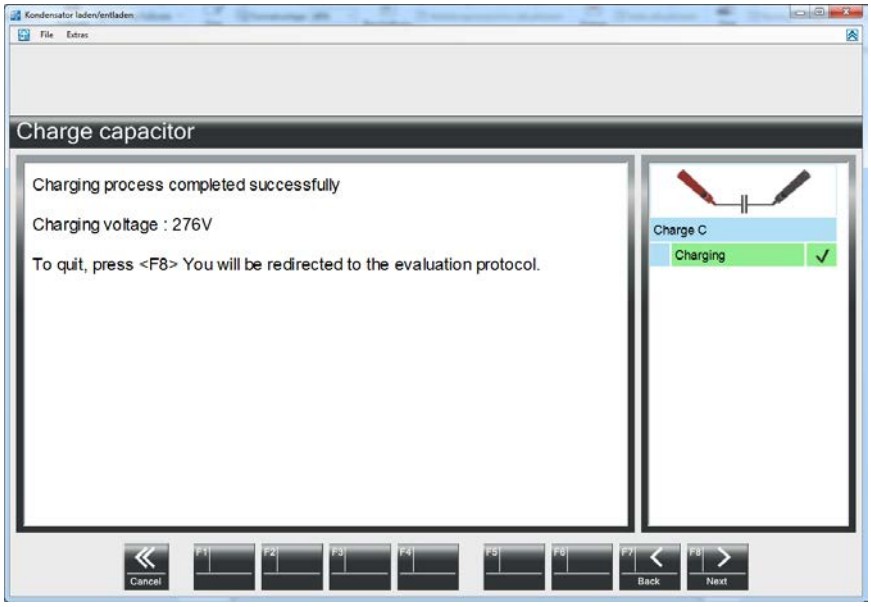

Fig. 4-51 Result

24. The result protocol is shown.
    Quit the discharge process by **F8 Next**.

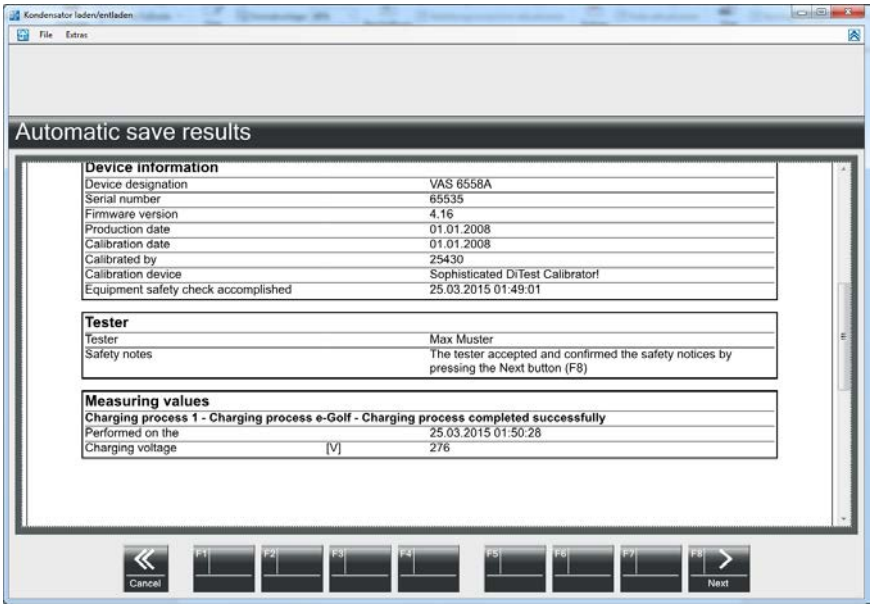

Fig. 4-52 Result protocol

5 Troubleshooting

Maintenance

DANGER

Danger to life by electrical shock

Maintenance is only allowed by service staff!
Do not open the VAS 6910, because exposed parts can have dangerous voltages!

6 Maintenance and care

6.1 Optical check

Carry out a regular optical check of the VAS 6910, USB cable and measuring cables with the test adapters.
Check for damage and dirt.

CAUTION

Damaged Parts (housing, adapter and US cables) have to be exchanged immediately!

6.2 Cleaning

If the housing is dirty and you want to clean it, please use a lint-free, moist (not wet) cloth.

CAUTION

Remove all adapter cables! Be sure that no liquid is flowing into the housing!

7 Technical data

7.1 Operating data

Dimensions (W x L x H)	120x180x60 mm without cable Cable length 900 mm	
Weight	approx. 0,5 kg	
Ambient conditions Operating	Ambient temperature Relative humidity Max. height	0 to +40 °C at max. +25 °C 10 to 80 % non-condensing 4000m
Transport and storage	Ambient temperature Relative humidity	-20 to +55 °C at max. +20 °C 10 to 80 %, non-condensing
Electrical protection and storage	**Safety regulations** - DIN EN 61010-1 + DIN EN 61010-2-030 - IEC 61010-1 + IEC 61010-2-030 - VDE 0411-1 - UL 201 GARAGE EQUIPMENT	
External interfaces 4 x Banana sockets 1 x Connector	For connecting to the VAS 6558A test adapter! For connecting to the HV battery of VOLKSWAGEN e-Up!	
Disposal 	This product is a high-quality electrical and electronic device that must not be disposed of with household waste. For disposal, it is essential to comply with local legal obligations!	

8 Fault report fax

Fax No.:_____

Please fill in the relevant sections completely (if possible in English, French or German) and then fax it to the relevant regional service center, see Service information, chap. 3-1 Regional service centers.

1. Registration details

Serial number _____

Is your warranty still valid (24 months)? Yes ❑

2. Dealership details

VW-affiliate workshop ❑	Independent workshop ❑
Sales centre / importer no.[1] _____	Dealership number[1] _____
Name of company _____	Tax ID no.[2] _____
Contact person _____	Telephone / Fax _____
Postal address:	Delivery address (if different to postal address):
Street _____ No. _____	Street _____ No. _____
Postal code City _____	Postal code City _____
Country _____	Country _____
Phone-No. _____	Phone-No. _____
Fax. _____	Fax. _____

1. As to be entered / already entered on the tester (see Operating Manual)
2. For EU countries only

Please provide additional information as requested on the following page.

Fault report fax, second page

3. Description of problem

Basic problems

Was the start-up dialogue box displayed on-screen? Yes ❑
Can you load/launch the program? Yes ❑

Fault image or error message: _____

_____

_____

_____

_____

_____

_____

_____

_____

Is the fault reproducible? Yes ❑
Does the fault occur sporadically? Yes ❑

What software versions are you running?

Software: _____

Please provide additional information as requested on the following page.

Fault report fax, third page

In which operating mode did the fault occur?

During charging? Yes ❑
During discharging? Yes ❑

Last note text of the program:

_____

Space for further messages:

_____

_____

_____

_____

_____

Does the fault report fax have any attachments?

Screenshot with error messages? Yes ❑

We have read the service conditions for the replacement of components and we hereby accept these conditions.

City _____ Date _____ Signature _____ Stamp

9 Index

VOLKSWAGEN AG

We have checked the contents of the documentation to ensure they correspond to the status described. Nevertheless deviations cannot be entirely excluded and we cannot therefore guarantee complete agreement. The information in this documentation is however regularly reviewed and any corrections necessary will be incorporated in the next edition. We will be grateful to receive suggestions for improvement.

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VOLKSWAGEN AG
KD-WERKSTATTAUSRÜSTUNG
D-38436 Wolfsburg

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Manufacturer:

AVL DiTEST GmbH
Alte Poststrasse 156
8020 Graz
AUSTRIA

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