

Y1A, Y1B, Y1C- High-Voltage (HV) Battery Measurements during HV Battery Repair

Vehicles Affected

Models	Model Year	Model Type	VIN Range	Vehicle-Specific Equipment
Taycan	All	Y1A, Y1B, Y1C	All	N/A

Revision History

Revision	Release Date	Changes
0	November 6, 2025	Original document
1	November 11, 2025	- Update to <i>Figure 2</i> - Update to <i>IR Testing Pass/Fail Criteria</i> section on page 8
2	December 1, 2025	- Update to <i>General DST Procedure Updates</i> section - Update to <i>IR Testing Pass/Fail Criteria</i> section failure threshold - Update to Model Years
3	March 6, 2026	- Addition of <i>Figure 2, 4, and 5</i> - Update to Service Information - Update to General DST Procedure section - Update to DST Procedure for 28-module Taycan Battery Pack section - Update to DST Procedure for 33-module Taycan Battery Pack section - Update to IR Measurement Procedure section
4	April 1, 2026	- Update to <i>Figure 2, and 4</i> - Update to Warranty
5	April 24, 2026	- Update to <i>Figure 1-5</i> - Update to Service Information
6	June 22, 2026	- Update to Condition - Update to Service Information

Advanced Technical Information

Bulletin #: 2518.6

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Condition

All Taycan HV batteries are subject to dielectric strength and insulation resistance (IR) testing after repair according to Workshop Manual WM 270803A5 Performing measurements on the high-voltage battery. In some cases, the VAS 6972 measurement equipment can report a failed Dielectric Strength test (DST) or the VAS 6558A can report a failed IR test. This bulletin serves two purposes. One is to provide an updated test procedure to more accurately isolate test failures, and the second is to serve as an updated diagnostic guide for interpreting the test results. Every safety warning and HV certification requirement from the Workshop Manual also applies to the work instructions contained in this document. Measurement specifications or component replacement requirement guidance listed in this bulletin take precedence over those stated in the Workshop Manual until this bulletin is removed or the workshop manual is updated.

Technical Background

When performing post-repair validation of a Taycan HV battery, it is important to differentiate the purposes of dielectric strength testing and insulation resistance (IR) measurements. Dielectric strength tests assess the ability of the battery's insulation system to withstand a specified high voltage limit without breaking down, ensuring the overall integrity and safety of the high-voltage system under extreme electrical stress. In contrast, IR measurements quantify the resistance of the insulation material to direct current leakage, indicating the quality and degradation of the insulation over time before leading to an insulation fault. Both tests are required according to the Workshop Manual.

Service Information

The updated work instructions for dielectric strength testing are differentiated by HV battery variant in the sections below. Updated IR measurement work instructions apply to both variants. The general order of measurements taken at each point is the same as described in WM 270803A5 Performing measurements on the high-voltage battery.

1. Split the battery modules into sections by removing the specified busbars.
2. Perform an IR measurement on the first section.
3. Perform a DST on that section.
4. Perform an additional IR measurement on that section.
5. Move on to the next section.

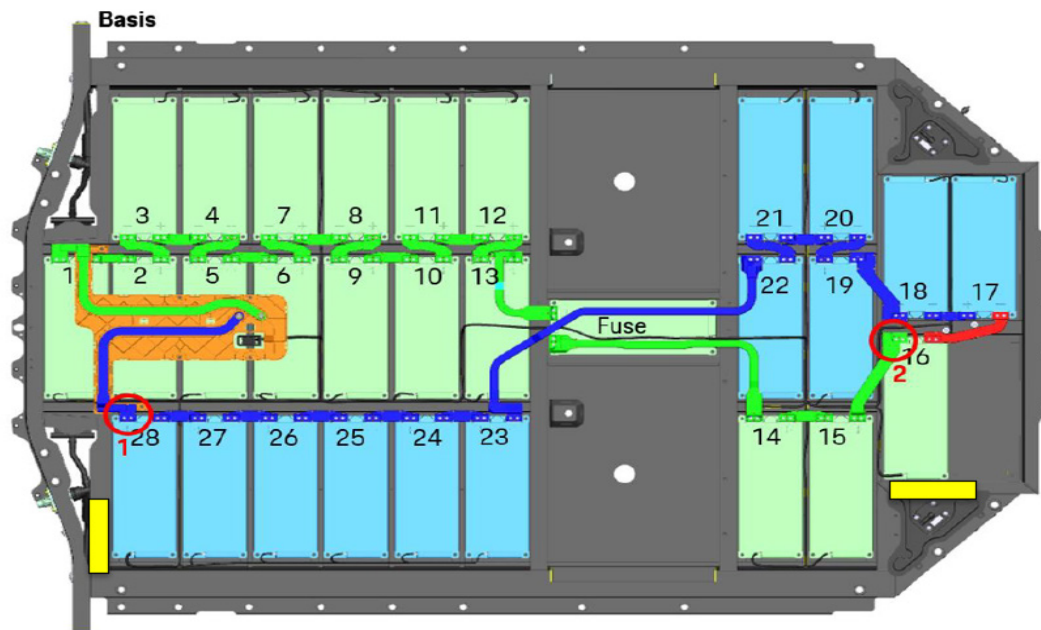
Flowcharts of this process for each battery variant are available in figures to follow. The end step "Proceed with subsequent work" can refer to the next measurement point or completion of the repair depending on scenario.

General DST Procedure Updates:

- Due to the limited cable length of the VAS 6972, grounding to the equipotential bonding line is not possible from all measurement points. The use of the original VAS 6972 ground clamp on the equipotential bonding line is therefore no longer permitted.
 - Hand-start a clean lid screw into the frame near the designated measurement point and clamp the VAS 6972 securely to it to ground the tool.
 - An equipotential bonding test can be performed between the screw and equipotential bonding line to verify a good ground path.
- Suggested grounding points for DST and IR testing on both 28- and 33-module Taycan battery packs have been modified from WM 270803A5 and are detailed below in *figures 1 and 3*.
- During a DST, only personnel with a 40 Cal Arc Flash suit and Porsche-approved PPE may be permitted within the cordoned HV safety zone around the battery pack.
- Perform the self test and safety test for the VAS 6972 tool every time before first use during each repair.
- Do not perform an additional DST back to back on any measurement point to confirm a value.
 - Any DST must only be performed once per point if a result is obtained. Only retry a test if it does not yield a result.
 - If a valid result (pass/fail) is still not possible after 2 attempts at the same point, contact technical support via PRMS.
 - Do not perform a follow up DST after replacing modules in a failed section.

DST Procedure for 28-module Taycan Battery Pack (Figure 1)

- Only two DSTs are required on a 28-module battery pack during repair.
- The busbar indicated in red must be removed prior to measurements at either point.
- Perform an IR test at points 1 and 2 before the DST at those points.
- Perform a DST only at points 1 and 2 shown below for each repair scope.
- The yellow boxes in *Figure 1* designate the sections of frame where a lid screw can be hand-started to ground the dielectric strength tester.
- Also perform IR tests at points 1 and 2 after a DST, with the negative probe in contact with a clean spot on the silver frame surface designated by the yellow boxes.
- If the final IR test (IR2) at **measurement point 1** fails, remove busbars and CMC connections from each module shaded in **light blue** for further IR testing as described in the following *Updated IR Measurement Procedure* sections.
- If the final IR test (IR2) at **measurement point 2** fails, remove busbars and CMC connections from each module shaded in **light green** module for further IR testing as described in the following *Updated IR Measurement Procedure* sections.
- EXAMPLE: Point 1 passes DST and IR2 while point 2 passes DST but fails IR2.
 - Perform IR tests on each light green module in the failing section (In this example, section 2). No additional work is required for the passing modules in section 1.



Picture 2: Base-Battery

 Probe contact point

Figure 1 - 28-module HV Battery measurement points

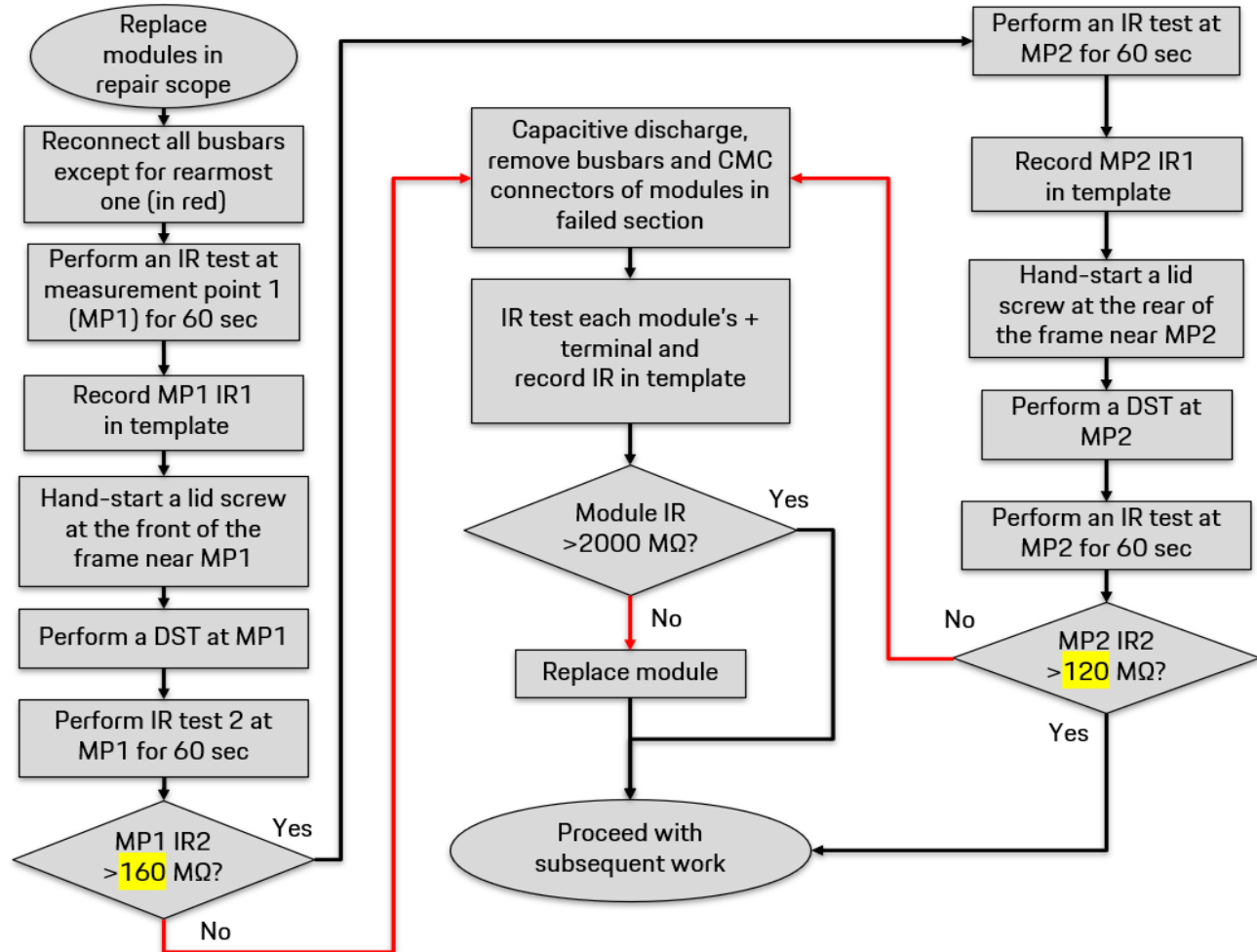


Figure 2 - 28-module Flowchart

DST Procedure for 33-module Taycan Battery Pack (Figure 3)

- Only three DST's are required on the 33-module battery pack during repair.
 - Perform a DST at points 1, 2, and 3 for any repair scope involving the lower-level modules.
 - Repair scopes in only the upper "T" section require an initial DST at the mid-pack fuse as shown in step 3.9.3 of Safety test after assembly work on the high-voltage battery with 33 modules in WM 270803A5 instead of point 3 in *Figure 3*.
- If removed, the upper "T" Section should be placed aside on a VAS 6762/44 Insulating mat during testing.
- Perform an IR test at points 1, 2 and 3 before the DST at those points.
- The yellow boxes in *Figure 3* designate the section of frame where a lid screw can be hand-started to ground the dielectric strength tester. If performing a DST on the mid-pack fuse, use the location on the upper "T" section to ground the negative clamp as described in the General DST Procedure Updates section.
- Perform IR tests at points 1, 2, and 3 after a DST, with the negative probe in contact with a clean spot on the silver frame surface designated by the yellow boxes.
- If the final IR test at **measurement point 1** fails, remove busbars and CMC connections from each module shaded in **light blue** for further IR testing as described in the following *Updated IR Measurement Procedure* sections.
- If the final IR test at **measurement point 2** fails, remove busbars and CMC connections from each module shaded in **light green** for further IR testing as described in the following *Updated IR Measurement Procedure* sections.
- If the final IR test at **measurement point 3** fails, remove busbars and CMC connections from each module **in the upper "T" section** for further IR testing as described in the following *Updated IR Measurement Procedure* sections.
- **EXAMPLE:** It is possible for battery to have point 1 pass, point 2 pass, and point 3 fail the IR2 measurement. It would then only be required to perform further IR tests on each module in the upper "T" section. No additional work would be required for the passing lower sections.

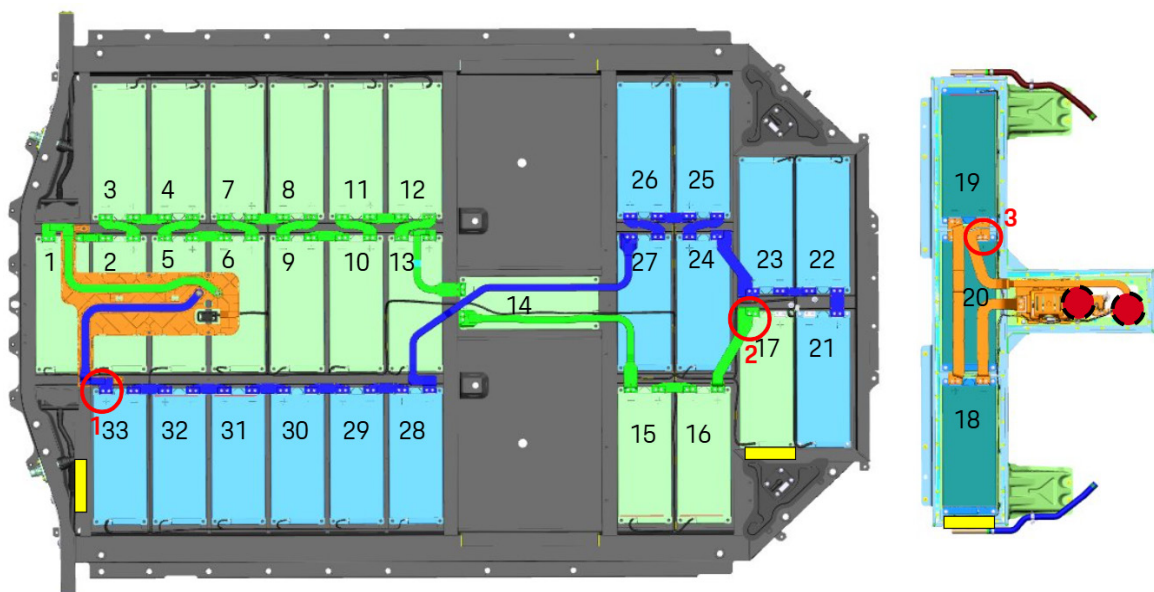


Figure 3 - 33-module HV Battery measurement points

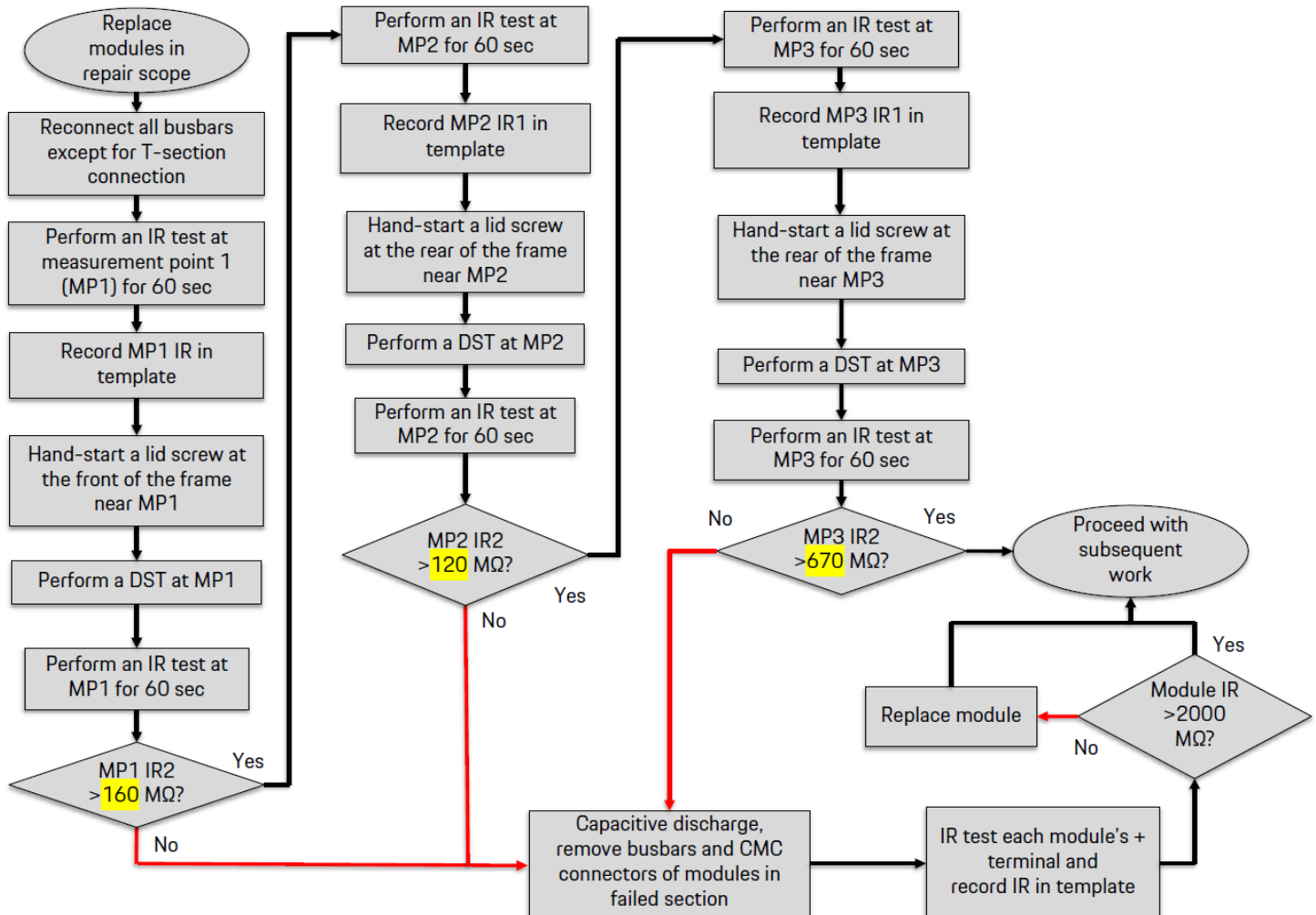


Figure 4 - 33-module Lower Section Flowchart

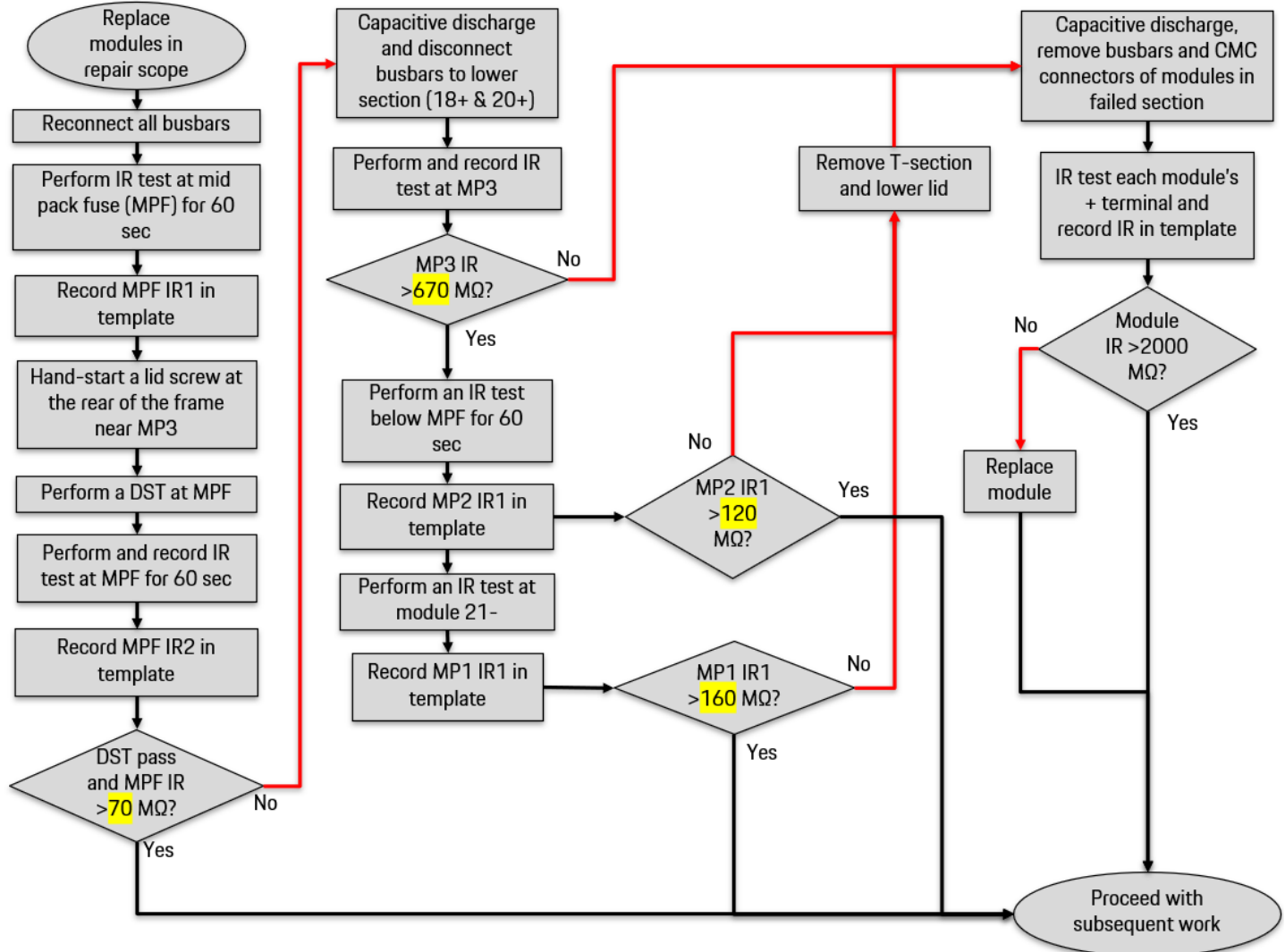


Figure 5 - 33-module Upper Section Flowchart

Updated IR Measurement procedure after a DST Failure:

- Perform IR tests at each measurement point in *Figures 1* and *3* before and after a DST at that point.
 - If the DST passes but IR falls below the thresholds in *Figures 2, 4, and 5*, proceed with IR testing each module.
 - If the DST fails but all modules in the section pass IR, proceed with the repair.
- For repair scopes only in the upper level, IR test the upper and lower sections separately after an initial DST failure according to the flowchart in *Figure 5*.
 - These measurement points identified below the mid-pack fuse in *Figure 3* serve as alternates to MP1 and MP2 as referenced in the *Figure 5* flowchart when the lower lid is still installed.
- Discharge capacitance and remove all the busbars from modules of failed section(s) differentiated by green and blue in *Figures 1 and 3*.
- Monitor the rate of capacitive discharge on each busbar during removal. Noticeably slow discharge or inconsistent voltage behavior can also point to a damaged module. Keep in mind that a battery with high SoC will also lengthen the capacitive discharge process.
- Replace all busbars removed during repair.
- Carefully disconnect all CMC connectors from the modules of failed section(s).
- IR testing is conducted using VAS 6558A or VAS 6558B with both 1000V straight probes on the test leads.
- The equipotential bonding cable is no longer used as a ground point for these module IR tests.
- Once the leads are applied, the capacitive voltage will drop on the PIWIS Tester screen. Please allow the voltage to dissipate to under 20V before continuing, otherwise the test may fail or be inaccurate.
- Press the button to start the measurement (as before).
- You can now observe the increase in the test voltage to 1000V and the measured value (resistance).
- A timer starts to show the measurement time.
- The measurement is carried out until either:
 - 60s measurement time is reached
 - The target value has been reached
- After releasing the button, keep the measuring tips in contact with the components (as before) until the test voltage has fallen below 10V in the display.
- **The measurement no longer stops automatically.** This allows for flexible use of the software and leads to fewer interruptions during execution.

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Module IR Testing Procedure: Positive Terminal (Figure 6)

- **WEAR CERTIFIED HV GLOVES** for your safety and the accuracy of the measurement.
- Place the red probe at the edge closest to the black plastic surrounding the terminal to avoid scratching the conductive surface.
 - ▷ CAUTION: pay attention to the angle of the red probe in this case. Avoid contact with the side of the probe and the edge of the module housing. Use a plastic probe cap to expose only the tip of the probe if available.
- Maintain contact with the black probe to the module case in the center. Ensure that the module casing surface is clean at the point of contact.
- The equipotential bonding cable is not suitable as a ground point during this test. Use both straight probes directly on the module to isolate conductive influences.

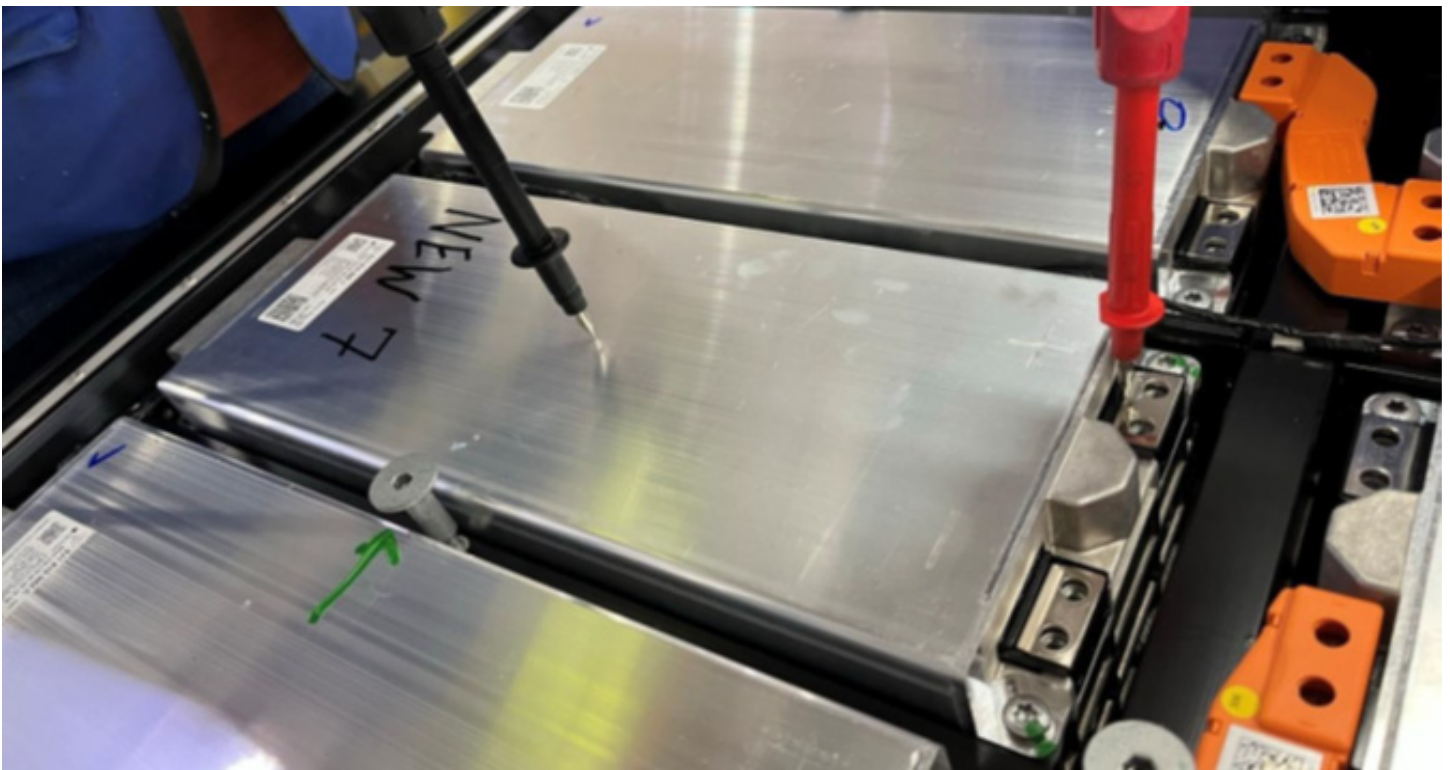


Figure 6 - IR Test at Positive Terminal

IR Testing Pass/Fail Criteria (Figure 7)

- Shown below is an example of passing test result for section 1 or 2 after 60 seconds of measuring time. This reading can still be displayed as >5000 MΩ when IR measures above the internal software measuring threshold.
- If any individual module terminal IR test shows a number below 2000 MΩ after 60 seconds of continuous measuring time, this is considered a failure.
 - If more than 5 modules in a failing section measure below 2000 MΩ, submit the completed Taycan HV Battery Insulation Resistance Template to Technical Support via PRMS.
- If IR is below the minimum measurement threshold, the IR test won't complete in the measurement equipment display. If the IR test fails to produce a value after multiple attempts on any module terminal, replace it.
- Document any failures in the "Taycan HV Battery Insulation Resistance Template" Excel file attachment and attach to the repair PCSS entry.

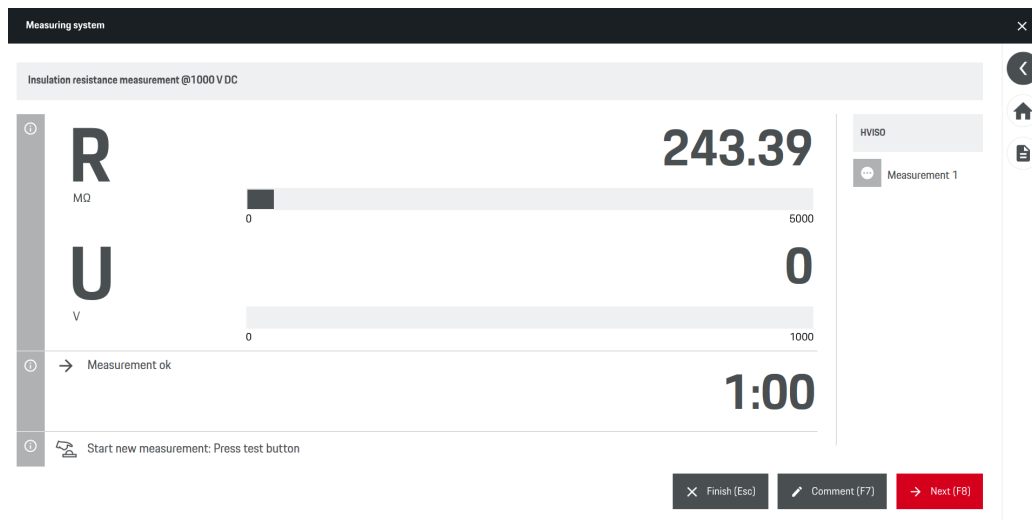


Figure 7 - Insulation resistance measurement in PIWIS Tester

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Warranty

For documentation and warranty invoicing, enter the working position and PCSS encryption specified below in the warranty claim:

APOS	Labor operation	I No.
27080375	High-voltage battery measure	

In the event of an IR2 failure, use the following labor operation for additional labor:

APOS	Labor operation	I No.
27080499	Insulation Resistance measurements	

PCSS encryption:

Location (FES5)	2708G	Cell block module
Damage type (SA4)	4053	Voltage loss/drop

Search Items

HV Battery, Isolation resistance, Dielectric strength, Safety test after assembly work, Insulation resistance measurement

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