

# Daily HV Startup Checklist V1.10

Check done by

Date and Time

Location

Chassis No.

MGU S/N

MCU S/N

ESS S/N

DCDC S/N

HCU S/N

The following checklist is to be performed each day prior to vehicle work or operation. The checklist is applicable only when:

1. The hybrid system and interfaced components have not been installed, changed, removed, or modified since the previous usage. This includes: The ESS, MGU/bell housing, and any HV or PE circuit connection. Excluded: HCU, LV hatch connections, and coolant system serviced with components in place.
2. Successful hybrid system ESS & vehicle commissioning has been performed and are on record.

Should either of the above conditions not be met, the applicable commissioning checklist must be performed (ESS and/or vehicle commissioning checklists).

At the end of the day's operation, the Team should take appropriate steps to secure the Hybrid system. See Vehicle De-Commissioning Checklist

Refer to **9.11 Reference Information** of the System Documentation for examples of measurement points and measurement adapter usage.

## Visual Inspection

Inspection of hybrid system in assembled state

| No | Test Item                                    | Description                                                                                                                                                                                                                                              | Reference                             | Value |
|----|----------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------|-------|
| 1. | Ensure proper mounting of system components  | ESS compartment, LV hatch, MGU/bellhousing                                                                                                                                                                                                               |                                       |       |
| 2. | Fitment of Harnesses and Connectors          | Check if the externally visible LV harness and connectors have visible damages.<br>Confirm proper seating of all connectors.<br>LV harnesses and connectors must not be used if they have any damage!<br>HV measurement Dummy plug on LV interface panel | No damage<br>LV2<br>LV9<br>Dummy plug |       |
| 3. | Visual inspection - HV Cables and Connectors | Check if the externally visible HV cables and connectors have visible damage.<br>High voltage cables and connectors must not be used if they have any damage!                                                                                            | No damage                             |       |

## Equipotential Circuit Verification (if required)

Measurement of bonding resistance between Potential Equalization nodes. Required only on components for which disassembly/rework was performed (e.g., MGU swapped, HVAC cables disconnected). Check bonding resistance during rework while access to components is easier.

| No | Test Item          | Description                                                                                                                                                         | Reference                                                     | Value                 | Test |
|----|--------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------|-----------------------|------|
| 4. | Bonding resistance | Perform equipotential bonding resistance measurements as practical according to the PE measurement points available in the chassis (without excessive disassembly). | Sandwich plate/Bell housing <> LV Hatch<br>LV hatch <> ground | <20 mOhm<br><100 mOhm |      |

## LV System Checks

Tests to confirm LV system integrity. Required only on components for which disassembly/rework was performed (e.g., MCU swapped, HVAC cables disconnected). Check bonding resistance during rework while access to components is easier.

| No | Test Item                   | Description                                                                                                                                       | Reference                 | Value    |
|----|-----------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------|----------|
| 5. | Reverse Polarity Protection | Ensure that ESS Reset Plug and SDC are not plugged and MSD is OFF.                                                                                | ESS Plug<br>LV SDC<br>MSD |          |
| 6. | LV Power Sequencing Check   | Switch DMS to Position 1 (DMS-P1).                                                                                                                |                           | ~12 V DC |
| 7. | Communication Check         | Confirm via torque master/team ECU:<br>No unexpected faults reported from the hybrid system.<br>Plausible values are received from hybrid system. |                           |          |

## Functional Tests

For the functional tests, the vehicle has to be ready for operation  
Make sure that the ESS Reset and the SDC are plugged and the MSD is in the ON position.

### a) Activate the High Voltage System switching to DMS Position 2 (DMS-P2)

| No  | Description                                                                                                                                                                                                                                              | Reference                                         | Value                        |
|-----|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------|------------------------------|
| 8.  | !!!Check the safety light status again after 120 s!!!<br>Only proceed if the safety light status is solid green.<br>Otherwise, switch DMS to Position 1 (DMS-P1) again, go through the 'Vehicle De-Commissioning Checklist' and check the vehicle setup. |                                                   | Solid Green                  |
| 9.  | Check if the system was powered up by verifying the DCDC and MCU voltage reported on CAN Charlie (or Telemetry) are in the range of 470 VDC – 780 VDC.                                                                                                   | DCDC (HyCtrl_uDcDcHv)                             |                              |
| 10. | Check the Isolation value reported on CAN Charlie (or Telemetry) is in the expected range.                                                                                                                                                               | MCU (HyCtrl_uMcuHV)<br>rIso (HyCtrl_resIsolation) | > 4,000 kOhm<br>< 6,000 kOhm |
| 11. | Check that the system error level reported on CAN Charlie is 1 (Info Driver) or lower.                                                                                                                                                                   |                                                   | ≤ Lvl 1                      |
| 12. | Via CAN Charlie or Telemetry, note any FR fault or MCU errors                                                                                                                                                                                            |                                                   | No FR fault<br>No MCU error  |

*b) Deactivate the High Voltage System*

| No  | Description                                                                                               | Reference                                                            | Value |
|-----|-----------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------|-------|
| 13. | Deactivate the High Voltage System by switching the DMS to Position 1 (DMS-P1)                            |                                                                      |       |
| 14. | Check that the system has powered down.                                                                   | MCU<br>(HyCtrl_uMcuHv)<60 VDC<br><br>DCDC<br>(HyCtrl_uDcDcHv)<60 VDC |       |
| 15. | Check that the system error level reported on CAN Charlie (or via Telemetry) is 1 (Info Driver) or lower. | ≤ Lvl 1                                                              |       |

## Vehicle Visual Status

| No  | Test Item              | Description                                                                                                                     | Reference | Value |
|-----|------------------------|---------------------------------------------------------------------------------------------------------------------------------|-----------|-------|
| 16. | Vehicle visual marking | High Voltage System deactivated and vehicle in safe state without need for HV safety PPE<br>Green hat/cone placed on top of car |           |       |

## Notes