DEVELOPMENT SPRINT REVIEW
CALENDAR WEEK 24.22

GENERAL (1/2)

HIGHLIGHTS:

- Initial assessment confirmed by KBA - OEM status achieved.
- “Incomplete Type Approval” approach for all type approvals submitted and approval process coordinated with KBA.
- Device Transmitals (DT) for SVC4.
- Powertrain assembly complete for first vehicle.
- Driveshaft re-work for SVC3 complete.
- Development of body structure changes with less effect to body closures.
- eCall module is fully embedded with all components and complete functionality testing in progress.
- E/E integration commissioning of two out of 16 yellow boards.
- Partner E/E development Electronic Control Unit (ECU) was successfully integrated in the yellow board and all features are working as per requirement.
- Build up of two HV battery packs for SV3 at assembly partner finished.

GENERAL (2/2)

IN PROGRESS:

- SVC3 Window regulators are not working & slows us down due to Local Interconnect Network (LIN) communication issues.
- SVC3 Interior lights are not working as intended. Impact for EE Design Validation Plan (DVP).
- Sound design project set up.
- New HV battery pack design development after major change by supplier.

LOWLIGHTS:

- Sample B displays were sent to the supplier and the supplier continues to have difficultjes providing Head Unit (HU) beta units with the samble B displays.
- SVC3 material availability limited. Incomplete wiring harness (without connectors) slows us down.
- Infotainment Head Unit (IHU) SW development slows ADAS down. Still a blocker.
- Infotaiment Head Unit (IHU) hardware development slows ADAS down (until August).

BODY CLOSURES

HIGHLIGHTS:

- Aluminium sheet metal supplier visit/review.
- Development of body structure changes with less effect to body closures.
- Review of jig and fixture requirements SVC4+.

IN PROGRESS:

- Solar body panel SVC3 waviness/delamination monitoring.
- Solar body panel SVC3 appearance monitoring. Defects, breakages etc.

LOWLIGHTS:

- Lower quality of 6th generation of solar body panels for SVC3 than expected.
- Timing/SoP challenges for material & part procurement.
- Issues with control method for electromechanical components.
- Gap & flush plan development - not sourced yet.

EXTERIOR SQUAD (1/2)

HIGHLIGHTS:

- Update hole diameter for updated push-pin done.
- Provision documents/information about the parts the be delivered by Supplier done.
- Rework the rear (RR) bumper at assembly partner and identify/confirm all parts in the inventory list done.
- Finalize fixation concept of front (FR) bumper & Charger Lid (CL) (decide between screw and push-pin) done.
- Rework of 2 Fender metal brackets for clearance to PVC sealing.
- Cantrail - further feasibility input/optimizations done.

EXTERIOR SQUAD (2/2)

IN PROGRESS:

- Perform release management for rear & front bumper fascia.
- Overview of Requirements Group Sion.
- Direct/Indirect Purchasing Attribute Sanity Check.
- Design Validation Plan (DVP) Exterior Panels.

LOWLIGHTS:

- Cantrail - Geometric Dimensioning and Tolerancing (GD&T) corrections.
- Headlamp crash performance for PedPro.
- Packaging proposals for supplier.

BODY STRUCTURE

HIGHLIGHTS:

- Cost Down Sprint for Investment.
- Direct/Indirect Purchasing Attribute Sanity Check.
- SVC3 - System Maturity Levels.
- Enter information on critical parts for packaging.

IN PROGRESS:

- Ongoing investigation of potential design optimizations of body structure for industrialization, cost down program and tolerance concept. Potentially impact costs and timing.

INFOTAINMENT (1/3)

HIGHLIGHTS:

- SVC3: Multisensory Enablement Kit (MEK) board custom video cards arrived at Sono Motors HQ. Validation occuring on bench with sample B displays.
- VCM: Able to read CAN messages from the CAN Bus and successfully sent to the backend. This is all reflected on the Sono App so we can see when doors are open, closed, what state the vehicle is in, etc.
  eCall: eCall module is fully embedded with all components and complete functionality testing in progress.

IN PROGRESS:

- SVC3 Infotainment Head Unit
  - Sample B displays were sent to the supplier and supplier continues to have difficulties providing Head Unit (HU) beta units with the sample B displays.
  - Beginning work with Digital team to provide basic cluster features for roadshows.

INFOTAINMENT (2/3)

LOWLIGHTS:

- SVC3 Infotainment Head Unit: supplier sent us different connectors on the custom video cards for Multisensory Enablement Kit (MEK) boards then agreed without informing us that Fakra-A were unavailable. Easy manual workaround is possible by our team but decisions were made by supplier without informing our team.
- Telltales List for SVC4: Had a workshop with Battery Management System (BMS) module owner to gather the list of BMS telltales to be populated on the instrument Cluster display.
- Vehicle Connectivity Module (VCM):
  - Remote commands not functioning properly due to not sending messages continuously.
  - Remote command implementation also does not match with BCM.
  - Remote command issues are planned to be fixed in the next release (July 15th).
  - Self Over-the-Air (OTA) still needs to be verified.
  - New test binary will be released July 11th to test self OTA.

INFOTAINMENT (3/3)

- Rest Bus Simulation (RBS): RBS tool development for Sion is in progress and under testing based on the SION CAN.dbc file.
- Display Instrument Cluster (IC) and In-Vehicle-Infotainment (IVI): 9-set of B-Sample of displays delivered to Assembly Partner and 2-set B-Sample to Sono Motors HQ.
- USBs: due to high lead times with supplier, purchasing currently looking for alternative supplier.
- Antennas: Printed Circuit Board (PCB) issues with antennas requires new samples to be distributed to Sono Motors. With first two SVC3 vehicles already assembled, team needs to organize efforts to retify issues and ensure new samples get assembled in time.
- SVC4: Instrument Cluster (IC) and In-Vehicle-Infotainment (IVI) displays furhter development is in progress with regards to mounting strategy based on Interior Team and supplier feedback.

THERMAL SQUAD

HIGHLIGHTS:

- New Sensor Position for Instrument Panel (IP) duct left hand side.
- Heat-IN to Cabin via Solar Charging.

IN PROGRESS:

- Execute Cyber Security Relevance Assessment and Cyber Security Item Questionnaire @ Functions & Component owner.

HIGHLIGHTS:

- Investigate NVH feasibility of reducing the size of rear lower control arm (LCA) stiffener.

E/E SQUAD (1/5)

HIGHLIGHTS:

- Body electronics:
  - Commissioning of two out of 16 yellow boards.
  - Integration of the wiring harnesses in first two vehicles.
  - CAN communication successfully checked for all three CAN busses.
  - SVC4 Database Can (dbc) file release plan defined with all the stakeholders.
  - Partner E/E development Electronic Control Unit (ECU) was successfully integrated in the yellow board and all features are working as per requirements.
- ADAS:
  - Front view Camera (FVC) and Front Radar tested at Assembly Partner and work well.
  - Some of ADAS requirements can be freezed.
  - Create Program Management Control Suite (PMCS) issues for ADAS.

E/E SQUAD (2/5)

- Wiring Harness:
  - First two sets of wiring harnesses are installed in the first two SVC3s.
  - Headcount: successful onboarding of Supplier Technical Assistance Engineer.
- CAD Integration:
  - HV-Cable mounting proposal printed and successfully tested at SVC3.
  - Good progress in design of HV wiring harness.
- Overall: Successful Roadmap Trainings for whole Group Sion.

IN PROGRESS:

- Vehicle Electronics & Controls:
  - SVC3 Window regulators are not working & slows us down due to Local Interconnect Network (LIN) communication issues.

E/E SQUAD (3/5)

  - SVC3 Interior lights are not working as intended. Impact for EE Design Validation Plan (DVP).
  - Allocation of capacities among request from functional safety and cyber security team and SVC3 built.
  - Seats have different wiring configurations as agreed. Need to be reworked in order to test the features.
- ADAS:
  - Received offer and timing for Cyber Security from supplier. Timing needs to be negotiated.
  - Project engineer for ADAS for coordination tasks need to be recruited ASAP.
- Wiring harness: SVC3 material availability limited. Incomplete wiring harness (without connectors) slows us down.
- CAD Integration:
  - Harness connector instance IDs have been reset. Working with complete vehicle team to have the nodes re-added.

E/E SQUAD (4/5)

- Many errors with bringing SVC3 harnesses across to SVC4 BOM (because SVC3 BOM is not fixed for harnesses). Probably solved next week.
- All Low Frequency (LF) Antennas need location update for SVC4 after discussion with supplier. Still ongoing, expected next week.
- Upgraded a V6 profile in 3Dx for Electrical Distribution System (EDS).
- Connectors for Distribution and Charging Unit (DCU). Feasibility study/report needs to be done, still ongoing.
- Schuko Socket supplier nomination still ongoing. Slows us down, because we need the CAD data.

LOWLIGHTS:

- Vehicle Electronics & Controls:
  - No test of Infotainment components on yellow board as software from Infotainment Squad is delayed.

E/E SQUAD (5/5)

  - Missing some connectors on the third main harness. Blocks progress of testing on yellow board. Supplier is informed and come on site to fix the issue. Currently no impact on the built of SVC3.
- ADAS:
  - Infotainment Head Unit (IHU) SW development slows ADAS down. Still a blocker.
  - Infotainment Head Unit (IHU) hardware development slows ADAS down (until August).
  - Getting requirements from Infotainment Head Unit (IHU). Still a blocker.
- Wiring Harness: Hiring of Electrical Distribution System (EDS) Component Design Engineer is difficult. Alternative in progres.
- CAD Integration:
  - Miss information from supplier regarding signal envelope from Low Frequency (LF) antenna. Helps us with position of LF antenna.
  - Waiting for 3Dx attributes for SAP release from CAD Squad.

HIGHLIGHTS:

- Powertrain assembly complete for first vehicle.
- Driveshaft re-work for SVC3 complete.
- First 10 re-worked torque rods for SVC3 received.
- Vehicle Control Unit (VCU) SW request for quotation (RFQ) for SVC4 through to Series was issued to supplier.
- Powertrain Team recruitment is complete.
- Onboarding of HV Battery team and hand over of topics/responsibilities.

IN PROGRESS:

- Quotation and timeline for Powertrain mounts for SVC4/Series still outstanding.

LOWLIGHTS:

- Manufacturing engineers from production partner for Powertrain required ASAP to make progress with assembly design.

HIGHLIGHTS:

- Cost reduction:
  - Connectors on the Distribution and Charging Unit (DCU).
  - Development cost of the Power Line Charger (PLC) module.
  - Serial price of the Power Line Charger (PLC) module.

LOWLIGHTS:

- Feedback from supplier as DC functionality available for SVC3 end of August.

HV BATTERY SQUAD

HIGHLIGHTS:

- Build up of two HV battery packs for SVC3 at supplier finished.
- Successful commissioning test with battery case and SVC3 Body in White (BiW).

IN PROGRESS:

- EOL testing of 2 packs at supplier.
- Cell tests with german institute ongoing.
- New HV battery pack design development after major design change by supplier.

LOWLIGHTS:

- Design change timeline alignment with Sion timeline.

NVH

HIGHLIGHTS:

- Cathodic Dip Coating (CDC) and General Assembly Support from NVH side for SVC3-09 and SVC3-10 (continued).
- Interior Insulation and carpets: mounting support and IP insulation prototyping (continued).
- Feedback on Interior package to Squad for CAD adjustments (minor) (continued).
- Testing equipment procurement: 95% complete.
- Validation Plan finalisations (timing adjustment).

IN PROGRESS:

- Ongoing actions to support SVC3 Manufacturing.
- Sound Design Project set up.
- Testing Procedures (detailed) for NVH chassis dyno tests.
- NVH status format definition.

WEIGHT MANAGEMENT (1/2)

HIGHLIGHTS:

- Masses package list updated with new template.
- SVC3.X/SVC4.X: Vehicles request/new timeplan.
- SVC4/5 purpose of built vehicles.
- HV qualification.
- Conduct Jira Roadmap Trainings.
- SVC3 - Design Validation Plan (DVP) responsibilities.
- Weight Update Hood Parts.
- SVC3 Deviation permits Body Structure (BS).
- Masses Package list review - GAPs.
- Sion Weight Table Scenarios.

WEIGHT MANAGEMENT (2/2)

IN PROGRESS:

- SVC4 weight status report update will be released later based on SVC4 status.
- Body in White weight analysis.
- Solar Body Panels (SBP) - (Crossfunctional) Requirements.
  Sion Weight Status Report - Overview SVC4.
  Sion Weight Status Report - Spreadsheet overview SVC3.

HIGHLIGHTS:

- Recycling:
  - Evaluation of 2nd life opportunities for the HV Battery.
  - Discussions with suppliers to enforce the use of recycled materials.
- Homologation:
  - Initial assessment confirmed by KBA - OEM status achieved.
  - “Incomplete Type Approval” approach for all the type approvals submitted and approval process coordinated with KBA.

HIGHLIGHTS:

- Configuration SVC3 Product structure in 3Dx.
- Create overview in Confluence.
- Build SVC3 and Series Structures as new.
- Rerouting cables of information and controlling (I&C) parts.
- Lead time SVC4 Fasteners initial discussion.
- Production Part Approval Process (PPAP) SVC4 initial discussion.

FUNCTIONAL SAFETY CLUSTER

HIGHLIGHTS:

- Link ADAS FuSa Requirements in SIONREQ.
- Overview of Requirements Group Sion.
- SVC3 - DVP Responsibilities.
- Aligning Timeline with Testing Squad.
- HV battery Safety goal alignment with supplier.

IN PROGRESS:

- Safety of the intended Functionality (SOTIF) ADAS-Draft review.
- Solar Power/Cross-Functional Quality Accounting - Solar Power Wiring.
- Solar Power/Cross-Functional Quality Accounting - Solar Power Charging 12V battery.
- LV Battery Management alignment with Solar Power on 12V charging capabilities.

LOWLIGHTS:

- SVC3.X/SVC4.X: Vehicles Request/new timeplan.

CRASH AND SAFETY (1/2)

HIGHLIGHTS:

- Crash/Safety - Results to Load Case Overview (LCO).
- CAE Models for Supplier.
- Status Update with Body Structures Release 0.1
- Keyhole Opening for Headliner Clip in Roof Header.
- Accessibility Issue on B-pillar Weld.
- Side Crash - Barrier - Integrity lower B-Pillar patch.
- Side Crash - Pole - Failure upper B-Pillar patch.
- Side Crash - Pole - Structural Integrity of Rocker.
- Tack weld (Heftnaht) on Z-Bar.
- Update Door in White.
- Update Seatbelt model due mode.
- Headliner clip resistance - evaluation of current development state v004.

CRASH AND SAFETY (2/2)

IN PROGRESS:

- SVC3 Crash/Safety Status available on Confluence.
- Crash/Safety - SVC3 DR Status Reporting.
- Out of Position (OOP) Tests Airbag Requirements.
- Crash/Safety CAE - SVC3 Status Review - Sensoring.
- Material & Joining Validation.
- Pre-Simulation of Component Tests.