



# **DEVELOPMENT SPRINT REVIEW**

## **CALENDAR WEEK 30.21**

### HIGHLIGHTS:

- NVH investigation done
- SVC2 WLTP measurement done
- CAD review done, CAD release H.1 delivered
- Crash & safety sprint 1 accelerated
- SBP Focus
  - Status assessed
  - Constraints included in timing discussion
- Program status WS (SVC3 design release & SVC3 MRD)
  - Program status received
  - Program issues and risks identified
- Process Owner Squad transferred into Program Management Squad

## GENERAL (2/2)

### LOWLIGHTS:

- *APQP/risk assessment loop 1 status*
  - *Next steps available*
- PMCS assessment
  - 60% S0 and 65% S1 unassessed
- Part quantity strategy
  - Define strategy for hardware quantity requirements
  - Ordering parts container
- CAD and CAE data quality and late delivery

**BLOCKER:** None

## HIGHLIGHTS:

- SOP: logistics manual
  - Done from a technical perspective. Next sprint will be sent for internal stakeholder review.

**LOWLIGHTS:** None

**BLOCKER:** None

## HIGHLIGHTS:

- Contracting
  - Supplier strategy for assembly of all parts BIW is done
  - Final decisions for RFQ SVC3 manufacturing will be finished in the sprint.
  - Corrosion protection: A decision log was done in interdisciplinary meetings with alignment over all involved disciplines

**LOWLIGHTS:** None

**BLOCKER:** None

# BODY CLOSURE

## HIGHLIGHTS:

- Charger lid module:
  - Buy level changed
  - EE compatibility confirmed
  - NEVS desired assembly process
- Change/release process definition/input

**LOWLIGHTS:** None

**BLOCKER:** None

## EXTERIOR (1/3)

### HIGHLIGHTS:

- Three new exterior engineers joined the team
- CAD maturity increased

### SVC3 / Series only

- 2 Day workshop at RLE Cologne to agree work plan and expectation of data for DR. - complete
- Perform full front end alignment review - complete

## EXTERIOR (2/3)

- Non-PV panels
  - Evaluate impact on cantrail due to new hood surface in hinge area - done and 3DX updated
  - B-pillar assembly strategy discussion with all parties involved - complete with new brackets added
  - Cantrail new concept feasibility check - complete
- Under body panels
  - Front under body panel need to add two push pins against the bumper as third hand and review assy sequence with NEVS - Complete

## EXTERIOR (3/3)

- Glazing:
  - Update and 3D implementation needed of the fixed side windows with new guide pins positions.
  - Nominate supplier - complete

### Wiper/wash systems:

- Redesign of the aquarium and leaf screen. - ongoing
- Update connection to the HVAC - ongoing

**LOWLIGHTS:** None

**BLOCKER:** None

# BODY STRUCTURE

## HIGHLIGHTS: SVC3:

- Processing of PMCS issues is ongoing
- Battery package (dimension in x) as required can be realized incl. solution for front connection points
- Grommet for steering column received, concept for implementation in body structure is ongoing
- Space available for accelerator pedal bracket → bracket concept in development

**LOWLIGHTS:** None

**BLOCKER:** None

## INTERIOR (1/2)

### HIGHLIGHTS: SVC3:

- Supplier Sourcing (sunvisor, headliner, soft trims, hard trims, seats, 1st aid kit, ESP)
  - To get technical/cost feedback from for the sunvisors / WIP
  - To get cost&timing feedback for the sunvisors / WIP
  - Finalized cost&timing feedback is awaited for the headliners / WIP
  - PO is in internal circulation to be approved for the hard trims / WIP
  - Supplier search for soft trims has been kicked-off due to response delays from the production-intend supplier / WIP
  - 1st aid kit supplier will confirm quote status that was agreed in 2018 after summer vacation/ WIP
  - Seat quotes for SVC3-4-5 are awaited. Current PO covers only the engineering development / WIP

## INTERIOR (2/2)

- Regular meetings with ARRK Interior on I/P, doors, trunk, and console hard points / WIP
  - To share remaining BIW related interior attachment points / WIP

### LOWLIGHTS:

- PMCS
  - PMCS - Pre S0 - deliverable - checked and judged - done
  - PMCS - S0 deliverables checked and questions prepared for PM / planned till the next sprint

**BLOCKER:** SVC3: Restraints integration has just been kicked-off as of August

# INFOTAINMENT

## HIGHLIGHTS: SVC3:

- All Infotainment commodities are placed in their correct location in 3Dx and CAD
- Development team received 12 samples of the MATE-AX header connectors from TE, 4 way connectors in one, which will reduce the amount of connectors on the headunit.

## LOWLIGHTS: SVC3:

- The rear camera will use ethernet protocol for image delivery. We were working so that like most rear cameras we'll use LVDS. Not a deal breaker it just means level 3 needs to add an ethernet hub to their schematic diagram.

## BLOCKER: SVC3: Steering wheel controls confirmation

## CHASSIS (1/4)

### HIGHLIGHTS: SVC3:

- General
  - Lead suspension engineer – 99%
- Steering
  - Prepare JD VD CAE – 100%
  - Include EPS on SW release plan - 100%
  - FuSa ASIL level alignment for EPS – 30%
- Knuckle
  - Publish new loadcases – 100%

## CHASSIS (2/4)

- Brakes
  - Integrate MeritRnD booster to vehicle CAD – 90%
  - Get hard quotes for steel disc – 50%
  - Freeze calipers and nominate supplier – Friday
  - SW integration plan w/ requirements for other squads (interdependency) – 90%
- CAD / PDM
  - Finalize EVP and ESC position – 80%
  - PDM attributes (weight / serviceability / valid from) – 66%
  - Datum system for rolling chassis GD&T – 50%

## CHASSIS (3/4)

- Suspensions
  - Deliver mesh for crash analysis - OK
  - Start FE loops - OK
  - Good offer received for aluminum subframe.

### LOWLIGHTS:

- S0 / S1 assessment – 0%
- Tech alignment HL, JTEKT, TK – 20%
- PMCS being used as a communication tool.
- European vacations
- Knuckle DFM studies
- Bolt + torque definition for calipers fastening

### BLOCKER:

- Functional safety discussion on ESC and EPS
- Front attachment to CMS

### HIGHLIGHTS: SVC3:

- 46/67~ tickets closed this sprint (covers both EE & powertrain)
- Kick-off ARRK CAD integration | BCM, GEM, VCU positioning started
- Keyfob concept phase started | first design will be presented in 4 weeks to the team
- Active cruise control planned for SOP
- Clamp and power management strategy started
- Progress on ECU list for diagnostics

## E/E (2/2)

### LOWLIGHTS: SVC3:

- DTs for some switches missing as the supplier not sourced yet
- Missing peripheral information attached to BCM
- Missing peripheral information attached to RCM (airbags / pretensioners) → Improved Situation compared to last Sprint
- Suppliers need feedback on cyber security
- PMCS tool and Jira interface

### BLOCKER: SVC3:

- DT response (final WK22) (5%/50%/45%)
- Headcount (timing)

## HIGHLIGHTS:

### SVC3:

- Review information for connector and EE parts selection required to be sent: WIP
- On boarding lead CAE engineer: WIP
- Document structure and high level specifications in place for HV battery pack SSTS: WIP

**LOWLIGHTS:** None

**BLOCKER:** None

## SIMULATION (1/2)

### **HIGHLIGHTS:** CAE Software Acquisition (pre/post-processor)

Expectation: Pre-processor and post-processor in-house available

- Licence Check available
- Quotes available
- Acquisition
  - Pre-processor: IT alignment open

CAE standardization

Expectation: Creating overview of current status and deriving work packages

- Content overview and strategy available
- Overview of current status available
- Work packages available

## SIMULATION (2/2)

Complete vehicle CFD

- Modelling in progress

### **LOWLIGHTS:**

CAE activity identification --> LCO

- Due to overall capacity issues too little attention by POs

**BLOCKER:** JOB AD: no capacity

# HOMOLOGATION & RECYCLING

## HIGHLIGHTS:

### Homologation

- presentation of homologation basics at all staff meeting
- time schedule

### Recycling

- meetings with potential imds service providers to get offers (material compliance)
- new battery regulation draft analysed and first draft of specs for HVB based on new battery regulation

**LOWLIGHTS:** None

**BLOCKER:** None

## HIGHLIGHTS:

- SVC3
  - Implementation of SQA targets into generic thermal SSTS (will be used for coolant and refrigerant lines and air ducts)
- SVC2
  - final software update on Salt and Pepper: HVAC unit (flaps, fan, heating, cooling) finally fully functional

**LOWLIGHTS:** None

**BLOCKER:** None

## VIRTUAL VEHICLE (1/2)

### HIGHLIGHTS:

- CAD Reviews completed on 1 day, local export done
- Integration Report (still in work):
- Data Exchange Bertrandt CFD (via 3DX)
- 3DX User Groups created for every Squad and Cluster. Adding groups to approvals and user management simplified
- Concept section sign off process defined
- Cell mapping doors finished
- 3DX coaching new employees 04.08.2021
- New package meeting structure in 3DX (issue-driven) weekly report
- Tools and interfaces overview

## VIRTUAL VEHICLE (2/2)

- Issues resolved
  - Ground planes and roadlines Update
  - Hood Hinge Package
  - MSD
  - Trunk Volume (interior feedback for loading objects, NVH and ergonomics necessary)
- Focus on frontend
  - 12V battery tray optimized and uploaded
  - HV wiring OBC, socket positioning alignment

### LOWLIGHTS:

- Vacuum pump positioning not optimal from NVH side, but no alternative available
- HV charging cables change to 95 mm<sup>2</sup> won't work with the current radiator Position

### BLOCKER: None

## DESIGN (1/2)

### HIGHLIGHTS: SVC3:

- Exterior:
  - Styling Loop 02 ongoing.
    - Styling pre-release V2 released last week. Release V2 planned beginning next week.
    - Overall CAD maturity is difficult to measure. about 80%.
- Interior:
  - Styling loop 02 ongoing. Estimate that about 39% of styling loop 02 is done.
    - IP and center console are progressing well. (85% loop 02 done)
    - Doors 60% loop 02 done
    - Greenhouse / headliner / trims 10% loop 02 done

**LOWLIGHTS:** Change requests from engineering

**BLOCKER:** None