

The purpose of this document is to inform of the local rules that must apply to 2020 Formula SAE Japan. Any additional local rules that become necessary must be posted on the FSAEJ official website as they become available. These local rules are valid for 2020 Formula SAE Japan only.

Formula SAE Japan Rules Committee

**J2020-2-01 Document Screening for Static Events (refer to Formula SAE® Rules 2020 DR.3.4, FSAEJ2020 Participation Rules Article 12)**

Judges chooses case A or case B if the following Documents of the Static Event is not submitted or equivalent to not submitted.

Events	Documents	Case A	Case B
Cost and Manufacturing	Cost Report	Disqualified from FSAEJ	Removed from Cost and Manufacturing Event and score -100 points in Total Score
Design	Design Document	Disqualified from FSAEJ	Removed from Design Event and score -20 points in Total Score
Presentation	Sales Presentation Document	Disqualified from FSAEJ	Removed from Presentation Event and score -20 points in Total Score

**J2020-2-02 Presentation Concept (refer to Formula SAE® Rules 2020 S.2.2, FSAEJ2020 Participation Rules Article 15)**

The concept for the Presentation Event in FSAEJ is as follows:

Your company [simulated by team] develops and sells FSAE vehicles.

Your company is designing a new vehicle to increase the sales in an existing or new market, and plans to committing the consignment company [simulated by Presentation Judges] to manufacture it again or anew.

If your team is a rookie, please offer on your business plan.

If your team has participated in Japanese competition(s) before, the presentation of the previous competition is recognized as “the initial plan”, and it is being produced by the consignment company. However, your vehicle has been in a business slump of only achieving 80% sales and 50% profit of the initial plan, making it insufficient to update the facility.

Either case, your company is/becomes unable to purchase all the products with the inadequate cash flow forecasts even if the production is performed according to your business plan of a rookie team/the initial plan from the previous competition.

Today, your company is expected to make a presentation for business acquisition/recovery. Your presentation time is 10 minutes due to other commitments.

Appendix:

Your company [simulated by team] is an existing company if your team is not a rookie.

This means the consignment company [simulated by Presentation Judges] has already been producing 5 companies' products, including your company, which production capacity is 150% to the present productions.

(e.g., if your production plan was 100 vehicles:

100×0.8×1.5=120 vehicles, the production capacity for your company)

The profits of the consignment company are distributed equally to its shareholders, employees, and updating facilities. However, for existing companies, the profits return was 80% to the shareholders, 20% to the employees, and 0% to updating facilities from the initial plan.

The interviewers of your presentation are composed of each different carrier and business experience, Engineering, Manufacturing, Sales Planning, Marketing, and Material Procurement.

**J2020-2-03 Submission of Sales Presentation Document (SPD) (refer to Formula SAE® Rules 2020 S.2.2, S.2.4, FSAEJ2020 Participation Rules Article 15)**

The following details must be described in the Sales Presentation Document.

- Your company's Profile  
(e.g., Capital Stock, Business Type, Number of employees, Activity Base, Revenue, Sales Revenue, etc.)
- Review from the previous competition [ONLY FOR non-rookies]: Problems and actions for the current year
- Market Analysis
- Sales Strategy
- Business Targets
- Vehicle Strategy and Performance for promoting its sales
- Plans for Efficient Design to the consignment company [simulated by Presentation Judges]

Descriptions in this document related to the formula car to be sold are required to be consistent with the Design Report. However, teams are permitted to make changes related to cost in accordance with the business plan.

The minimum font size in the Sales Presentation Document must be 10-point (DTP) for both English and Japanese descriptions.

**J2020-2-04 Procedure for Presentation Event (refer to Formula SAE® Rules 2020 S.2.3, S.2.5, S.2.6, FSAEJ2020 Participation Rules Article 15)**

The following times are allotted to each team in the Presentation Event: no more than 15 minutes to set up the necessary equipment, no more than 10 minutes for the actual presentation, and a question and answer session lasting approximately 5 minutes. Teams that fail to set up their equipment within the allotted time and cannot begin their presentation at the scheduled time will be disqualified and receive 0 points.

Points will be deducted from teams that do not finish their presentation within the allotted time.

Presentations must be carried out by a maximum of three team members, including those participating in the question and answer session and those operating the equipment.

A maximum of six team members is permitted to be present in the room during the presentation. However, attendees that are not part of the three-person presentation group described above are not permitted to assist the presentation group in any way, including the setting up and removal of equipment, participation in the question and answer session, and time keeping. If such assistance is discovered, the presentation will be suspended immediately, and the team will be scored 0 points.

**J2020-2-05 Evaluation Criteria (refer to Formula SAE® Rules 2020 S.2.5, FSAEJ2020 Participation Rules Article 15)**

If an inconsistency exists between the presentation and Sales Presentation Document, the details must be announced at the beginning of the presentation.

**J2020-2-06 Holding of the Presentation Event (refer to Formula SAE® Rules 2020 S.2.2, FSAEJ2020 Participation Rules Article 15)**

The Presentation Event must be held during the scheduled days of the Static Events. However, the actual judging must be carried out separately.

**J2020-2-07 Preconditions for Preparation of Cost Report (refer to Formula SAE® Rules 2020 S.3.4, S.3.10)**

The costs estimated in the Cost Report do not include R&D cost, Overhead cost, profits, and the like.

Production of the formula car is defined as 1,000 units per year, and 3,000 units per life.

In addition, in creating the cost report, the team must use the FSAEJ cost table posted separately on the team page.

## **J2020-2-08 Submission Items for Cost and Manufacturing Event (refer to Formula SAE® Rules 2020 DR.1 - DR.3, S.3.4 - S.3.7)**

For FSAEJ, the FSAE Online website must not be used to prepare the Bill of Materials (BOM) and cost estimate data (FCA).

The Cost Report must submit the following electronic data.

The structure of the electronic data to be submitted must conform to the Local Rules Appendix J-4 or J-5.

### **1. Bill of Materials (BOM)**

This is a sheet for estimating the cost of one whole vehicle unit. This sheet must be submitted using the official FSAEJ format (to be posted on the team page in early February 2020). If submitted in a different format, the Cost Report will be judged as “not submitted.”

In addition, teams must submit both the Excel file and their converted PDF file using the software in Excel.

\* File name and file format:

**Carnumber\_abbreviatedschoolname\_FSAEJ\_CR\_BOM.xlsx**

**Carnumber\_abbreviatedschoolname\_FSAEJ\_CR\_BOM.pdf**

(The abbreviated school name must consist of no more than 30 letters.)

### **2. Cost estimate data for each assembly or part (FCA)**

These are sheets for estimating the cost of each assembly or part. These sheets must be submitted using the official FSAEJ format (to be posted on the team page in early February 2020). If submitted in a different format, the Cost Report will be judged as “not submitted.”

FCA must be divided into each system shown in the Local Rule Appendix J-2 and J-3.

In addition, teams must submit both the Excel files and their converted PDF files using the software in Excel.

\* File name and file format:

**Carnumber\_abbreviatedschoolname\_FSAEJ\_CR\_FCA\_system designation.xlsx**

**Carnumber\_abbreviatedschoolname\_FSAEJ\_CR\_FCA\_system designation.pdf**

(The abbreviated school name must consist of no more than 30 letters.)

NOTE: Photographs or drawing data must NOT be included in the BOM and the FCA.

### **3. Supplement documentation for cost estimation**

These are materials that provide evidence to support the accuracy of the figures required to calculate the costs of each part. Any format is acceptable.

The supplement must be divided into each system shown in the Local Rule Appendix J-2 and J-3.

\* File name and file format:

**Carnumber\_abbreviatedschoolname\_FSAEJ\_CR\_Suppl\_system designation.pdf**

(The abbreviated school name must consist of no more than 30 letters.)

The supplement must include the following materials as a minimum requirement.

- a. Parts production drawings (three-view drawings) or materials equivalent to parts production drawings (three-view drawings) for parts defined as “Made” in Formula SAE® Rules 2020 S.3.11 (see the Cost Tables and Formula SAE® Cost Event Supplement CR.2).

- b. In the case of composite parts, the material compositions, structures, and processes of each component part in addition to parts production drawings (three-view drawings) or materials equivalent to parts production drawings (three-view drawings).
- c. In the case of wire harnesses, wiring diagrams in addition to parts production drawings or materials equivalent to parts production drawings.

In addition, for EVs, separate parts production drawings (or materials equivalent to parts production drawings) and wiring diagrams must be prepared for the EV high-voltage wire harnesses (HV Wiring: System Engine and Drivetrain – EN-EV) and other wire harnesses (Wire Harness: System Electrical – EL-WH), and these must be saved in each system.

NOTE: The Excel file and the converted PDF file must have the same numerical value.

**J2020-2-09 Cost Event Addendum (refer to Formula SAE® Rules 2020 S.3.9)**

The Cost Event Addendum reflecting design changes implemented after the submission of the original Cost Report must use the official FSAEJ format (to be posted on the team page in the middle of July 2020). Addendum submitted in any other format will not be accepted.

In addition, revisions of calculation errors in the Cost Report and the like must not be included in the addendum.

Addendum must be printed out and submitted to the Judges at the beginning of judging on the day of the Cost and Manufacturing Event.

**J2020-2-10 Add Item Requests for Cost Tables (refer to Formula SAE® Rules 2020 S.3.10, S.3.12)**

The first version of the official Cost Tables for FSAEJ will be released at the end of March 2020 on the team page. If “Bought” parts, Processes, etc. used in the vehicle are not included in these Cost Tables, the team must submit an “Add Item Request” via the “Cost Table Add Item Request” page of the Q&A system. The completed “Add Item Request” Excel file (to be specified separately) and supporting documentation must be compressed using the zip format and submitted by 14:00 on April 27 (Mon.), 2020 (JST), Japan time. The final version of the Cost Tables incorporating this information will be issued in the middle of May, and their details will be frozen at this time.

If cost information shown in the final FSAEJ Cost Tables differs from that in the Formula SAE® Cost Tables, the FSAEJ version has the priority, even if the Formula SAE® Cost Tables feature an additional part.

If the Add Item Request could not be completed when creating the Cost Report and parts not listed in the Cost Tables need to be entered in the report, the team must appraise the costs of these items and identify them clearly in the Cost Report (e.g., through the use of colored cells). The Cost Judges may re-evaluate the costs and deduct points appropriately.

**J2020-2-11 Scoring of the Cost Report (refer to Formula SAE® Rules 2020 S.3.14)**

If the Adjusted Cost (including penalties) is found to exceed \$45,000 in the pre-screening procedure of the Cost Report, the Adjusted Cost will be defined as exactly \$45,000.

**J2020-2-12 Scoring of the Cost and Manufacturing Event (refer to Formula SAE® Rules 2020 S.3.14, S.3.18)**

The points scoring in the Cost and Manufacturing Event will be as follows.

- Price Score: 0 to 40 points
- Discussion Score: 0 to 40 points
- Scenario Score: 0 to 20 points
- Total Score: 0 to 100 points

FSAEJ does not use Penalty Points. Penalty A will be deducted from the Discussion Score. If the Discussion Score becomes zero, all remaining penalties will be calculated as Penalty B and added to the

Adjusted Cost.

**J2020-2-13 Submitted Items for EV Cost Report Review (refer to Formula SAE® Rules 2020 S.3.15)**

On the day of the Cost and Manufacturing Event, if requested by a Cost Judge, photographs of dedicated EV parts that are not visible due to enclosure within a sealed structure or the like must be submitted as evidence of the cost estimation for those parts.

Teams unable to submit photographs on request will be penalized a maximum of 20 points.

**J2020-2-14 Procedure for the Cost and Manufacturing Event (refer to Formula SAE® Rules 2020 S.3.15, S.3.17)**

On the day of the Cost and Manufacturing Event, the event will be held in the designated area. Teams must bring their car to the designated area five minutes before the allotted time. The cowl must be removed before the start of judging.

A maximum of six team members may be present in the judging area to explain the necessary items. During the judging, these team members may be interchanged freely.

(1) Submission of addendum and confirmation of details (no more than 10 minutes)

Any addendum to the Cost Report must be printed out and submitted to the Judges.

The Judges will confirm changes to the design based on the addendum.

(2) Confirmation of consistency between Cost Report and car, and feedback of document screening results (20 minutes, including the item (1) above)

The Judges will confirm the consistency between the car and the pre-submitted Cost Report. If any inconsistencies are discovered, penalties will be awarded in accordance with FSAE® Rules 2020 S.3.14.

The Judges will also provide feedback on the Cost Report judging results and discuss the Cost Report with the team.

(3) Real case scenario (Cost Scenario) (10 minutes)

The issues for the real case scenario that affect cost and manufacturing will be disclosed in early August. (These issues will be posted on the team page.)

The teams must report the results, which they have considered in advance based on these issues, to the Judges (5 minutes).

The Judges will question the team about this report and ask for additional explanations as necessary (5 minutes).

(4) Delays in starting time

The scheduled finishing time of judging will not be adjusted if the start of judging is delayed by the team.

If the start of judging is delayed by 10 minutes or more, the real case scenario will be omitted. In this case, the team will be scored 0 points in the Scenario Score.

**J2020-2-15 Cost Audit (refer to Formula SAE® Rules 2020 S.3.16)**

FSAEJ does not perform a Cost Audit since the Cost Reports are subject to document screening.

**J2020-2-16 Excluded Items for Cost Report (refer to Formula SAE® Cost Event Supplement CS.5, Local Rule J2020-1-27)**

The Ready-To-Drive-Sound (Tractive System Active Sound (TTAS)) does not have to be included in the Cost Report.

**J2020-2-17 Part Numbering on Drawings (refer to Formula SAE® Cost Event Supplement CL.2)**

Parts production drawings (three-view drawings) or materials equivalent to parts production drawings (three-view drawings) attached as supporting documentation for the Cost Report must include part numbers and the abbreviated name of the school.

### **J2020-2-18 Submission Items for Design Event (refer to Formula SAE® Rules 2020 DR.2, S.4.2)**

The design documents must consist of the Design Report and Design Spec Sheet.

The font size on the text pages of the Design Report must be no smaller than 8-point (DTP), both English and Japanese descriptions. The margins at the top, bottom, left, and right of each page must be 10 mm or more. The spacing between characters must not be too narrow. The font size restrictions must not be applied to characters in figures and graphs. If the documents printed by A4 size are unreadable, the part of them will be regarded as blank and scoreless.

The following dimensions must be included in three-view drawings as a minimum requirement: overall length, overall width, overall height, wheelbase, front and rear track, and minimum ground clearance.

All paper design documents must be A4- or letter-sized (8.5×11 inches).

If the Spec Sheet printed by A4 size is composed of more than 2 pages, exceeding pages will not be read. Teams should be careful to modify its format.

### **J2020-2-19 Insufficient Redesign (refer to Formula SAE® Rules 2020 S.4.2)**

Copying of content from a previous year's Design Report, or expressions that closely resemble previous content must result in the corresponding components being defined as insufficiently redesigned, and points must not be scored. If more than one-third of the Design Report (including drawings) are judged as a copy from a previous, all the Design Report itself will be regarded as "not submitted".

### **J2020-2-20 Procedure for Design Event (refer to Formula SAE® Rules 2020 S.4.3, S.4.5 - S.4.8)**

Teams should understand the Design Event starts when the design documents are submitted. Teams should read the relevant documents thoroughly and fully understand the requirements of the Design Event to ensure the submission of design documents with a high degree of completion.

NOTE: On the day of the Design Event, the document screening results will be confirmed in front of the supporting materials and actual car. This event is an opportunity to evaluate the activities of the team after the preparation of the Design Report.

On the day of the Design Event, the event will be held in the designated area. Teams must bring their car and supporting materials to the designated area five minutes before the allotted time. A maximum of six team members may be present in the judging area to explain the necessary items.

The time allotment is as follows (total 30 minutes): Setup (introduction of specialist fields of Judges, 2 minutes), Introduction (explanation from the team, 3 minutes), Questioning (Q&A, 22 minutes), Closing (simple comments, 3 minutes). Photographs will be taken five minutes before judging starts. Since the Judges would like to confirm and photograph the car both with and without the cowl attached, teams must make preparations (i.e., design considerations) to allow the cowl to be removed in no more than 5 minutes. In the event that structural parts cannot be confirmed on site because the car uses a monocoque or the like, teams must bring materials (such as pre-installation photographs or the like) as evidence to explain the details of these parts.

At this time, if the vehicle is regarded as "not ready to run", the judge leader will declare the official Design Event closed. However, the rest of the time may continue simulated judging as a follow up on request.

During the Setup and Introduction steps, team members other than those presenting the vehicle are permitted to film or take photographs of the general scene from outside the judging area.

Filming, photography, or sound recording by team members presenting the vehicle within the judging area are prohibited. All filming, photography, and recording are prohibited from the Questioning step.

Score sheets will not be handed at the judging site and be sent to the teams after the Competition.

Judging may take place in two stages: the Design Event for all teams, and the Design Final for between

two to four teams selected in the Design Event.

**J2020-2-21 Design Event - Vehicle Condition (refer to Formula SAE® Rules 2020 S.4.5)**

Design Judges realize that the car at the Design Event might have some design changes after the design document submission. In the case of large-scale changes, including differences in the configuration of components, the details of the changes must be declared by the team and explained via documentation at the team reception on the competition site. The declaration form will be uploaded on the team page by 17:00 on July 24 (Fri.), 2020 (JST). If unsure whether a declaration is required, the team must confirm in advance by submitting a formal Q&A. Please note that this does not apply to tuning elements such as wheel rates, shock absorber damping, and the like.

**J2020-2-22 Understanding of Flags Used in Dynamic Events (refer to Formula SAE® Rules 2020 D.4)**

Only team members that pass the Flag Test\* in the Technical Inspection will be permitted to drive in the Dynamic Events. Team members that have passed the Flag Test will be awarded a driver's wristband. Drivers without a wristband must not be permitted to participate in the Dynamic Events. The maximum penalty for any irregularity will be disqualification from the relevant events.

\* Flag test: Team members must be shown several types of flags and asked to promptly describe in words the actions that must be taken in reaction to the flag (e.g., red flag = come to an immediate safe controlled stop, etc.).

**J2020-2-23 Participation in the Acceleration, Skid-Pad, and Autocross Events (refer to Formula SAE® Rules 2020 D.9 - D.11)**

1. Cars in the ICV and EV classes will participate together in these events under mixed running conditions (these cars will not participate in these events at separate times).
2. In the heats of each event, one driver may perform two runs. After completing the first run, the driver may join the line of cars waiting in the start lane. Therefore, if a car pulls out due to mechanical problems or the like during the first run, the car will not be permitted to make the second run.
3. If a car pulls out before receiving the instruction to begin the first run (i.e., the official start instruction), the car may be permitted to start by re-joining the waiting line for the start lane.

**J2020-2-24 Participation in the Endurance and Efficiency Events (refer to Formula SAE® Rules 2020 D.12)**

1. Cars that fail to record a lap time in the Autocross event within 133% (in the case of ICVs) or 145% (in the case of EVs) of the fastest lap time (all times in this section include penalties) recorded by all ICVs and EVs will not be permitted to participate in the Endurance and Efficiency events.
2. ICVs and EVs will be divided respectively into Groups A, B, and C in order of the fastest lap times recorded in the Autocross event. The Endurance Event will be held on the first day for Groups B and C, and on the second day for Group A.
3. The running order for Groups B and C will start from the cars with the fastest laps recorded in the Autocross event. The running order for Group A will start from the car with the slowest lap recorded in the Autocross event.
4. Only 2 or 3 cars will be permitted to be on the course at the same time.

\* However, it may be necessary to change rule J2020-2-24 because of the weather or other circumstances. In this case, any changes in the rule will be announced in advance. (Refer to Formula SAE® Rules 2020 D.5)

**J2020-2-25 Limitation on Number of People in Driver Change Area for EV Class Endurance Event (refer to Formula SAE® Rules 2020 D.12.7.1.b)**

For the EV class, the three team members that are permitted to be in the Driver Change Area may consist

of (1) an ESO and two drivers, or (2) an ESO, a driver, and another team member.

**J2020-2-26 Cone Penalties in Endurance Event (refer to rule Formula SAE® Rules 2020 D.12.12.1)**

In the Endurance Event, if a car incurs more than nine cone penalties, the number of penalties will be rounded up to the nearest ten, and the car will be penalized by 30 seconds for each multiple of ten penalties.

However, any car that incurs more than 30 cone penalties will be classified as DNF.

\* 1 to 9 cone penalties = number of penalties  $\times$  2 seconds

\* 10 cone penalties = 30 seconds

\* 11 to 20 cone penalties = 60 seconds

\* 21 to 30 cone penalties = 90 seconds



**APPENDIX J-2 Systems in Cost Report (refer to Formula SAE® Cost Event Supplement CL.1)**

The Cost Report must follow the organized list of Systems in the following sequence:

Area	System name	System Designation	Sub System name	Sub System Designation
1	Brake System	BR	Master Cylinder and Balance Bar	BR-MB
			Calipers and Discs	BR-CD
			Brake Lines and Other	BR-LO
2	Engine and Drivetrain --- ICV case ---	EN	Engine	EN-EN
			Intake and Exhaust	EN-IE
			Fuel	EN-FU
			Cooling	EN-CO
			Drivetrain	EN-DT
	Engine and Drivetrain --- EV case ---	EN	EV System	EN-EV
			Auxiliary Parts	EN-AU
			Cooling	EN-CO
			Drivetrain	EN-DT
3	Frame & Body	FR	Frame	FR-FR
			Cowl and Aerodynamic Parts	FR-CA
			Pedals and Shifter	FR-PS
			Final Assembly	FR-FA
4	Electrical --- ICV case ---	EL	Wire Harness	EL-WH
			Dash Panel and ECU	EL-DP
			Battery and Others	EL-BO
	Electrical --- EV case ---	EL	Wire Harness	EL-WH
			Dash Panel	EL-DP
			Others	EL-BO
5	Miscellaneous, Finish and Assembly	MS	-----	-----
6	Steering System	ST	Steering Rack	ST-RA
			Steering Wheel and Shaft	ST-WS
7	Suspension System	SU	Springs and Dampers	SU-SD
			Arms and Links	SU-AL
			Stabilizer	SU-ST
8	Wheels, Wheel Bearings and Tires	WT	-----	-----
---	Fasteners (regardless of where used)	FS	-----	-----

Assignment of Assemblies to each System is provided in the Local Rules Appendix J-3.

**APPENDIX J-3 System and Assembly List in Cost Report (refer to Formula SAE® Cost Event Supplement CL.4, CL.5 and CL.6)**

**A) SYSTEM AND ASSEMBLY LIST – ALL VEHICLES**

**1. Brake System - BR**

**1-1. Master Cylinder and Balance Bar - BR-MB**

Brake Master Cylinder  
Balance Bar  
Clevis  
Hydraulic Fluid Reservoir  
Proportioning Valve

**1-2. Calipers and Discs - BR-CD**

Brake Rotor Floating Pins  
Front Brake Discs / Rotors  
Front Brake Pads  
Front Calipers  
Rear Brake Discs / Rotors  
Rear Brake Pads  
Rear Calipers

**1-3. Brake Lines and Other - BR-LO**

ABS Kit  
Banjo Bolts  
Brake Cooling Ducts  
Brake Fluid  
Brake Lines

**3. Frame & Body - FR**

**3-1. Frame - FR-FR**

Composite Monocoque Chassis  
Frame / Frame Tubes  
Mounts Integral to Frame

**3-2. Cowl and Aerodynamic Parts - FR-CA**

Cowl / Body  
Floor Pan  
Front Wing  
Rear Wing

**3-3. Pedals and Shifter - FR-PS**

Accelerator Pedal / Throttle Controls  
Brake Pedal  
Clutch Pedal / Lever  
Shifter  
Shifter Cable / Linkage

**3-4. Final Assembly - FR-FA**

Final Assembly

**5. Miscellaneous, Finish and Assembly - MS**

Driver's Harness  
Firewall  
Headrest / Restraints  
Impact Attenuator  
Mirrors  
Paint - Body

Paint - Frame

Seats  
Shields

**6. Steering System - ST**

**6-1. Steering Rack - ST-RA**

Rod Ends / Clevis  
Steering Rack  
Tie Rods

**6-2. Steering Wheel and Shaft - ST-WS**

Steering Shaft  
Steering Wheel  
Steering Wheel Quick Release

**7. Suspension System - SU**

**7-1. Springs and Dampers - SU-SD**

Front Bell Cranks  
Front Pushrods / Pullrods  
Front Shocks / Dampers  
Front Springs  
Rear Bell Cranks  
Rear Pushrods / Pullrods  
Rear Shocks / Dampers  
Rear Springs  
Rod Ends

**7-2. Arms and Links - SU-AL**

Front Lower A-Arms  
Front Upper A-Arms  
Front Uprights  
Rear Links  
Rear Lower A-Arms  
Rear Upper A-Arms  
Rear Uprights  
Rod Ends

**7-3. Stabilizer - SU-ST**

Front Suspension Stabilizer  
Rear Suspension Stabilizer

**8. Wheels, Wheel Bearings and Tires - WT**

Front Hubs  
Front Wheel Bearings  
Lug Nuts Rear Hubs  
Rear Wheel Bearings  
Tires  
Valve Stems  
Wheel Studs  
Wheel Weights  
Wheels

## **B) SYSTEM AND ASSEMBLY LIST – INTERNAL COMBUSTION VEHICLES**

### **2. Engine and Drivetrain - EN**

#### **2-1. Engine - EN-EN**

Engine  
Engine Mounts  
Engine Oil

#### **2-2. Intake and Exhaust - EN-IE**

Air Filter  
Carburetor  
Exhaust Manifold  
Intake Manifold  
Muffler  
Restrictor  
Throttle Body  
Turbocharger / Supercharger

#### **2-3. Fuel - EN-FU**

Fuel Filter  
Fuel Injectors  
Fuel Lines/Rails  
Fuel Pressure Regulator  
Fuel Pump  
Fuel Tank  
Fuel Vent / Check Valve

#### **2-4. Cooling - EN-CO**

Coolant  
Coolant Lines  
Hose Clamps  
Oil Cooler  
Overflow Bottles  
Radiator  
Radiator Fans

#### **2-5. Drivetrain - EN-DT**

Axles  
Chain / Belt  
CV Joints / U Joints  
Differential  
Differential Bearings  
Differential Mounts  
Differential Oil  
Shields  
Sprockets / Pulleys

### **4. Electrical - EL**

#### **4-1. Wire Harness - EL-WH**

Connectors  
Wire Harness

#### **4-2. Dash Panel and ECU - EL-DP**

CCM  
Dash Panel  
Data Logger  
Displays  
ECU / Engine Electronics  
Indicator Lights  
Switches / Buttons / Controls

#### **4-3. Battery and Others - EL-BO**

Battery  
Brake Light  
Bulbs  
Fuses  
Gages (any)  
Relays  
Solenoid

## C) SYSTEM AND ASSEMBLY LIST – ELECTRIC VEHICLES

### **2. Engine and Drivetrain - EN**

#### **2-1. EV System - EN-EV**

Accumulator Container  
Accumulator Isolation Relays (AIR)  
Accumulators / Batteries  
Battery Management System (BMS/AMS)  
CCM  
Cell Module  
Converter (AC-DC / DC-DC)  
ECU  
HV Wiring  
Inertia Switch  
Motor Controller  
Motor Mounts  
Motors

#### **2-2. Auxiliary Parts - EN-AU**

Isolation Monitoring Device (IMD)  
Tractive System Active Light  
TSMP

#### **2-3. Cooling - EN-CO**

Coolant  
Coolant Lines  
Hose Clamps  
Overflow Bottles  
Radiator  
Radiator Fans

#### **2-4. Drivetrain - EN-DT**

Axles  
Chain / Belt  
CV Joints / U Joints Differential  
Differential Bearings  
Differential Mounts  
Differential Oil  
Shields  
Sprockets / Pulleys

### **4. Electrical - EL**

#### **4-1. Wire Harness - EL-WH**

Connectors  
Wire Harness (LV)

#### **4-2. Dash Panel - EL-DP**

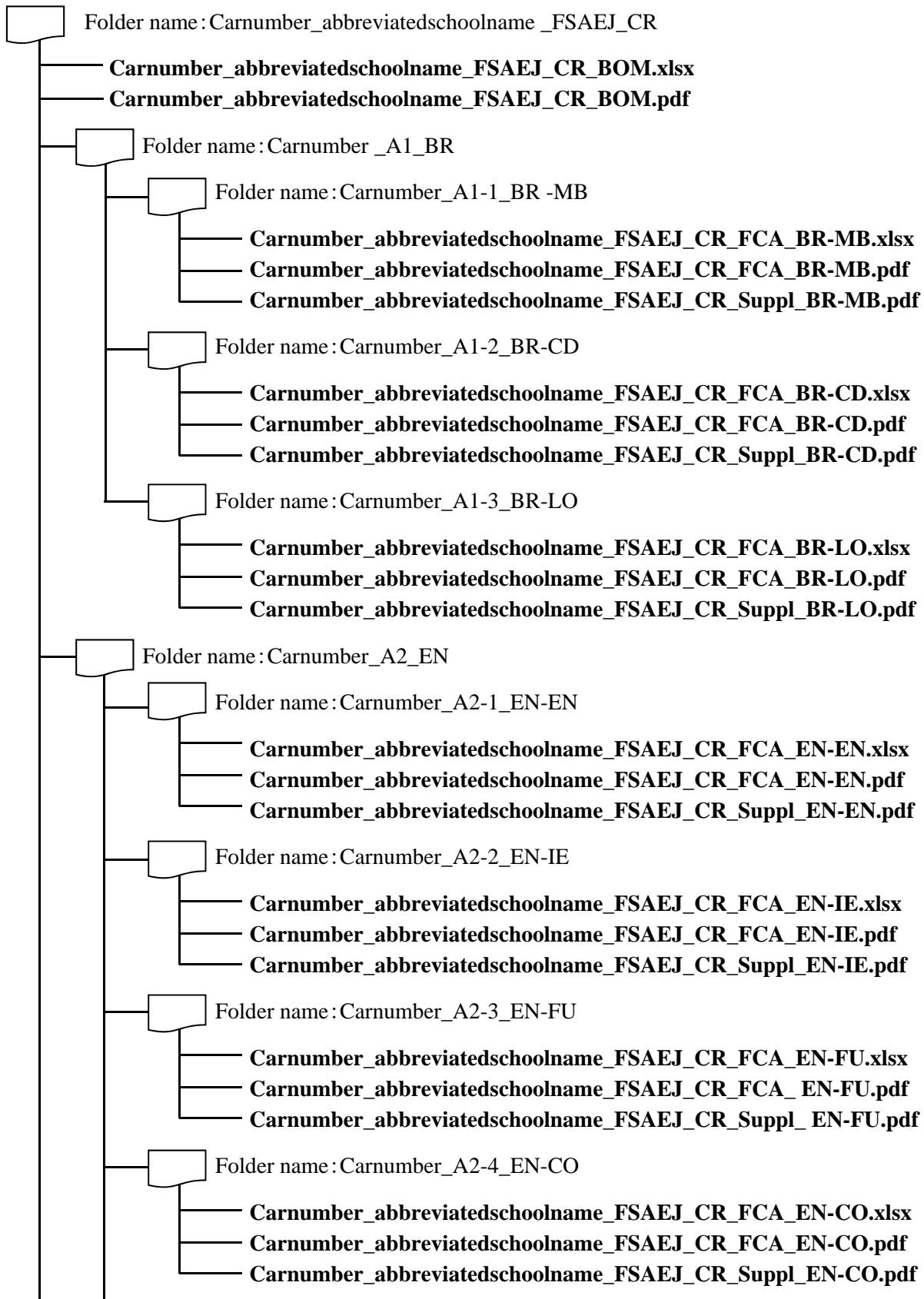
Dash Panel\_  
Data Logger  
Displays  
Indicator Lights  
Switches / Buttons / Controls

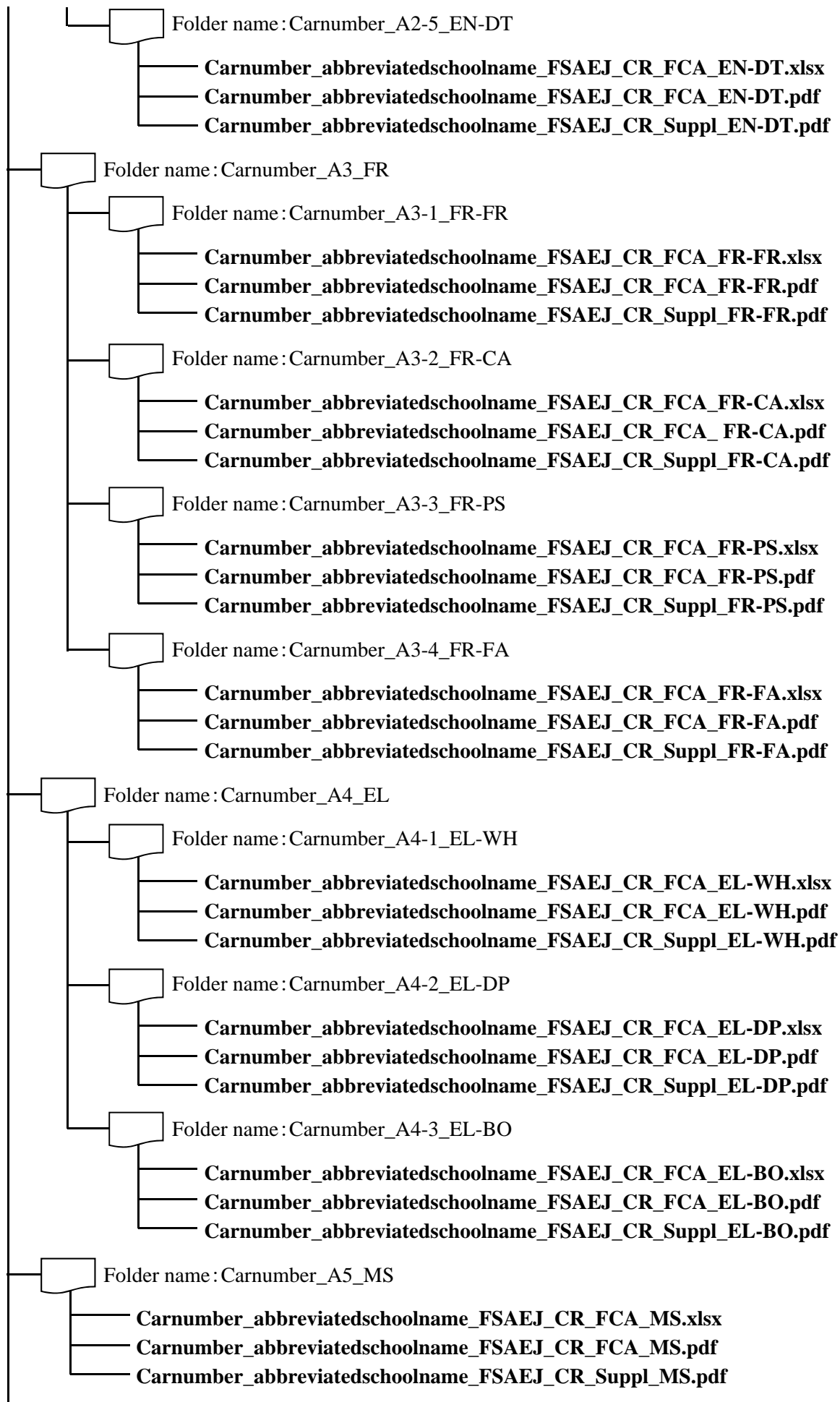
#### **4-3. Others - EL-BO**

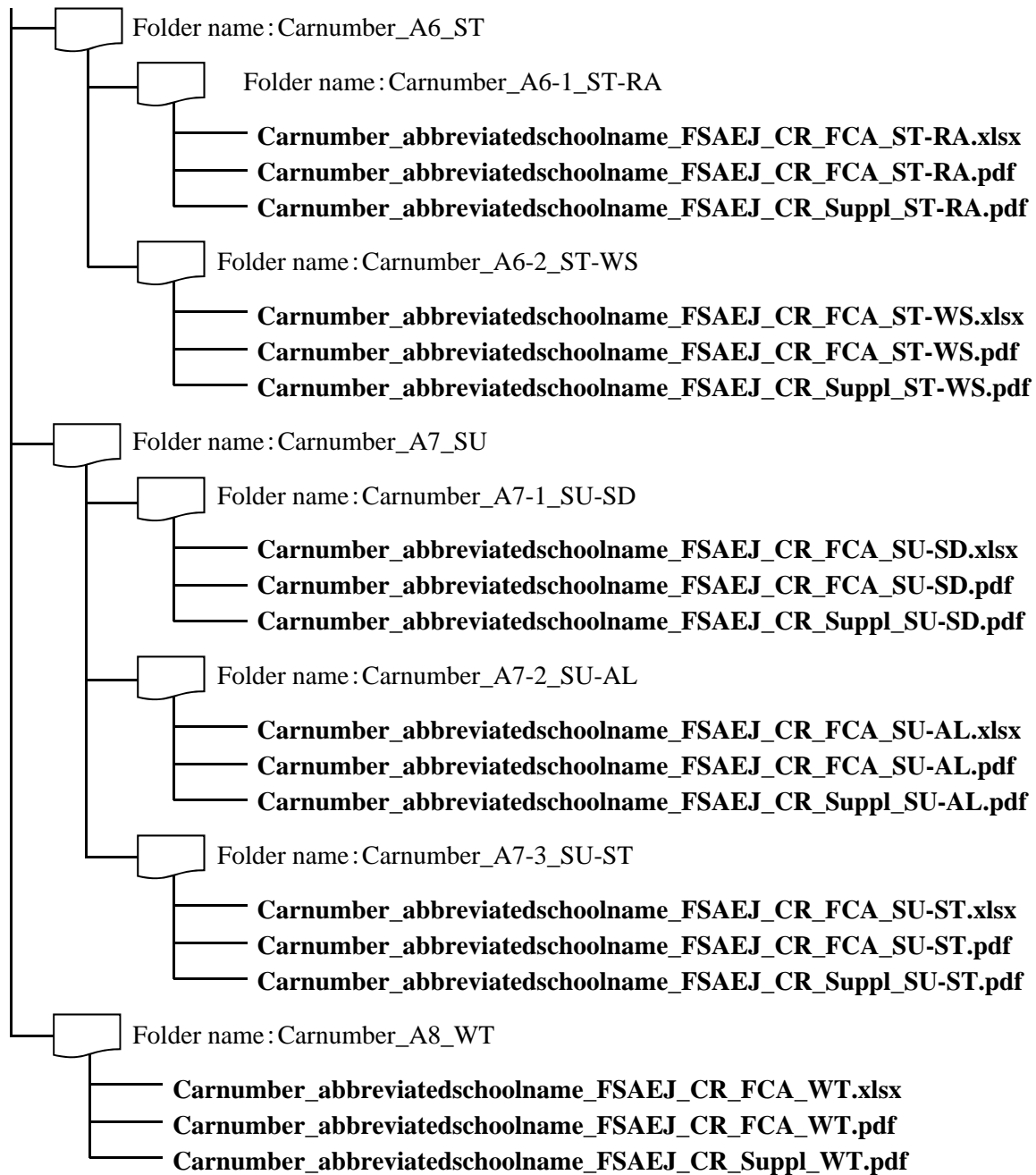
Brake Light  
Bulbs  
Fuses  
Gages (any)  
Relays  
Solenoids

## **APPENDIX J-4 Structure of Cost Report electric data – ICV case**

The folder hierarchy of cost report electronic data must be created in the hierarchy shown below. The abbreviated school name must consist of no more than 30 letters.







## APPENDIX J-5 Structure of Cost Report electric data – EV case

The folder hierarchy of cost report electronic data must be created in the hierarchy shown below. The abbreviated school name must consist of no more than 30 letters.

