

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

J2020-1-01 Relaxation of Rules for First Year Vehicle (refer to Formula SAE® Rules 2020 GR.7.3.2, FSAEJ2020 Participation Rules Article 9)

As for EV Class, teams may use their frame constructed for the 2019 Formula SAE Japan event if the frame meets or is modified to meet the applicable Formula SAE® Rules 2020.

However as for ICV Class, the car still must have a completely new chassis (frame and/or monocoque) at least.

This rule applies to the teams which checked in at the reception of the past FSAEJ event.

J2020-1-02 Submission of Structural Equivalency Sheet (refer to Formula SAE® Rules 2020 F.2.1, FSAEJ2020 Participation Rules Article 12 and 13)

In the case that the Structural Equivalency Sheet (SES) is not submitted by the deadline or the resubmission deadline instructed by the Inspection judge, the team will be disqualified from the competition without any other penalties.

Resubmission of the SES must not be permitted unless specifically instructed.

J2020-1-03 Baseline Steel Material (refer to Formula SAE® Rules 2020 F.3.4.2)

The baseline steel material must be a material that satisfies the following condition.

Mild or alloy steel with a minimum tensile strength of 290 N/mm² as guaranteed by a mechanical strength standard. The “STKM11A” is one of them.

J2020-1-04 Attachment Height of Impact Attenuator (refer to Formula SAE® Rules 2020 F.8.4)

The center of the impact attenuator must be within 350 mm from the ground.

J2020-1-05 Thickness of the floor or bottom for Accumulator Container (refer to Formula SAE® Rules 2020 F.10.2.2.a)

An aluminum sheet thickness of 3.2 mm (0.125 inches) must be accepted up to a negative tolerance of 10%.

J2020-1-06 Accumulator Attachment – Interpretation of Corner Attachments (refer to Formula SAE® Rules 2020 F.10.3.6.b)

The phrase “the corner of the segment” in the Formula SAE® Rules 2020 may also be interpreted as “the corner of the container”.

J2020-1-07 Method of Inspection for Cockpit Opening and Internal Cross Section (refer to Formula SAE® Rules 2020 T.1.1.1, T.1.2.1)

(1) Vertical movement within 50 mm must be permitted for template T.1.2.1 only in order to avoid interference

with the rack and pinion unit.

- (2) Template **T.1.2.1** may be split into left and right sections to enable inspection even when the rack and pinion unit is positioned on the lower frame. In other words, the slit in template **T.1.2.1** may be extended to the top and bottom sides.
- (3) Template **T.1.2.1** must be placed perpendicular to an axis formed assuming a straight line from the cockpit to the pedals and moved parallel to that axis. During this movement, template **T.1.2.1** may be rotated within ± 45 degrees around the back and forth axis.
- (4) The splined part of the steering shaft is excluded from the inspection range of template **T.1.1.1**.

J2020-1-08 Driver Harness Installation (refer to Formula SAE® Rules 2020 T.2.5 - T.2.7)

M10 eye bolts used to install shoulder harness belts and lap belts must satisfy

Japanese Industrial Standard (JIS) B1168: 1994.

The diameter of eye bolt hooks must satisfy the 8 mm.

J2020-1-09 Relaxation of Requirement for Use of Sensors with Different Transfer Functions as Accelerator Pedal Position Sensors (APPS) (refer to Formula SAE® Rules 2020 T.4.2.2, T.4.2.3)

There is no requirement for APPS with two different transfer functions.

There is no distinction between an OEM and Non OEM sensor.

J2020-1-10 JSAE Logo (refer to Formula SAE® Rules 2020 VE.1.3)

The Society of Automotive Engineers (SAE) logo as specified in the Formula SAE® Rules must be replaced by the logo of the Society of Automotive Engineers of Japan (JSAE). In other words, the teams must display the JSAE logo in a prominent location on the front and/or both sides of the vehicle. The JSAE logo stickers to be supplied to the teams at the competition site have approximate dimensions of 210 mm (width) \times 115 mm (height).

J2020-1-11 Size of Technical Inspection Stickers (refer to Formula SAE® Rules 2020 VE.1.4)

The stickers indicating that the technical inspection has been passed are divided into the parts, with total dimensions of 150 mm (width) \times 100 mm (height).

J2020-1-12 Transponder (refer to Formula SAE® Rules 2020 VE.1.5)

Any transponder is NOT used in 2020 Formula SAE Japan.

J2020-1-13 Quick Jack (refer to Formula SAE® Rules 2020 VE.2.1.2)

It must be possible to move the vehicle at all times without any additional manual effort using the quick jack for which are shown in the APPENDIX J-1. It must also be possible to utilize the quick jack without interfering with the vehicle body (i.e., the cowling, undercover, and so on).

J2020-1-14 Fire Extinguishers (refer to Formula SAE® Rules 2020 VE.2.3)

It is allowed to use a fire extinguisher without a pressure gauge. However, each fire extinguisher must be within its expiration date and the operation lever seal must be in place. For fire extinguishers without a displayed expiration date, less than five years must have passed since the date of manufacture. For example,

3-ABC type fire extinguishers and CO₂ fire extinguishers are recommended.

J2020-1-15 Driver's Equipment (refer to Formula SAE® Rules 2020 VE.3)

The equipment in accordance with the latest standards which is safer than Formula SAE® Rules 2020 is accepted.

J2020-1-16 Fuel Allowed at FSAEJ (refer to Formula SAE® Rules 2020 IC.5.1.1)

The only fuel that must be permitted is unleaded gasoline with a Research Octane Number (RON) of 100.

J2020-1-17 Fuel Supply (refer to Formula SAE® Rules 2020 IC.5.2)

It must be permitted to obtain a full tank of fuel at the fueling station before undergoing the Technical Inspections.

The fuel that must be permitted is supplied by the Competition Organizer only.

J2020-1-18 Fuel Tank and Exhaust Pipe distance (refer to Formula SAE® Rules 2020 IC.5.3)

Teams must secure the clearance of fuel tank and an exhaust pipe to be not less than 50 mm.

Otherwise (if teams cannot secure a clearance of 50mm), teams must add the heat shields with fireproof equal to that of a fire wall, which prevents the temperature of the fuel from being above 50% distillate temperature of JIS standard K2202-2012 during the vehicle is running OR the evidence of its performance are required.

J2020-1-19 Extracting fuel from the Fuel Tank (refer to Formula SAE® Rules 2020 IC.5.3.5)

The Fuel System must have a provision for emptying the Fuel Tank without any electric motor pump.

J2020-1-20 Coloring of Master Switches (refer to Formula SAE® Rules 2020 IC.8.4)

In ICV Class, the master switches must be red.

The cockpit-mounted switches except the master switch are must be any colors excluding red.

J2020-1-21 Energy Meter Specification (refer to Formula SAE® Rules 2020 EV.2.1.1 , AD.2.2.1)

EV team must use the Energy Meter distributed by the Competition Organizer for Dynamic Event.

The Specification of that, Formula Student Germany FSE2014 Energy Meter, will be on the team page.

J2020-1-22 Scatter Shield (refer to Formula SAE® Rules 2020 EV.3.1.4)

The small gap between the scatter shields neighboring the hole of the motor casing is allowed. As for the hole on a vertical surface to the rotation axis, the scatter shield is unnecessary.

J2020-1-23 Relaxation of the Interlocking for the Tractive System connectors outside of a housing (refer to Formula SAE® Rules 2020 EV.4.2.5)

If the tractive system connectors outside of a housing to the accumulator containers cannot be removed without the use of tools, then it is equivalent to the Interlocking and stated on the Electrical Systems Form (ESF).

J2020-1-24 Relaxation of Prohibition of Cell Balancing when Accumulator Isolation Relays (AIR) Are Open (refer to Formula SAE® Rules 2020 EV.4.4.3, 8.2.5)

We do NOT apply the rule EV.8.2.5.

J2020-1-25 Relaxation of Rule Relating to Placement of Temperature Sensor at Cell Negative Terminal (refer to Formula SAE® Rules 2020 EV.6.1.3, EV.6.1.4)

If the team uses a ready-made accumulator consisting of assembled cells (segments) that cannot be disassembled, the temperatures of the positive and negative terminals of the segments, and actual measured data from the measurement points of the temperature sensor installed inside the segment (time series data when charged at maximum current) must be clearly stated on the Electrical Systems Form (ESF). If rule EV.6.1.3 is satisfied by control using these temperature sensor values in its ESF, the team will not be required to satisfy the rule EV.6.1.4.

J2020-1-26 Relaxation of Requirement for Electrical Connections to Use Positive Locking Mechanisms (refer to Formula SAE® Rules 2020 EV.7.5.12 - EV.7.5.14)

The requirement to use positive locking mechanisms described in EV.7.5.12 - EV.7.5.14 must be regarded as satisfied if the following conditions are all met.

- Conditions:
- The team can clearly demonstrate that the reasonable axial force or contact pressure has been applied to the connections during the Electrical Technical inspection. (A record of the fastening torque or riveting bonding force is acceptable.)
 - Furthermore, the structure must allow no application of external force (tension, torsional, or flexural) from the wiring to the connection.

J2020-1-27 Ready-To-Drive-Sound (refer to Formula SAE® Rules 2020 EV.7.12)

The car does not need to make a Ready to Drive Sound.

J2020-1-28 Coloring of Shutdown Buttons (refer to Formula SAE® Rules 2020 EV.8.4)

EV shutdown buttons must be colored red. Other than the cockpit mounted shutdown button, switches installed at the driver's seat must not be colored red or orange.

J2020-1-29 Relaxation of Requirement for the Overcurrent Protection in the multiple parallel battery cells (refer to Formula SAE® Rules 2020 EV.9.1.5)

Only when the team uses ready-made segments which the multiple cells are assembled in parallel, and the Overcurrent Protection is designed on the condition that all current flows only to one side cell, the team will not be required to satisfy the rule EV.9.1.5.

If so, that must be stated on the Electrical Systems Form (ESF) and approved by judges.

J2020-1-30 Relaxation of Rules for EV Chargers (refer to Formula SAE® Rules 2020 EV.10.3)

Teams may be exempted from complying with the three rules described below if all of the following conditions are satisfied: The 'Standard Charging Procedure' and 'Charging Abnormality Procedure' must be added postscript to the Electrical System Form (ESF), team members must be fully trained in the application of these two documents to charging operations, these team members must constantly monitor the state of charging while

in possession of these documents, and these team members must be capable of taking the appropriate measures if an abnormality occurs during charging.

(1) The interlock function related to the connection state of connectors described in EV.10.3.4.

(2) The function to turn off the charger using the AMS described in EV.10.3.7.

(3) The function to turn off the charger using the IMD described in EV.10.3.8.

These procedures must be stated on the ESF template. When this rule is applied, the Standard Charging Procedure and Charging Abnormality Procedure must be handled as component elements of the ESF.

J2020-1-31 Submission of the ESF or FMEA (refer to Formula SAE® Rules 2020 EV.11, FSAEJ2020 Participation Rules Article 12 and 14)

Resubmission of the Electrical System Form (ESF) or Failure Modes and Effects Analysis (FMEA) may be requested multiple times to ensure that these materials achieve a sufficient degree of completion. At the time of the resubmission deadline, each maximum of fifty (50) negative points (Total of 100 points for ESF and FMEA) will be penalized depending on the degree of completion and the delay submission. In addition, the order of the Electrical Technical Inspection will be determined based on the degree of completion of the ESF and FMEA, as well as the order in which the documentation is received.

J2020-1-32 Seals for the Rain Test (refer to Formula SAE® Rules 2020 IN.4.7.1, IN.11.3)

Items 1 will be sealed before the rain test.

Items 2 will be sealed after the rain test passed.

Items 1: The items checked at the Electrical Technical Inspection (Accumulator Container(s), Motor, etc.).

Items 2: The items attached to the vehicle for waterproofing (tapes or the like).

Teams must retake the following inspection if these seals are peeled off.

Items 1: Simplified Electrical Technical Inspection for the related parts. The Rain test again in some cases.

Items 2: The Rain test again.

J2020-1-33 Driver Egress Test (refer to Formula SAE® Rules 2020 IN.5.2)

In the Driver Egress Test, the direction of egress (i.e., to the left or right of the vehicle) must be instructed by the judges at that time.

J2020-1-34 Sound Measuring Procedure for CVT-Equipped Vehicles (refer to Formula SAE® Rules 2020 IN.10.1.1)

Teams using a vehicle equipped with a CVT without a neutral position must prepare an apparatus that can safely hold the driving wheels in a completely floating state during sound measurement.

J2020-1-35 Sound Measuring Procedure (refer to Formula SAE® Rules 2020 IN.10.1.2)

There is no change to the measurement speed for engines used in 2019 Formula SAE Japan. The measurement speeds for other engines must be released on the team page later. The location of the microphone at an angle of 45° with the outlet in the horizontal plane must be instructed by the judges at that time.

Measuring time will be within 5 minutes from the microphone set up.

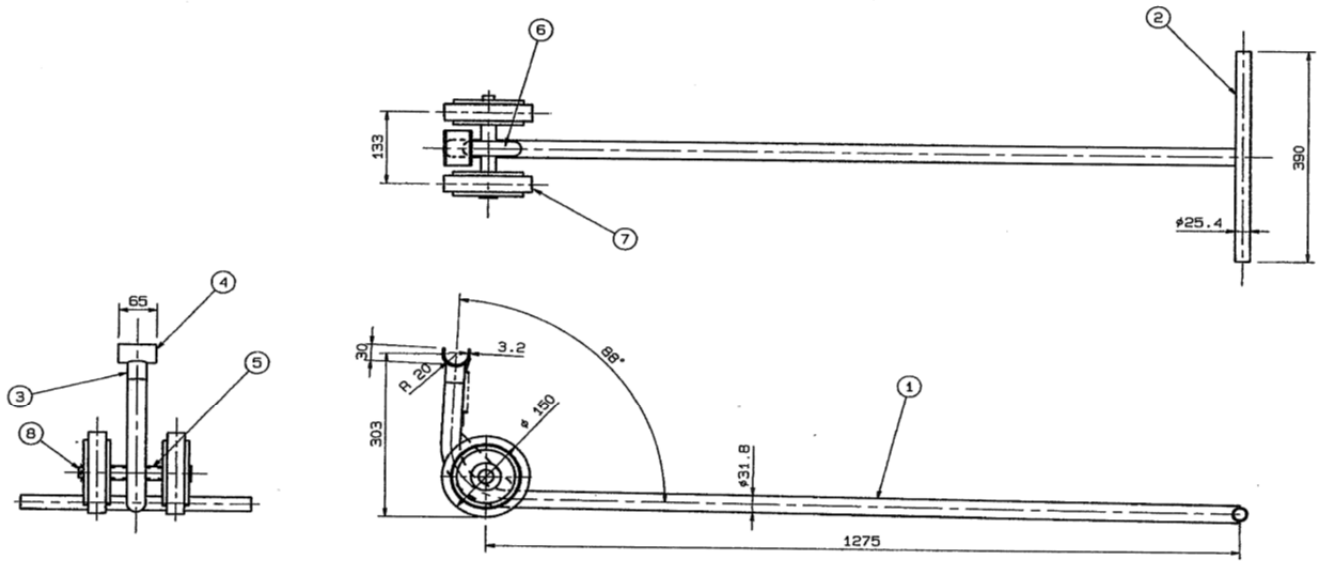
J2020-1-36 Remeasurement of Noise (refer to Formula SAE® Rules 2020 IN10.1, IN10.6)

1. The vehicle that completed the endurance event is subject to the noise test.
2. The method of the noise testing applies IN.10.1 correspondingly.
3. It calls a penalty as follows according to measurements.
 - Up to +1dB of Reference Value(RV) is no penalty.
 - Over +1dB up to +2dB of RV is a penalty of ten points.
 - Over +2dB of RV is a penalty of 20 points.

J2020-1-37 Technical Inspection After the Endurance (refer to Formula SAE® Rules 2020 IN.15.3.2, D.14.1)

The vehicles may be reinspected after the Endurance and refuelling are completed.

APPENDIX J-1 (J2020-1-13) Quick Jack



8	SHAFT	1	S45C	
7	TYRE	2		
6	GUSSET	1	SPCC t1.6	
5	HOUSING	1	SPCC t2.4t12.3	
4	SUPPORT	1	SPCC t3.2	
3	NECK	1	SS400	
2	HANDLE	1	SINW25.4t1.6	
1	MAIN TUBE	1	SINW31.8t1.6	
	QUICK LIFT JACK	1		
NO	PART NO	NAME	QTY	MATERIAL

