2017 Event Handbook (July Draft)

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# FORMULA SAE-A 2017 - AWARDS LIST

## ELECTRIC VEHICLE (EV) CLASS AWARDS

<table>
<thead>
<tr>
<th>Event</th>
<th>Placings</th>
</tr>
</thead>
<tbody>
<tr>
<td>Electric Vehicle Class Winner</td>
<td>1st</td>
</tr>
<tr>
<td>Acceleration</td>
<td>Winner, Runner Up</td>
</tr>
<tr>
<td>Autocross</td>
<td>Winner, Runner Up</td>
</tr>
<tr>
<td>Business Presentation</td>
<td>Winner, Runner Up</td>
</tr>
<tr>
<td>Cost</td>
<td>Winner, Runner Up</td>
</tr>
<tr>
<td>Efficiency</td>
<td>Winner, Runner Up</td>
</tr>
<tr>
<td>Engineering Design</td>
<td>Winner, Runner Up</td>
</tr>
<tr>
<td>Endurance</td>
<td>Winner, Runner Up</td>
</tr>
<tr>
<td>Skidpan</td>
<td>Winner, Runner Up</td>
</tr>
</tbody>
</table>

*Electric Vehicles will ONLY be scored against other Electric Vehicles for the overall class award, and for each event specific award.*

## INTERNAL COMBUSTION (IC) CLASS AWARDS

<table>
<thead>
<tr>
<th>Event</th>
<th>Placings</th>
</tr>
</thead>
<tbody>
<tr>
<td>Internal Combustion Class Winner</td>
<td>1st</td>
</tr>
<tr>
<td>Acceleration</td>
<td>Winner, Runner Up</td>
</tr>
<tr>
<td>Autocross</td>
<td>Winner, Runner Up</td>
</tr>
<tr>
<td>Business Presentation</td>
<td>Winner, Runner Up</td>
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<td>Efficiency</td>
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<td>Engineering Design</td>
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</tr>
<tr>
<td>Endurance</td>
<td>Winner, Runner Up</td>
</tr>
<tr>
<td>Skidpan</td>
<td>Winner, Runner Up</td>
</tr>
</tbody>
</table>

*Internal Combustion vehicles will ONLY be scored against other Internal Combustion vehicles for the overall class award, and for each event specific award.*

## GENERAL AWARDS

<table>
<thead>
<tr>
<th>Award</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Bosch – Best Instrumentation Award</td>
<td>Awarded to the team that shows the best spirit throughout the 2017 Competition, and most inspires the judging panel.</td>
</tr>
<tr>
<td>CAMS – Inspiring Motorsport Award</td>
<td></td>
</tr>
<tr>
<td>LEAP – Simulation Award</td>
<td>Awarded to the team that best uses simulations throughout the 2017 competition, as judged by LEAP Australia.</td>
</tr>
</tbody>
</table>
EMERGENCY & SAFETY INFORMATION

Communication
The registration/administration building will be staffed with several volunteers and at least one planning consortium member at all times that the competition is in progress. It will also be equipped with a two-way radio. All communication is to be done via the two-way radios to the event crew. In case of an emergency the following number can be called should no other communication options be available:

Greg Maratos: 0403 267 166 or Adrian Feeney: 0432 689 114

First Aid
There will be a first aid ambulance onsite Friday, Saturday & Sunday from 8.30 am until 5.30 pm. Outside of the set times visit the administration building for assistance.

Emergency Numbers
In case of an emergency outside of competition times, please contact emergency services via “000”

Hospitals
Sunshine Day Hospital 7 Macedon St. Sunbury
Tel: 03 9732 8600

Sunshine Hospital 176 Furlong Rd St Albans VIC 3021
Tel: 03 8345 1333

24 hr number: 03 8345 6666

Medical Practitioner
503 Melton Hwy Hillside VIC 3037
Tel: 03 9390 4623

Vehicles Outside of Formula SAE-A
The intent of the Formula SAE-A competition is to focus on being an aid to the education of engineering students by providing a real world experience of – design; working in teams; working to schedules; applying computer analysis, design and simulation tools; establishing targets and costing a product.

The resultant vehicles are then used as part of the assessment of how successfully a team has integrated these elements of the learning process into a final product. The competitive parts of the competition are used to determine how effectively the designs have been executed and how effectively the physical product reproduces the intended design’s dynamic outcomes. They are thus limited in nature and do not attempt to test ultimate speed, or other ultimate capabilities of the vehicles. The competition courses are constrained, to limit speeds and manoeuvres to within the safe limits of the general Formula design and competition criteria.

Accordingly, these vehicles are not assumed to be capable of performing in other environments, nor other types of competition, where the speed limitations and tightly constrained operating confines of the competition’s evaluation courses, are removed.
ORGANISING COMMITTEE RESPONSIBILITIES

Role of Organising Committee
The primary purpose of the committee is to coordinate the annual Formula SAE-A competition and ensure it delivers the outcomes for which it has been established. This entails assisting the SAE-A National Office as deemed necessary, and involves both strategic and operational deliverables.

Membership of Organising Committee
Committee membership is open to all interested parties as deemed necessary by SAE-A and is conducted on a voluntary basis. Committee members are expected to serve the full year (nominally February to December) and are unconditionally committing to upholding the values and objectives of SAE-A. Committee members will also conduct themselves in a professional manner that reflects positively on SAE-A and the Formula SAE-A competition at all times.

Duties and Responsibilities
All committee members will be expected to:

- Act as advisors to the SAE-A National Office, who is ultimately charged with the responsibility of delivering this annual event.
- Actively participate in the monthly committee meetings, and where necessary any additional meetings or site visits.
- Conduct themselves in a positive and courteous manner during all discussions, and work with other committee members to reach consensus. This will include challenging the status quo to encourage improvements and respecting that all critical decisions will be taken at the committee level once the necessary discussions have taken place.
- Agree to complete any allocated action items in a timely manner and to the best of their ability.
- Actively encourage and train understudies to ensure continuity of required skill sets.
FORMULA SAE
2017 EVENT LOCATIONS
CALDER PARK
SATURDAY
(Dynamic events layout
details excluded)

NOTE: Depending on final number of teams
termed body and janson will either be
located where shown here or at the
southern end of the pit marquee.
PARKING

VISITOR PARKING

NO PARKING

EVACUATION AREA

ENTRY

MAIN GATE

PITS

ADMIN

Volunteer PARKING
# EVENT SCHEDULE

## Thursday

<table>
<thead>
<tr>
<th>Time</th>
<th>Activity</th>
<th>Notes</th>
</tr>
</thead>
<tbody>
<tr>
<td>7:00</td>
<td>Gates Open</td>
<td></td>
</tr>
<tr>
<td>8:00</td>
<td>Team Registration</td>
<td>Teams must register at the scheduled time in order to maintain their allocated Technical Inspection slot. This will encourage teams to be well prepared for the event</td>
</tr>
<tr>
<td>9:00 - 12:30</td>
<td>Technical Inspection (scrutineering)</td>
<td>Technical Inspection will commence before lunch in order to process more teams. The start time will be subject to change depending on the availability of key personnel</td>
</tr>
<tr>
<td>12:30 - 13:30</td>
<td>Lunch</td>
<td></td>
</tr>
<tr>
<td>13:30 - 17:00</td>
<td>Technical Inspection (scrutineering, tilt table, brake, fuel and noise tests)</td>
<td></td>
</tr>
<tr>
<td>17:15 - 17:45</td>
<td>Welcoming Ceremony</td>
<td>Same format as 2016</td>
</tr>
<tr>
<td>18:00</td>
<td>Gates Close</td>
<td></td>
</tr>
</tbody>
</table>

### Further information

- Vehicles will be permitted to go offsite. However, a full re-inspection must be completed upon return to the venue (tech and noise stickers will be removed from the vehicle). This is consistent with the international rules.
- The event organisers will aim to recruit a large number of volunteers to man the morning and afternoon sessions of Technical Inspection. Our intention is to have at least four lanes open.
## Friday

<table>
<thead>
<tr>
<th>Time</th>
<th>Activity</th>
<th>Notes</th>
</tr>
</thead>
<tbody>
<tr>
<td>7:00</td>
<td>Gates Open</td>
<td></td>
</tr>
<tr>
<td>8:00 - 12:30</td>
<td>Presentation, Design and Cost Events</td>
<td>Maintain the two concurrent streams of Presentation that were introduced in 2016. However, Cost will be hosted in a single location to eliminate the need to visit team garages. Design will be unchanged</td>
</tr>
<tr>
<td></td>
<td>Technical Inspection (scrutineering, tilt table, fuel, brake and noise tests)</td>
<td></td>
</tr>
<tr>
<td>12:30 - 13:30</td>
<td>Lunch</td>
<td></td>
</tr>
<tr>
<td>13:30 - 17:00</td>
<td>Presentation, Design and Cost Events</td>
<td>See above</td>
</tr>
<tr>
<td></td>
<td>Technical Inspection (scrutineering, tilt table, fuel, brake and noise tests)</td>
<td></td>
</tr>
<tr>
<td>18:00</td>
<td>Gates Close</td>
<td></td>
</tr>
</tbody>
</table>

### Further information

- Vehicles will be permitted to go offsite. However, a full re-inspection must be completed upon return to the venue (tech and noise stickers will be removed from the vehicle). This is consistent with the international rules.
- Teams must prioritize attending their Static Events at the scheduled time. Teams that attend Technical Inspection rather than their scheduled Static Events will not be allocated a new timeslot for judging. This change has become necessary due to the number of teams that now compete at the Australasian Event.
Saturday

<table>
<thead>
<tr>
<th>Time</th>
<th>Activity</th>
<th>Notes</th>
</tr>
</thead>
<tbody>
<tr>
<td>7:00</td>
<td>Gates Open</td>
<td></td>
</tr>
<tr>
<td>9:30 - 11:30</td>
<td>Acceleration Event</td>
<td>There is now an additional 30 minutes of preparation time before Acceleration with respect to previous years. This provides additional time for teams to prepare and for the organisers to improve the volunteer briefings. A half hour gate closure rule will apply for this event (11:30-12:00). Teams inside the gate at 11.30 will be permitted one final run. Preference will however be given to any teams that have not registered a time in this event</td>
</tr>
<tr>
<td>12:00 - 13:00</td>
<td>Lunch</td>
<td></td>
</tr>
<tr>
<td>13:00 - 15:00</td>
<td>Skidpan Event</td>
<td>Skidpan no longer runs concurrently with Acceleration. This allows spectators and commentators to focus on a single event, while also simplifying the timing. A half hour gate closure rule will apply for this event (15:00-15:30). Teams inside the gate at 15.00 will be permitted one final run. Preference will however be given to any teams that have not registered a time in this event</td>
</tr>
<tr>
<td>15:30 - 17:30</td>
<td>Feedback Session and Panel Discussion</td>
<td>This interactive session will discuss specific areas where the winners were particularly successful, and will be open to sponsors and spectators. A full breakdown of this session will be provided prior to the event</td>
</tr>
<tr>
<td>18:00</td>
<td>Gates Close</td>
<td></td>
</tr>
</tbody>
</table>

**Further information**

- Vehicles will be permitted to go offsite. However, a full re-inspection must be completed upon return to the venue (tech and noise stickers will be removed from the vehicle). This is consistent with the international rules
- Brakes and noise tests will not have full-time volunteers once the dynamic events have commenced. Teams that require these tests will need to schedule a time at the Administration tent
- Unlimited running will be permitted in both Acceleration and Skidpan, subject to available time
- Shifting Autocross from Saturday afternoon to Sunday morning eliminates the need for the majority of track officials on Saturday. Only a handful of people are required to run Acceleration and Skidpan, and the same volunteers can be used for both events. This simplifies the volunteer recruitment for the event organisers considerably
### Sunday

<table>
<thead>
<tr>
<th>Time</th>
<th>Activity</th>
<th>Notes</th>
</tr>
</thead>
<tbody>
<tr>
<td>7:00</td>
<td>Gates Open</td>
<td></td>
</tr>
<tr>
<td>9:30 - 11:30</td>
<td>Autocross Event</td>
<td>Autocross will be limited to two drivers, who will each receive two timed runs. This is consistent with the international rules and addresses the existing scoring issues (unlimited running in Autocross is the single largest bottleneck)</td>
</tr>
<tr>
<td>11:30 - 12:30</td>
<td>Lunch</td>
<td></td>
</tr>
<tr>
<td>12:45 - 16:45</td>
<td>Endurance Event</td>
<td>The competition reverts to the international format with only a single heat of Endurance. The single heat simplifies scoring considerably, as the results no longer need to be cross-correlated between the two heats. It also rewards teams that have placed the necessary emphasis on reliability</td>
</tr>
<tr>
<td>17:45 - 18:30</td>
<td>Final Awards Ceremony</td>
<td>Same format as 2016. The reduced scoring complexity will ensure the ceremony can commence at the scheduled time</td>
</tr>
<tr>
<td>19:00</td>
<td>Gates Close</td>
<td></td>
</tr>
</tbody>
</table>

### Further information

- No vehicles will be permitted to be taken offsite on Sunday, since there will not be adequate time or resources for them to again complete Technical Inspection.
- The single heat of Endurance is consistent with other international events. The Australasian Event has grown beyond 30 teams, and it is no longer practical to run the two heats of Endurance.
- Running Autocross and Endurance sequentially on the same day means that volunteers located around the track are only required for a single day (currently 2 days). This simplifies volunteer recruitment for the event organisers considerably.
STATIC EVENT TIMETABLE

Pending – will be released closer to the event
STATIC EVENTS
FUEL STATION

Location: Large undercover shelter, adjacent to Administration

Event Brief
The Fuel Station will provide either RON 98 gasoline or E85 to each vehicle. No other fuel or additives are permitted. No vehicle will be provided with fuel until it has passed Technical Inspection.

Procedure
- Engines must be switched off
- Vehicles must be pushed to and from the Fuel Station location
- Only the driver, in driving suit, is permitted in the area as fuel is dispensed
- A scribed horizontal line identifying the “full” level must be specified
- The fuel tank will be filled to this level each time fuel is provided
- It is recommended that vehicles are shaken during the fill process to ensure the fuel tank capacity is fully utilized. However for endurance fuel loading, the car will not be "shaken" allowing for more fuel load.
- After the vehicle is initially fuelled, the team must proceed immediately to the Tilt Test

For the rules regarding the Fuel Event, please read Part IC, Article 2: Fuel and Fuel System, in conjunction with the Formula SAE-Australasia Addendum.

TILT TEST

Location: Adjacent to the Technical Inspection bays

Event Brief
The Tilt Test is designed to ensure the vehicle can maintain a lateral acceleration of 1.7 g’s without rolling over. A fluid integrity test is also be performed to ensure the vehicle does not leak any fluid.

Procedure
The vehicle will be placed on the Tilt Table with the tallest driver aboard. The vehicle should be oriented on the tilt table in the direction that is most likely to create spillage. The table will then be tilted to an angle of 45 degrees. There must be no fluid leakage at this angle. If the upper wheels remain on the table, then the angle will be increased to 60 degrees. Should the vehicle fail at either of the two angles, the vehicle must be repaired and re-tested. The person in charge at the tilt table must sign-off an inspection form, which travels with the vehicle. The second section of the Technical Inspection sticker will then be applied to the vehicle to indicate the test was successfully passed. The vehicle should now proceed to the Brake and Noise Testing area.

Vehicles may be required, over the event, to return to this station for re-certification at the discretion of the official. This may be due to work that was performed on the vehicle’s fuel system after passing the tilt test, or due to an incident which results in damage to the vehicle.
Tilt Table Safety Guidelines
- Only two team members are allowed past the safety tape while preparing and conducting the Tilt Test.
- Ensure the engine is switched off and push the vehicle onto the Tilt Table
- The inside wheels are to be placed against the guard of the tilt table
- Attach the safety strap between the rollover hoop and the side of table which is to be elevated. Allow a little slack. Ensure the table is clear before raising the vehicle, and especially when lowering. The operator is to inform people in the area when raising or lowering, e.g. “coming down”
- Use absorbent material to soak up any leaks
- Keep a fire extinguisher in close proximity to the vehicle

For the rules regarding this please read:
- Part T, Article 6.7: Rollover Stability
- Part T, Article 8.5: Integrity of Systems Carrying Fluids – Tilt Test, in conjunction with the Formula SAE-Australasia Addendum.

WEIGH STATION
Location: Large undercover shelter (Thurs – Sat) and adjacent to the Fuel Station (Sun)

Procedure
- Vehicles are initially to be weighed prior to Design Event judging
- Vehicles may be required to be re-weighed at the discretion of the organisers prior to and/or after the Endurance Event

The officials will record the vehicle weights on each occasion. Any significant discrepancies will be brought to the attention of the Clerk of Course, Protest Committee and the Technical Inspection captain.

COST & MANUFACTURING EVENT
Location: Team pit bays (pending change)

Event Brief
The objectives of the cost and manufacturing event are for teams and individuals:
- To learn that cost and budgeting are significant factors that must be considered in any engineering exercise.
- To make trade off decisions between content and cost based on the performance or functional advantage of each part and assembly.
- To gain experience with creating and maintaining a bill of material (BOM).
- To learn and understand the principles of design for manufacture and assembly, lean manufacturing and minimum constraint design.

Cost Report
The cost report is developed and submitted prior to the event day. Refer to the FSAE rules and the local addendum for further detail on report layout, structure and submission dates.

For the rules regarding this please read parts, article 4: cost and manufacturing event, in conjunction with the Australasian addendum.

Introduction
Duration: 5 minutes
Judges will make their way to the team pit bay for the event. The event will progress as follows:
Introduce the team and the car, mentioning any noteworthy features which may be of interest to the judges in the following areas:

- Trade-offs between content and cost based on performance of parts/assemblies
- Design for manufacture and assembly
- Lean manufacturing
- Minimum constraint design
- Any other special actions taken affecting cost.
- The introduction should only cover key notes; consider this an ‘ice breaker’ activity.

**Visual Inspection**  
**Duration: 10 minutes**

The judges, having reviewed the submitted cost report prior to the event, will discuss any issues and/or feedback they may have for the teams.

This review is to make sure that the parts that are on the vehicle are properly reflected in the cost report and that nothing has been added or changed since the cost report’s publication.

**Cost Task**  
**Duration: 10 minutes (5 minutes Presentation + 5 minutes Q&A)**

Students are to respond to a challenge relating to the cost and/or manufacture of the car. The challenge will be advised in the lead up to the event via email to team leaders and uploaded to the SAE-A website.

The real case scenario of the cost event is an opportunity for teams to gain significant extra points by demonstrating their approach to cost minimisation or other special activity and should be regarded as an integral and major part of the event, not a discretionary low value activity.

**Addenda**

Addenda to the report can be taken into consideration to cover any necessary changes made to the car. These addenda:

- Will only be accepted and logged in at the time of the team’s event registration
- Must be in the format prescribed by the rules.

Judges reserve the right to refuse any addenda which do not comply with the terms above.

**Tips for a Good Cost Report**

- Follow the rules - put the items and processes where the guidelines tell you to put them.
- Break down materials/processes/fasteners/tooling line items as much as necessary. This allows for greater clarity when reading the report, to the students and to the judges.
- When reading down a page, each step should flow in a logical manner, similar to a recipe’s method in a cookbook. Except this time, you get a race car instead of cake!
- Utilise the “use” column, by giving a brief description of what the material/process/fastener/tooling is used for.
- Include any photographs, pictures, drawings, blue prints, etc. To help the judges understand the car’s design. Where fully dimensioned drawings are not available, include a form of scale to the parts/assemblies, such as:
  - Dimension the key features and overall envelope space
  - Put a ruler in photographs.
  - Understand which processes require tooling costs.
• Understand which processes require “machining setup install/remove” costs.

• Hard-copy report formatting:
  o Use a 3 or 4 ring binder
  o Tabs to be used, with each system labelled clearly
  o Table of contents
  o Page numbering.
  o Make detail pages readily traceable to summary pages
  o Ensure legibility/ avoid excessive background colour and use the specified minimum font size. Clear contrast print to background colour.

• Soft-copy to be submitted in two formats:
  o Excel format - limit the number of files for ease of navigation
  o Pdf format.

PRESENTATION

Location: Classroom in the race control building (adjacent to drag strip)

Event Brief

After a year of planning, fabricating, and testing a new, prototype vehicle, the team aspires to sell their vehicle design to a make-believe racing manufacturer. The competitors in this event will be judged on their ability to create and deliver a presentation that clearly explains the merits of their design. The winner of the event will score 75 points.

Presentation Tips

• Ensure your presentation runs to the time allocated as time limits are strictly enforced.
• Spell check all overheads, hand-outs, slides etc.
• There is no dress code; however, bad first impressions are difficult to remedy.
• Remember that equipment has been known to fail; copies can be ruined in transit, etc. Consider other alternatives in case something should go wrong.
• Have someone from your team video your presentation and the judges' comments afterward for your team's future Formula SAE-A efforts.
• The most technically knowledgeable person on the team may not be the best person to lead the presentation team. Choose someone who is charismatic and good at public speaking.

Judging Guidelines

• Familiarise yourself with the assessment criteria prior to the commencement of the first presentation.
• Place specific emphasis into how well the team presented their overall business proposition, financial plausibility of numbers and volumes, as well as their rationale for choice of vehicle design. Technical information will be required to a certain extent but bear in mind this isn’t the design or cost event.
• Don’t interrupt the students’ presentation. Wait until they are finished to ask questions.
• The question period is 10 minutes or less.
• Make sure that the presentation is graded immediately after the team leaves the room.
ENGINEERING DESIGN EVENT
Location: Large undercover sheltered area adjacent to administration

Design Judging Procedure
The students must provide a pre-event design summary (written plus video) and specifications sheet. The two will be used to provide judges with a preview of their designs and allow preparation of technical questions. The design summary text should be no more than four pages in length, including an additional three pages of vehicle drawings and one page of optional material. The summary will not be judged based on length or amount of material; content of these summaries should be similar to a flyer at a technical trade show and contain vehicle specifications and interesting design features. The design specifications sheet is based on a fixed template located on the Formula SAE website and contains detailed system and component level specifications.

Design judging will start promptly on Friday morning, per the static event timetable. Each University team will need to weigh their vehicle before the allocated time block to be judged by four judging groups with differing areas of expertise (see Design Judging Groups below). Each of these design judging groups will have approximately 15 minutes with each team, per the static event timetable. Student comments to judges need to be short and sharp in order to get through the required material in the time allocated.

Due to the tight timeline at competition and no design finals, the judges will be discouraging teams from making opening addresses at the beginning of each judging session (e.g. the chief engineer’s overview speech). It will be expected that the teams will make better use of their design report submission prior to the event to explain the overall design philosophy. The addition of the Design video submission allows teams the opportunity to present such material to the judges prior to the event (see Design Video Submission below). Teams that do not submit both the design summary and spec sheets will be disqualified from the design event and receive zero points.

It is the students’ responsibility to prove to the judges that their vehicle is a first year car. If the structure of the frame is not obviously a completely new design from previous years, then thorough photo documentation should be provided to prove that the car is new or else points will be deducted from the design score. Teams will not be permitted to run a frame a third year.

During the judging session, the only people allowed inside this judging area are the judges and the relevant team members of the team being judged. Teams are only allowed to have ten (10) students inside the judging area at any one time, but are allowed to freely interchange team members in and out of the area during the session. It is the team’s decision how to best use the space available, but if event officials deem the area to be overcrowded or unsafe then they have the right to demand that teams remove either personnel or props from the judging area to make the area safe.

Design Judging Groups
There will be four specialist groups of design judges:

- Design team A: Design management and integration
- Design team B: Powertrain and electronics
- Design team C: Vehicle structural design
- Design team D: Vehicle dynamics and suspension

The design team A judges will be assessing the design management of each team project. They will be looking for evidence of, for example:
• Structured decision-making processes
• Sound understanding of the vehicle level design trade-offs
• A structured breakdown of design goals from full vehicle level cascading down to component level
• Evidence of appropriate design decisions being made for the resources available
• Evidence of a structured vehicle testing program with defined goals and validated conclusions
• Vehicle manufacturability and serviceability

Design team B will be assessing the engine and powertrain development of the vehicle, along with vehicle electrics and data acquisition.

• Fuel tank and fuelling system, or EV energy storage and charging system
• Radiators and coolant system
• Engine intake and exhaust systems
• Motor, gearbox, and final drive system
• Differential / spool, drive shafts, and any joint in the drive shafts vehicle electrics and wiring
• Data acquisition systems and data usage

Design team C will be assessing vehicle structural and mechanical design

• Chassis strength and stiffness
• Ergonomics and safety
• Composite material application and effective use
• Mechanical design - load paths, understanding of mechanical design principles (appropriate bearings, uni joint angles, loads in single vs double shear, etc.)

Design team D will be assessing vehicle dynamics:

• Tyres
• Suspension / springs / dampers brakes
• Kinematics
• Aerodynamics
• Vehicle handling and dynamics

Note that the above lists are not exhaustive, and there may be questions asked which do not fit neatly into the above categories. The intent is to challenge and assess the student teams’ knowledge, and student teams should be ready to answer questions on a full spectrum of vehicle design and project management topics.

Strict adherence to the set timetable will be required. At the end of each 15 minute segment, a signal will be given and the judges will be expected to move on immediately to the next team. Students speaking when the signal is given will be expected to stop speaking immediately. Any delaying of the judges’ movements to the next team will result in a penalty being applied to the offending team.

Design Video Submission
Given that there is increased emphasis on the pre-event design review submissions to explain the vehicle concept, we will allow each team to submit a five (5) minute video explaining their vehicle design concept at the time of the design review submission. As with the written design report, contents are intentionally not specified. Use this opportunity to create emphasis for, and interest in, the details provided in the design report and specifications sheet. This will, in turn, prompt meaningful discussions at the event.
The audience is engineers, motivated and experienced in their field(s) of expertise, wanting to explore vehicle design concepts at a peer level. The video may be up to five minutes in length, with no editing/cuts mid-sentence. Speakers shall be introduced before presenting. Only physical parts/material may be used as visual aids (i.e. no cae or computer graphics). The intent is that the team should be able to present a clear representation of their design direction concisely and with minimal external or electronic props.

Each judge will have Dropbox access to these videos prior to the competition, along with the pre-event design reviews. In addition to this, teams may optionally submit a link to a higher quality version of the video (i.e. private video hosted on YouTube, but the Dropbox video file is the minimum requirement and must be submitted for offline access to the compressed video).

**FEEDBACK SESSIONS**

*Location: Grandstand – subject to weather*

Students will have the opportunity to attend feedback sessions on the Saturday of competition, for the three Static Events that were completed on Friday. These sessions will be hosted by the respective event captain, along with a panel of other judges from the event. Schedule is as follows:

3:30pm – 4:00pm: Cost & Manufacturing Event
4:00pm – 4:30pm: Business Case Presentation
4:30pm – 5:30pm: Engineering Design Event
DYNAMIC EVENTS
TECHNICAL INSPECTION

Location: Scrutineering bays, adjacent to the motorbike training area. EV Technical Inspection location: Team pit bays.

Event Brief

The objective of technical inspection is to determine if the vehicle meets the FSAE-A rules, requirements and restrictions and if, considered as a whole, it satisfies the intent of the rules.

For purposes of interpretation and inspection the violation of the intent of a rule is considered a violation of the rule itself.

Procedure

Prior to the event, teams must submit a self-assessment using the Formula SAE Tech Sheet. This must be completed by the team and signed by the faculty advisor. The form must be presented at team registration.

Teams are to make their way to the scrutineering bays at their assigned time, and must be prepared to be scrutineered at this time.

You must bring with you:

- Vehicle
- Technical inspection form
- Dry and wet tyres
- Driver's equipment - for all drivers including arm restraints, helmets, suits, gloves, eye protection, balaclavas, socks and shoes.
- Fire extinguishers
- Push bar
- Structural equivalency spreadsheet (SES) copies or structural requirements certification form (SRCF) copies, as appropriate for your car.
- Impact attenuator report copies
- Electric cars only: electrical system form
- Electric cars only: FMEA
- Copies of any rules questions you submitted with the answer you received.
- All drivers must be present at inspection.
- Electric and IC cars with Electronic Throttle Control: ETC FMEA.
- The tested sample of the Impact Attenuator
- The bulkhead sample from the Impact Attenuator Test if not included with the Attenuator

When a team passes technical inspection, the first portion of the four (4) part inspection sticker will be applied to the nose of the vehicle. The second, third and fourth parts will be given at the tilt table, brake and noise test respectively. Only once a team has all four portions of the technical inspection decal applied to the car, will the vehicle be allowed to compete in the dynamic events, including access to the practice track. Electric teams must also pass EV technical inspection, where they will receive an EV decal once completed.

When a team pass technical inspection, the technical inspection form will be retained by the technical inspection crew. The team can then proceed with the car to fuel and to the tilt table. If a team has items that need to be rectified, the form will be returned to the team. The team will not get the sticker, and will have to present the car at technical inspection again.

For the rules regarding this please read part s, article 2: technical inspection, in conjunction with the Australasian addendum.
DRIVER LIMITATIONS

Driver Wrist Bands
Each team is limited to two drivers per dynamic event (Autocross, Endurance, Acceleration and Skid-Pad). Endurance is two events (Endurance and Efficiency). A driver can compete in a maximum of three events. Each team therefore requires a minimum of three drivers to compete in all dynamic events.

Driver wristbands of a different colour will be fitted at administration immediately prior to the start of each event.

<table>
<thead>
<tr>
<th>Day</th>
<th>Dynamic Event</th>
<th>Morning</th>
<th>Afternoon</th>
</tr>
</thead>
<tbody>
<tr>
<td>Saturday</td>
<td></td>
<td>Acceleration</td>
<td>Skid-Pad</td>
</tr>
<tr>
<td>Sunday</td>
<td></td>
<td>Autocross</td>
<td>Efficiency</td>
</tr>
</tbody>
</table>

The two (2) team drivers for a given event must present themselves to administration with their:

- Photo ID
- CAMS licence and number

Each driver will then be marked off as having attempted that event. However, if a vehicle is withdrawn from an event after the issuing of a wristband but prior to a driver commencing that event, then that driver may return to administration and be removed from having attempted the event.

For the rules regarding drivers, please refer to Part D, Article 4: Driver limitations, in conjunction with the Formula SAE-Australasia Addendum.

NOISE TEST

Location: Pit area, across from Administration

Event Brief
In this test, vehicles are checked for compliance with the sound level restrictions. Electric vehicles may go directly to the Brake Test.

Prior to attending the Noise Test, all vehicles must have:

- Passed Technical Inspection, and
- Passed the Tilt Table Test

Procedure
The static sound level test shall occur in the designated Noise Test area. A driver must be fully suited up and strapped into the vehicle at all times. When instructed by the official, the driver is to start the engine with the transmission in neutral.

If the vehicle passes the Noise Test, the official will sign-off the approval form and provide the team with the Noise Test sticker. If the vehicle is unable to pass the noise test in three attempts, the vehicle must return to the pits, be repaired and then be brought back for re-testing. The vehicle is permitted on the Practice Track only without the third or fourth Technical Inspection stickers, at the discretion of the officials. This will only be allowed in exceptional circumstances.
circumstances and only after a full set of three attempts have been made at both the Brake and Noise Tests.

The noise level can at the discretion of the officials be re-measured at any time during the dynamic events. The vehicle must pass the noise criteria each time it is tested. Re-certification may be required if work has been performed on the exhaust system, or if the vehicle is involved in an incident which results in vehicle damage.

For the rules regarding this please read Part IC, Article 3: Exhaust System and Noise Control, in conjunction with the Formula SAE-Australasia Addendum.

**BRAKE TEST**

**Location:** Pit area, across from Administration

**Event Brief**

In this test, the effectiveness of the vehicle braking system will be checked. Prior to attending the Brake Test, all vehicles must have:

- Passed Technical Inspection
- Passed the Tilt Table Test
- Passed the Noise Test (ICE vehicles only)

**Procedure**

With the vehicle at the start line of the station, an official will signal the start of each run. The driver must accelerate until reaching the braking area, and once inside this area, the driver must apply the brakes with enough force to demonstrate that all four wheels lock up. The brake light intensity will be subjectively assessed in natural daylight by the officials.

If the vehicle passes the Brake Test, the official will sign-off the approval form and provide the team with the Brake Test sticker. The vehicle can now proceed to the Practice Track or to the Dynamic Events.

If the vehicle is unable to pass the Brake Test in three attempts, the vehicle must return to the pits, be repaired and then brought back for a re-test. Vehicles may be asked to return to the Brake Test for re-certification at any stage, should the officials deem it necessary.

For the rules regarding this please read Part T, Article 7.2: Brake Test, in conjunction with the Formula SAE-Australasia Addendum.

**PRACTICE TRACK**

**Location:** Track area

**Event Brief**

The practice track is a compact test area that is intended to provide teams with an opportunity to conduct low speed dynamic manoeuvres.

No vehicle will be permitted to enter the practice track unless it has:

- Passed Technical Inspection
- Passed the Tilt Table Test
- Passed the Noise Test
- Passed the Brake Test
- Or been given dispensation by the Clerk of Course
The practice track officials are in control of the facility. All team members must adhere to their direction. Each driver must understand and follow proper driving procedures at this facility. Only one vehicle at a time will be allowed.

At all times, drivers must be wearing proper safety equipment and proper safety practices must be maintained. Once signalled to begin testing, the driver is free to perform any test manoeuvres (within the limits of the track). The official at the track will coordinate the start and end of each team’s five minute time limit.

The official will use green and red flags to alert the driver of the beginning and end points. If the vehicle sustains any damage or significant mechanical breakdown, the vehicle will be required to exit the track, make the necessary repairs, and be reviewed again at Technical Inspection prior to participating in any dynamics tests or events.

**Practice Track Safety Guidelines**
- Only one vehicle at a time
- The next vehicle will not be permitted to enter the area until the last one has completed its exit
- Up to two volunteers will be on hand to manage the operation of the practice track
- Never place yourself in the line of travel of a vehicle
- Stay well away from the “hot” areas and always remain a safe distance behind the barriers
- Keep fire extinguishers in the vicinity of the vehicle
- Use brooms and oil-dry as needed to keep the practice track clean
- Any vehicle damage or contact must be reported to the event captain
- Do not permit spectators to sit or lean on the barriers surrounding the practice area

**ACCELERATION**

**Location:** Track area

**Event Brief**
The Acceleration Event evaluates the vehicle’s acceleration in a straight line.

**Acceleration Heats**
- There will be one heat with a maximum of 2 drivers and 2 runs per driver
- The driver returning for their second run has priority over all other vehicles in the queue
- At the completion of the first driver’s runs, the team can change drivers and return to the back of the queue
- Once all teams have completed their initial 2 runs per driver or there are no cars in the queue, then the teams can line up again for unlimited runs subject to the available time. However, should any team arrive for their initial 2 runs per driver, then that team will be given priority
- All runs will be timed and the best time will be used for scoring purposes

The event area for the Acceleration Event has two designated zones:
- **Form Up Area:** The area where teams prepare prior to entering the Staging Area
- **Staging Area:** is the area where vehicles are ready to complete a run with the driver fully strapped in

The “Event gate” is located between the Form Up and Staging Areas

**Form Up Area**
The Form Up Area is where teams can work on their vehicles and change drivers
- Tools are permitted in the Form Up Area
- The number of team members allowed in the Form Up area is unrestricted

Staging Area
The Staging Area is where vehicles are positioned when ready to commence theAcceleration Event. To enter the Staging Area, the vehicle must be capable of doing so under its own power with the driver fully strapped in to the vehicle and ready to run (the vehicle must be pushed into the area).

The gate keeper between the Form Up and Staging Areas will check the driver’s wristband.

- Once a vehicle enters the Staging Area, it is under the direction of the event officials
- No tools or toolboxes are permitted in the Staging Area
- Only the driver and two crew members are allowed in the Staging Area
- Vehicles found to be leaking fluid will not be allowed into the Staging Area

Event Procedure
The event official will direct the vehicle to approach the starting line. The vehicle will be positioned so that the timing transponder on the vehicle is located approximately 0.5m from the timing line. The vehicle must not roll back away from the timing line. Timing will commence when the timing transponder crosses the first timing line, and ends when the timing transponder crosses the finish timing line (75m from the first timing line). When the official gives the go ahead, the driver is free, when ready, to commence the event.

After a driver’s first run, the driver is to decelerate to walking pace, conduct a U-turn onto the return road and to then return to the Staging Area at walking pace. After the first run, the driver has the option of immediately taking a second run, or leaving the Staging Area.

At the completion of the driver’s second run, the vehicle must exit the Staging Area. Vehicles must exit the Staging Area to change drivers. At the completion of a drivers second run, the vehicle must exit the Staging Area, but may re-enter the Staging Area after a driver change or to queue for further runs.

The Acceleration Event gate is located between the Form Up and Staging Areas. The Acceleration Event will be run as time certain, with the gate closing at 11:30. Teams within the Staging Area at this time will be permitted to run 1 driver for a maximum of 2 runs. i.e. driver changes will not be permitted. The Acceleration Event will cease at 12:00 irrespective of whether teams are still queued up.

For the rules regarding this please read Part D, Article 5: Acceleration Event, in conjunction with the Formula SAE-Australasia Addendum.

SKID-PAD
Location: Track area

Event Brief
The Skid-Pad Event measures the vehicle’s maximum cornering capability by measuring the total time required for the vehicle to complete one right hand and one left hand circle. The event places emphasis on the vehicles suspension design and performance for maximum lateral grip, and minimises the effect of driver reflexes during transitional manoeuvres.

Skid-Pad Heats
- There will be one heat with a maximum of 2 drivers and 2 runs per driver
- The driver returning for their second run has priority over all others in the queue
- At the completion of the first driver's 2 runs, the team can change drivers and return to the back of the queue
- Once all teams have completed their initial 2 runs per driver or there are no cars in the queue, then the teams can line up again for unlimited runs subject to the available time. However, should any team arrive for their initial 2 runs per driver, then that team will be given priority
- All runs will be timed and the best time will be used for scoring purposes

The event area for the Skid-Pad Event has two designated zones:
- Form Up Area: The area where teams prepare prior to entering the Staging Area
- Staging Area: is the area where vehicles are ready to complete a run with the driver fully strapped in

The “Event gate” is located between the Form Up and Staging Areas

**Form Up Area**
The Form Up Area is where teams can work on their vehicles and change drivers
- Tools are permitted in the Form Up Area
- The number of team members allowed in the Form Up area is unrestricted

**Staging Area**
The Staging Area is where vehicles are positioned when ready to commence the Skid-Pad Event. To enter the Staging Area, the vehicle must be capable of doing so under its own power with the driver fully strapped in the vehicle and ready to run (the vehicle must be pushed into the area).

The gate keeper between the Form Up and Staging Areas will check the driver’s wristband.
- Once a vehicle enters the Staging Area, it is under the direction of the event officials
- No tools or toolboxes are permitted in the Staging Area
- Only the driver and two crew members are allowed in the Staging Area
- Vehicles found to be leaking fluid will not be allowed into the Staging Area

**Event Procedure**
The event official will direct the vehicle to approach the starting line, which is located approximately 20m from the timing line used for scoring. When the official gives the go ahead, the driver is free, when ready, to commence the event. After completing two right hand laps, the driver must continue onto the left-hand circle and complete two more laps. After completing the second left-hand lap (four in total) the driver must exit the Skid-Pad.

After a driver’s first run, they have the option of immediately taking a second run, or leaving the Staging Area. If the driver chooses their second run, they return to the start point and await directions from an official. When a driver has completed two runs, or elects to leave the Staging Area, the vehicle is to be pushed out by the two team members. Each vehicle must exit the Staging Area before attempting to change drivers.

The Skid-Pad Event gate is located between the Form Up and Staging Areas. The Skid-Pad Event will be run as time certain, with the gate closing at 15:00. Teams within the Staging Area at this time will be permitted to run one driver for a maximum of two runs. i.e. driver changes will not be permitted. The Skid-Pad Event will cease at 15:30 irrespective of whether teams are still queued up.

*For the rules regarding this please read Part D, Article 6: Skid-Pad Event, in conjunction with the Formula SAE-Australasia Addendum.*
AUTOCROSS

Location: Track area

Event Brief
The goal of the Autocross Event is to evaluate the vehicle's manoeuvrability and handling qualities on a tight course without the hindrance of competing vehicles. The Autocross course will combine the performance features of acceleration, braking, and cornering into one event.

Autocross Heats
- There will be one heat with a maximum of two drivers and two runs per driver
- The driver returning for their second run has priority over all others in the queue
- At the completion of the first driver's runs, the team can change drivers and return to the back of the queue

The event area for the Autocross Event has two designated zones:
- Form Up Area: The area where teams prepare prior to entering the Staging Area
- Staging Area: is the area where vehicles are ready to complete a run with the driver fully strapped in

The “Event gate” is located between the Form Up and Staging Areas

Form Up Area
The Form Up Area is where teams can work on their vehicles and change drivers
- Tools are permitted in the Form Up Area
- The number of team members allowed in the Form Up area is unrestricted

Staging Area
The Staging Area is where vehicles are positioned when ready to commence the Autocross Event. To enter the Staging Area, the vehicle must be capable of doing so under its own power with the driver fully strapped in the vehicle and ready to run (the vehicle must be pushed into the area).

The gate keeper between the Form Up and Staging Areas will check the driver's wristband.
- Once a vehicle enters the Staging Area, it is under the direction of the event officials
- No tools or toolboxes are permitted in the Staging Area
- Only the driver and two crew members are allowed in the Staging Area
- Vehicles found to be leaking fluid will not be allowed into the Staging Area

Event Procedure
An official will motion a vehicle to approach the starting line. When the starter gives the all clear, the driver may drive out of the staging area and begin their Autocross laps. After completing their lap the driver will exit the track and return to the staging area. After a driver’s first run, they have the option of immediately taking a second run, or leaving the Staging Area. If the driver chooses their second run, they return to the start point and await the directions of the official. When a driver has completed two runs, or elects to leave the staging area, the vehicle is to be pushed out of the staging area by the two team members. Each vehicle must exit the staging area prior to changing drivers.

The “Event gate” is located between the Form Up and Staging Areas. The Autocross Event will be run as time certain and will cease at 11:30 irrespective of whether teams are still in the queue.
For the rules regarding this please read Part D, Article 7: Autocross Event, in conjunction with the Formula SAE-Australasia Addendum.

ENDURANCE & EFFICIENCY

Location: Track area

Purpose
The goals of the Endurance and Efficiency event are to test the durability of the vehicles and determine the energy efficiency. The dual nature of the event can lead to compromises, as a corrected mileage of an equivalent to a petrol usage of 26 litres/100 km or better is required to avoid penalties.

Once a vehicle has commenced the Endurance Event, teams are not permitted to work on the vehicles other than to change drivers at the halfway point under the supervision of officials.

Event Brief
The event is approximately 22 km long, with two drivers completing approximately 11 km segments each. Each team is given three minutes to complete the driver change. Any additional time will count against the team. There is no advantage in completing a driver change in less than three minutes. After the driver change, the vehicle must be restarted using only the vehicle’s on-board power source, i.e. no external/jump batteries/power packs). No refuelling is allowed during the event.

The run order for the Endurance Event will be slowest to fastest for each class (ICE and EV) and be based on the Autocross Event results, i.e. slowest to fastest for the ICE vehicles, then slowest to fastest for the EV’s. Teams that did not score in the Autocross Event will be rated below the teams who did score in the Autocross, with the order based first on the finishing order of the Acceleration Event. If teams did not compete in the Acceleration Event, then the finishing order of the Skid-Pad Event will instead be used. If teams have not competed in any events, the order will be based upon the vehicle number, lowest to highest.

Teams that are not ready to run in their allocated slot will be penalized two (2) minutes for running out-of-order (ROO).

Endurance Procedures
On the way to the start line, ICE vehicles must pass through the fuel station and be fuelled. ICE vehicles must be fuelled to the prescribed level. After being fuelled ICE vehicles, without driver, may be weighed at the discretion of the organisers.

The event area for the Endurance Event has two designated zones:

- Form Up Area: The area where teams prepare prior to entering the Staging Area
- Staging Area: is the area where vehicles are ready to complete a run with the driver fully strapped in

No toolboxes are allowed in the Staging Area, Staging Lanes, or Driver Change Area. It is assumed that only hand tools are required to adjust the vehicle for the second driver.

The team must present the fuelled/charged vehicle in the Staging Area at the designated time with the first driver strapped in. Only two (2) crew members and the second driver are permitted in the Staging Area. Up to four (4) vehicles may be in the Staging Area at the same time.

When there is a space for the vehicle on the course, the driver will be directed to the starting line. An official will perform a safety check of the driver restraint system. The starter will stage
the vehicle’s front tyres on the starting line. When there is an opening on the track, the starter will provide the go ahead for the driver to enter the course. If the vehicle stalls, the driver must wait for the starter’s signal before attempting to re-enter the course.

At the completion of the last lap of the first driver, a chequered flag will be displayed and the vehicle will be directed to the Driver Change Area. Only the second driver and up to two crew members are permitted in the Driver Change Area.

Once the vehicle has arrived in the Driver Change Area, an official will call out “start”. The team then has three minutes to get the second driver seated, belted in, and the engine started, using the on-board battery only. Only two people may assist the second driver. If two crew members are present, then the exiting driver must immediately walk away from the area. If the exiting driver is one of the two people, then there can only be one crew member.

Only adjustments to fit the second driver may be performed on the vehicle. No other work is permitted. If the vehicle is detected to be leaking any fluids or has any mechanical defect, then it will not be permitted to re-join the course. When the second driver is ready, the vehicle can be pushed by the two team members to the starting line queue.

An official will perform a safety check of the driver restraint system. The starter will stage the vehicle’s front tyres on the starting line. When there is an opening on the track, the starter will provide the go ahead for the driver to enter the course. If the vehicle stalls, the driver must wait for the starter’s signal before attempting to re-enter the course. Upon completing the last lap with the second driver, the chequered flag will be displayed and the vehicle must exit the course. At this time, the vehicle must be pushed to the Parc Ferme Area.

If the vehicle leaves the course because of a mechanical/electrical problem, then the event is considered to be over for that vehicle and scoring will be notified. The vehicle will not be allowed to return to the course.

If a vehicle stalls on track, the recovery officials will attend the vehicle and move the vehicle to a safe area. If the recovery crew judge it is safe to do so, the vehicle may be restarted. A driver will be allowed approximately one lap time to restart the vehicle and re-join the course.

If the driver is unable to restart the vehicle or re-join the track within this period, then they must shutdown the vehicle and under the direction of the recovery crew assist to move the vehicle to a safe location.

If the driver needs to pull off the course to have belts re-tightened or a cone removed from the suspension etc., the driver may enter the pits prior to the completion of their total number of laps. No penalty will be applied but the additional time for this procedure will be counted. Re-joining the track will be under the direction of the start official and only when safe to do so.

The lap times of all vehicles will be monitored throughout the event. If a vehicle is not running within 133% of the fastest lap time (of the fastest vehicle), then the Clerk of Course can elect to black flag the vehicle, and have it removed from the event. If this occurs with the first driver, then the second driver will not be permitted to run, as the event will be considered over for that vehicle.

The Endurance event will be run as time certain, with a finishing time of 16:45. Vehicles still on track at that time will be credited the number of completed laps at that time. No vehicles will be permitted to commence the Endurance Event after 16:15.

Course Preparation
The Endurance Event course will be setup on Saturday evening. Teams are permitted to walk the course at this time, and also between the end of the Autocross Event and the start of the Endurance Event.
Efficiency Procedure – ICE Vehicles
Calculation of energy consumption will be made by the fuelling officials and will be based upon the energy of the fuel consumed. The vehicle starts the Endurance Event fuelled to the ‘full’ mark. After completing the event, the vehicle returns to the Fuel Station and is refuelled. The energy of the fuel consumed is determined by weighing a fuel container, filling the vehicle to the ‘full’ mark, and weighing the fuel container again. The energy of the fuel consumed is the weight difference of the two measurements multiplied by the energy density of the fuel. The officials may choose to shake the vehicle during the initial fill (prior to the Endurance Event) and the final fill (after the Endurance Event). Teams will be penalised if the shaking indicates that additional fuel can be stored on the vehicle (due to air pockets, cavities, etc.).

For the rules regarding this please read Part D, Article 7: Endurance Event, in conjunction with the Formula SAE-Australasia Addendum.

Electric Vehicle Energy Measurement – Electric Vehicles
Electrical energy consumption will be measured by an energy consumption meter supplied by the Formula SAE-Australasia organisers. This device must be fitted to the vehicle either before or during scrutineering. The energy consumption meter measures the instantaneous voltage and current of the DC battery output while the vehicle is running, and calculates the instantaneous power usage using these variables. This usage is integrated over the period of the Endurance Event to calculate the total energy used. This data is stored on a USB storage stick for processing by race officials after the event.

It is critical that the energy consumption meter is fitted to each vehicle in accordance with the recommended procedure and to the satisfaction of officials during Technical Inspection. The correct performance of the meter will be verified as part of this process. Once installed, any change to the energy consumption meter installation that may be required as part of their vehicle maintenance and repair processes during the competition must be authorised and supervised by the appropriate officials. Teams will be penalised if there is any evidence of tampering with the energy consumption meter or its installation once it has been verified during Technical Inspection.

PARC FERME
Location: Adjacent to Fuel Station
Purpose
The aim of having a Parc Ferme is to provide an opportunity for the Design Judges and Technical Inspection officials to review the vehicle, and confirm it competed in the same form as it was presented at the Design Event and Technical Inspection.

Parc Ferme Procedure
Vehicles that complete the Endurance will be impounded in Parc Ferme for inspection by the officials. After crossing the timing line and having been shown the chequered flag at the completion of the Endurance event, the driver must:

- Enter the hot zone at walking pace
- Shut down the vehicle in a safe place as directed by officials
- Activate the kill switch
- Remain in the vehicle

The two crew members are NOT to approach the vehicle/driver at this time. An official will first remove the timing transponder and then direct the two crew members to affix the push bar to the vehicle. In the company of the designated official, the two crew members will then push the
vehicle to Parc Ferme. Vehicles that did not complete the Endurance Event are not required to attend the Parc Ferme.

Parc Ferme will be for a maximum of 1 hour, during which designated officials will review the vehicle as deemed necessary. The vehicle will subsequently be refuelled by the designated officials. After re-fuelling, the vehicle may be weighted and/or noise tested at the description of the officials.

At the conclusion of these activities, if there are no issues, the vehicle will be released to the teams. If issues or discrepancies are found, then the vehicle will be impounded for detailed inspection/teardown by Technical Inspection officials. The team’s results will be provisional for all dynamic events until cleared by Parc Ferme. A vehicle failing Parc Ferme will be subject to penalties up to and including disqualification from all Dynamic events.
GENERAL INFORMATION

Vehicle Jacking
When supporting cars off the ground, use proper stands. Examples of non-proper stands include milk crates, piles of wood, four of the strongest team members.

Running Engines
Engines must not be operated inside the pit garage. Vehicles must be pushed to the approved work area before the engine maybe started.

Whenever an engine is running, either;

- The car must be on an adequate stand with the drive wheels at least 10.2 cm (4”) off the ground, or
- A driver wearing full safety gear must be correctly seated in the cockpit, or
- The drive wheels must have been removed.

Never allow people under cars with a running engine. Engines must be off when adding fuel – fuelling must take place only at the designated fuelling station. Engines must not be running while cars are moved through the paddock.

Fires
Open fires are only allowed at a designated location in the venue, but are limited to only a BBQ flame & cigarette lighter. All welding and soldering of any type is not allowed in the pit area and must be carried out at the Kangan Institute welding tent.

Power
Each pit bay will be supplied with power. Each pit bay can draw a maximum of 5 amps. All electrical equipment must have current test labels. The use of portable generators is not allowed.

The use of power tools inside the pit garage is strictly prohibited due to the level of noise expected in such a confined area. The Kangan Institute welding tent is the place to conduct such work.

Support Vehicles
Support vehicles are not permitted in the pit area and may only be brought to the pit garage entrance with the permission of the officials.

Fuel and Oil
No open fuel containers. No fuel containers in the pits or adjacent areas. Fuelling must take place only at the designated fuelling station. Waste oil is to be taken to the fuel station for disposal. No fluids are to be drained within the pit garage except in to approved receptacles and with prior approval from the organisers.

Fire Extinguishers
Fire extinguishers are to be accessible and team members knowledgeable in their use. A fire extinguisher accompanies the car whenever it is moved.

Vehicle Modifications
No unapproved modification to the vehicle after it has been through technical inspection. Metal joining is available at the Kangan Institute welding tent.

Flagging
All drivers must know the competition flagging signals.
Behaviour
Alcohol, drugs and fire arms have no place at this gathering. Roller blades, scooters, bicycles, self-propelled vehicles and pets are not allowed.

Driving Practice
Driving practice is only to take place in the designated practice area, when open and marshalled.

Footwear
All team members must at all times be wearing enclosed foot wear and preferably of a sturdy construction. This will be strictly enforced for all team members for the entire site. It is highly recommended that all teams wear rubber sole shoes; however this requirement will only be mandatory for all electric vehicle participants. It is recommended that the teams advise their family, friends and supporters of this requirement as access to the pit garage will be denied to anybody not wearing enclosed footwear. Any persons not wearing appropriate enclosed footwear will not be allowed inside the pit bays.

Pets
Would all participants please advise their family and friends intending to come and watch, that this event has a no pets allowed policy and this will be strictly enforced.

Technical & Safety Inspection Schedule
Friday inspection times are scheduled, however, a fourth inspection lane will operate during the day for return inspections. Teams scheduled for Thursday inspection will have priority in the fourth lane on Friday morning.

SAE-A Membership
As outlined in the rules for the competition all participants of Formula SAE-A must be a member of SAE-A or their local SAE association. Please note any membership applications received after the due date will incur a late fee of $15. Any renewals not paid by the due date will also attract a $15 late fee.

Students who are renewing their membership do not need to complete the application forms. They should pay on the renewal notices and reminder statements already sent to them or they can contact the SAE-A office direct on Tel: 03 9676 9568 to arrange payment.

Admission Tickets
There is no charge for admission to this event, all visitors are welcome. An indemnity flyer will be issued to all people entering the event.

Speed Limit
Vehicle speed limit on site is 20km/h

Out of Bounds
Please refer to the map enclosed and pay particular attention to areas marked “out of bounds”. As we are guests of Calder Park Raceway, strict adherence to their rules is mandatory, no indiscretions will be tolerated.

Equipment
Teams are required to provide their own maintenance equipment and parts. The exceptions are the fuel station and welding equipment which will be provided on site. Prior to being brought to the competition any electrical equipment being used on site by teams will need to be tested and have the appropriate electrician’s tag with a valid expiration date.
Site Access
The site will be accessible on each day of competition as per the event schedule. There will be strictly no admittance prior to or after these hours. Outside of these hours the site will be patrolled by security. Teams are encouraged to leave their vehicles onsite each evening.

If a team wishes to remove their vehicle they are required to obtain approval from the clerk of course and also to be re-scrutineered the next morning. All EV teams must obtain approval from the EV scrutineering captain on what they intend to do, and how they intend to do it. The event organisers reserve the right to amend the site access times for operational reasons.

Pit Area
SAE-A will provide a pit garage of approximately 18 m² - 27 m² floor space, they are numbered 1,2,3 etc., for easy identification. Each pit will also have one power outlet supplied. Equipment such as pie warmers and fridges are not deemed necessary items and will be asked to be removed from pits.

Teams will be able to park trailers and team cars behind their pit garage.

Entry into your pit garage will be limited to competing members of your team and any authorized faculty members or invited guests.

There will be strictly no smoking or BBQ/cooking facilities operational in the pits.

Closed toe shoes must be worn at all times inside the pit garage. No modifications allowed to the pit garages, including drilling into surfaces, painting or permanently marking of walls, etc.

Insurance
SAE-A is pleased to advise that cams will be assisting with the appropriate event permits and insurances through SAE-A in accordance with CAMS rules all drivers are required to obtain level 2S CAMS licenses. CAMS are generously supporting the event by providing all teams with the required number of licenses. In order to access these, each team must fill out and submit the relevant level 2S license application/ renewal form to greg@sae-a.com.au prior to October 28. Licenses will then be distributed at the event in December. It will not possible to receive physical copies of these licenses before the event.

As per the SAE-A rules all drivers are required to have appropriate individual medical insurance in addition to their CAMS licenses. All competitors will be required to sign a disclaimer statement; copies are available on request. Individuals concerned about covering themselves for personal injury should arrange their own cover in advance of the event.

On Site Facilities
Food facilities will be available onsite for purchase from Thursday to Sunday. You may also like to take your own food onto the site. Please note that if you plan to take your own food and drink, there is strictly no alcohol allowed onsite. In addition to alcohol, no animals, scooters, skateboards, go-peds, and bikes will be allowed anywhere onsite. BBQ's are now permitted in designated areas.
Safety

AT ALL TIMES

FOOT PROTECTION MUST BE WORN

No running

WHEN USING TOOLS AND EQUIPMENT

BREATHTING MASKS MUST BE WORN
SAFETY GOGGLES MUST BE WORN
HEARING PROTECTION MUST BE WORN

NO DRONE ZONE
TEAM BRIEFING: THURSDAY

Activities
Thursday’s activities include:

- Technical/Safety Inspection
- Fuel Station/EV Charging
- Tilt Table
- Noise Testing
- Brake Testing

Technical/Safety Inspection
Time slots have been allocated for Technical/Safety Inspection. Please ensure your vehicle is finished and all documentation has been completed by your allocated time. Once you have passed Technical Inspection, you can then move through Fuel, Tilt Table, Noise and finally Brake testing. Successful completion of all events will result in a complete Technical Inspection sticker. You can then move to the Practice Track.

Starting the Vehicle
Vehicles can be started in an approved workshop area provided:

- The driver is suited, helmeted and strapped into the vehicle, or
- The vehicle is 10 cm off the ground on secure stands.

Moving the Vehicle
In all pit areas, the vehicles must be pushed at walking pace. The engine must not be running. A fire extinguisher must accompany the vehicle at all times. The driver must be seated in the vehicle and in control of the steering and brakes.
TEAM BRIEFING: FRIDAY

Activities
Friday’s activities include:

- Technical/Safety Inspection
- Fuel Station/EV Charging
- Tilt Table
- Noise Testing
- Brake Testing
- Practice Track
- Presentation Event
- Cost Event
- Design Event

Technical/Safety Inspection
Time slots have been allocated for Technical/Safety Inspection. Please ensure your vehicle is finished and all documentation has been completed by your allocated time. Once you have passed Technical Inspection, you can then move through Fuel, Tilt Table, Noise and finally Brake testing. Successful completion of all events will result in a complete technical inspection sticker. You can then move to the Practice Track.

Practice Track
Flags will be used to start/stop this event:

<table>
<thead>
<tr>
<th>Flag Color</th>
<th>Instruction</th>
</tr>
</thead>
<tbody>
<tr>
<td>Green</td>
<td>GO</td>
</tr>
<tr>
<td>Red</td>
<td>STOP</td>
</tr>
</tbody>
</table>

No team members are allowed on the Practice Track unless advised by the event captain. The time each vehicle has will be limited in order to provide all teams with an equal opportunity. Do not start the vehicle until on the track unless advised by the event captain.

Starting the Vehicle
Vehicles can be started in an approved workshop area provided:

- The driver is suited, helmeted and strapped into the vehicle, or
- The vehicle is 10 cm off the ground on secure stands.

Moving the Vehicle
In all pit areas, the vehicles must be pushed at walking pace. The engine must not be running. A fire extinguisher must accompany the vehicle at all times. The driver must be seated in the vehicle and in control of the steering and brakes.
TEAM BRIEFING: SATURDAY

Activities
Saturday’s activities include:

- Acceleration
- Skid-Pad
- Technical/Safety Inspection
- Fuel Station/EV charging
- Tilt Table
- Noise Testing
- Brake Testing
- Practice Track

Flags
The flags being used in the events include:

- Green | It is safe to proceed
- Yellow | There is danger ahead. Slow down and follow the official’s instructions
- Red  | Run not valid

Cones
All cones around the circuit will be counted. If you hit any, they will be deducted from your score. Pay particular notice to the ones after the finish line.

Exiting the Event
Once you have finished the event, immediately slow down to a walking pace and exit the event. Move at walking pace to the stop point or as directed by the officials. Clearing the event quickly is important for your safety as there will be other vehicles also completing their lap. At the completion of the lap you have the choice of making your second run but you must immediately indicate this to the officials.

Tyres
You can only use the tyres that were provided at Technical Inspection and which are relevant to the declared track conditions.

Re-runs
A re-run will only be granted if a run is affected by outside circumstances and the team is judged by the officials to have been significantly disadvantaged.
TEAM BRIEFING: SUNDAY

Activities
Sunday’s activities include:

- Autocross
- Endurance/Efficiency
- Technical/Safety Inspection
- Fuel Station/EV Charging
- Tilt Table
- Noise Testing
- Brake Testing
- Practice Track

Flags
The flags being used are:

- **Green**: It is safe to proceed
- **Blue**: There is a faster vehicle catching you. Pull into the next passing lane
- **Yellow**: There is danger ahead. Slow down and follow the official’s instructions
- **Red**: Stop immediately at the next safest point
- **Black**: Immediately pull into the pits
- **Last Lap board**: One lap remaining to complete the Endurance run for the driver
- **Chequered flag**: End of your run

Passing
If shown the **blue flag**, you must pull into the next passing lane and allow the faster vehicle(s) to pass. At the exit of the passing lane will be a flag marshal with a paddle sign. You may only re-enter the circuit once the paddle is raised vertically by the flag marshal.
OFFICIALS BRIEFING

Welcome
We could not put on this world class educational program without the support of our volunteers. Thank you for offering your time, to help develop the next generation of leaders.

Key Officials
- David Adams - Facilities Manager
- Bob Tilbury - Static Events Manager
- Jim Stewart - Dynamic events manager & Clerk of Course
- Greg Maratos - Administration Coordinator
- Pierre de Vallier - Volunteer Coordinator

Concerns & Problems
Please if you see something you think is unsafe or if you are uncertain of something advise the relevant key official from those that have just been introduced, or visit the administration office.

Decisions
If you are asked a question by a competitor or spectator and you are certain of the answer please refer the person back to the relevant key official.

The Site
Volunteers will be oriented with the layout of all facilities and areas of competition.

- Toilets,
- Volunteer room,
- Administration,
- Pits,
- Parking,
- Refuelling area,
- Scrutineering area,
- Tilt table,
- Design judging office,
- Presentation area,
- Practice track,
- Acceleration track,
- Brake track,
- Noise track,
- Slalom area,
- Autocross track,
- Endurance track.

Lunch
Lunch will be provided in the volunteer room between morning and afternoon events. A message will be put out over the loud speakers when it is ready.

Smoking
Smoking is not permitted in the pits or at any of the event areas, there is a designated smoking area that has been provided (refer to pg 6-9).

Protection
Please drink plenty of water, apply sunscreen regularly. Water and sunscreen will be available from administration as well as at all event areas. Hats and long sleeve shirts are recommended.

Schedule
All volunteers need to know where they are required and what events they are allocated to. You may refer to the schedule chart mounted on the wall beside administration if unsure. If you are still unsure or you cannot see your name there ask at administration.

Safety
We wish to run this event in a safe manner, so if you see anything that you feel may be unsafe, report it immediately to the relevant key official. All event captains will be discussing the safety of their particular event with their volunteers prior to the start of the event.
Sign In
It is a requirement of our event permit that all officials be signed in at the start of each day. Please ensure that you have gone to administration and signed in for the day.

Volunteer Assistance
In the event that SAE-A is short of volunteers, Formula SAE-A participating teams can nominate prior to the competition, how many people they are willing to provide as volunteers and should the need to use them arise, they will be called upon.

Once again thank you for volunteering to help with the event and we hope you all have a happy and enjoyable and most importantly, a safe event.
OFFICIALS SAFETY & SITE INDUCTION NOTES

Volunteer Instructions

The Formula SAE-A event is conducted at Calder Park Raceway by SAE-A under a confederation of Australian motorsport (cams) permit and under the cams OH&S policy. This policy can be located on the cams website: www.cams.com.au and may be viewed in the administration office of the event.

You are involved as an official of this event by your own choice and must bear responsibility for your own welfare and that of those around you. All volunteers must sign-in at the administration office immediately upon arrival at the event;

- Only use the designated sign-on sheet
- If your name does not appear pre-printed on the sign-in sheet you will be required to complete all required details manually.

An important part of your role is helping to create a friendly, welcoming, professional, courteous, and stress free event for all while professionally representing the event host, the society of automotive engineers Australasia.

Regardless of your official role on the day, we encourage you to smile and enjoy yourself.

Whilst you have been allocated to a specific role, the volunteer coordinator may ask you to do something outside of your job description. Your flexibility and cooperation will be greatly appreciated.

We cannot facilitate the storage of bags and valuables. So please bring only what you need or leave excess belongings in your vehicle. Individuals are responsible for their own personal items.

For all administrative and site related issues, the Event Coordinator - Greg Maratos is your prime contact, located in the administration office.

For all static event related issues, the Static Event Coordinator - Bob Tilbury is your prime contact. If you cannot locate him, please contact the administration office who will find him for you.

For the dynamic events, the Clerk of Course - Jim Stewart, who is also known as the Dynamic Event Coordinator is the senior operations official. Most instructions will come from race control with his authority, or from senior officials who have been so authorised within their area of expertise. Race control is located out on the track.

All officials must attend all nominated briefings relevant to their role. If you miss a briefing, report to your event captain for details before moving to your post or proceeding with your duties. Do not vary any of your instructions unless required to by your event captain, or by race control. Ensure you are aware of your event captain for the day.

All officials must comply with the motorsport anti-doping policy - do not take any drugs (including alcohol) which may affect your attention and judgement. If in doubt, ask. The cams policy on drugs and alcohol as detailed in the current cams manual of motor sport applies and officials may be subject to random drug and/or breath testing at any time during an event. This regulation serves as the required 24 hour notice. The consumption of alcohol by drivers, crew and officials is forbidden on each day until the conclusion of the event and spectators are forbidden to take or consume alcohol on site.

Maintain your fluid levels at all times. You will be supplied with food and drink at lunch. Water is located in the volunteer area and will be issued to designated points as required throughout
the day. Notwithstanding this, you are expected to bring sufficient food and drink to meet your expected needs for the balance of the day. Please report any need for additional water to the event captain for your event. If you have any special dietary requirements please advise the event coordinator of the event prior to the commencement of the event.

**Sunscreen and Water**

Please look after yourself during the course of the day. Wear appropriate clothing, footwear and protection for the weather conditions. Sunscreen is located at administration and also at the start/finish line of the dynamic events.

All lost property or found items should be handed in at the administration office.

**Check in Procedure**

- Check the general area and equipment.
- Report any problems, apparent danger, concerns or shortages to your event captain or the responsible officials.
- Read and understand the instructions on equipment (e.g. fire extinguishers).
- Discuss the duties and experience of each volunteer and their general location during events - giving thought to the need for all volunteers to be protected by the safety barriers and debris fences where appropriate for the dynamic events.
- Discuss the location of equipment, which should be placed where visible and available to others but not in anyone's way.
- Plan escape routes in conjunction with the other volunteers and discuss warnings to be given to each other if necessary - whistles or hand signals.
- Locate equipment and personal belongings where they will not delay your escape by blocking an escape route or by causing falls.

**Hot Track Guidelines**

- Unless your specific duty requires it (e.g. flag volunteers while flagging) do not station yourself in or behind any gaps in the primary protection barrier, nor in any position less than 1 metre on either side of any such gaps.
- At all times, stand up, remain alert and face the oncoming traffic unless your specific duty requires otherwise (e.g. yellow flag volunteer). Do not congregate in such a manner that access along the volunteer zone is unduly restricted.
- Do not lean on guardrail, concrete blocks or debris fences - they are designed to move when hit by vehicles.
- No smoking is allowed.
- Be prepared for fast moving traffic of any nature at all times.
- If an incident occurs in your vicinity, protect yourself from flying debris by turning or moving away or dropping below barriers as time and circumstances permit. Be prepared to use pre-planned escape routes. Warn your fellow volunteers.
- Be aware that running fuel fires can pass under the concrete barriers.

Your prime consideration must be to protect yourself from danger, then your fellow volunteers, then the drivers and others in trouble. Do not move in front of barriers unless instructed to do so by your senior volunteer or unless your duties require you to do so.

**Operating on Track**

- Check the movement of volunteers and vehicles around you.
- Take care when moving from behind barriers and try to approach any incident with the oncoming traffic in front of you at all times.
- Be aware that dirt or extinguisher clouds can prevent you from seeing oncoming traffic and also prevent them from seeing you.
- Where possible keep a stopped vehicle between you and oncoming traffic (but not between a stopped vehicle and close-by barrier).
• Do not stand close to any stopped vehicle during competition, even if behind barriers, because of chance of debris if the stopped vehicle is hit by another vehicle.
• Remain exposed for the minimum time necessary to complete your task then get back behind the barrier.

Cold Track Guidelines
• Relax but ensure that some volunteers at the post remain alert and watchful.
• Use the time to check equipment and the track.
• Be ready to come to attention immediately if circumstances change.
• Be prepared for traffic to approach from any direction.

Protect yourself from extremes of weather, sunburn, hearing damage, dust and dirt in your eyes. It is recommended that you wear sunglasses or suitable eye protection. Wear suitable footwear for your duties and gloves if you are likely to be handling hot or sharp material.

The vests issued to volunteers, must be worn at all times while on duty.

If you are injured in any way or become ill (regardless of how minor) report it to your event captain immediately. All injuries and illnesses must be reported to a medical officer so that the injury/illness can be identified, checked and recorded and appropriate care administered. If at any time you are unable to carry out your duties because of personal limitations or because of ill health, report to your event captain or the event coordinator of the event.

The medical centre is located at the administration office. The medical and emergency plans for the event are available from the administration office and will be put into effect if the need arises.

Medical staff will be in attendance for 30 minutes after the last on track activity each day.

It is not permitted to ride on the back of any recovery vehicle or other vehicle, or on any trailer, unless this is necessary for the proper performance of their duties, such as the recovery of a vehicle or distribution of food and equipment. Otherwise all occupants of vehicles must be seated and wearing a seat belt.

Each volunteer must remain responsible for their own welfare.
VEHICLE SHIPPING PROCEDURES

Formula SAE-Australasia
Calder Park Raceway
Melbourne, Australia

These procedures are only a starting point. Please check with your shipper or freight forwarder to make sure your shipment meets their requirements. You should also be sure that the shipment complies with all relevant Australian Customs regulations.

Shipping any car may be considered hazardous by the Federal Aviation Administration (FAA). The shipment may be inspected and must be signed off by someone trained in HazMat shipping. Please make sure you fully inform your shipper/freight forwarder of the contents of your shipment to avoid any potential issues.

Recommendation
Ship early to be sure your vehicle arrives on time for the competition and only through a reputable agent that has experience in moving such freight (EV’s in particular are a specialist field). Furthermore, you engage someone on-the-ground in Australia that can handle the customs clearance and be a point of contact Please also note that SAE staff cannot give advice on shipping, customs regulations or visas.

Incoming Shipments
Earliest Delivery Date: Contact greg@sae-a.com.au

Receiving Organisation: All labels and documents associated with the shipment must show the team or university as the receiving party. Do not ship your vehicle with either the organiser or competition site listed as the receiving party. Neither SAE-A nor Calder Park will execute customs or shipping documents of any type.

Shipping Address:
Name of University
C/O Formula SAE-Australasia
Calder Park Raceway
377 Calder Freeway
Calder Park,
Victoria 3037
Australia

Customs & Shipping Paperwork
All paperwork, documentation and/or forms required for inbound/outbound shipping or customs clearance must be completed and supplied by the school/university. SAE-A or Calder Park staff cannot prepare any shipping documents for inbound or outbound shipments. All paperwork is the sole responsibility of the team.

Customs Regulations
It is the responsibility of the team to adhere to all Australian Customs regulations. All inbound shipments are subject to Australian Customs inspections.
**Team Contact**
To provide support services for inbound / outbound shipments, and especially to resolve any problems that might arise, each team must provide the names and mobile phone numbers of two (2) contact people. The Team Captain and the Faculty Advisor.

**Damaged Shipments**
Inspecting shipments and reporting and documenting damage to the shipment is the sole responsibility of the receiving team. Neither Calder Park nor SAE-A is responsible for damage to your shipment from any cause, including negligence.

**Shipping Containers**

**Containers**
Shipping crates/containers must have hi-low fork lift access from ends and sides. The shipping crate/container must fully enclose the car. The base of the container must be strong enough to support the entire weight of the shipment when it is being picked up, rotated and moved by a fork lift or similar equipment.

**Weatherproofing**
Be aware that containers are likely to be stored outside and should be weatherproof.

**Wood Containers**
Wood containers must be of insect resistant or treated materials suitable for international transportation. Wood crates, containers and pallets should be screwed or bolted together.

**Crate/Container Marking**
All shipping containers must have the school’s name permanently and clearly marked.

**Crating & Uncrating**
Crating and uncrating is the sole responsibility of the team. Do not pack the tools you need to open the crate inside the crate itself.

**Unloading & Loading**
Loading and unloading is the responsibility of the teams. Calder Park has a forklift available during business hours for loading/unloading.

**Outgoing Shipments**
All shipments must be properly packed in the containers and labelled before the team leaves the site on Sunday. It is each university’s responsibility to schedule the pick-up of your outgoing shipment and prepare all the paperwork. All shipping and customs forms must be filled out by team/university representatives. It is a requirement that the return freight is arranged prior to departing from your home city for the event. Calder Park personnel are not allowed to make arrangements for import or export shipping and scheduling.

**Pick up Date**
Please contact greg@sae-a.com.au

**Important Notice**
If your shipment is not removed from Calder Park by the date and time specified above, then you will be charged for storage and handling.

**Outgoing Carrier**
Teams must provide the name of the carrier that will pick up your outgoing shipment. See below for further details.
**Required Information for Shipments**
You *must* email the information, for both inbound and outbound freight, as outlined below to greg@sae-a.com.au at least one (1) week before your shipment is scheduled for delivery.

**Team Contact Information**
You must provide the names, mobile phone numbers and emails of at least two (2) team members or advisors who can be contacted concerning the shipment. If you do not provide this information we will be unable to contact you if any questions or issues arise concerning your shipment.

**Shipping Carrier Contact Information**
Please provide the following information for both incoming and outgoing shipments.

**Inbound Shipment**
- Shipping company.
- Shipping company contact name.
- Phone number and email.
- Scheduled arrival date/time for inbound shipment.
- Shipment/shipper identification number.

**Outbound Shipment**
- Shipping company.
- Shipping company contact name.
- Phone number and email.
- Scheduled date/time for outbound pick-up.
- Shipment/shipper identification number.
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